CHAPTER-II

2. Performance Audit relating to Government companies and Statutory corporation

Government companies

2.1 Performance Audit on the Working of Harduaganj Thermal Power Station of Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited

Executive summary

Introduction

Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (Company) was incorporated on 25 August 1980 for construction and operation of thermal power stations (TPSs) in the state of Uttar Pradesh. As on 31 March 2015, the Company has been operating 10 TPSs including the Harduaganj Thermal Power Station (HTPS) with aggregate installed capacity of 4938 Mega Watt (MW).

The HTPS consisted of four units (5, 7, 8 and 9) with installed capacity of 670 MW as of March 2015. Unit 1, 2, 3, 4 and 6 of HTPS were finally closed during February 2007 to November 2010 on completion of their life span. Out of four existing units, three units (5, 8 and 9) were operating and unit 7 was under renovation and modernisation (R&M).

The important audit findings relating to Performance Audit of HTPS are detailed below:

Poor performance of the thermal power station

- In unit 5, against the norms of plant load factor (PLF)[1] of 51 to 60 *per cent* prescribed by Uttar Pradesh Electricity Regularity Commission (UPERC), the actual PLF ranged between 17.83 *per cent* and 42.26 *per cent* during 2010-11 to 2014-15 and plant availability[2] was 86, 41 and 64 *per cent* during 2011-12, 2013-14 and 2014-15 respectively against the UPERC norms of 58 to 65 *per cent.* The main reason for low PLF and low plant availability of unit 5 was old age of the plant, which caused frequent tripping and various technical problems.

- In unit 8 and 9, against the norm of PLF of 85 *per cent,* the actual PLF ranged between 45.18 *per cent* and 84.35 *per cent* during 2011-12 to 2014-15 and plant availability in unit 8 was 65 and 63 *per cent* in 2011-12 and 2012-13 respectively against the UPERC norms of 85 *per cent*. The main reason for low performance of unit 8 and 9 attributed to acceptance of units which had failed in trial run causing frequent tripping and various technical problems.

The low PLF and low plant availability of the units 5, 8 and 9 resulted in loss of generation of 2128 MUs valuing ₹ 951.47 crore during 2010-11 to 2014-15.

(Paragraphs 2.1.8 and 2.1.9)

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[1] It refers to the ratio between the actual generation and the maximum generation at installed capacity.

[2] It refers to the period for which, the plant is available for generation.

Delay in construction of new plants and Renovation & Modernisation works

- UPERC (Terms and conditions of Generation Tariff) Regulation 2009 provides for an incentive return on equity at the rate of 0.5 *per cent* of equity invested as a part of tariff, if the unit is commissioned within the scheduled period. As both the units (8 and 9) were not commissioned within the scheduled period, the Company lost an opportunity to earn incentive of ₹ 4.44 crore per year, which amounted to ₹ 111 crore for the period of 25 years being the life of the units.

(Paragraph 2.1.13)

- The original cost of ₹ 1900 crore relating to establishment of unit 8 and 9 was revised (September 2013) to ₹ 3168.36 crore leading to increase in cost by ₹ 1268.36 crore, mainly due to cost overrun of ₹ 568.84 crore, inclusion of new items of ₹ 486.52 crore and award of contract for Boiler Turbine Generator to Bharat Heavy Electrical Limited at higher price by ₹ 142 crore.

(Paragraph 2.1.14)

- The generator stator, generator rotor and turbine bearing of unit 8 were damaged (June 2012/March 2012) within warranty period due to maloperation of the plant by HTPS staff resulting in avoidable expenditure of ₹ 31.40 crore on repair/replacement of the same.

(Paragraph 2.1.15)

- The problems of Boiler Tube Leakage in units 8 and 9 persisted since inception, February 2012 and October 2013 respectively due to inferior quality of tubes supplied by BHEL. The Company had to bear expenditure of ₹ 1.94 crore on replacement of boiler tubes in March 2015, besides potential loss of generation of 250 MUs during March 2013 to March 2015.

(Paragraph 2.1.16)

- The Renovation & Modernisation of the unit 7 awarded in March 2009, could not be completed even after lapse of a period of more than six years and incurring an expenditure ₹ 298.23 crore (88 *per cent*) as of March 2015 due to delay in supply of material and delayed award of work to sub-contractors by BHEL. Resultantly, the Company suffered loss of generation 2837 MUs during October 2011 to June 2015, besides non-recovery of fixed cost charges of ₹ 570.25 crore.

(Paragraphs 2.1.20 and 2.1.22)

Operation and maintenance

- The oil and coal consumption in unit 5 were above the norms fixed by UPERC during 2010-11 to 2014-15, which resulted in excess consumption of oil and coal valuing ₹ 33.37 crore and ₹ 72.88 crore respectively.

(Paragraph 2.1.24)

- The oil and coal consumption in unit 8 and 9 were above the norms fixed by UPERC during 2011-12 to 2014-15, which resulted in excess consumption of oil and coal valuing ₹ 163.94 crore and ₹ 345.25 crore respectively.

(Paragraphs 2.1.25 and 2.1.26)

Environmental Issues

- The Company failed to take effective measures to control air and noise pollution. Resultantly, the suspended particulate matters in unit 5 was exorbitantly high ranging from 3492 mg/ NM^3 to 11041 mg/ NM^3 against the norm of 100 mg/ NM^3 during 2010-11 to 2013-14 and noise pollution in HTPS stood at 51.2 dB to 102.7 dB against the norms of 75 dB during 2010-11 to 2014-15.

(Paragraph 2.1.31)

Introduction

2.1.1. Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (Company) was incorporated on 25 August 1980 for construction and operation of thermal power stations (TPSs) in the state of Uttar Pradesh. The responsibility of maintaining and operating of TPSs in the State was transferred to Company on 14 January 2000 after unbundling of Uttar Pradesh State Electricity Board (UPSEB) in terms of Uttar Pradesh Electricity Reforms Act, 1999 and Uttar Pradesh Electricity Reforms Transfer Scheme, 2000.

As on 31 March 2015, the Company has been operating ten TPSs having aggregate installed capacity of 4938 Mega Watt (MW) and operating capacity of 4130 MW. The TPS wise details of the installed capacity as on 1 April 2010 and 31 March 2015 are given in the **Annexure-2.1.1**.

In Harduaganj Thermal Power Station (HTPS), two important activities i.e. capacity addition and renovation & modernisation were carried out during the period covered in audit and this TPS was not covered for Performance audit in last five years, hence, it was selected for performance audit.

HTPS consisted of four units (5, 7, 8 and 9) with installed capacity of 670 MW as of March 2015. Unit 1, 2, 3, 4 and 6 were finally closed during February 2007 to November 2010 on expiry of their lives. Out of four existing units, unit 5 of 60 MW and unit 7 of 110 MW were installed in May 1977 and August 1978 respectively. Unit 5 and 7 were named as Harduaganj Thermal Power Station (HTPS). New unit 8 and unit 9 of 250 MW each, were commissioned in February 2012 and October 2013 respectively at a cost of ₹ 3168.36 crore and named as HTPS Extension. Renovation & Modernisation (R & M) of Unit 7 was undertaken in June 2009 at a cost of ₹ 337 crore. Details of the units under HTPS/HTPS Extension and their installed capacities as on 31 March 2015 are given in **Annexure-2.1.1A**.

During the year 2014-15, HTPS and HTPS Extension were running at a plant load factor (PLF) of 23.78 *per cent* and 79.36 *per cent* with coal consumption of 1.01 kg/Kwh and 0.70 kg/Kwh, oil consumption of 25.31 ml/Kwh and 3.22 ml/Kwh and auxiliary consumption of 18.95 *per cent* and 8.75 *per cent* respectively.

Organisational set up

2.1.2. The management of the Company is vested with a Board of Directors (BOD) comprising of Chairman/Managing Director and four Directors[3]

[3] Director (Technical), Director (Project and Commercial), Director (Finance) and Director (Human Resources)

appointed by the State Government, under the administrative control of the Energy Department.

The General Manager (GM) is the chief executive of HTPS, who carries out day-to-day operations of HTPS with the assistance of Superintending Engineers and Executive Engineers.

Scope and methodology of audit

2.1.3. The present performance audit was conducted between November 2014 and April 2015 to cover the performance of the HTPS for the period from 2010-11 to 2014-15. HTPS comprises two old units (5 and 7) and two new units (8 and 9). Out of these four units, activities relating to achievement of targeted performance of generation of power by the three units (5, 8 and 9), construction of both the new units, the renovation and modernisation (R&M) of unit 7 and achievement of prescribed norms of operation by three units (5, 8 and 9) were covered in performance audit for scrutiny.

The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of explaining audit objectives to top management in the Entry Conference held on 14 November 2014, scrutiny of records at headquarters of the Company and HTPS, interaction with the auditee personnel, analysis of data with reference to audit criteria, raising of audit queries and discussion of audit findings with the management for comments.

Draft performance audit report was issued to the Management and Government for comments in July 2015. An Exit Conference was held on 11 August 2015 with the Management and replies of the Management were received in October 2015 which have been duly considered while finalising the Performance Audit. The reply of the Government was awaited (November 2015).

Audit objectives

2.1.4. The performance audit was conducted to ascertain whether:

- The capacities of the units of HTPS were utilised optimally to achieve the targets of performance;
- Construction of new plant and Renovation & Modernisation programme were carried out timely and economically;
- Operation and maintenance activities were carried out effectively in order to control the coal, oil and auxiliary consumption within the prescribed norms; and
- the various types of pollutants (air, water, noise) were within the prescribed norms and the required statutory requirements had been complied with.

Audit criteria

2.1.5. The audit criteria considered for assessing the achievements of audit objectives for evaluation of performance of the HTPS were:

- norms/guidelines of Central Electricity Authority (CEA)/Uttar Pradesh Electricity Regularity Commission (UPERC) regarding planning and implementation of the project;

- standard procedures for award of contract with reference to principles of economy, efficiency and effectiveness;
- target for generation and parameters for plant availability, plant load factor etc., as prescribed by the UPERC;
- norms for planned outages prescribed by the UPERC; and
- Acts relating to environmental issues.

Audit findings

2.1.6 Audit objective wise findings are discussed below:

Performance of thermal power stations

2.1.7 UPERC, considering condition of the individual thermal power station (TPS), fixes year-wise and TPS-wise targets for generation of power, plant load factor and plant availability. Non-achievement of targets of performance of the TPSs is discussed as below:

Generation of power

2.1.8 The unit wise targets of generation vis-à-vis achievement and shortfall therein of three operating units of HTPS during 2010-11 to 2014-15 are detailed in **Annexure-2.1.2** and summarised in table 2.1.1

Table 2.1.1

Unit	Period	Total target of generation (in MUs)	Total achievement (in MUs)	Shortfall in generation (in MUs)	Range of shortfall (*per cent*)	Value of shortfall in generation of power (₹ in crore)
5	2010-11 to 2014-15	1462	758	704	9 to 70	355.54
8	2011-12 to 2014-15	5894	4540	1354	6 to 47	565.53
9	2013-14[4]	931	861	70	8	30.40
Total		**8287**	**6159**	**2128**		**951.47**

Source: Approved Tariff orders of UPERC and information provided by the Company

We noticed that:

- **Unit 5:** Against the target of generation of 1462 MUs, the achievement stood at 758 MUs resulting in shortfall ranging from 9 to 70 *per cent* during 2010-11 to 2014-15 with consequent loss of generation of 704 MUs valuing ₹ 355.54 crore ***(Annexure-2.1.2)*** during the above period. The main reason for shortfall in generation of power attributed to low PLF and low plant availability as discussed in the succeeding paragraph.

Due to low PLF and low plant availability, the target of generation fixed by UPERC could not be achieved by unit 5, 8 and 9, which led to loss of generation of 2128 MUs valuing ₹ 951.47 crore

The Management accepted (October 2015) the audit observation.

- **Unit 8:** Against the target of generation of 5894 MUs the achievement stood at 4540 MUs resulting in shortfall ranging from 6 to 47 *per cent* during 2011-12 to 2014-15 with consequent loss of generation of 1354 MUs valuing ₹ 565.53 crore ***(Annexure-2.1.2)*** during the above period. The main reason for shortfall in generation attributed to low PLF and low plant availability as discussed in the succeeding paragraph.

[4] Unit 9 achieved the target during 2014-15

- **Unit 9:** Against the target of generation of 931 MUs in 2013-14, the achievement stood at 861 MUs resulting in shortfall of eight *per cent* with consequent loss of generation of 70 MUs valuing ₹ 30.40 crore ***(Annexure-2.1.2)*** during the above period. However, it achieved the target of generation during 2014-15. The main reason for shortfall in generation of power in 2013-14 attributed to low PLF as discussed in the succeeding paragraph.

The Management accepted (October 2015) the audit observation and stated that, in unit 8 and 9, a lot of work and fine adjustments of the system left by BHEL had to be carried out even after commissioning of the units, which resulted in outages and frequent tripping.

Plant load factor and plant availability

2.1.9 To achieve the target of generation of power, the Company was required to increase the plant load factor (PLF) and the plant availability. The unit-wise position of PLF and plant availability is discussed as below:

- **Unit 5:** Against the norms of PLF of 51 to 60 *per cent,* the actual PLF ranged between 17.83 *per cent* and 42.26 *per cent* during 2010-11 to 2014-15 ***(Annexure- 2.1.3)***. Similarly, against the norms of plant availability of 58 to 65 *per cent,* the actual plant availability was 86, 41 and 64 *per cent* during 2011-12, 2013-14 and 2014-15 respectively ***(Annexure-2.1.4)***. The low PLF and low plant availability of the unit was due to plant being of old age causing frequent tripping and various technical problems.

The Management accepted (October 2015) the audit observation.

- **Unit 8:** Against the norms of PLF of 85 *per cent,* the actual PLF ranged between 45.18 *per cent* and 79.66 *per cent* during 2011-12 to 2014-15 ***(Annexure-2.1.3)***. Similarly, against the norms of plant availability of 85*,* the actual plant availability was 65 and 63 *per cent* in 2011-12 and 2012-13 respectively ***(Annexure-2.1.4).***

- **Unit 9:** Against the norms of PLF of 85 *per cent,* the actual PLF stood at 82.95 and 84.35 *per cent* in 2013-14 and 2014-15 respectively ***(Annexure-2.1.3)***. However, the unit achieved the target of plant availability which stood at 98 *per cent* and 108 *per cent* in 2013-14 and 2014-15 respectively against the norms of 85 *per cent* ***(Annexure-2.1.4*****)**. As a result, the unit could achieve the target of generation of power in 2014-15.

The main reason for shortfall in performance of unit 8 and 9 attributed to acceptance of units which had failed in trial run causing frequent tripping and various technical problems, consequently led to low generation, low PLF, low plant availability and high auxiliary consumption, high oil and coal consumption.

The Management accepted (October 2015) the audit observation and stated that in unit 8 and 9, a lot of work and fine adjustments of the system left by BHEL had to be carried out even after commissioning of the unit, which resulted in excess consumption of oil and coal.

Recommendation

The Company should make efforts for optimal utilisation of the capacities of the units by increasing the PLF and plant availability to achieve the prescribed target of generation of power.

Construction of new plants and Renovation & Modernisation works

Construction of new plants

2.1.10 Government of Uttar Pradesh (GoUP) decided (June 2005) for establishment of units 8 and 9 of 250 MW capacity each. Accordingly, the Company prepared (September 2005) detailed project report (DPR) for establishment of unit 8 and 9 (2x250 MW named HTPS Extension) at Harduaganj thermal power station at a cost of ₹ 1900 crore, revised to ₹ 3168.36 crore in September 2013 with financing pattern of 30 *per cent* equity from the GoUP and 70 *per cent* loan from the Power Finance Corporation.

Execution of project

2.1.11 The GoUP directed (March 2006) the Company to award the work of supply and erection of main plant consisting of boiler, turbine and generator (BTG) after negotiation with the Bharat Heavy Electricals Limited (BHEL) and balance of plant (Coal Handling Plant, Ash Handling Plant, Water Treatment Plant, Cooling Towers and Chimney etc.) to other firms on open tender basis.

The project planning monitoring and management (PPMM) wing of the Company awarded (June 2006) the work of BTG to BHEL for a lump-sum price of ₹ 1224 crore with scheduled date of completion in October 2009 (unit 8) and February 2010 (unit 9) and balance of plant (BOP) works to 24 contractors during March 2008 to June 2009 for an aggregate value of ₹ 820.83 crore.

The deficiencies noticed in execution of the project are discussed in succeeding paragraphs:

Time overrun

Delayed commissioning of unit 8 and 9 resulted in loss of generation of 10710 MUs valuing ₹ 1660.05 crore

2.1.12 As per terms of the order placed (June 2006) for BTG, BHEL had to start the work from September 2006 and commission units 8 and 9 in October 2009 and February 2010 respectively. We noticed that the units 8 and 9 were commissioned in February 2012 and October 2013 after a delay of two years three months and three years seven months respectively. The delayed commissioning of the units led to loss of generation of 10710 MUs valuing ₹ 1660.05 crore. The main reasons for delay in commissioning of units were:

- the Company took a period of more than one year in providing the site to BHEL, furnishing of input data and removal of underground structure by the plant management.
- collapse (May 2009) of 18 columns of main plant building (MPB) due to storm raised on the day (19 May 2009). These columns had collapsed because they were not properly aligned and erected in proper sequence as per layout as observed (May 2009) by the site engineers and consultant (National Thermal Power Corporation Limited) of the project. It delayed the project by eight months.
- collapse of four hoppers[5] of Electro Static Precipitator (ESP) of unit 9 in October 2012 which were reconstructed by the BHEL. Though the cost of reconstruction of hoppers was recovered from the bills of the contractors, the

[5] A mechanical component of ESP used for collection and removal of the ash particles.

reconstruction of ESP hoppers delayed the commissioning of the project for a period of one year.

The Management stated (October 2015) that delay in commissioning of the plant was on the part of the BHEL. The reply is not tenable as the delay of more than a year was on the part of the management as it inordinately delayed removal of underground structure and in providing of input data, and the site to the BHEL.

Loss of incentive due to time overrun

2.1.13 UPERC fixes the tariff for sale of power by the generating companies as per provisions of the UPERC (Terms and conditions of Generation Tariff) Regulation 2009 (Regulations). The tariff fixed under Regulations comprised of fixed and variable charges. The fixed charges inter-alia included incentive at the rate of 0.5 *per cent* of equity which was admissible during the whole life of the unit (25 years) provided the unit was commissioned within the scheduled period.

Commissioning of units after scheduled dates led to loss of incentive of ₹ 4.44 crore per year

As both the units were commissioned after a delay of two years three months and three years seven months, the Company lost an opportunity to earn incentive of ₹ 4.44 crore per year. The loss of incentive would amount to ₹ 111 crore for the period of 25 years being the life of the units.

The Management stated (October 2015) that the order was placed to BHEL for the said project in 2006 well before the Regulation of 2009. The reply is not correct as provisions of the Regulation were applicable for all generating units, which were commissioned on or after April 2009.

Increase in cost of the project

2.1.14 The cost of establishment of unit 8 and 9 was ₹ 1900 crore as per DPR (September 2005) revised to ₹ 3168.36 crore in September 2013 indicating increase in cost by ₹ 1268.36 crore over DPR. The main reasons for increase in cost were attributed to:

The cost of the project was increased by ₹ 1268.36 crore due to cost overrun, inclusion of new items and award of contract for BTG at higher price

- cost overrun due to increase in interest during construction period by ₹ 568.84 crore owing to time overrun, as discussed in paragraph 2.1.12.
- inclusion of new items i.e. new Coal Handling Plant (CHP), new Railway siding work, a new 160 MVA transformer, an additional generator stator, contingency charges, consultancy charges, mandatory spares and miscellaneous items aggregating to ₹ 486.52 crore, which were initially not included in DPR due to incorrect estimation of works to be carried out.
- award of contract for BTG to BHEL at higher price by ₹ 142 crore.

Thus, the cost of the project was increased due to cost overrun of ₹ 568.84 crore, inclusion of new items of ₹ 486.52 crore and award of contract at higher price by ₹ 142 crore.

The Management accepted (October 2015) the fact of cost overrun.

Avoidable expenditure on repair/replacement of equipments

2.1.15 Clause 20.2 of letter of award (LOA) issued (August 2007) to the BHEL provided warranty of plants for a period of one year commencing from the date of commissioning. In case of failure/damage of plant during the warranty period, the contractor was liable to repair or replace defective parts supplied under the contract. However, as per clause 20.5 of LOA the contractor was not liable if operation of the plant/equipment was not carried out as per general practices and operating instructions.

We noticed that generator stator, generator rotor and turbine bearing of unit 8 were damaged (June 2012/March 2012) within four months of commissioning i.e. within warranty period. However, these were repaired/replaced at the cost of the Company which involved expenditure of ₹ 31.40 crore, as discussed below:

- BHEL refused to repair generator-stator and rotor free of charge, stating that the damage occurred due to maloperation of the plant by the HTPS staff. The Company got the rotor repaired from BHEL at a cost of ₹ 3.44 crore but damaged stator could not be got repaired even after lapse of three years and it was still lying with BHEL. Meanwhile, to run the plant, Company procured (July 2012) a new generator-stator at a cost of ₹ 27 crore from BHEL.
- Turbine bearing of the unit 8 valuing ₹ 0.96 crore was damaged (8 March 2012) within a period of one month of commissioning of the unit. BHEL refused to replace it, stating maloperation of the plant by the O&M staff of the HTPS as the reason for failure. The Company replaced (18 April 2012) it by arranging bearing from its another TPS (Parichha).

The Management accepted (October 2015) that it could not enforce the BHEL for free replacement of damaged generator with new one. However, it stated that Bank Guarantee of ₹ 68.40 crore will not be released till the Company receives back the repaired generator stator from the BHEL.

The fact remains that the Company could not get the generator stator repaired after a lapse of more than three years and the Company had to make an avoidable expenditure of ₹ 27 crore on purchase of generator stator.

Supply of inferior quality of boiler tubes

2.1.16 As per Clause 20 of the contract with BHEL, if the contractor supplied any plant inferior in quality, the contractor on receiving complaint of such defects or deficiencies, should replace such plant or part thereof at his own expenses.

We noticed that problems of Boiler Tube Leakage (BTL) in both the units persisted since inception (February 2012/October 2013) due to inferior quality of tubes. This issue of BTL was not dealt with by the management as per provisions of the aforesaid clause and plant authorities managed to run the TPS by getting the BTL repaired from time to time. The Company overhauled the boiler and replaced (March 2015) boiler tubes at its own cost of ₹ 1.94 crore.

Persistent boiler tube leakage in the plants led to loss of generation of 250 MUs

We further noticed that due to persistent Boiler Tube Leakages alone, unit 8 and 9 could not run for 1176 hours after their commissioning and suffered loss of generation of 250 MUs owing to shutdown of the units during March 2013 to March 2015.

The Management stated (October 2015) that BTL was not due to poor quality of the materials but it was due to continuous running of the machines for more than two years. Reply is not acceptable as BTL persisted since commissioning of the units and leakage of boiler tubes was due to erosion, as informed by the management itself to Central Electricity Authority.

Trial Run

2.1.17 As per terms of the contract with BHEL, units were to be accepted for commercial operation on completion of continuous satisfactory trial operation of each equipment of unit for 14 days and out of it, 72 hours continuously on full load (100 *per cent* PLF).

We noticed that both the units could not run continuously for 72 hours at required 100 *per cent* PLF. The Company, despite being aware of failure of the units during trial run, accepted the units and commissioned them. As a result, the units could not attain the required 85 *per cent* level of PLF in any of the three years up to March 2015, as discussed in the paragraph no. 2.1.9.

Unproductive expenditure on consultancy

2.1.18 National Thermal Power Corporation Limited (consultant) was awarded (December 2006) consultancy work of the project for a period of three years at a cost of ₹ 17.50 crore which was further extended up to June 2012 with an additional cost of ₹ 14.35 crore. The consultant was to review and approve construction schedule, identify likely delays and recommend remedial measures besides exercising quality control.

We noticed that quality control checks exercised by the consultant were deficient as the incidences like fall of column of MPB, collapse of ESP hopper, BTL and under performance of new units could not be prevented/restrained and it consequently led to delay in completion of project by 27 to 43 months.

Thus, the Company could not derive the intended benefits of consultancy due to non-provision of any mechanism in the agreement to safeguard its interest against any default on the part of the consultant.

The Management stated (October 2015) that above incidences were not due to deficient quality control checks of the consultant. The reply is not acceptable as the incidences mentioned above occurred due to poor quality control checks for which consultant was responsible as per terms of the contract.

Recommendation

The Company should ensure timely execution of new TPSs through better planning, close monitoring and follow up with the contractors and consultant to avoid time and cost overrun and loss of generation.

Renovation and modernisation and life extension work

2.1.19 Renovation and modernisation (R&M) activities are aimed at overcoming problems caused due to generic defects, design deficiency and ageing by re-equipping, modifying, augmenting them with latest technology/systems. R&M and life extension activities are undertaken in TPS operating at plant load factor (PLF) below 40 *per cent*. The unit 7 (110 MW) of HTPS had completed 30 years of life and was operating at an average PLF of 38.12 *per cent* and the GoUP, therefore, decided (February 2009) for R&M and LE/uprating (R&M) of the unit with the objective to attain 80 *per cent* PLF.

Delay in R&M of unit 7

2.1.20 The Company, at the instance of GoUP, awarded (March 2009) the work of R&M of unit 7 to BHEL for ₹ 337 crore with completion period of

25 months including seven months for erection and commissioning. As per terms of the contract, the work was to be started by BHEL in June 2009 and completed by July 2011. The unit was to be put on shut down prior to seven months of completion of R&M. The period of seven months was provided in the contract for erection and commissioning and by that time, all supplies and manufacturing activities were to be completed by BHEL.

The NTPC (Consultant), therefore, had recommended (January 2011) that shut down date should be fixed up only after ensuring award of the related contracts by the Company as well as by the BHEL and supplies of materials from BHEL to unit to avoid loss of generation. Contrary to the recommendations of the Consultant, premature shutdown of the unit was taken in March 2011 and by that time supply of material was completed to the extent of 35 to 40 *per cent* only.

We noticed that the R&M of the unit, however, could not be completed even after four years of shutdown of the unit after incurring an expenditure ₹ 298.23 crore (88 *per cent*) as of March 2015. The main reasons of non-completion of the work attributed to delay in supply of material and delayed award of work to sub contractors by BHEL.

Non- completion of R&M of unit 7 even after four years led to loss of generation of 2837 MUs

Due to non-completion of R&M work after a period of more than six years, the intended benefits could not be derived even after investment of ₹ 298.23 crore (up to March 2015) and the Company suffered loss of generation 2837 MUs during October 2011 to June 2015.

Other deficiencies relating to R&M of unit 7 are discussed in the succeeding paragraphs:

Expenditure on R&M in excess of norms

2.1.21 National perspective plan prepared by the Central Electricity Authority (CEA) during the Eleventh five year plan recommended ₹ two crore per MW for R&M and life extension (LE). We noticed that the work of R&M and LE with uprating capacity (R&M) of unit 7 from 110 MW to 120 MW was awarded (March 2009) to the BHEL at a contracted value ₹ 337 crore (including ₹ 62.23 crore as cost of BOP of unit 5). The awarded cost per MW was worked out to be ₹ 2.29 crore which was higher than the recommended cost per MW by14 *per cent*. The reason for undertaking the R&M work at such higher cost was not specified.

Thus, the Company incurred expenditure of ₹ 34.80 crore in excess of the norms prescribed by CEA due to award of R&M and LE work of unit 7 at higher rates in deviation of the recommendation of the CEA.
The Management accepted (October 2015) the fact of carrying out R&M work of unit 7 at higher cost.

Non-recovery of fixed charges due to delay in R&M of unit 7

2.1.22 According to Clause 15 of the UPERC (Terms and conditions of Generation Tariff) Regulation 2009, UPERC fixed (March 2012/November 2013) tariff for sale of power generated by HTPS. It comprised of rate of fixed charges and variable charges for the period 2009-10 to 2013-14[6] which were to be recovered on generation and sale thereof only. Thus, in case of no generation, there was no recovery of fixed charges.

[6] No tariff order for 2014-15 was issued by UPERC, hence, rates of 2013-14 were adopted.

Non-completion of R&M of unit 7 even after four years led to non-recovery of fixed cost charges of ₹ 570.25 crore

The unit 7 of HTPS was under shut down since March 2011 for R&M work. As per terms of the contract, R&M work was required to be completed by July 2011 which could not be completed (upto June 2015) even after a lapse of four years from scheduled date of completion. Due to non-completion of R & M work in time, the Company failed to generate 2837 MUs during the period October 2011 to June 2015 which resulted into non-recovery of fixed cost charges of ₹ 570.25 crore for the above period during which unit could not be operated.

The Management stated (October 2015) that, despite persuasions at all levels with BHEL, it did not complete the work as per committed schedule. The fact remains that it was ineffective monitoring and control by the management, due to which the R & M work was delayed.

Recommendation

The Company should evolve a system to ensure that R&M works are executed within the timeframe to avoid time overrun and for recovery of fixed cost charges due.

Operation and maintenance

2.1.23 The operational performance of the thermal power station (TPS) is dependent on the attainment of the norms of auxiliary consumption, coal consumption and oil consumption fixed by UPERC. Considering condition of the individual TPS, UPERC fixes year-wise and TPS-wise norms for auxiliary consumption, coal consumption and oil consumption. The unit-wise norms vis-à-vis achievements of three operating units of HTPS are discussed in the succeeding paragraphs:

Unit 5

The oil and coal consumption of unit 5 over the norms resulted in excess oil and coal consumption valuing ₹ 33.37 crore and ₹ 72.88 crore respectively during 2010-11 to 2014-15

2.1.24 The actual auxiliary, oil and coal consumption of unit was higher by 1.83 to 10.78 *per cent,* 25.92 to 584.07 *per cent* and 28.89 to 42.20 *per cent* respectively during 2010-11 to 2014-15 over the norms fixed by UPERC ***(Annexure-2.1.5, 2.1.6 and 2.1.7)***. This resulted in short availability of 40.018 MUs energy valuing ₹ 20.23 crore, excess consumption of 7001.08 KL oil of ₹ 33.37 crore and excess consumption of 2.12 lakh MT coal of ₹ 72.88 crore.

The main reason for higher auxiliary and oil consumption was ageing of plant causing frequent tripping. The higher consumption of coal was mainly due to high level of ash content and supply of coal of lower grade by the Coal companies. The management failed to take up the matter of supply of poor quality of coal at the Government of India (GoI) as well as Coal Company's level.

The Management stated (October 2015) that efforts were made to reduce higher auxiliary consumption. Regarding higher oil and coal consumption by the unit 5, the Management accepted the audit observation.

Unit 8

The oil and coal consumption of unit 8 over the norms resulted in excess oil and coal consumption valuing ₹ 121.49 crore and ₹ 218.22 crore respectively during 2011-12 to 2014-15

2.1.25 The actual auxiliary, oil and coal consumption of unit was higher by 0.19 to 2.04 *per cent,* 222 to 1004 *per cent* and 13.18 to 26.85 *per cent* respectively during the period 2011-12 to 2014-15 over the norms fixed by UPERC ***(Annexure-2.1.5, 2.1.6 and 2.1.7)***. This resulted in short availability of 32.39 MUs energy valuing ₹ 13.62 crore, excess consumption of 21960 KL oil of ₹ 121.49 crore and excess consumption of 5.89 lakh MT coal of ₹ 218.22 crore.

Unit 9

The oil and coal consumption of unit 9 over the norms resulted in excess oil and coal consumption valuing ₹ 42.45 crore and ₹ 127.03 crore respectively during 2013-14 to 2014-15

2.1.26 The auxiliary consumption of unit was within the norms ***(Annexure-2.1.5)*** since its commissioning in October 2013. However, oil and coal consumption were above the norms during the period 2013-14 to 2014-15 and it ranged from 221.57 to 383.99 *per cent* and 20.90 to 22.12 *per cent* respectively ***(Annexure-2.1.6 and 2.1.7)***. This resulted in excess consumption of 7399.37 KL oil of ₹ 42.45 crore and excess consumption of 3.41 lakh MT coal of ₹ 127.03 crore.

The main reason for shortfall in operational performance of unit 8 and 9 attributed to acceptance of units which had failed in trial run causing frequent tripping and various technical problems, consequently led to low generation, low PLF, low plant availability and high auxiliary consumption, high oil and coal consumption.

The Management accepted (October 2015) the audit observation and stated that in unit 8 and 9, a lot of work and fine adjustments of the system left by BHEL had to be carried out even after commissioning of the unit, which resulted in excess consumption of oil and coal.

System of coal management

2.1.27 The performance of units is largely dependent on the quality of the coal which is the main input for generation of power. The Company executed Fuel Supply Agreements (FSAs) with Bharat Coking Coal Company Limited (BCCL) in August 2009 and Central Coalfield Limited (CCL) in July 2009 for Annual Contracted Quantity (ACQ) of 5.53 lakh MT per annum and 3.47 lakh MT per annum coal respectively for HTPS.

Another agreement was executed with CCL in January 2013 for ACQ of 20.57 lakh MT coal per annum to HTPS extension. The position of coal supply as per FSA and actual coal received there-against during the period 2010-11 to 2014-15 is given in the **Annexure-2.1.8.**

We noticed that against the contracted coal quantity of 98.48 lakh MT, the coal companies could supply only 72.32 lakh MT during 2010-14. Thus, there was short receipt of coal which ranged between 10.21 *per cent* and 52.55 *per cent* during the aforesaid period. The Company, despite the provision in the agreement, did not take up the matter with Coal India Limited (CIL) and GoI to get the supply of coal from alternate source and resolve the issues of short supply of coal.

The shortcomings noticed in procurement of coal are discussed in the succeeding paragraphs.

Non-receipt of compensation for short supply of coal

2.1.28 As per Clause 3.6 of the agreement entered into with coal companies, if for a year, level of delivery by seller, or the level of lifting by purchaser falls below ACQ with respect to that year, the defaulting party shall be liable to pay compensation to the other party for such shortfall as per the rates defined therein. Clause 3.3 provides that the seller shall endeavor to supply coal from own sources and in case the seller is not in a position to supply the scheduled quantity, the seller shall have the option to supply the balance quantity from alternate source.

We noticed that CCL failed to supply the ACQ in the years 2012-13 and 2013-14, therefore, claims for compensation of ₹ 69.34 crore for short supply of 27.22 lakh MT coal were lodged with CCL but the same were not paid by them. The Company, however, did not take up the issue at the level of CIL and GoI. Thus, due to not taking up the matter of non-payment of compensation for short supply of coal by CCL at the appropriate level, claim of ₹ 69.34 crore remained unrecovered since January 2014.

The Management stated (October 2015) that HTPS is continuously perusing the claim with CCL but the claim is still pending. The reply is not tenable as no documentary evidence for pursuance of claim at appropriate level of CIL and GoI could be furnished by the Company in support of their reply.

Avoidable payment of Washery Recovery charges

2.1.29 The New Coal Distribution Policy, 2007 prescribed a model FSA which was applicable for coal supply to existing Government owned power stations. The price of coal, as per model FSA, comprised of base price, transportation charges, crushing charges, rapid loading charges and statutory charges.

Incorporation of additional provision in the FSA with BCCL, in contravention to the model FSA, led to avoidable payment of washery recovery charges of ₹ 201.80 crore

The Company entered into two agreements with CCL in July 2009/January 2013 for HTPS/HTPS Extension and one agreement with BCCL in August 2009 for HTPS. We noticed that the agreements executed with CCL incorporated provision in respect of price of coal to be charged by CCL as per the model FSA. The agreement with BCCL, however, in contravention to the model FSA incorporated an additional provision of payment of any other charges notified by the seller (BCCL) from time to time. Taking advantage of this additional provision, the BCCL had imposed washery recovery charges at the rate of ₹ 505 per MT to ₹ 753 per MT. The HTPS paid ₹ 201.80 crore on account of washery recovery charges to BCCL on purchase of 29.08 lakh MT coal during the period 2010-11 to 2014-15.

Thus, Company's failure in safeguarding its financial interest and execution of agreement with BCCL, in violation of the provisions of model FSA, led to an avoidable expenditure of ₹ 201.80 crore on purchase of coal for unit 5.

The Management stated (October 2015) that FSA with BCCL was signed in August 2009 and the Washery Recovery Charges (WRC) was notified by BCCL in January 2008, hence incorporated in FSA as add on price. The reply is not acceptable as the Company signed FSA with BCCL, which was not in conformity with the model FSA and incorporated an additional clause of payment of other charges notified by the seller whereas in case of FSA with CCL, no such clause was incorporated.

Non-functional weighment system

Non-functioning of the weighment system even after a period of more than 30 months, excess loss of coal in transit (amount indeterminate) remained uncompensated by way of penalty on the liaisoner

2.1.30 Harduaganj Thermal Power Station (HTPS) is a coal based power station with yearly consumption of 14.42 lakh MT of coal. The HTPS has been receiving coal for its power plants from various collieries of the BCCL and CCL as per FSA executed with them. It was the responsibility of the coordinator to maintain transit loss below one *per cent* of the quantity dispatched. To ensure that coal companies were supplying the billed quantity of coal and loss in transit was minimal, weighment of the coal at HTPS was of utmost importance.

We noticed that HTPS belatedly installed (December 2012) one in motion weigh bridge at a cost of ₹ 16 lakh and two static weighbridges at a cost of ₹ 45.80 lakh in January 2013 for weighment of coal. The weighment system installed at a cost of ₹ 61.80 lakh were not functional since inception. In absence of weighment of coal received at HTPS, the actual transit loss could not be ascertained and action against the liasoner for default on his part i.e. transit loss beyond the admissible limit, if any, also could not be taken.

Further, in the year 2009-10 and 2010-11 transit loss of coal was 1.84 *per cent* and 1.41 *per cent* respectively. After that, the project authorities could not ascertain the actual quantity of coal received at the HTPS during the years 2011-12 to 2014-15 as weighing machine installed were non-functional and took a normative figure of 0.80 *per cent* as transit loss as allowable norm of UPERC.

Thus, due to non-functioning of the weighment system even after a period of more than 30 months, the entire expenditure of ₹ 61.80 lakh incurred thereon proved to be futile and excess loss of coal in transit (amount indeterminate) also remained uncompensated by way of penalty on the liaisoner. The Management accepted (October 2015) the audit observation.

Recommendation
The Company should make efforts to improve the PLF and achieve the operational parameters fixed by the UPERC in respect of coal and oil consumption so that the cost of generation may be minimised.

Environmental Issues

2.1.31 In order to minimise the adverse impact on the environment, the GoI had enacted various Acts and Rules i.e. Air (Prevention and Control of Pollution) Act, 1981, Environmental Protection Act, 1986 and Noise Pollution (Regulation and Control) Rules, 2000.
On scrutiny of records relating to compliance with the provisions of these Acts/Rules, we noticed that the Company failed to restrict the air and noise pollution and station heat rate (SHR) within the prescribed norms, as discussed below:

- the value of Suspended Particulate Matters (SPM) for unit 5 was in the range of 3492 mg/NM^3 to 11041 mg/NM^3 during 2010-11 to 2013-14 which was dangerously far above the norm of 100 mg/NM^3 issued (April 1994) by Central Pollution Control Board (CPCB). This indicated excessive air pollution which could not be checked due to non-installation of ESP up to February 2013 and thereafter, due to malfunctioning of a new ESP installed (March 2013) at an expenditure of ₹ 22.93 crore.

The Management stated (October 2015) that after installation of ESP in unit 5, the SPM level had been reduced (December 2014) drastically. The reply is not acceptable, as no document could be furnished in support of their reply. However, the fact remains that during the aforesaid period, the SPM level was beyond the prescribed limit.

- The SHR is an index for assessing the efficiency of a TPS to generate one kilo watt hour (KWh) of electrical energy. The SHR in unit 5 was as high as

3672 to 4645 Kcal/KWh against SHR of 3150 to 3300 Kcal/KWh prescribed by UPERC during 2010-11 to 2014-15. The higher SHR led to higher emission of gases with adverse impact on environment.

The Management accepted (October 2015) the audit observations.

- HTPS did not record noise level during 2011-12 and measurement of noise pollution was taken occasionally during 2010-11and 2012-13 and in these years noise pollution was 55.7 dB to 90.8 dB and 54 dB to 102.7 dB in respective years against the prescribed norms of 75 dB. However, during 2013-14 to 2014-15, it remained in the range of 51.2 dB to 98.4 dB. This indicated that HTPS could not comply with the Noise Pollution (Regulation and Control) Rule, 2000 on number of occasions.

The Management stated (October 2015) that green belt was developed inside the plant area/ peripheral side of the plant area/ in vacant area of the colony to reduce the noise pollution. The fact remains that the instances of higher noise pollution were indicative of inadequate measures taken by the management.

Disposal of dry fly ash free of cost

2.1.32 Ministry of Environment and Forest (MoEF) notified (November 2009) that all coal or lignite based thermal power stations would be free to sell fly ash to the users.

The Company had entered into two agreements with two firms in February 2007 for lifting of entire quantities i.e. 4.5 lakh MT dry fly ash free of cost from proposed unit 8 and 9 for 25 years. The terms of the agreements provided that any change of guidelines by GoI regarding cost of dry fly ash would be binding on both the parties. In view of the above notification, the terms of the agreement executed by the Company earlier (February 2007) with two firms for providing dry fly ash free of cost should have been modified and incorporated the provision for sale of dry fly ash with price.

Due to allowing lifting of fly ash free of cost, the Company was deprived of revenue of ₹ 35.69 crore

We noticed that the Company did not make any effort to modify the terms of the agreement to effect sale of dry fly ash with price and provided 8.56 lakh MT fly ash to the firms free of cost during the period April 2012 to March 2015, despite being aware that the other companies like NTPC Badarpur and Dadri were selling fly ash at the rate of ₹ 450 per MT and ₹ 417 per MT.

Thus, due to allowing lifting of fly ash free of cost, the Company was deprived of revenue of ₹ 35.69 crore calculated at the rate of ₹ 417 per MT on 8.56 lakh MT fly ash provided during April 2012 to March 2015.

The Management stated (October 2015) that efforts were being made to obtain the value of dry fly ash being provided to the firms. The fact remains that at the instance of the audit, the Company has started action. However, it could not yield any result as of October 2015.

Recommendation

The Company should take effective measures to cap the air and noise pollution within the prescribed norms.

Conclusion and Recommendations

We conclude that:

- **Unit 5, 8 and 9 could not achieve the target of generation fixed by UPERC resulting in shortfall in generation ranging from six to 70 *per cent* with consequent loss of generation of 2128 MUs valuing ₹ 951.47 crore during 2010-11 to 2014-15 due to low plant load factor and low plant availability.**

The Company should make efforts for optimal utilisation of the capacities of the units by increasing the PLF and plant availability to achieve the prescribed target of generation of power.

- **Unit 8 and 9 of 250 MW each were commissioned with delay of 27 to 43 months and increase in cost by ₹ 1268.36 crore, which led to loss of generation of 10710 MUs valuing ₹ 1660.05 crore due to delay in site clearance, collapse of main plant building and electro static precipitator hoppers.**

The Company should ensure timely execution of new TPSs through better planning, close monitoring and follow up with the contractors and consultant to avoid time and cost overrun and loss of generation.

- **Renovation & modernisation and uprating of unit 7 of HTPS was taken up in June 2009 at a cost of ₹ 337 crore with the objective of operating the unit at 80 per cent PLF. The R&M work could not be completed even after a lapse of more than six years and after investment of ₹ 298.23 crore due to delay in supply of material and delayed award of work to sub-contractors by BHEL. Resultantly, the Company suffered loss of generation of 2837 MUs and non-recovery of fixed cost charges of ₹ 570.25 crore.**

The Company should evolve a system to ensure that R&M works are executed within the timeframe to avoid time overrun and for recovery of fixed cost charges due.

- **HTPS/HTPS Extension failed to achieve the operational target fixed by UPERC, which resulted in excess consumption of coal (₹ 418.13 crore) and oil (₹ 197.31 crore) besides loss of generation of 2128 MUs valuing ₹ 951.47 crore due to non-operation of units at optimum level.**

The Company should make efforts to improve the PLF and achieve the operational parameters fixed by the UPERC in respect of coal and oil consumption so that the cost of generation may be minimised.

- **The Company failed to take effective measures to control air and noise pollution. Resultantly, the suspended particulate matters in unit 5 was exorbitantly high ranging from 3492 mg/ NM^3 to 11041 mg/ NM^3 against the norm of 100 mg/ NM^3 during 2010-11 to 2013-14 and noise pollution in HTPS stood at 51.2 dB to 102.7 dB against the norms of 75 dB during 2010-11 to 2014-15.**

The Company should take effective measures to cap the air and noise pollution within the prescribed norms.

2.2 Performance Audit on Construction of bridges by Uttar Pradesh State Bridge Corporation Limited

Executive Summary

Introduction

The Uttar Pradesh State Bridge Corporation Limited (Company) was incorporated on 18 October 1972 with the main objective of construction of all types of bridges. The Company is working under the administrative control of the Public Works Department, Government of Uttar Pradesh (GoUP). Construction of bridges is assigned by the GoUP to the Company on deposit work basis, on which, it earns centage at the rate of 12.5 *per cent*. The pattern of working in the Company is broadly known as "Departmental Construction System" where the works are executed through its own men and machinery. As on March 2015, the Company had manpower of 5211 employees.

The important audit findings are detailed below:

Financial management

- The Company was required to plan its activities and construction of bridges in such a manner that the available funds are utilised optimally to make the units financially viable with adequate turnover in units. However, the Company did not plan its activities for execution of the work to the extent of funds available in order to make the units financially viable with adequate turnover. As a result, funds of ₹ 360 crore to ₹ 688 crore remained idle during 2009-10 to 2014-15 and 43 to 64 *per cent* of total number of units of the Company were not financially viable due to inadequate turnover.

(**Paragraphs 2.2.9 to 2.2.11**)

- As required by the provisions of the Manual, the Company had circulated (July 2009 and February 2010) the cost ceiling for labour and power, oil and lubricant (POL) for keeping a check on the cost of these items.
However, the comparison of the actual expenditure with the updated cost ceiling (updated with annual increase of 10 *per cent*) revealed that the Company incurred expenses on labour at the rate of ₹ 3379 to ₹ 1.80 lakh per cum of concreting against the ceiling cost of ₹ 3110 to ₹ 4500 per cum in 72 bridges, out of 88 sampled bridges.
Similarly, it incurred expenses on power, oil and lubricant (POL) at the rate of ₹ 435 to ₹ 3.75 lakh per cum of concreting against the ceiling cost of ₹ 354 to ₹ 600 per cum in 70 bridges, out of 88 sampled bridges. This resulted in avoidable financial burden of ₹ 129.63 crore to the Exchequer. It revealed that the bridges were constructed at a much higher cost than the norms established by the Company.

(**Paragraph 2.2.13**)

Execution of works

- Out of 740 bridges, the Company completed 509 bridges during 2009-10 to 2014-15 and 231 bridges were under construction at the end of March 2015. Out of 175 bridges (completed: 141 and under construction: 34), there was delay of up to two years in 15 *per cent* bridges, two years to five years in seven *per cent* bridges and more than five years in two *per cent* bridges.

In 88 test checked bridges in eight zones, the Company had completed 67 bridges and 21 bridges were under construction as of March 2015. Out of this, there was delay in 38 bridges (completed: 28 and under construction: 10). The delay was up to two years in 25 *per cent* bridges, two years to five years in 16 *per cent* bridges and more than five years in two *per cent* bridges. The main reasons for time overrun were attributed to delay in finalisation of site, delay in issue of drawings and working drawings, delay in completion of its portion by railways, delay in shifting of electricity lines and non-transfer of land by Ministry of Defence.

(Paragraphs 2.2.14 and 2.2.15)

- In 53 bridges (60 *per cent*) out of 88 test checked bridges in eight zones there was cost overrun of ₹ 438.09 crore (ranged between 0.48 *per cent* and 325.74 *per cent*).The main reasons for cost overrun were non-provisioning in the estimate for anticipated price escalation during the period of construction of bridge as directed by HLTC as well as delayed completion of bridges.

(Paragraph 2.2.16)

- As per Manual of the Company, ownership and operational charges and shuttering charges should have been charged to the cost of work on actual basis, which were ₹ 97.46 crore and ₹ 114.60 crore respectively, whereas the Company charged the expenditure of ₹ 196.09 crore and ₹ 147.63 crore respectively to the cost of bridges during 2009-10 to 2014-15 on normative rates fixed by the Company for different types of machines. Resultantly, the Company incurred excess expenditure of ₹ 131.66 crore which led to overburdening of exchequer to the extent of ₹ 148.12 crore including centage of ₹ 16.46 crore.

(Paragraphs 2.2.18 and 2.2.19)

- As per order of GoUP, drawing and design expenses should be met out of centage. The expenses of ₹ 17.62 crore incurred on drawing and design was irregularly booked in cost of work instead of meeting it out from the centage of the Company. In addition, the Company irregularly charged centage of ₹ 2.21 crore thereon also. This led to loss of ₹ 19.83 crore to the State Exchequer.

(Paragraph 2.2.20)

Introduction

2.2.1 The Uttar Pradesh State Bridge Corporation Limited (Company) was incorporated on 18 October 1972 with the main objective of construction of all types of bridges[7]. The Company is working under the administrative control of the Public Works Department, Government of Uttar Pradesh (GoUP).

The pattern of working in the Company is broadly known as “Departmental Construction System” where the construction works are carried out departmentally through its own workers under the supervision of technical and other staff. The Company owns and deploys necessary machines and equipments, tools and plant, centering and shuttering on the work for construction of bridges. It procures material like steel, cement, consumables, coarse and fine aggregates for the work. In case of requirement, it also hires machines from market and engages Piece Rate Workers.

[7] Flyovers, Railway Over Bridges and River Bridges

Construction of bridges assigned by the GoUP was being executed by the Company on deposit work basis, on which the Company earns 12.5 *per cent* centage of the cost of works. For execution of work, the Company prepares preliminary estimate and sends it to the GoUP through U. P. Public Works Department (UPPWD) for administrative and financial sanction (AFS). After AFS is received from the GoUP, detailed estimate is prepared within the financial limit of AFS to which technical sanction (TS) is accorded by the Managing Director (MD) of the Company. After TS, the field units of the Company execute construction work in accordance with the sanctioned estimate.

The value of works executed by the Company was ₹ 776 crore in 2009-10, which increased to ₹ 1336 crore[8] in 2014-15. The Company has constructed 740 bridges of ₹ 5848.89 crore and earned profit of ₹ 149.99 crore during six years ending March 2015. As on March 2015, the Company had employed 5211 manpower.

Organisational set-up

2.2.2 The management of the Company is vested with a Board of Directors consisting of nine directors nominated by the GoUP. The Minister, PWD, is the chairman of the Company. The MD is the chief executive of the Company, who looks after day-to-day affairs with the assistance of two joint MDs, three General Managers, two Chief Project Managers, two Chief Managers (Mechanical), a Finance Controller and a Financial Advisor-cum-Company Secretary at the headquarters of the Company. There were 38 functional units each headed by a Project Manager/Deputy Project Manager. These units were functioning under the administrative control of 11 zonal offices of the Company headed by General Manager/Chief Project Manager who work, under joint MDs.

Scope and methodology of audit

2.2.3 A Review on procurement and execution of tender work by Uttar Pradesh State Bridge Corporation Limited featured in the Report of the Comptroller and Auditor General of India (Commercial), GoUP for the year ended 31 March 2008. The review was discussed by the Committee on Public Undertakings (COPU) of the State Legislature in July 2010 and April 2011. Recommendations of the COPU are awaited (November 2015).

The present performance audit was conducted during July 2014 to April 2015 covering the activities of the Company from 2009-10 to 2014-15. We examined the records of the Head Office and 14 units falling under eight zones[9] and having value of work done[10] (VOWD) of ₹ 2823.80 crore selected randomly, representing 62.56 *per cent* of the total VOWD of ₹ 4513.54 crore

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[8] The figures are based on the provisional annual accounts of the Company for the year 2013-14 and 2014-15.

[9] Lucknow: two units, Ghaziabad: three units, Kanpur: three units, Allahabad: two units and one unit in each of Agra, Gorakhpur, Basti and Varanasi.

[10] 2009-10 to 2013-14

of 38 functional units. Further, 88 bridges out of 276 bridges[11] of 14 selected units, have been covered for scrutiny.

The methodology adopted for attaining audit objectives with reference to audit criteria consisted of explaining the scope of audit and audit objectives to the top Management in the Entry Conference held on 20 October 2014, issue of draft performance audit report to Management and Government for comments in August 2015. An Exit Conference was held on 24 July 2015 with the Government and Management. The replies of the Management to our audit findings were received in September 2015 and have been duly considered while finalising the performance audit report. Reply of the Government is awaited (November 2015).

Audit objectives

2.2.4 The performance audit was conducted to ascertain whether:

- the Company planned its activities and construction of bridges adequately in accordance with the available funds; and
- the bridges were constructed and procurement of material was done economically, efficiently and effectively without compromising quality and as per rules and working manual (Manual) of the Company in a timely manner.

Audit criteria

2.2.5 The audit criteria considered for assessing the achievements of audit objectives for evaluation of performance of the Company were:

- State Government's budget provisions and release of funds there against;
- agenda and minutes of the meetings of the Board of Directors;
- provisions of the Manual/management guidelines, management information system (MIS), administrative and financial sanction, technical sanction and technical norms; and
- schedule of rates (SOR) of UPPWD, specifications for construction of bridges laid down by Ministry of Road Transport and Highways (MORTH), measurement books of works and provisions of Financial Hand Book.

Audit findings

2.2.6 Audit objective wise findings are discussed in the succeeding paragraphs:

Planning for construction of bridges

2.2.7 The Company was required to plan its activities and construction of bridges in such a manner that the available funds are utilised optimally to make the units financially viable by adequate quantum of turnover. Further, it was also required to establish the field units with proper manpower therein so that output of the manpower could be optimum.

[11] Completed and work in progress.

Financial management

2.2.8 Deficiencies noticed in financial management viz. utilisation of available funds, establishment of units and deployment of manpower are discussed below:

Under utilisation of funds

2.2.9 Para 673 of the Manual provides that utilisation of funds will be computed on the basis of requirement of funds received from the respective units based on quantum and value of work to be done.

The year-wise position of budget of the Company and its utilisation for six years up to March 2015 is given in the table 2.2.1:

Table 2.2.1

(₹ in crore)

Sl. No.	Particulars/Years	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
1	Total funds available with the Company	1157	1125	1484	1629	1551	2024
2	Value of work done (VOWD)	776	765	952	973	1048	1336
3	Shortfall in utilisation of funds (row 1-row 2)	381	360	532	656	503	688
4	Percentage of shortfall in utilisation of funds (row 3 to row 1)	33	32	36	40	32	34

Source: Annual accounts of the Company and information furnished by the Company

As can be seen from the table, there was a shortfall of 32 to 40 *per cent* in utilisation of available funds. Resultantly, funds of ₹ 360 crore to ₹ 688 crore remained idle with the Company during 2009-10 to 2014-15. On analysis of reasons for shortfall in utilisation of funds, we noticed that the Company did not plan and execute the work to the extent of funds available, though there was no constraint of other resources viz. men and machine as the Company hired these resources as per its requirement.

The Management stated (September 2015) that, despite having availability of funds, availability of men and machines also affected construction of bridges. The reply is not acceptable as for execution of work, men and machines are arranged by the management on hire basis too.

2.2.10 We further noticed that the Company could have utilised the funds which remained un-utilised by establishment of units in such a manner that they are financially viable with adequate turnover and optimum utilisation of manpower. However, the Company did not make such a plan resulting in establishment of units without keeping in mind their financial viability as discussed in the succeeding paragraph.

Establishment of excessive number of units

2.2.11 Para 658 of the Manual provides that the field units shall be established on the basis of total turnover/expenditure to be handled by the unit with reference to turnover of the Company. Further, the Company allocated centage of 7.5 *per cent* (out of 12.5 *per cent*) of the turnover of respective unit for field units for meeting their administrative expenses. The Company ascertained financial viability (profit/loss) of the functional units, details of which, are given in the table 2.2.2.

Table 2.2.2

Sl. No.	Particulars	2009-10	2010-11	2011-12	2012-13	2013-14 (Provisional)
1	Total number of units	46	42	38	43	33
2	No. of units in profit	26	15	19	23	20
3	No. of units in loss	20	27	19	20	24
4	Loss ranging (₹ in crore)	2.55 to 0.04	2.71 to 0.01	3.30 to 0.01	2.03 to 0.03	2.08 to 0.04
5	Percentage of units in loss (3 to 1)	43	64	50	47	55

Source: Compiled from Accounts of the Company

19 to 27 units (43 to 64 *per cent*) out of total 38 to 46 units incurred losses due to insufficiency of work executed by the units

We observed that there were 38 to 46 ***(Annexure-2.2.1)*** functional units during the five years period ending March 2014, out of which 19 to 27 units (43 to 64 *per cent)* were not financially viable during the five years as the value of works executed by these units and centage earned thereon were not enough to meet out its administrative overheads.

The Management stated (September 2015) that sincere efforts would be made to make the units profitable.

The main reasons for these financially unviable units are discussed below:

- Para 9 of the Manual provides that a construction unit should be established with a view that it executes the works scattered in an area not exceeding about 100 Km or two-three adjoining districts of the State.

We noticed that Bridge Construction Unit (BCU)-Pratapgarh, Allahabad and Mathura were not financially viable during four years, out of last five years ending March 2014 as the value of works executed by these units were disproportionate to their administrative overheads. We further observed that BCU, Pratapgarh was located at a distance of 60-70 Km from BCU-Allahabad and BCU Agra was also located at a distance of 60-70 Km from BCU Mathura. Hence, considering the provisions of the Manual and non-viability of the units, a decision to merge these units with others was needed to make them financially viable.

Further, BCU-I, Varanasi and BCU-I, Jhansi were not running financially viable but two more units (BCU-II, Varanasi and BCU-II, Jhansi) were reopened/opened at the same stations in 2013-14 instead of assigning workload to the existing units.

The Management stated (September 2015) that considering different nature of work, the units were created/operated. The reply is not acceptable as the only work which is carried out by the units, is construction of bridge.

In absence of rational policy for deployment of workers in the units, actual average turnover per worker varied from ₹ 1.59 lakh to ₹ 106.26 lakh during the review period

- Para 658 of the Manual provides that turnover will be the yardstick for deployment of manpower in the unit. Year-wise and zone-wise actual turnover, workers deployed and number of bridges dealt with by the units during five years up to March 2014 are depicted in the **Annexure-2.2.2**.

We noticed that the Company did not deploy workers according to the number of bridges allotted for construction in the units. In Allahabad, Ghaziabad, Kanpur, Varanasi-I, Orai, Agra and Jhansi-I, number of workers deployed was abnormally high as compared to the bridges to be constructed by the units. Among the 14 units, the actual average turnover per worker varied from ₹ 1.59

lakh to ₹ 106.26 lakh during the review period. Thus, there was no rational policy for deployment of workers in the units.

The Management stated (September 2015) that efforts would be made to deploy minimum workers according to work load of available bridges.

Lack of cost control

2.2.12 As prescribed in the Manual, to control the cost of the bridge, the expenses on labour and power, oil and lubricant (POL) were to be restricted to the ceiling cost per cum of concreting, whereas ownership and operational charges and shuttering charges were to be restricted to actual expenditure. The cases of excess cost of labour and power, oil and lubricant and excess ownership and operational charges and shuttering charges are discussed in succeeding paragraphs 2.2.13, 2.2.18 and 2.2.19.

Excess cost of labour and power, oil and lubricant

2.2.13 The Company obtains works on cost plus centage basis from the GoUP and other Government agencies. The cost of work is computed on the basis of schedule of rates (SOR) of UPPWD.

Para 39 of the Manual provides that, since the works are executed by the Company departmentally, the cost to be incurred on the different components like labour and power, oil and lubricants (POL) should be checked to keep them within the provisions made in the estimate. Accordingly, the Company circulated (July 2009 and February 2010) cost ceiling for labour[12] and POL[13] per cum of concreting to be observed during construction of bridges. The cost ceiling of labour and POL has, however, not been revised by the Company after 2009-10, so it has been updated by increasing 10 *per cent* every year (as considered by the Company for preparation of estimates). On comparing the actual labour and POL cost per cum of concreting with updated cost ceiling, the cases of excess expenses charged to bridge cost were noticed in 14 units. Further, the 14 units incurred expenses on labour at the rate of ₹ 3379 to ₹ 1.80 lakh per cum of concreting against the ceiling cost of ₹ 3110 to ₹ 4500 per cum in 72 bridges, out of 88 sampled bridges. Similarly, it incurred expenses on power, oil and lubricant (POL) at the rate of ₹ 435 to ₹ 3.75 lakh per cum of concreting against the ceiling cost of ₹ 354 to ₹ 600 per cum in 70 bridges, out of 88 sampled bridges. The summarised position is detailed in the table 2.2.3.

Table 2.2.3

Components	Percentage of higher expenses (No. of units)	Expenses incurred in excess of ceiling cost (88 sampled bridges)
Labour	0.59 to 137.03 (12 units[14])	₹ 100.97 crore (72 bridges)
POL	2.16 to 107.85 (9 units[15])	₹ 14.26 crore (70 bridges)
Total		**₹ 115.27 crore**

Source: Information furnished by the Company and Annual Accounts

Company's failure to restrict expenditure on labour and POL to the cost ceiling attributed to loss of ₹ 129.63 crore to the Exchequer

The table indicated the Company's failure in restricting expenditure on labour and POL to the cost ceilings which led to extra expenditure of ₹ 115.27 crore during the period 2009-10 to 2013-14. This also resulted in avoidable financial

[12] Railway over bridge and fly over: ₹ 3,110 per cum and River over bridge: ₹ 4,500 per cum.
[13] Railway over bridge and fly over: ₹ 354 per cum and River over bridge: ₹ 600 per cum.
[14] 14 units excluding BCU-II, Lucknow and BCU-Agra.
[15] 14 units excluding BCU-I and II of Lucknow, BCU-Meerut, BCU-Ghaziabad and BCU-Agra.

burden of ₹ 129.63 crore to the Exchequer including centage of ₹ 14.40 crore. This would be more in case all the remaining 652 bridges had been taken into account. It also revealed that the bridges were constructed at a much higher cost than was permissible under the norms established by the Company due to lack of cost control exercise, as there was no system in place to compare the actual cost with the cost ceiling.

The Management stated (September 2015) that the labour cost exceeded the ceiling cost due to impact of implementation of six pay commission report. The Management further stated that higher POL cost was due to excavation of rocks in case of river bridges involving excess consumption of POL. Reply is not tenable as quantum of concreting of bridges was disproportionate to the expenses on departmental workers in the units which attributed to excessive labour cost and POL cost.

The instances of expenditure on idle labour and POL without carrying out concreting work are discussed below:

- the salary and wages of labour was to be charged to the work to the extent of rates prescribed for per cum of concreting done in construction of bridges. Salary and wages of ₹ 3.19 crore of 167 retrenched departmental workers relating to BCU-Kanpur were booked in the cost of bridges instead of being met out of Company's own resources.

- In 14 bridges, concreting was not done but salary of workers to the extent of ₹ 3.70 crore was charged to the cost of bridges. This indicated that idle labour cost of departmental workers was booked in the cost of work.

- POL expenses of ₹ 46.02 lakh was incurred in case of 12 bridges undertaken by six units[16] where no concreting was done throughout the year during the period covered in audit.

Recommendation

The Company should plan its activities and construction of bridges in such a manner that the available funds are utilised optimally to make the units financially viable by adequate quantum of turnover. Further, the Company should evolve a system to exercise cost control.

Execution of works

2.2.14 The Company executed the construction work in 740 bridges during 2009-10 to 2014-15. Out of 740 bridges, the Company completed 509 bridges during 2009-10 to 2014-15 and 231 bridges were under construction at the end of March 2015. Out of 740 bridges, there was delay in 175 bridges (completed: 141 and under construction: 34). The delay was up to two years in 15 *per cent* bridges, two years to five years in seven *per cent* bridges and more than five years in two *per cent* bridges. The deficiencies noticed in execution of works of bridges are discussed in succeeding paragraphs:

Time overrun

2.2.15 In 88 test checked bridges in eight zones (Lucknow, Ghaziabad, Kanpur, Allahabad, Agra, Gorakhpur, Basti and Varanasi), the Company had completed 67 bridges and 21 bridges were under construction as of March

[16] BCU Banda, Lucknow-I, Kanpur, Jhansi-I, Meerut and Gorakhpur.

2015. Out of this, there was delay in 38 bridges (completed: 28 and under construction: 10). The delay was up to two years in 25 *per cent* bridges, two years to five years in 16 *per cent* bridges and more than five years in two *per cent* bridges. The main reasons for time overrun, as noticed in 88 test checked bridges, were attributed to delay in finalisation of site, delay in issue of general drawing arrangement and working drawings, delay in completion of its portion by railways, delay in shifting of electricity lines and non-transfer of land by Ministry of Defence. The cases of time overrun in some of the major bridges are discussed in **Annexure-2.2.3**.

During exit conference (July 2015), the Management accepted the audit observation and stated that serious efforts would be made to avoid the inordinate delay in construction of bridges in future.

Cost overrun

2.2.16 A High Level Technical Committee (HLTC) under the chairmanship of the Chief Secretary of GoUP directed (11 November 2008) that, in the cases of bridges where construction period is more than one year, a suitable provision for cost increase during the project period should be inbuilt in the estimate based on the cost index of last 10 years so as to avoid cost overrun and revision in the estimates.

53 bridges out of 88 test checked, involved cost overrun of ₹ 438.09 crore

We noticed that, 53 bridges (60 *per cent*) out of 88 test checked bridges in eight zones (Lucknow, Ghaziabad, Kanpur, Allahabad, Agra, Gorakhpur, Basti and Varanasi) having sanctioned cost of ₹ 1040.29 crore, involved cost overrun of ₹ 438.09 crore (ranged between 0.48 *per cent* and 325.74 *per cent*) as detailed in **Annexure-2.2.4.** The revised estimates of 38 bridges were got approved leaving 15 bridges which involved cost overrun of ₹ 79.46 crore.

The main reasons for cost overrun were non-provisioning in the estimate for anticipated price escalation during the period of construction of bridge as directed by HLTC as well as delayed completion of bridges. Besides, other reasons were excess cost of labour and POL, irregular ownership and operational charges, irregular shuttering charges, excess charge of drawing and design expenses, as discussed in paragraph 2.2.13, 2.2.18, 2.2.19 and 2.2.20.

The Government/Management accepted (July 2015) the fact during exit conference and in reply, Management stated (September 2015) that direction of HLTC would be implemented to control cost overrun.

Recommendation

The Company should fix time for different activities involved in construction of bridge and implement the directives of HLTC to check time and cost overrun.

Non-achievement of target for construction of bridges

2.2.17 The Company fixed the physical and financial targets for construction of bridges as reflected through MIS and annual budget of the Company respectively. The targets fixed by the Company and achievements made there-against during the period 2009-10 to 2014-15 are summarised in table 2.2.4.

Table 2.2.4

Sl. No.	Particulars	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	Total
1	Target for construction of bridges (Nos)	100	97	110	120	96	125	648
2	Completed bridges (Nos)	90	76	84	69	84	106	509
3	Shortfall (Nos)	10	21	26	51	12	19	139
4	Shortfall (in *per cent*)	10	22	24	43	13	15	21

Source: Information furnished by Company

We noticed that the Company could complete only 509 bridges against the target of 648 bridges in six years registering an overall shortfall of 21 *per cent* in construction of bridges. It did not devise any management information system for analysing reasons for shortfalls and bringing it to the notice of the Board of Directors for consideration.

Excess ownership and operational charges

2.2.18 Para 455 (i) and (ii) of the Manual provides that the normative charges for ownership of machineries (depreciation of the machineries) and operation of machineries (repair expenses) will be fixed by the Company for charging of the same to the work by the units. The value of work booked, however, was to be adjusted at the end of the year with the differential amount of normative cost and actual amount of depreciation and repair expenses.

Details of normative ownership charges and operational charges booked and actual charges there-against to be booked on the works are given in **Annexure-2.2.5**. We noticed that against the actual ownership and operational charges of ₹ 97.46 crore, the Company charged the expenditure of ₹ 196.09 crore to the cost of bridges during 2009-10 to 2014-15. The excess charged ownership and operational charges amounting to ₹ 98.63 crore was not adjusted from the value of respective work. As a result, the Exchequer was overburdened by ₹ 110.96 crore including centage of ₹ 12.33 crore.

The Management accepted the audit observation and stated (September 2015) that ownership and operational charges in the related works would be adjusted after finalisation of accounts of 2013-14.

Excess shuttering charges

Exchequer was overburdened by ₹ 37.16 crore due to excess booking of shuttering charges in the cost of work

2.2.19 Para 163 of the Manual provides that 30 *per cent* depreciation shall be provided on steel shuttering and scaffolding on written down value method. However, Paras 165 and 167 of the Manual provides that depreciation charges shall be debited to work at a predetermined rate (normative rate) per cum of concrete. Therefore, at the end of the year, value of work was to be adjusted with the differential amount of normative charges booked and depreciation. We noticed that against the actual expenditure of ₹ 114.60 crore (30 *per cent depreciation),* the Company booked normative shuttering charges (₹ 600 per cum of concreting) amounting to ₹ 147.63 crore. As a result, excess booking of shuttering charges in the cost of work overburdened the Exchequer by ₹ 33.03 crore **(*Annexure-2.2.6)***, besides centage of ₹ 4.13 crore.

The Management stated (September 2015) that the rate of ₹ 600 per cum of concreting was being charged whereas rate as per MORTH is ₹ 1,088. Reply is not tenable as the depreciation should have been charged as per provisions of the Manual.

Excess charge of drawing and design expenses

Incorrect booking of drawing and design expenses led to loss of ₹ 19.83 crore to Exchequer

2.2.20 The centage of 12.5 *per cent,* admissible as per Government order (GO) of February 1997, included 1.5 *per cent* for preparation of drawing/design and estimates. Thus, the salary and wages of the design wing of the Company and expenses on outsourced design work should be met out of centage only.

We noticed that the salary of design wing of the Company amounting to ₹ 6.06 crore (2009-10 to 2011-12) and expenditure of ₹ 11.56 crore during 2009-10 to 2014-15 incurred on outsourced design work was charged to the work instead of meeting it out from the centage. In addition, the Company irregularly charged centage of ₹ 2.21 crore thereon also. Thus, non-compliance of the GO led to overvaluation of cost of work and loss of ₹ 19.83 crore to the State Exchequer.

The Management accepted (September 2015) the audit observation and stated that excess charged expenses of design wing have now been adjusted. However, no documentary evidence in support of adjustments was furnished along with reply.

Recommendation

The Company should strictly follow the provisions of the Manual for booking of ownership and operational charges, shuttering charges and drawing and design expenses in the cost of works to avoid overburdening of Exchequer.

Short recovery of dismantled material

2.2.21 Para 20 and 40 of the Manual provide that the expenditure incurred on temporary site accommodations (TSA) should be limited to two *per cent* of the cost of work, which after dismantling will be finally charged to the cost of work by 1.25 *per cent*. This implies that 0.75 *per cent* cost will be recovered from dismantling of TSA and credited to the cost of work.

Dismantled material worth ₹ 1.25 crore pertaining to 36 bridges could not be recovered by the units

We noticed that 13 sampled units incurred ₹ 4.70 crore on TSA and charged it to the cost of 61 bridges completed during 2009-10 to 2013-14. As per provisions of the Manual, the dismantled TSA material for a value of ₹ 1.76 crore (equal to 0.75 *per cent* of cost of TSA) should have been recovered from 61 completed bridges and credited to cost of bridges. The units, however, recovered dismantled TSA material of ₹ 0.51 crore only in respect of 25 bridges and balance material of ₹ 1.25 crore remained unrecovered in respect of 36 bridges. Thus, due to unit's failure in recovering dismantled material worth ₹ 1.25 crore led to loss to the Exchequer to that extent.

The Management accepted (September 2015) the systemic deficiency and stated that after pointing out by audit, directives have been issued (24 February 2015) to field officers to give credits of the dismantled materials received from completed bridges.

Lucknow Zone

2.2.22 In Lucknow zone, two units (BCU-I and II Lucknow) out of four units were test checked. These two units constructed 54 bridges, out of which, 20 bridges were test checked. The audit findings related thereto are discussed below:

Purchase of Ready Mix Concrete

Three beams of ₹ 41.46 lakh casted by using RMC purchased from private supplier, collapsed

2.2.23 The MD of the Company directed (December 2010) the units not to use ready mix concrete (RMC) supplied by the private contractors but use in-house RMC. We noticed that MD, violating its own directions, permitted the units for procurement of 1,05,477 MT RMC of ₹ 37.44 crore during 2010-11 to 2013-14 from the private contractors. Three beams of ₹ 41.46 lakh casted (May to July 2012) on the bridge over Gomti River at Ghaila Ghat by using RMC of private supplier, had collapsed (July 2012). As per test report (August 2012) of Indian Institute of Technology, Banaras Hindu University (IIT BHU), strengths of RMC of damaged beams was found to be lower than that required. This concluded that the RMC of ₹ 37.44 crore had been purchased (February 2011 to March 2014) from private suppliers by compromising with the quality of RMC besides loss of ₹ 41.46 lakh.

The Management stated (September 2015) that beams had fallen due to storm of high velocity which was not predicted by the Meteorology Department. The reply is not tenable as the test results from IIT, BHU certified that the strength was not up to the standard. Moreover, the Management again banned (September 2015) the purchase of RMC from private suppliers.

Purchase of sand at higher rate

2.2.24 BCU-II, Lucknow entered (10 August 2013) into an agreement with a contractor for supply of 35,000 cum sand at the rate of ₹ 1326 per cum against tender invited on 23 July 2013 for supply of 13,000 cum Ghaghra sand. The procurement of sand at higher rate of ₹ 1326 per cum was justified on the plea that agreement was executed for supply of sand during rainy season where the rates of sand were more. Under such situation where rates of the items like sand are higher during rainy season (July to September), it was imperative on the part of the unit to enter into contract for that quantity which was actually required during rainy season, since it was a costly affair. In earlier contract entered into with same contractor in May 2013, rate of ₹ 815 per cum was paid.

Undue benefit of ₹ 1.22 crore was extended to the contractor by increasing the contracted quantity to 35000 cum against tendered quantity of 13000 cum

We noticed that 23,880 cum sand was purchased (October 2013 to December 2013) after rainy season at higher rate of ₹ 1326 per cum against the normal rate of ₹ 815 per cum, which was avoidable.

This indicated that actual requirement for the rainy season was only 11,102 cum which was well within the tendered quantity of 13,000 cum. Thus, decision to enter into an agreement for a quantity of 35,000 cum (169 *per cent* higher than the tendered quantity) at a higher rate of ₹ 1326 per cum (63 *per cent* higher) extended an undue benefit of ₹ 1.22 crore[17] to the contractor.

The Management stated (September 2015) that supplier was not ready to supply the sand at the agreed rate (₹ 815 per cum), therefore, fresh tender was invited. The reply is not tenable as it did not specify the reason for placement of order for 35,000 cum sand against tendered quantity of 13,000 cum.

Excess consumption of cement

2.2.25 Paras-137, 144 and 145 of the Manual provide that, at the end of every financial year as well as at the close of every project, material consumption statement of all the works in field units will be prepared by the Unit In-charge.

[17] Quantity purchased beyond rainy season: 23880 cum X ₹ 511 per cum= ₹ 1.22 crore.

All cases of excessive consumption of materials should be scrutinised and reported to competent authorities for taking appropriate action.

Excess consumption of 19584 bags cement valuing ₹ 50.91 lakh in seven bridges

We noticed that excess consumption of 19,584 bags cement of ₹ 50.91 lakh (***Annexure-2.2.7)*** in seven bridges, out of 20 bridges, was made over the prescribed norms. No action could be taken by the management as there was no practice of preparation of consumption statement in the Company.

Purchase of steel bars at higher rates

2.2.26 The Company periodically entered into rate contracts (RCs) with various firms for supply of steel bars to field units against their requirement. Failure to do so by RC firms, the field units could purchase steel bars from the market and extra expenditure incurred, if any, was recoverable from RC firms.

We noticed that two units of Lucknow Zone purchased 831.48 MT steel bars from market and incurred extra expenditure of ₹ 24.35 lakh (***Annexure-2.2.7)***, which was not recovered from RC firms as the field units did not intimate to the Headquarters about incurring extra expenditure in purchase of steel bars from market.

Purchase of consumable items at higher rate

2.2.27 Para-23 of the Manual provides that the Company shall collect quarterly prices in Lucknow, of all common bought out items (consumables) and circulate these prices to units for comparing their prices.

We noticed that due to non-circulation of the prevailing market rate of consumable items by the Company to its units, procurement of consumables at higher rates involving extra expenditure of ₹ 2.46 lakh (***Annexure-2.2.7)*** could not be avoided.

Delay in handing over of completed bridges

2.2.28 Due to lack of monitoring of the activities of the units by the Company and failure in coordination with UPPWD, 13 completed bridges were handed over to UPPWD after a delay of one to 71 months (***Annexure-2.2.7)*** and three bridges could not be handed over and put to use as of March 2015 for which no reasons were on record.

Ghaziabad zone

2.2.29 In Ghaziabad zone, all three units were test checked. These units constructed 73 bridges, out of which, 21 bridges were test checked. The audit findings are discussed below:

Excess consumption of cement

2.2.30 As discussed in paragraph 2.2.25, excess consumption of 1,457 bags cement of ₹ 3.79 lakh (***Annexure-2.2.7)*** in three bridges out of 21 bridges, over the prescribed norms could not be noticed by the management due to non-preparation of consumption statement, in violation of Para 137, 144 and 145 of the Manual.

Purchase of steel bars at higher rates

2.2.31 As discussed in paragraph 2.2.26, extra expenditure of ₹ 9.68 lakh (***Annexure-2.2.7)*** incurred on purchase of 401.03 MT steel bars from non-RC firms.

Purchase of consumable items at higher rate

2.2.32 As discussed in paragraph 2.2.27, due to non-circulation of the prevailing market rate of consumable items by the Company to its units, procurement of consumables at higher rates involving extra expenditure of ₹ 8.32 lakh (***Annexure-2.2.7)*** could not be avoided.

Delay in handing over of completed bridges

2.2.33 As discussed in paragraph 2.2.28, due to lack of monitoring of the activities of the units by the Company and failure in coordination with UPPWD, 11 completed bridges were handed over to UPPWD after a delay of one to 14 months (***Annexure-2.2.7)*** and 10 bridges could not be handed over and put to use as of March 2015 for which no reasons were on record.

Kanpur zone

2.2.34 In Kanpur zone, all three units were test checked. These units constructed 39 bridges, out of which, 11 bridges were test checked. The audit findings are discussed below:

Purchase of steel bars at higher rates

2.2.35 As discussed in paragraph 2.2.26, extra expenditure of ₹ 10.39 lakh (***Annexure-2.2.7)*** incurred on purchase of 413.15 MT steel bars from non-RC firms.

Purchase of consumable items at higher rate

2.2.36 As discussed in paragraph 2.2.27, due to non-circulation of the prevailing market rate of consumable items by the Company to its units, procurement of consumables at higher rates involving extra expenditure of ₹ 3.35 lakh (***Annexure-2.2.7)*** could not be avoided.

Delay in handing over of completed bridges

2.2.37 As discussed in paragraph 2.2.28, due to lack of monitoring of the activities of the units by the Company and failure in coordination with UPPWD, two completed bridges were handed over to UPPWD after a delay of 18 to 46 months (***Annexure-2.2.7)*** and six bridges could not be handed over and put to use as of March 2015 for which no reasons were on record.

Allahabad zone

2.2.38 In Allahabad zone, two units out of five units were test checked. These units constructed 31 bridges, out of which, 10 bridges were test checked. The audit findings are discussed below:

Excess consumption of cement

2.2.39 As discussed in paragraph 2.2.25, excess consumption of 1,185 bags cement of ₹ 3.08 lakh (***Annexure-2.2.7)*** in three bridges out of 10 bridges, over the prescribed norms could not be noticed by the Management due to non-preparation of consumption statement, in violation of Para 137, 144 and 145 of the Manual.

Purchase of steel bars at higher rates

2.2.40 As discussed in paragraph 2.2.26, extra expenditure of ₹ 10.22 lakh (***Annexure-2.2.7)*** incurred on purchase of 319.18 MT steel bars from non-RC firms.

Purchase of consumable items at higher rate

2.2.41 As discussed in paragraph 2.2.27, due to non-circulation of the prevailing market rate of consumable items by the Company to its units, procurement of consumables at higher rates involving extra expenditure of ₹ 2.94 lakh (***Annexure-2.2.7)*** could not be avoided.

Delay in handing over of completed bridges

2.2.42 As discussed in paragraph 2.2.28, due to lack of monitoring of the activities of the units by the Company and failure in coordination with UPPWD, three completed bridges were handed over to UPPWD after a delay of nine to 26 months (***Annexure-2.2.7)*** and four bridges could not be handed over and put to use as of March 2015 for which no reasons were on record.

Agra zone

2.2.43 In Agra zone, one unit out of three units was test checked. This unit constructed 16 bridges, out of which nine bridges were test checked. The audit findings are discussed below:

Purchase of steel bars at higher rates

2.2.44 As discussed in paragraph 2.2.26, extra expenditure of ₹ 3.27 lakh (***Annexure-2.2.7)*** incurred on purchase of 375.61 MT steel bars from non-RC firms.

Purchase of consumable items at higher rate

2.2.45 As discussed in paragraph 2.2.27, due to non-circulation of the prevailing market rate of consumable items by the Company to its units, procurement of consumables at higher rates involving extra expenditure of ₹ 4.30 lakh (***Annexure-2.2.7)*** could not be avoided.

Delay in handing over of completed bridges

2.2.46 As discussed in paragraph 2.2.28, five bridges could not be handed over and put to use as of March 2015 for which no reasons were on record.

Gorakhpur zone

2.2.47 In Gorakhpur zone, one unit out of three units was test checked. This unit constructed 24 bridges, out of which, seven bridges were test checked. The audit findings are discussed below:

Inadmissible payment of service tax

2.2.48 According to section 65 (90 a) of Chapter V of Finance Act, 1994, service tax is payable only on those rents which are received from the immovable property leased in the course of furtherance of business or commerce. The BCU-Gorakhpur took (August 2014) a piece of land on lease from Railway department for construction of ROB 163A at Surajkund, Gorakhpur.

Gorakhpur unit paid Service Tax of ₹ 71.23 lakh for lease hold land which was not admissible

We noticed that leasing of land in favour of the Governor of Uttar Pradesh by the President of India for construction of bridge was not for furtherance of business or commerce, rather, it was done only for the public welfare. Therefore, lease rent paid to railway department did not attract the provisions of service tax. The unit, however, without taking notice of the rule, made

(June 2014) an inadmissible payment of service tax of ₹ 71.23 lakh to Railways.

The Management stated (September 2015) that legal notice had been served to the Northern Railways for refund of the service tax.

Purchase of consumable items at higher rate

2.2.49 As discussed in paragraph 2.2.27, due to non-circulation of the prevailing market rate of consumable items by the Company to its units, procurement of consumables at higher rates involving extra expenditure of ₹ 1.21 lakh (***Annexure-2.2.7)*** could not be avoided.

Delay in handing over of completed bridges

2.2.50 As discussed in paragraph 2.2.28, due to lack of monitoring of the activities of the unit by the Company and failure in coordination with UPPWD, four completed bridges were handed over to UPPWD after a delay of three to nine months (***Annexure-2.2.7)*.**

Basti zone

2.2.51 In Basti zone, one unit out of three units was test checked. This unit constructed 32 bridges, out of which, seven bridges were test checked. The audit findings are discussed below:

Purchase of consumable items at higher rate

2.2.52 As discussed in paragraph 2.2.27, due to non-circulation of the prevailing market rate of consumable items by the Company to its units, procurement of consumables at higher rates involving extra expenditure of ₹ 2.89 lakh (***Annexure-2.2.7)*** could not be avoided.

Delay in handing over of completed bridges

2.2.53 As discussed in paragraph 2.2.28, due to lack of monitoring of the activities of the unit by the Company and failure in coordination with UPPWD, three completed bridges were handed over to UPPWD after a delay of 19 to 48 months (***Annexure-2.2.7)*** and two bridges could not be handed over and put to use as of March 2015 for which no reasons were on record.

Varanasi zone

2.2.54 In Varanasi zone, one unit out of four units was test checked. This unit constructed seven bridges, out of which, three bridges were test checked. The audit findings are discussed below:

Purchase of consumable items at higher rate

2.2.55 As discussed in paragraph 2.2.27, due to non-circulation of the prevailing market rate of consumable items by the Company to its units, procurement of consumables at higher rates involving extra expenditure of ₹ 2.20 lakh (***Annexure-2.2.7)*** could not be avoided.

Delay in handing over of completed bridges

2.2.56 As discussed in paragraph 2.2.28, due to lack of monitoring of the activities of the units by the Company and failure in coordination with UPPWD, one completed bridge was handed over to UPPWD after a delay of 54 months (***Annexure-2.2.7)***.

Recommendation

The Company should evolve a system for timely handing over of completed bridges to UPPWD.

Conclusion and Recommendations

We conclude that:

- **The Company did not plan its activities for execution of the work to the extent of funds available in order to make the units financially viable with adequate turnover. As a result, funds of ₹ 360 crore to ₹ 688 crore remained idle during 2009-10 to 2014-15 and 43 to 64 *per cent* of total number of units of the Company were not financially viable due to inadequate turnover.**
- **The Company incurred excess cost of ₹ 129.63 crore over the prescribed ceiling cost of labour and power, oil and lubricant due to non-exercise of cost control.**

The Company should plan its activities and construction of bridges in such a manner that the available funds are utilised optimally to make the units financially viable by adequate quantum of turnover. Further, the Company should evolve a system to exercise cost control.

- **The Company irregularly charged the ownership and operational charges of ₹ 110.96 crore, shuttering charges of ₹ 37.16 crore and drawing and design expenses of ₹ 19.83 crore. These excess cost and irregular charges led to overburdening of exchequer to the extent of ₹ 167.95 crore.**

The Company should strictly follow the provisions of the Manual for booking of ownership and operation charges, shuttering charges and drawing and design expenses in the cost of works to avoid overburdening of Exchequer.

- **non-implementation of directives of High Level Technical Committee (HLTC) and not fixing of any timeframe for different activities required for construction of bridges led to time overrun of two months to 12 years in case of 38 bridges and cost overrun of ₹ 438.09 crore in 53 bridges, out of 88 bridges test checked.**

The Company should fix time for different activities involved in construction of bridge and implement the directives of HLTC to check time and cost overrun.

- **lack of monitoring of the activities of the units by the Company and failure in coordination with UPPWD, the completed bridges could not be handed over to UPPWD and it took one to 71 months in handing over of 37 completed bridges and 30 completed bridges could not be handed over after one to 54 months for which no reasons were on record.**

The Company should evolve a system for timely handing over of completed bridges to UPPWD.

2.3 Follow up Audit of Performance Audit on Power Generating Undertakings in Uttar Pradesh

Executive summary

Introduction

In Uttar Pradesh, generation of thermal power is carried out by Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL) and generation of hydro power is carried out by Uttar Pradesh Jal Vidyut Nigam Limited (UPJVNL). A Performance Audit on Power Generating Undertakings in Uttar Pradesh covering the period from April 2005 to March 2010, was featured in the Report of the Comptroller and Auditor General of India No.4 Commercial for the year ended 31 March 2010, Government of Uttar Pradesh (GoUP).

The Performance Audit has not been discussed by Committee on Public Undertakings (COPU) so far (November 2015). The Performance Audit contained six recommendations which were acceded to, by UPRVUNL/UPJVNL. The follow up Audit of aforesaid performance audit was conducted to ascertain the progress in implementation of recommendations.

The cases of non-compliance to recommendations by generating companies as noticed in follow up audit are detailed below:

Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited

- In previous performance audit, it was commented that the construction activities of new thermal projects viz. Parichha Extension and Obra 'C' were far behind the scheduled timeframe which led to time and cost overrun. Therefore, it was recommended that plan for new projects should be adequate and necessary clearances should be obtained before taking up construction so as to avoid time and cost overrun.

The follow up audit revealed that new projects viz. Panki (1X660 MW) and Obra 'C (2X660 MW) of UPRVUNL could not be started for want of permission for use of water (applied in February 2013 for Panki project)/ clearances from MoEF (applied in September 2012 and January 2014 for Obra and Panki projects respectively) due to non-fixation of any time frame to obtain necessary approval and clearances from concerned authorities by UPRVUNL.

(Paragraph 2.3.7)

UPRVUNL did not formulate any concrete plan to get the project executed within a specified timeframe. Resultantly, units of Parichha Extension Project were completed with a delay of 24 to 28 months and Anpara 'D' Project could not be completed even after lapse of a period of more than four years, resulting in cost overrun of ₹ 2522.25 crore.

(Paragraph 2.3.8)

- In previous performance audit, it was commented that due to poor planning of R&M work of unit 6 of Obra 'A' TPS and non- completion of R&M work of Anpara 'A' TPS within scheduled time, UPRVUNL had to suffer generation loss of 714.13 MUs (₹ 101.83 crore) and 681.57 MUs (₹ 88.57 crore) respectively. Therefore, it was recommended that renovation and modernisation programs should be taken as per schedule to optimise generation.

The follow up audit revealed that the R&M of six units of three thermal power stations (TPSs) of UPRVUNL was not taken up as per schedule, in absence of any strategic plan, the units went into forced outages resulting in generation loss of 1407.78 MUs valuing ₹ 436.46 crore during 2010-11 to 2014-15.

(Paragraph 2.3.10)

- In previous performance audit, it was commented that loss of coal in transit ranged between 0.16 *per cent* and 2.95 *per* cent in Parichha, Harduaganj and Obra TPSs against the norm of 0.8 *per cent.* There was delay in unloading of coal rakes resulting in avoidable payment of demurrage charges of ₹ 16.57 crore. Similarly, coal consumption in Obra and Parichha TPSs remained higher than the norms fixed by UPERC. Therefore, it was recommended that UPRVUNL should take up measures to check loss of coal in transit, reduce delay in unloading rakes and consumption of coal.

The follow up audit revealed that TPSs of UPRVUNL could not take up effective control-measures to restrict the loss of coal in transit (LCT), unloading time within the limit fixed by Railway and consumption of coal (CC) within the norms fixed by UPERC. Resultantly, LCT and CC were more than norms in TPSs, besides, payment of demurrage charges of ₹ 64.82 crore made to Railway during 2010-11 to 2014-15.

(Paragraphs 2.3.11 to 2.3.14)

- In previous performance audit, it was commented that Plant Load Factor (PLF) of TPSs of UPRVUNL was low due to low plant availability, excessive forced outages, low capacity utilisation and major shut downs & delays in repairs and maintenance. Therefore, it was recommended that UPRVUNL should endeavour to increase plant load factor by minimising forced outages, increasing capacity utilisation and reducing time in repair and maintenance.

The follow up audit revealed that TPSs of UPRVUNL could not achieve the normative PLF of 56 to 85 *per cent* fixed by UPERC and it ranged between 19.5 *per cent* and 80 *per cent* during 2010-11 to 2014-15 due to non-reduction of the forced outages and time taken in repair and maintenance and low capacity utilisation.

(Paragraph 2.3.20)

- In previous performance audit, it was commented that auxiliary consumption of TPSs of UPRVUNL viz. Anpara, Obra and Parichha ranged from 7.61 to 19.15 *per cent* which was higher than UPERC norms of 7 to 12 *per cent*. Therefore, it was recommended that UPRVUNL should take measures to control auxiliary consumption.

The follow up audit revealed that auxiliary consumption of TPSs ranged between 7.42 *per cent* and 21.71 *per cent* against the UPERC norms of 5.25 *per cent* to 11.30 *per cent* during the follow up audit period. Thus, reduction in auxiliary consumption, as compared to UPERC norms could not be achieved.

(Paragraph 2.3.22)

- In previous performance audit, it was commented that the dues against Uttar Pradesh Power Corporation Limited (UPPCL) had accumulated to ₹ 4089.94 crore as of 31 March 2010. Therefore, it was recommended that UPRVUNL should make efforts for timely realisation of dues from UPPCL to improve liquidity.

The follow up audit revealed that no plan had been framed by the Company in consultation with UPPCL for realisation of dues in a time bound manner and dues of ₹ 5135.06 crore remained outstanding against UPPCL as of March 2015.

(Paragraphs 2.3.23 and 2.3.24)

Uttar Pradesh Jal Vidyut Nigam Limited

- In previous performance audit, it was commented that construction activities of new Sheetla hydro project by UPJVUNL were far behind the scheduled timeframe which led to time and cost overrun. Therefore, it was recommended that UPJVNL should plan for new projects adequately before taking up construction so as to avoid time and cost overrun.

The follow up audit revealed that UPJVNL did not formulate any concrete plan to get the project executed within a timeframe. Resultantly, Khara project conceptualised in January 2010 could not be completed within the scheduled date of May 2015 which had to be revised to March 2017.

(Paragraph 2.3.26)

- As per accepted recommendation, UPJVNL was required to carry out the renovation and modernisation programs as per schedule to optimise generation.

The follow up audit revealed that R&M of Hydo Power Stations (HPSs) of UPJVNL was not taken up as per schedule. Eight units of HPSs due for R&M during 1997 to April 2006, were taken up during 2010-11 to 2014-15 for R&M after an inordinate delay of five years to 17 years. Out of this, R&M of three units was completed during June 2013 to April 2014 and five units taken up during April 2011 to February 2014 were still under progress.

(Paragraph 2.3.27)

- As per accepted recommendation, UPJVNL was required to take measures to control auxiliary consumption.

The follow up audit revealed that the auxiliary consumption of smaller HPSs (5 MW or less) remained higher than the norms and it ranged from 0.80 *per cent* to 5.88 *per cent* against the norms of 0.70 *per cent* to 1.00 *per cent* during 2010-11 to 2014-15 except in Nirgagini, Chitora and Salwa and Upper Ganga Canal (Nirgagini, Chitora and Salwa) HPSs, where it was below the norms in 2013-14 and stood at 0.18 *per cent* to 0.41 *per cent.*

(Paragraph 2.3.28)

- In previous performance audit, it was commented that the dues against UPPCL had accumulated to ₹ 212.24 crore as of 31 March 2010. Therefore, it was recommended that UPJVNL should make efforts for timely realisation of dues from UPPCL to improve liquidity.

The follow up audit revealed that no plan had been framed by the Company in consultation with UPPCL for realisation of dues in a time bound manner and dues of ₹ 331.57 crore remained outstanding against UPPCL as of March 2015.

(Paragraph 2.3.29)

Introduction

2.3.1 In Uttar Pradesh, generation of thermal power is carried out by Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited (UPRVUNL) and generation of hydro power is carried out by Uttar Pradesh Jal Vidyut Nigam Limited (UPJVNL) which were incorporated on 25 August 1980 and 17 December 1996 respectively under the Companies Act, 1956. These Companies are under the administrative control of the Energy Department of the Government of Uttar Pradesh (GoUP). Installed capacity of UPRVUNL and UPJVNL as on 31 March 2010 was 4082 MW and 526.10 MW respectively, which increased to 4938 MW and 527 MW respectively as on 31 March 2015.

The Management of each of these companies is vested with a Board of Directors (BOD) comprising of Chairman/Managing Director and Directors[18] appointed by the State Government. In each of these companies, the Managing Director (MD) is the chief executive who carries out day to day operation of the Company with the assistance of Chief Engineers (CEs), Superintending Engineers (SEs) and Executive Engineers (EEs).

Performance Audit on Power Generating Undertakings in Uttar Pradesh covering the period from April 2005 to March 2010, was featured in the Report of the Comptroller and Auditor General of India No.4 Commercial for the year ended 31 March 2010, Government of Uttar Pradesh (GoUP). The Report was laid in the State Legislature in August 2011. The Performance Audit has not been discussed by the Committee on Public Undertakings (COPU) of the State Legislature so far (November 2015).

Performance Audit mainly reported that there were delay in construction of new thermal and hydro power projects due to poor planning and monitoring; delay in taking up renovation and modernisation programs; inefficient fuel management in UPRVUNL, and low plant availability and plant load factor due to excess forced outages and non-following of preventive maintenance schedule.

The following six recommendations were accepted by the Management for implementation:

- plan for new projects should be adequate and necessary clearances should be obtained before taking up construction so as to avoid time and cost overrun;
- renovation and modernisations/life extension programs should be taken up on schedule to ensure optimum generation from existing units;
- take up measures to check loss of coal in transit, delay in unloading rakes and reduce consumption of coal;
- endeavour to increase plant load factor by minimising forced outages, increasing capacity utilisation and reducing time in repair and maintenance;
- take measures to control auxiliary consumption; and
- make efforts for timely realisation of dues from Uttar Pradesh Power Corporation Limited (UPPCL) to improve liquidity.

Scope and methodology of audit

2.3.2 The follow up Audit was conducted during 28 May 2015 to 11 July 2015 covering the period from 2010-11 to 2014-15 to ascertain the progress in implementation of recommendations made on previous performance audit.

[18] UPRVUNL:Director (Finance), Director (Technical), Director (Personnel) and Director (Project & Commercial) and UPJVNL: Director (Finance) and Director (Technical).

Audit was carried out at headquarters of UPRVUNL and UPJVNL and four selected Thermal Power Stations (TPSs[19]) of UPRVUNL and two Hydro Power Stations (HPSs[20]) of UPJVNL. The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of explaining the scope of audit and audit objectives to the top Management of UPRVUNL and UPJVNL in an Entry Conference held on 16 June 2015.

Draft report was issued to the Management and Government in August 2015. Replies of the Management have been received in October 2015 and suitably incorporated in the report. An Exit Conference was held on 20 October 2015 with the Management to discuss the audit findings. The reply of the Government is awaited (November 2015).

Audit criteria

2.3.3 The audit criteria considered for achievement of objectives of follow up audit were:

- recommendations made on the previous performance audit on Power Generating Undertakings in Uttar Pradesh;
- orders/instructions/guidelines issued by UPRVUNL and UPJVNL/State Government for implementation of recommendations;
- agenda and minutes of Board of Director's meetings of UPRVUNL and UPJVNL;
- regulations/norms/targets/ guidelines of Central Electricity Authority (CEA)/ Uttar Pradesh Electricity Regulatory Commission (UPERC) and
- management information system/operational reports of field units.

Audit findings

2.3.4 All the six applicable recommendations contained in previous performance audit were accepted by UPRVUNL and four applicable recommendations out of six, were accepted by UPJVNL.

Uttar Pradesh Rajya Vidyut Utpadan Nigam Limited

2.3.5 Recommendation wise, audit findings on follow up audit of UPRVUNL are discussed in the succeeding paragraphs:

Non-implementation of recommendation on planning and execution

2.3.6 In previous performance audit, it was commented that construction activities taken up for new thermal projects viz. Parichha Extension, Obra 'C' by UPRVUNL were far behind the scheduled timeframe due to poor planning and monitoring which led to time and cost overrun.

Based on above audit findings, it was recommended that UPRVUNL should adequately plan for new projects and obtain necessary clearances before taking up construction so as to avoid time and cost overrun.

As per the aforesaid recommendation, headquarters of UPRVUNL was required to fix a timeframe for obtaining necessary clearances from the concerned authorities before award of works for construction of new projects

[19] Parichha ('A'& 'B'), Parichha Extension, Anpara 'A' and Anpara 'B'.
[20] Obra (Hydel) and Pipri.

so that the projects may be completed within the scheduled time. The irregularities noticed in this regard are discussed as follows:

Delay in obtaining necessary clearances

2.3.7 For establishment of a new project, the headquarters of UPRVUNL has to obtain clearances/permission from different authorities like permission for use of water from Irrigation Department, GoUP, clearance from Airport Authority, clearance from Ministry of Environment and Forest and coal linkage from Ministry of Coal etc. We noticed that headquarters of UPRVUNL did not fix any timeframe for obtaining these clearances, resultantly, the cases of belated clearance/non-clearances from respective authorities after a considerable delay in respect of upcoming projects during 2010-11 to 2014-15, were noticed, as discussed in the table 2.3.1.

Table 2.3.1

Particulars/TPS	**Panki TPS**	**Obra 'C'TPS**
Project planned (capacity in MW)	1X660	2X660
Date of approval of project by BOD/Government	November 2012	June 2009/ July 2012
Date of Permission for use of Water (PUW)	Applied in February 2013 but awaited as of November 2015	July 2009
Date of clearance from Airport Authority (CAA)	January 2013	July 2009
Date of coal linkage	March 2015	March 2015
Date of clearance from Ministry of Environment and Forest	Applied in January 2014 but awaited as of November 2015	Applied in September 2012 but awaited as of November 2015

Source: Information furnished by UPRVUNL

We noticed that:

- construction of Panki TPS (1x660MW) as approved by the BOD of UPRVUNL in November 2012 could not be started as permission for use of water from Irrigation Department and clearance from Ministry of Environment and Forest (MoEF) could not be obtained as of November 2015 even after the lapse of three years.
- project of Obra 'C' TPS (2x660MW) conceived in June 2009 was approved by GoUP in July 2012 after a delay of three years due to lack of effective pursuance by the Management. Further, the project could not be started in absence of clearances from MoEF even after lapse a period of more than six years.

The Management stated (October 2015) that they had followed the recommendation and taken prompt action in obtaining the necessary clearances from the statutory authorities before taking up the project.

The reply is true that Management took prompt action for filing application for clearances but thereafter, there was lack of pursuance with MoEF in case of both the projects and with Irrigation Department for permission to use water in case of Panki project.

Time and cost overrun

2.3.8 To ascertain the progress in implementation of audit recommendation to avoid time and cost overrun, we examined projects of two TPSs i.e. Parichha

Extension and Anpara 'D' which were commissioned/to be commissioned during 2010-11 to 2014-15.

We noticed that, despite obtaining prior necessary clearances, UPRVUNL could not avoid the instances of time and cost overrun in construction of TPSs, as detailed in **Annexure-2.3.1** and discussed below:

Delay in completion of projects resulted in cost overrun of ₹ 2522.25 crore

- **Parichha Extension TPS:** Unit 5 and 6 of 250 MW each due to be commissioned in July 2010 and December 2010 were commissioned in July 2012 and April 2013 respectively with a delay of 24 to 28 months and cost overrun of ₹ 853.64 crore. The main reasons for delay were attributed to delay in finalising the site plan and delayed construction by the contractor.
- **Anpara 'D' TPS:** Unit 6 and 7 of 500 MW each due to be commissioned in April 2011 and July 2011 were not commissioned as of July 2015 even after lapse of a period of more than four years. Further, the cost of this project was revised to ₹ 7027.40 crore from ₹ 5358.79 crore leading to cost overrun of ₹ 1668.61 crore. The reasons for delay were attributed to delay in award of various packages of works and supplies, re-routing of transmission lines passing through project premises and delayed construction by the contractor.

The reasons for delay in construction of TPSs attributing time and cost overrun were controllable by the UPRVUNL through proper planning and coordination with the contractor.

Thus, despite earlier audit recommendation, the Company did not formulate any concrete plan to get the project executed within a timeframe as the time and cost overrun still continued in the projects implemented during the period covered in follow up audit.

The Management accepted (October 2015) the audit observation and stated that the matter of time overrun was discussed so many times with contractor's (Bharat Heavy Electricals Limited) top officials and the Management took decision to go for International Competitive Bidding to obtain competitive prices and timely completion of new projects.

Renovation and modernisation

2.3.9 In previous performance audit, it was commented that due to poor planning of R&M work of unit 6 of Obra 'A' TPS and non-completion of R&M work of Anpara 'A' TPS within scheduled time, UPRVUNL had to suffer generation loss of 714.13 MU (₹101.83 crore) and 681.57 MU (₹ 88.57 crore) respectively.

Based on above audit findings, it was recommended that renovation and modernisation programs should be taken as per schedule to optimise generation. As per the aforesaid recommendation, UPRVUNL was required to take up the renovation and modernisation (R&M)/life extension programme (LEP) activities on the schedule fixed as per the norms stipulated by the Central Electricity Authority (CEA).

We noticed that UPRVUNL did not ensure the compliance of the recommendation acceded to, as they did not evolve a system to ensure that the R&M/LEP works are taken up as per schedule. Instead, UPRVUNL continued with the old practice of carrying out R&M/LEP activities in normal course without any strategic plan. As a result, R&M works of TPSs were inordinately delayed, as discussed below:

Abnormal delay in taking up of R&M works

2.3.10 R&M of six units[21] of three TPSs (due for R&M during May 2001 to May 2007) was pending for taking up as on April 2010. Out of these six units, R&M of only unit 2 of TPS Parichha was taken up in March 2012 against schedule of December 2005 attributing a delay of six years and three months. The R&M of this unit was completed in April 2013. The R&M of remaining five units of three TPSs was, however, not taken up even after lapse of a period of eight years to 14 years as of July 2015 without any reason on records.

Not carrying out R&M of units on schedule, resulted in forced outages of units, consequently, there was generation loss 1407.78 MUs valuing ₹ 436.46 crore

It indicated that, despite above accepted recommendation, UPRVUNL did not make any strategy or plan to carry out R&M of units on scheduled dates to ensure optimum generation from the existing units. Due to not carrying out the R&M of units on scheduled dates, the units went into forced outages resulting in generation loss of 1407.78 MUs valuing ₹ 436.46 crore during 2010-11 to 2014-15.

The Management stated (October 2015) that after finalisation of the contract for supply of required materials, R&M of unit 1 of Parichha TPS would be taken up. Further, R&M of unit 12 and 13 of Obra 'B' would be taken up after ensuring completion of R&M of its unit 10 and 11 to avoid huge generation loss. The Management further stated that R&M of unit 3 and 4 of Panki TPS had not been planned as these were to be phased out after start of upcoming Panki (1X660 MW) TPS.

Control on loss of coal in transit, unloading time and consumption of coal

2.3.11 In previous performance audit, it was commented that loss of coal in transit ranged between 0.16 *per cent* and 2.95 *per* cent in Parichha, Harduaganj and Obra TPSs against the norm of 0.8 *per cent.* There was delay of one to 118 hours in unloading of coal rakes (85.13 *per cent* rakes) resulting in avoidable payment of demurrage charges of ₹ 16.57 crore. Further, coal consumption in Obra and Parichha TPSs remained higher than the norms fixed by UPERC.

Based on above audit findings, it was recommended that UPRVUNL should take up measures to check loss of coal in transit, delay in unloading rakes and reduce consumption of coal. As per aforesaid recommendation, the respective TPSs of UPRVUNL were required to take up effective control-measures to restrict the loss of coal in transit (LCT), keep the consumption of coal within the norms fixed by UPERC and unloading time within the limit fixed by Railway. The irregularities noticed in respect of TPSs of UPRVUNL are discussed in the succeeding paragraphs:

Loss of coal in transit

2.3.12 The LCT is difference between weight of coal rake at electronic weigh bridge of collieries and weight as per weighbridge of respective TPS. UPERC fixed norms of 0.8 *per cent* for LCT.

To reduce the LCT, the Board of Directors (BOD) of UPRVUNL instructed (January 2011) the TPSs to increase penalty in new agreements executed for monitoring of transportation with coal liaisoner. The TPSs were further instructed (June 2011) to furnish comparative statement showing transit loss of

[21] Parichha 'A': unit 1&2, Obra 'B': unit 12 &13, Panki: unit 3 & 4.

TPS of UPRVUNL vis-a-vis transit loss of TPS of National Thermal Power Corporation Limited (NTPC).

We noticed that, in compliance to the directives of BOD, the TPS amended (June 2011) the penalty clause in the agreements executed for coal liaisoning by incorporating a slab rate of penalty in place of flat rate. However, comparative statement of LCT of TPSs of UPRVUNL and those of NTPC was not prepared by the TPSs.

TPS-wise details of LCT for the period from 2010-11 to 2014-15 are given in the table 2.3.2.

Table 2.3.2

Year	Actual transit loss of coal against prescribed norm of 0.8 *per cent* (in *per cent*)		
	Parichha	Panki	Obra
2010-11	1.96	3.87	0.29
2011-12	1.60	2.77	0.99
2012-13	0.76	2.24	1.02
2013-14	0.88	1.87	0.98
2014-15	0.08	1.69	1.16

Source: Information furnished by UPRVUNL

We noticed that, after incorporation (June 2011) of a slab rate of penalty in place of flat rate of penalty, the LCT was reduced in all the TPSs except in case of Obra TPS where it had increased from 0.98 *per cent* to 1.16 *per cent* in 2014-15.

The Management stated (October 2015) that LCT was continuously decreasing since 2010-11 and efforts were being made to reduce transit loss further up to the UPERC norms. The fact remains that the LCT could not be reduced to the norms prescribed by UPERC.

Delay in unloading of coal rakes

2.3.13 The Railway has fixed time limit of seven hours for unloading of one coal rake (58 wagons) and for the unloading time taken in excess of seven hours, demurrage charges at the rate of ₹ 100 per wagon per hour (₹ 150 per wagon per hour w.e.f. 1 April 2013) were payable.

UPRVUNL had to pay demurrage charges of ₹ 64.82 crore due to delay in unloading of coal wagons

We noticed that UPRVUNL did not make any concrete plan to restrict the unloading time to the prescribed limit of seven hours except issue of routine and general instructions to the TPSs. As a result, the delay in unloading the coal rakes still remained beyond allowable period during the period 2010-11 to 2014-15 and UPRVUNL had to make payment of demurrage charges of ₹ 64.82 crore during the aforesaid period.

The Management accepted the audit observation and stated (October 2015) that, in case of increase in demurrage, explanation/clarification from TPSs had been sought and funds were released when improvement had been shown by the concerned TPS. The Management further stated that regular reports of demurrage were being sought from TPSs for monitoring purpose since September 2014.

Excess consumption of coal

2.3.14 In compliance with the recommendation acceded to, UPRVUNL did not prepare any concrete strategy/plan to restrict the coal consumption as per the norms fixed by UPERC, except following the existing system and issue of routine and general instructions to the TPSs. As a result, there was no significant control in coal consumption.

The TPS-wise details of coal consumption vis-à-vis UPERC norms during the period from 2010-11 to 2014-15 are given in table 2.3.3.

Table 2.3.3

(in Kg/Kwh)

Year/ TPS	2010-11		2011-12		2012-13		2013-14		2014-15	
	Norms	Actual	Norms	Actual	Norms	Actual	Norms	Actual	Norms[22]	Actual
Anpara 'A'	0.82	0.78	0.82	0.79	0.81	0.81	0.81	0.81	0.81	0.81
Anpara 'B'	0.74	0.69	0.74	0.69	0.75	0.71	0.75	0.72	0.75	0.72
Obra 'A'	0.89	0.97	0.89	0.95	0.86	0.84	0.85	0.86	0.85	0.98
Obra 'B'	0.88	0.88	0.88	0.86	0.83	0.78	0.83	0.82	0.83	0.90
Panki	0.84	0.93	0.83	0.90	0.79	0.88	0.78	0.93	0.78	0.94
Parichha 'A'	0.93	0.91	0.92	0.94	0.81	0.92	0.80	0.91	0.80	0.93
Parichha 'B'	0.71	0.81	0.71	0.84	0.67	0.82	0.67	0.81	0.67	0.82
Parichha Ext.	0.71	-	0.71	-	0.69	0.81	0.69	0.73	0.69	0.74

Source: Multi-Year Tariff approved by UPERC and information furnished by UPRVUNL

We noticed that:

- the coal consumption (CC) in Panki, Parichha 'A' and 'B' and Parichha Extension was more than UPERC norms except in 2010-11 in Parichha 'A'.
- the CC in Anpara 'B' remained below the norms during the period of five years, whereas, the CC in Anpara 'A' stood within the norms during first two years and remained at par with the norms during last three years.
- the CC in Obra 'A' remained more than norms except in 2012-13, whereas, the CC in Obra 'B' was more than norms in 2014-15 and in remaining years, it was either at par or less than the norms.

The Management accepted the audit observation and stated (October 2015) that coal received at TPSs was generally of low gross calorific value (GCV), high ash content and low volatile matter, therefore, coal consumption was high. The Management also stated that the other reasons of excess consumption of coal were attributed to old TPSs, frequent tripping, Boiler Tube Leakage (BTL), flame failure and delayed R&M /overhauling.

Measures for increasing plant load factor

2.3.15 In previous performance audit, it was commented that PLF of TPSs of UPRVUNL was low due to low plant availability, excessive forced outages, low capacity utilsation and major shut downs & delays in repairs and maintenance .

Based on above audit findings, it was recommended that UPRVUNL should endeavour to increase plant load factor (PLF) by minimising forced outages, increasing capacity utilisation and reducing time in repair and maintenance. As per aforesaid recommendation, the TPSs of UPRVUNL were required to take measures to minimise the forced outages, increase capacity utilisation and

[22] Norms for 2013-14 used due to awaited MYT

reduce time in repair and maintenance for increasing the PLF. The irregularities noticed in this regard are discussed in the succeeding paragraphs:

Plant load factor

2.3.16 Plant load factor (PLF) refers to the ratio between the actual generation and the maximum possible generation at installed capacity. We noticed that UPRVUNL did not make any concrete plan to minimise forced outages, increase capacity utilisation and reduce time in repair and maintenance required to increase the PLF. However, UPRVUNL took some general measures viz. implementation of operation review technique, monthly/bi-monthly meetings and daily monitoring through video conferencing. Despite these measures, forced outages and time taken in repair and maintenance could not be reduced as well as capacity utilisation could not be increased.

Outages

2.3.17 Outages refer to the period for which the plant remains closed for attending planned/ forced maintenance, which reduces the plant availability. The overall details of forced outages and plant availability for the period 2010-11 to 2014-15 are given in table 2.3.4.

Table 2.3.4

Particulars	2010-11	2011-12	2012-13	2013-14	2014-15
Total hours available	205176	194688	207672	222744	227760
Operated hours	147622	125139	124093	123663	140129
Forced outages (hours)	28067	16549	22305	36368	32048
Plant availability (*per cent*)	71.95	64.28	59.75	55.51	61.52
Average plant availability	62.44 *per cent*				

Source: Information furnished by UPRVUNL

We noticed that the average plant availability of 64.74 *per cent* during the previous performance audit decreased to 62.44 *per cent* during 2010-11 to 2014-15.

The Management accepted the audit observation and stated (October 2015) that most of the plants of UPRVUNL were very old and had lived their useful life. Further, due to wear and tear and ageing effect, and non-availability of spares, the breakdowns were frequent, hence, the down time/outage was high.

Capacity utilisation

2.3.18 Capacity utilisation means the ratio of actual generation to possible generation during actual hours of operation. The overall details of capacity utilisation of TPSs for the period 2010-11 to 2014-15 are given in table 2.3.5.

Table 2.3.5

(in *per cent*)

Particulars	2010-11	2011-12	2012-13	2013-14	2014-15
Actual PLF	60.82	58.46	53.76	60.35	58.07
Plant availability	71.95	64.28	59.75	55.51	61.52
Average Capacity Utilisation (Row: 1*2)	43.76	37.58	32.12	33.50	35.72

Source: Information furnished by UPRVUNL

We noticed that the average capacity utilisation ranging between 32.12 *per cent* and 43.76 *per cent* during 2010-11 to 2014-15 depicted a fluctuating trend and low capacity utilisation as against that of 33.09 *per cent* to 48.65 *per cent* during the period of previous performance audit.

The Management accepted the audit observation and stated (October 2015) that, out of 26 units, 20 units were 21 years to 47 years old and had lived their useful life. Due to deterioration in system, units were running on partial load, therefore, the capacity utilisation was not being achieved.

Non-reduction in time taken for repair and maintenance

2.3.19 We noticed that, despite acceding to the recommendation, UPRVUNL did not curtail the existing time limit of 45 days for repair and maintenance of TPSs. Resultantly, there was no improvement in PLF.

The Management accepted the audit observation and stated (October 2015) that time taken to attend the breakdown was long due to old plants and long time taken to arrange the spares due to paucity of funds.

Non-achievement of normative PLF

2.3.20 The TPS-wise status of actual PLF *vis-à-vis* UPERC norms for the period 2010-11 to 2014-15 are detailed in **Annexure-2.3.2** and discussed below:

The normative plant load factor of 56 to 85 *per cent* fixed by UPERC could not be achieved by UPRVUNL and it ranged from19.5 *per cent* to 80 *per cent* during 2010-11 to 2014-15

- the PLF of seven TPSs ranged between 19.5 *per cent* and 80 *per cent* against the norms of 56 to 85 *per cent* during the aforesaid period.
- only one TPS (Anpara 'B') could achieve the higher PLF of 88.66 *per cent,* 83.39 *per cent,* and 88.15 *per cent* during 2010-11, 2011-12 and 2013-14 respectively against the norm of 80 *per cent*. In remaining two years, the PLF of this TPS was below the norm and it stood at 78.49 *per cent* and 71.61 *per cent.*

Thus, despite acceding to audit recommendation, UPRVUNL did not take concrete measures to control forced outages, improve plant availability and reduce time taken in repair and maintenance of plants. As a result, norms of PLF of 56 to 85 *per cent* could not be achieved and it ranged between 19.5 *per cent* and 80 *per cent* during the period of Follow up Audit.

The Management stated (October 2015) that, in each meeting, specific direction had been issued to all the projects to improve the PLF. The fact remains that the TPSs could not achieve the normative PLF.

Measures for controlling auxiliary consumption

2.3.21 In previous performance audit, it was commented that auxiliary consumption of TPSs of UPRVUNL viz. Anpara, Obra and Parichha ranged from 7.61 to 19.15 *per cent* which was higher than UPERC norms of 7 to 12 *per cent* .

Based on above audit findings, it was recommended that UPRVUNL should take measures to control the auxiliary consumption. As per aforesaid recommendation, the TPSs of UPRVUNL were required to restrict the auxiliary consumption within the norms fixed by UPERC. We noticed that no action plan/strategy was made by UPRVUNL for curtailment of auxiliary consumption except issue of general instructions to their field units to reduce the auxiliary consumption. The actual position of auxiliary consumption *vis-à-vis* UPERC norms in respect of UPRVUNL is discussed in succeeding paragraphs:

The auxiliary consumption in UPRVUNL ranged between 7.42 *per cent* and 21.71 *per cent* against the UPERC norms of 5.25 *per cent* to 11.30 *per cent* during 2010-11 to 2014-15

2.3.22 Auxiliary consumption is the ratio of the energy consumed by the auxiliary of the plant and energy generated by the plant.

TPS-wise position of actual auxiliary consumption against the norms fixed by UPERC for the period 2010-11 to 2014-15 is detailed in **Annexure-2.3.3.** We noticed that the auxiliary consumption of TPSs ranged between 7.42 *per cent* and 21.71 *per cent* against the UPERC norms of 5.25 *per cent* to 11.30 *per cent* during the aforesaid period. Thus, reduction in auxiliary consumption, as compared to UPERC norms could not be achieved.

The Management stated (October 2015) that, due to ageing of units, the units operated at partial load whereas auxiliary consumption remained full. Further, due to wear and tear in the system, auxiliaries took more current compared to designed value. The reply is not tenable as due to lack of timely overhauling and R&M/Life extension activities, the auxiliary consumption was more than the UPERC norms.

Efforts for timely realisation of dues

2.3.23 In previous performance audit, it was commented that UPPCL did not make payment of dues of power purchase to UPRVUNL on due dates and in full amount. As a result, the dues against UPPCL were accumulated to ₹ 4089.94 crore as of 31 March 2010.

Based on above audit findings, it was recommended that UPRVUNL should make efforts for timely realisation of dues from UPPCL to improve liquidity. As per aforesaid recommendation, UPRVUNL was required to frame out a plan in consultation with UPPCL for realisation of old dues in a systematic and periodic manner and current dues in time. The GoUP directed (February 2011) UPPCL to pay its energy dues to UPRVUNL regularly and also instructed that the UPPCL and UPRVUNL should make a plan with mutual consultation within 15 days and obtain its approval from Chairman-cum-Managing Director, UPPCL for payment of outstanding dues in a phased manner. The deficiencies noticed in this regard are discussed in succeeding paragraphs:

Due to not framing of strategic action plan for recovery of old dues, the dues of ₹ 5135.06 crore remained outstanding from UPPCL as of March 2015

2.3.24 We noticed that UPRVUNL did not make any plan for payment of old dues by the UPPCL even after a lapse of more than four years. As a result, dues of ₹ 5218.55 crore outstanding at the end of March 2011 could not be liquidated but slightly reduced to ₹ 5135.06 crore at the end of March 2015.

The Management stated (October 2015) that outstanding dues of UPRVUNL had shown a downward trend from ₹ 6655.74 crore in the year 2011-12 to ₹ 5135.06 crore in March 2015. During this period, UPPCL had tried to off load its dues in spite of its overall financial constraints. The reduction in dues from UPPCL was a result of regular all time pursuance by UPRVUNL.

The reply is not acceptable as no action plan was prepared for payment of old dues. Further, reduction in dues since March 2011 was very low (only 0.88 *per cent*).

Uttar Pradesh Jal Vidyut Nigam Limited

2.3.25 Recommendation wise, audit findings relating to UPJVNL are discussed in succeeding paragraphs:

Non-implementation of recommendation on planning and execution

2.3.26 In previous performance audit, it was commented that construction activities taken up for new Sheetla hydro project by UPJVUNL were far behind the scheduled timeframe due to poor planning and monitoring which led to time and cost overrun. Therefore, it was recommended that UPJVNL should adequately plan for new projects to avoid time and cost overrun.

UPJVNL was required to fix a timeframe for various activities undertaken for timely completion of a project. UPJVNL planned for one HPS viz. Khara small hydro project of 1.5 MW during 2010-11 to 2014-15. The project conceptualised in January 2010, was approved by the BOD and the GoUP in January 2011 and November 2011 respectively. The availability of land and water was essential for taking up the above project.

We noticed that, while planning for above project, UPJVNL did not fix any timeframe for preparation and approval of Detailed Project Report (DPR) and bid document so as to ensure timely completion of the project.

We further noticed that, despite availability of land and water, UPJVNL awarded (May 2013) the works of construction of above HPS after lapse of more than three years with scheduled date of completion of May 2015 revised to March 2017**.** The reasons for delay were attributed to finalisation of DPR in a period of one year, delay of one year in approval by BOD and 17 months in finalisation of contract due to delayed invitation of tender and frequent time extension for opening/finalisation of tender.

The Management accepted (October 2015) the audit observation and stated that, after finalisation of DPR by Alternate Hydro Energy Center (AHEC), Indian Institute of Technology (IIT), Roorkee (January 2011) and approval by the BOD (July 2012) of the bid documents prepared by AHEC IIT Roorkee, the tender process was executed and works were awarded in May 2013.

Renovation and modernisation

2.3.27 As per accepted recommendation, UPJVNL was required to carry out the R&M works as per schedule. We noticed that R&M works of eight units of three hydro power stations (due for R&M during 1997 to April 2006) were pending for taking up as on April 2010. All eight units were taken up during 2010-11 to 2014-15 for R&M by UPJVNL after an inordinate delay of five years to 17 years. Out of this, R&M of three units was completed during June 2013 to April 2014 and five units taken up during April 2011 to February 2014 were still under progress. We also noticed that UPJVNL did not make any strategy or plan to carry out R&M of units on scheduled dates. It was also observed that HPSs of UPJVNL due for R&M were also quite old (44 to 53 years).

The Management stated (October 2015) that Residual Life Assessment (RLA) and Life Extension (LE) studies were carried out to check the healthiness parameters of Rihand, Obra and Matatila HPSs and all out efforts had been made to expedite the activities at every stage in pre-set timeframe.

The reply is not tenable as it did not address the issue of inordinate delay in taking up R&M of HPSs.

Measures for controlling auxiliary consumption

2.3.28 As per accepted recommendation, UPJVNL was required to control the auxiliary consumption within the prescribed norms. The HPS-wise position of actual auxiliary consumption against the norms fixed by UPERC for the period 2010-11 to 2014-15, is detailed in **Annexure-2.3.4.**

We noticed that:

- the auxiliary consumption of Rihand (300 MW), Obra (99 MW), Matatila (30 MW) and Khara (72 MW) HPSs ranged from 0.07 *per cent* to 0.86 *per cent*, which was within the norms of 0.70 *per cent* to 1.00 *per cent* in all the years during 2010-11 to 2014-15 except in 2010-11 in Khara HPS where it was above the norms.
- the auxiliary consumption of smaller HPSs (5 MW or less) remained higher than the norms and it ranged from 0.80 *per cent* to 5.88 *per cent* against the norms of 0.70 *per cent* to 1.00 *per cent* during 2010-11 to 2014-15 except in Nirgagini, Chitora and Salwa and Upper Ganga Canal (Nirgagini, Chitora and Salwa) HPSs, where it was below the norms in 2013-14 and stood at 0.18 *per cent* to 0.41 *per cent*.

The Management accepted the audit observation and stated (October 2015) that auxiliary consumption in small HPSs except Sheetla HPS was higher due to running of plant at partial load due to ageing effect. Further, Sheetla HPS was Irrigation based project which did not run continuously resulting in high auxiliary consumption. The Management further stated that, under remedial action, DPR for R&M of these small HPSs had been submitted by AHEC, IIT Roorkee and further course of action was under process.

Efforts for timely realisation of dues

2.3.29 In previous performance audit, it was commented that UPPCL did not make payment of dues of power purchase to UPJVNL on due dates and in full amount. As a result, the dues against UPPCL were accumulated to ₹ 212.24 crore as of 31 March 2010.

Based on above audit findings, it was recommended that UPJVNL should make efforts for timely realisation of dues from UPPCL to improve liquidity. We noticed that, for timely realisation of dues, UPJVNL was required to make a plan in consultation with the UPPCL to get timely payment against the current dues and recover old dues in a phased manner from UPPCL. However, neither UPJVNL made any plan for timely realisation of dues from the UPPCL nor the GoUP intervened for timely payment of dues by the UPPCL. As a result, outstanding dues of ₹ 230.99 crore in 2010-11 mounted to ₹ 331.57 crore (increase of 44 *per cent*) in 2014-15 against UPPCL.

Due to not framing of strategic action plan for recovery of old dues, the dues of ₹ 331.57 crore remained outstanding from UPPCL as of March 2015

The Management stated (October 2015) that, due to financial crunch in UPPCL, timely payments were not received by UPJVNL, however, funds/payments were released by UPPCL to meet the emergency payments/claims. It was also added that the UPJVNL was pursuing hard to recover its outstanding dues from UPPCL.

The reply is not acceptable as the UPJVNL had not made any plan for recovery of dues in consultation with UPPCL. Further, non-recovery of dues was adversely affecting operations and financial position of UPJVNL.

Conclusion

We conclude that, besides issue of routine orders and instructions to the TPS/HPS, UPRVUNL and UPJVNL did not prepare any concrete plan to put the recommendations acceded to, in practice. As a result, compliance of recommendations remained poor, as detailed below:

UPRVUNL

- **New projects viz. Panki (1X660 MW) and Obra 'C' (2X660 MW) could not be started for want of permission for use of water / clearances from MoEF due to lack of effective pursuance.**
- **The units of Parichha Extension Project were completed with a delay of 24 to 28 months and Anpara 'D' Project could not be completed even after lapse of a period of more than four years, resulting in cost overrun of ₹ 2522.25 crore.**
- **UPRVUNL suffered generation loss of 1407.78 MUs valuing ₹ 436.46 crore due to not taking up/carrying out the R&M of six units of three TPSs on schedule.**
- **the loss of coal in transit and consumption of coal exceeded the norms fixed by UPERC in most of the TPSs, besides payment of demurrage charges of ₹ 64.82 crore to Railway due to excess unloading time.**
- **the normative PLF of 56 to 85 *per cent* fixed by UPERC could not be achieved by the TPSs due to non-reduction of the forced outages and time taken in repair and maintenance and low capacity utilisation.**
- **In absence of any strategic plan for realisation of dues, the outstanding dues from UPPCL accumulated to ₹ 5135.06 crore as of March 2015.**

UPJVNL

- **Khara project conceptualised in January 2010 could not be completed within the scheduled date of May 2015 which had to be revised to March 2017.**
- **All eight units were taken up during 2010-11 to 2014-15 for R&M after an inordinate delay of five years to 17 years. Out of this, R&M of three units was completed during June 2013 to April 2014 and five units taken up during April 2011 to February 2014 were still under progress.**
- **In absence of any strategic plan for realisation of dues, the outstanding dues from UPPCL accumulated to ₹ 331.57 crore as of March 2015.**

2.4 Long Paragraph on Financial health of DISCOMs in compliance with Financial Restructuring Plan

Executive Summary

Introduction

Ministry of Power (MoP),Government of India (GoI), keeping in view the deteriorating financial health of State Distribution Companies (DISCOMs), formulated (October 2012) a scheme for financial restructuring (scheme) of the DISCOMs. The scheme was valid up to July 2013 and was available for all participating State DISCOMs having accumulated losses and facing difficulty in financing operational losses.

The primary objective of the scheme was to enable the respective State Governments and the DISCOMs to carve out a strategy in the form of Financial Restructuring Plan (FRP) for the financial turnaround of the DISCOMs and ensuring their long term viability.

Uttar Pradesh Power Corporation Limited (UPPCL) prepared an FRP based on consolidated figures of short term liabilities (short term loans and power purchase liabilities) available in its books of accounts. As of March 2012, the accumulated losses and the short term liabilities of the DISCOMs were ₹ 33600 crore and ₹ 31680.56 crore respectively.

Salient features of the scheme for financial restructuring

- 50 *per cent* of the short term Liabilities (STLs) as on 31 March 2012 was to be taken over by State Government in the form of bonds and balance 50 *per cent* of the amount of STLs was to be restructured by Banks/Financial Institutions (FIs) and serviced by DISCOMs.
- An incentive by way of capital reimbursement support of 25 *per cent* of principal repayment of bonds by the State Government was available subject to compliance with the mandatory conditions envisaged in the scheme.
- Under the scheme, an incentive for liquidity support to the DISCOMs was available equivalent to the value of reduction in aggregate technical and commercial losses for three years i.e. 2012-13, 2013-14 and 2014-15 beyond three *per cent* against the benchmark year of 2010-11.

The important audit findings on the preparation and implementation of FRP in compliance with the provisions of the scheme are detailed below:

Deficiencies in preparation of FRP

The prime object of the scheme was to reduce the financial burden of the DISCOMs by implementation of FRP. The scheme provided that the eligible amount of short term liabilities (STLs) for restructuring was to be ascertained by adding short term loans (STLn), working capital loans, power purchase liabilities (PPL) of more than 60 days and deducting the arrears of subsidy and electricity dues which were recoverable from the GoUP/Government Departments, as of 31 March 2012.

After ascertainment of the eligible amount of STLs under FRP, the DISCOMs were required to take fresh loans from Banks/FIs. Further, 50 *per cent* of the total STLs ascertained under FRP was to be taken over by the GoUP.

- Review of the FRP implemented by the DISCOMs revealed that the GoUP did not release the arrears of the subsidy of ₹ 10445.29 crore and electricity dues of ₹ 1131.26 crore as of 31 March 2012 to the DISCOMs. While ascertaining the eligible amount of STLs under FRP, these arrears were not deducted.

Thus, non-compliance of above provisions of the scheme resulted in over ascertainment of STLs. As a result, there was drawl of larger amount of short term loan of ₹ 9182.46 crore from Banks/FIs. As 50 *per cent* of this amount would be finally taken over by GoUP, the DISCOMs were overburdened to the extent of ₹ 4591.23 crore with liability of interest of ₹ 843.64 crore payable thereon during the years 2013-14 and 2014-15. Further, non-compliance of the provision also defeated the prime object of the scheme which was to decrease the debt burden of the DISCOMs.

(Paragraph 2.4.8)

Impact of implementation of FRP

- The financial health of DISCOMs further deteriorated due to non-preparation of FRP as per the provisions of the scheme of MoP, GoI as the accumulated losses of the DISCOMs amounting to ₹ 33600 crore as of 31 March 2012 increased to ₹ 60101.98 crore as of 31 March 2014. The reasons for increase in accumulated losses were mainly attributed to non-receipt of claimed amount of subsidy as per the mandatory conditions of the scheme and burden of interest accruing on excess drawl of loans.

(Paragraph 2.4.23)

Compliance of mandatory conditions

For successful implementation of the scheme, attainment of expected outcomes and availing of the capital reimbursement support from Central Government, GoUP and UPPCL/DISCOMs were to comply with certain mandatory conditions.

Non-compliance of mandatory conditions as detailed below led to ineligibility of State Government for capital reimbursement support of ₹ 3952.59 crore from GoI:

(Paragraph 2.4.18)

- The DISCOMs finalised the annual accounts for the year 2010-11 and 2011-12 with a delay of two to three months in February to March 2013 and March to May 2013 respectively, which also led to delay in filing of True-up petitions for the above period.

(Paragraph 2.4.13 and 2.4.14)

- As per scheme, prepaid meters for all Government consumers as of 31 March 2012 were to be installed by 31 March 2013. However, not a single prepaid meter was installed against 49,528 Government consumers.

(Paragraph 2.4.16)

- As per scheme, road map for involvement of private sector in state distribution sector through franchisee arrangements or any other mode of private participation was to be prepared within a year and submitted to Central Electricity Authority (CEA) for approval but no road map was finalised and submitted to CEA, as of March 2015.

(Paragraph 2.4.18)

Reduction of AT&C losses and ACS-ARR gap

- Despite reduction in Aggregate technical & commercial losses (AT&C) in 2012-13 (KESCO) and in 2013-14 (all DISCOMs) against the AT&C of benchmark year 2010-11, non-reduction in the gap between average cost of supply (ACS) and average revenue realised (ARR) during above period by the DISCOMs led to the deprival of incentive for liquidity support of ₹ 1377.76 crore.

(Paragraph 2.4.21)

Monitoring mechanism

The monitoring mechanism for monitoring of the performance and achievement under the FRP was found to be ineffective due to non-enactment of State Electricity Distribution Responsibility Bill and non-appointment of third party by CEA/PFC for annual verification of achievements of FRP/random verification of outstanding revenue subsidy.

(Paragraph 2.4.22)

Introduction

2.4.1 Ministry of Power (MoP),Government of India (GoI), keeping in view the deteriorating financial health of State Distribution Companies (DISCOMs), formulated (October 2012) a scheme for financial restructuring (scheme) of the DISCOMs. The scheme was valid up to December 2012, which was extended to July 2013 and was available for all participating State DISCOMs having accumulated losses and facing difficulty in financing operational losses. The primary objective of the scheme was to enable the respective State Governments and the DISCOMs to carve out a strategy in the form of Financial Restructuring Plan (FRP) for the financial turnaround of the DISCOMs and ensuring their long term viability. As of March 2012, the accumulated losses and the short term liabilities of the DISCOMs were ₹ 33600 crore and ₹ 31680.56 crore respectively.

The distribution of power in the State is managed by five DISCOMs (Madhyanchal Vidyut Vitran Nigam Limited, Purvanchal Vidyut Vitran Nigam Limited, Paschimanchal Vidyut Vitran Nigam Limited, Dakshinanchal Vidyut Vitran Nigam Limited and Kanpur Electricity Supply Company Limited). Uttar Pradesh Power Corporation Limited (UPPCL) is the nominated agency of the Government of Uttar Pradesh (GoUP) for procurement of power on behalf of the DISCOMs. The power made available by UPPCL is distributed by the DISCOMs to the consumers at the tariff approved by Utter Pradesh Electricity Regulatory Commission (UPERC). Further, UPPCL acted as a nodal agency for preparation of FRP and its implementation on behalf of all the DISCOMs.

The FRP was required to be approved by GoUP and UPERC and duly approved FRP was to be submitted to MoP. The stakeholders were to perform certain key roles for implementation of the scheme and attainment of the expected outcomes. The key roles of Central Government, GoUP and UPPCL/DISCOMs are discussed in **Annexure-2.4.1.**

Scope and methodology of audit

2.4.2 The audit was conducted during November 2014 to April 2015 covering the effective period of FRP from 2012-13 to 2014-15. The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of explaining the scope of audit and audit objectives to top

Management in an Entry Conference held on 14 November 2014, scrutiny of 100 *per cent* records at Head office of UPPCL in reference to FRP and records of DISCOMs in reference to aggregate technical and commercial (AT&C) losses and gap between average cost of supply (ACS) and average revenue realised (ARR).

The long draft paragraph was issued to the Management/Government on 6 July 2015. An Exit Conference was held on 15 July 2015 with the Government and Management to discuss the audit findings. The replies of the Management were received in August 2015 which have been duly considered while finalising the long paragraph. The reply of the Government is awaited (November 2015).

Audit objectives

2.4.3 The audit objectives of the Long Paragraph were to assess whether:

- the FRP prepared by UPPCL was in accordance with the scheme of financial restructuring formulated by MoP, GoI;
- mandatory and recommendatory conditions of the scheme were complied with by UPPCL/DISCOMs and GoUP;
- targets for reduction in AT&C losses and ACS-ARR gap were achieved by DISCOMs; and
- monitoring mechanism as prescribed in the scheme was in place.

Audit criteria

2.4.4 The audit criteria considered for achievement of audit objectives for assessment of compliance with the scheme were drawn from:

- office memorandum/guidelines issued by MoP, GoI regarding scheme;
- FRP prepared by UPPCL and approved by GoUP/UPERC;
- guidelines/instructions of GoUP/UPERC;
- terms and conditions of the agreements entered into with the banks/Financial Institutions (FIs); and
- Appellate Tribunal for Electricity (APTEL) judgment (11 November 2011).

Salient features of the FRP

2.4.5 UPPCL prepared a Financial Restructuring Plan (FRP) with the targets to be achieved during 2012-13 to 2023-24. The FRP prepared by UPPCL was based on consolidated figures of short term liabilities (short term loans and power purchase liabilities) available in its books of accounts, as DISCOM-wise bifurcation of above figures was not available. The FRP so prepared was approved by GoUP and UPERC on 15 March 2013 and 19 March 2013 respectively and copy of approved FRP was sent to the MoP on 25 March 2013.

UPPCL revised (May 2013) the FRP at the instance of the banks/FIs to incorporate the audited figures of short term liabilities (STLs) and projected operational losses (POLs) of ₹ 31680.56 crore and ₹ 23064 crore respectively as against STLs of ₹ 30684 crore and POLs of ₹ 22249 crore included in pre-revised FRP. The formal approval of the revised FRP is still awaited from GoUP and UPERC (November 2015).

The revised FRP provided that:

- STLs of ₹ 31680.56 crore as of 31 March 2012 would be considered as eligible amount for financial restructuring.

- STLs of ₹ 15840 crore being 50 *per cent* of total STLs would be converted into bonds to be issued by UPPCL under GoUP guarantee and these bonds would be taken over by GoUP in four equal instalments commencing from 2014-15.
- financing of operational losses and interest for the first three years 2012-13 to 2014-15 would be done in the ratio decided by bank/FIs and GoUP in a diminishing scale.
- fresh loans from bank/FIs with a moratorium period of three years and repayment period of seven years would be taken against operational losses of first three years and for making payment of power purchase liabilities (PPLs) included under the FRP.
- the GoUP loan of ₹ 1720 crore would be converted into equity.
- the gap between ACS and ARR would be reduced to ₹ 1.60/KWh and ₹ 0.52/KWh till the financial year 2014-15 and 2016-17 respectively as against of the gap of ₹ 2.91/KWh for the year 2011-12.

Audit findings

2.4.6 Audit objective wise findings are discussed as below:

Deficiencies in preparation of FRP

2.4.7 UPPCL was required to prepare FRP in strict adherence to the provisions of the scheme in order to minimise the financial burden on the DISCOMs and to make them viable. The deficiencies in FRP due to non-adherence to the provisions of the scheme are discussed in succeeding paragraphs:

Incorrect ascertainment of short term liabilities under FRP led to excess drawl of loan

2.4.8 As referred to in paragraph 2.4.5, UPPCL ascertained STLs of ₹ 31680.56 crore consisting of short term loan (STLn) of ₹ 16126.56 crore and power purchase liabilities (PPLs) of ₹ 15554 crore for financial restructuring.

The prime object of the scheme was to reduce the financial burden of the DISCOMs by implementation of FRP. Keeping in view the object of the scheme, the release of the arrears of subsidy and electricity dues as of March 2012 to the DISCOMs was obligatory on the part of GoUP. Therefore, the scheme provided that the eligible amount of short term liabilities (STLs) for restructuring was to be ascertained by adding short term loans (STLn), working capital loans, power purchase liabilities (PPL) of more than 60 days and deducting the arrears of subsidy and electricity dues recoverable from the GoUP/Government Departments, as of 31 March 2012.

After ascertainment of the eligible amount of STLs under FRP, the DISCOMs were required to take fresh loans from Banks/FIs to discharge the power purchase liabilities. Further, 50 *per cent* of the total STLs ascertained under FRP was to be taken over by the GoUP.

Review of the FRP implemented by the DISCOMs revealed that the GoUP did not release the arrears of the subsidy of ₹ 10445.29 crore and electricity dues of ₹ 1131.26 crore as of 31 March 2012 to the DISCOMs. While ascertaining the eligible amount of STLs under FRP, these arrears were not deducted. Hence, the existing financial burden of the DISCOMs did not decrease.

Further, for working out eligible amount of STLs, STLn of ₹ 1610.44 crore taken from Rural Electrification Corporation Limited were not included due to non-consideration of loan from FIs and PPLs were short included by ₹ 783.65 crore due to wrong calculation.

As per the scheme, the STLs stood at ₹ 22498.10 crore against ₹ 31680.56 crore (higher by 41 *per cent*) ascertained by UPPCL, as detailed in table 2.4.1.

Table 2.4.1

(₹ in crore)

Particulars of STLs	**Amount considered in revised FRP**	**Amount to be considered in revised FRP**	**Differences in ascertainment of STLs**
Short term loans from Banks/FIs	16126.56	17737.00	1610.44
Liabilities of power purchase (for more than 60 days)	15554.00	16337.65	783.65
Sub-total (A)	**31680.56**	**34074.65**	**2394.09**
Deductions			
Deduction of Government dues	-	1131.26	(1131.26)
Arrears of subsidy	-	10445.29	(10445.29)
Sub-total (B)	**-**	**11576.55**	**(11576.55)**
Total (A-B)	**31680.56**	**22498.10**	**(9182.46)**

Source: Revised FRP, Annual Accounts and information furnished by UPPCL

It is evident from table 2.4.1 that non-compliance of above provisions of the scheme resulted in over ascertainment of STLs leading to drawl of larger amount of short term loan of ₹ 9182.46 crore from Banks/FIs. As 50 *per cent* of this amount would be finally taken over by GoUP, the DISCOMs were overburdened to the extent of ₹ 4591.23 crore with liability of interest of ₹ 843.64 crore payable thereon during the years 2013-14 and 2014-15. Further, non-compliance of the provision also defeated the prime object of the scheme entailing decrease in financial burden of the DISCOMs.

The Management stated (August 2015) that outstanding loan of REC was not considered in FRP as per the discussion with MoP. The reply is not tenable as nothing was found on records in respect of directions of MoP for non-inclusion of loan of REC for FRP.

The Management further stated that the claims for subsidy were made on the basis of the estimates but neither the UPERC nor the GoUP had accepted the claims. The reply is not correct as the claims for subsidy were made on actual basis and UPERC also considered the recoverable amount of subsidy while finalising th e tariff. The Management added that the electricity dues of ₹ 773.23 crore pertaining to Jal Sansthan, U. P. Jal Nigam and Panchayat Parishad were not treated as Government dues as they were not being charged from the Consolidated fund of the State. The reply is not acceptable as the payment of outstanding electricity dues was being made to UPPCL through the consolidated fund of the State.

Incorrect ascertainment of projected operational losses and interest

2.4.9 As referred to in paragraph 2.4.5**,** the projected operational losses and interest for the first three years commencing from 2012-13 were to be financed by the banks/FIs and GoUP in the ratio decided by them under the scheme. The financing of projected operational losses (POLs) including interest for the first three years as incorporated in FRP is given in **Annexure-2.4.2**.

Incorrect ascertainment of projected operational losses overburdened the DISCOMs by way of drawl of excess loan of ₹ 10647.36 crore from banks/FIs with avoidable liability of interest of ₹ 1521.43 crore during 2013-14 and 2014-15

UPPCL was required to ascertain the projections correctly, keeping in view the fact that the financial burden on the DISCOMs remains minimised to ensure their viability. UPPCL worked out the POLs by deducting the projected income from the projected expenditure.

We noticed that the POLs ascertained by UPPCL stood at ₹ 23064 crore against that of ₹ 8668.84 crore for the above period leading to overstatement of POLs by ₹ 14395.16 crore. The reasons for overstatement of POLs were attributed to inclusion of excess expenditure (₹ 2749.46 crore) and non/short inclusion of income (₹ 11645.70 crore) as detailed in **Annexure-2.4.3**.

This incorrect ascertainment of POLs overburdened the DISCOMs by way of drawl of excess loan of ₹ 10647.36 crore from banks/FIs with avoidable liability of interest of ₹ 1521.43 crore ***(Annexure-2.4.3)*** during 2013-14 and 2014-15.

The Management stated (August 2015) that the claim of subsidy not accepted by the GoUP could not be included as income and interest of ₹ 1149 crore was also not included in its income as there was no provision for payment of interest on bonds from April 2012. The reply is not acceptable as the subsidy was recoverable from the GoUP and UPERC also considered the recoverable amount of subsidy while finalising the tariff. Further, the GoUP was responsible for payment of interest on the portion of STLs taken over by it from April 2012. Therefore, as per the scheme, this should have been included in income for working out POLs.

Compliance of mandatory conditions

2.4.10 For successful implementation of the scheme and attainment of expected outcomes, GoUP and UPPCL/DISCOMs were to comply with certain mandatory conditions to improve the functional efficiency of DISCOMs. Under the scheme, an incentive by way of capital reimbursement support (CRS) of 25 *per cent* of principal repayment of STLs by the GoUP was available subject to compliance with the mandatory conditions envisaged in the scheme. As referred to in paragraph 2.4.5, the GoUP converted its loan into equity but other mandatory conditions were not complied with by the UPPCL/DISCOMs and GoUP, as discussed below:

Non-release of outstanding revenue subsidy by the State Government

2.4.11 As per scheme, outstanding revenue subsidy of ₹ 10445.29 crore as of March 2012 was to be released by the GoUP to the DISCOMs before 31 March 2013. However, the above subsidy was not released to the DISCOMs, as of March 2015 and the subsidy for subsequent years of 2012-13 and 2013-14 was short released by ₹ 6607.44 crore. Thus, due to non-fulfillment of the commitment by the GoUP as per the scheme, outstanding revenue subsidy accumulated to ₹ 17052.73 crore as of March 2014.

The Management stated (August 2015) that the GoUP had released the accepted liability of the subsidy against the claimed amount. The reply is self explanatory as the GoUP did not fulfill its commitments as per mandatory condition of the scheme.

Non-realisation of Government dues

2.4.12 As per scheme, payments against outstanding dues of ₹ 1131.26 crore as of 31 March 2012 pertaining to Government Departments as discussed in paragraph 2.4.8 were to be released to the DISCOMs before 30 November 2012, which were not released.

Delay in filing of True-up petitions

2.4.13 Aggregate Revenue Requirement (ARR) petition for tariff of a financial year is required to be filed before UPERC on 30 November of the preceding financial year. True-up petition is a petition, which is filed before UPERC for the actual ARR based on the audited annual accounts in succession to the earlier ARR petition finalised by UPERC. Appellate Tribunal for Electricity (APTEL) directed (11 November 2011) that True-up petition of the ARR of the respective year should be filed annually before UPERC.

We noticed that the True-up petitions for the period 2008-09 to 2010-11, 2011-12 and 2012-13 were filed with delay on 13 May 2013, 29 November 2013 and 8 December 2014 respectively, mainly due to delayed finalisation of annual accounts**.** We further noticed that UPERC approved (June 2015) the revenue gap of ₹ 20596.85 crore against above True-up petitions considering the recovery of revenue gap in about 20 years. Out of which, ₹ 1473.38 crore only would be adjusted through tariff hike and regulatory surcharge during 2015-16. Thus, due to delay in filing of True-up petitions, the accumulated revenue gap of ₹ 19123.47 crore would remain unrecovered as of March 2016.

The Management stated (August 2015) that the revenue gap up to 2012-13 had been approved and UPERC revised the regulatory surcharge from existing level of 2.38 *per cent* to 4.28 *per cent* during 2015-16.

The reply is not tenable, as despite increase in regulatory surcharge, the accumulated revenue gap due to delay in filing of True-up petitions would not be fully recouped as of March 2016.

Delay in finalisation of annual accounts

2.4.14 As per the scheme, the DISCOMs were to finalise the annual accounts for the year 2010-11 and 2011-12 up to 30 November 2012 and 31 January 2013 respectively. The DISCOMs, however, finalised the annual accounts for the year 2010-11 and 2011-12 with a delay of two to three months in February to March 2013 and March to May 2013 respectively ***(Annexure-2.4.4)***. The delay in finalisation of annual accounts led to revision of FRP and delay in implementation of the FRP with consequential delay in issue of bonds by UPPCL resulting in avoidable overburden of interest to the DISCOMs by ₹ 72.75 crore.

The Management accepted (August 2015) the delay in finalisation of the aforesaid annual accounts of the DISCOMs.

Non-achievement of target for reduction in short term power purchase

2.4.15 As per the scheme, the targets for reduction in short term power purchase (STPP) by five *per cent* to 10 *per cent* by the DISCOMs from 2013-14 onwards against the benchmark for the year 2010-11 were to be included in FRP. Against it, UPPCL incorporated the target for reduction in STPP by 60.24 *per cent* for the year 2013-14 in FRP. We noticed that, instead of reduction in STPP even by minimum of five *per cent*, UPPCL procured short term power of 750.68 MUs valuing ₹ 248.20 crore in excess (28 *per cent*) of that procured in the benchmark year of 2010-11. UPPCL could have restricted the STPP by reduction of AT&C losses by DISCOMs, however, DISCOMs have failed to curtail the AT&C losses, as discussed in Para 2.4.21.

The Management accepted the audit observation and stated (August 2015) that STPP was made to maintain the minimum quantum of power supply as per schedule. The fact remains that target of reduction in STPP was not achieved.

Non-installation of meters

2.4.16 As per scheme, prepaid meters for all Government consumers as of 31 March 2012 were to be installed by 31 March 2013 and a time bound plan for metering of all categories of consumers was to be put in place. We noticed that against 49,528 Government consumers as of 31 March 2012, not a single prepaid meter was installed by 31 March 2013.

Further, no time bound plan was prepared by the DISCOMs for metering of the unmetered consumers, as the unmetered consumers of 49,98,185 (unmetered Government consumer: 36,057 and unmetered other consumers: 49,62,128) as of 31 March 2012 increased to 66,74,856 (unmetered Government consumer: 35,680 and unmetered other consumers: 66,39,176) as of 31 March 2015, registering an increase of 33.55 *per cent* ***(Annexure-2.4.5)***.

The Management accepted the audit observation and stated (August 2015) that the prepaid meters had been procured but the conditions for installation of prepaid meters were being decided by UPERC.

Non-claim of Fuel and Power Purchase Cost Adjustment

2.4.17 As per scheme, fuel and power purchase cost adjustment (FPPCA) was to be allowed as per judgement (11 November 2011) of the APTEL. In view of the above judgement of APTEL, the UPERC approved (May 2012) FPPCA formula and allowed recovery of FPPCA from the quarter of January to March 2013.

We noticed that UPPCL did not agree to the above order of UPERC and filed (November 2012) a review petition with UPERC. The decision of UPERC on the review petition was awaited as of March 2015. The claim for FPPCA of ₹ 2991.30 crore, worked out by UPPCL for January 2013 to December 2014, was not submitted to UPERC due to pendency of review petition.

The Management accepted the audit observation and stated (August 2015) that the regulations for fuel cost were in place and fuel cost revision would be filed in due course of time.

Road map for private participation

2.4.18 As per scheme, road map for involvement of private sector in state distribution sector through franchisee arrangements or any other mode of private participation was to be prepared by the DISCOMs within a year and submitted to Central Electricity Authority (CEA) for approval. We noticed that the management had appointed consultants for technical feasibility study but no road map was finalised and submitted to CEA, as of March 2015.

The Management stated (August 2015) that the involvement of private sector was in progress and in first phase, Torrent had been appointed as franchise in Agra and four towns namely Ghaziabad, Meerut, Kanpur and Varanasi had been identified for privatisation on public private partnership (PPP) model. The fact remains that no proposal in this regard, has yet been submitted to

CEA, as per the mandatory conditions of the scheme. Further, the appointment of Torrent as franchise in Agra was prior to formulation of scheme.

Non-compliance of the mandatory conditions of the scheme by the UPPCL/DISCOMs/ GoUP led to ineligibility of capital reimbursement support of ₹ 3952.59 crore from GoI to GoUP

It is evident from the above that due to non-compliance of the mandatory conditions by the UPPCL/DISCOMs/GoUP, the eligibility for capital reimbursement support (equal to 25 *per cent* of principal repayment of STLs by the GoUP available as per scheme) could not be maintained. Hence, chances of capital reimbursement support of ₹ 3952.59 crore (25 *per cent* of ₹ 15810.38 crore to be taken over by GoUP) from GoI to the GoUP are very remote.

Compliance to recommendatory conditions

2.4.19 As per the provisions envisaged in the scheme, UPPCL was required to comply with certain recommendatory conditions. We noticed that no efforts were made by UPPCL in this regard, as discussed below:

Non- formulation of policy for identifying and writing off fictitious arrears led to disallowance of provision for doubtful debts of ₹ 1692.98 crore by UPERC

- The UPPCL/DISCOMs did not formulate a policy for identifying and writing off fictitious arrears and submit a copy of such report before the UPERC. In absence of such policy, the expenditure of ₹ 1692.98 crore on account of provision for doubtful debts was disallowed by UPERC in the True-up petitions for 2008-09 to 2012-13.
- UPPCL/DISCOMs did not prepare and notify a road map for reduction in cross subsidy. As a result, there was no significant change in existing cross subsidy structure.

Recommendation

In compliance to the provisions of the scheme, the GoUP should release the outstanding subsidy and payment against the electricity dues of the Government Departments. The DISCOMs should also ensure timely filing of the True-up petitions.

Reduction of AT&C losses and ACS-ARR gap

2.4.20 Reduction in Aggregate technical & commercial losses requires reduction in transmission & distribution (T&D) losses and increase in collection efficiency. As per scheme, AT&C losses and gap between average cost of supply (ACS) and average revenue realised (ARR) were to be reduced by the DISCOMs. Under the scheme, an incentive for liquidity support (LS) to the DISCOMs was available for additional energy saved through AT&C loss reduction in excess of three *per cent* against the benchmark year (BMY) of 2010-11 as specified under the R-APDRP. The LS was available for first three years commencing from 2012-13 based on AT&C loss reduction as per audited annual accounts. For eligibility of the LS, the gap between ACS and ARR was to be reduced to a minimum of 25 *per cent* during the respective year against the BMY.

DISCOM-wise audit findings on AT&C losses and ACS-ARR gap are discussed in the succeeding paragraphs:

Non-Reduction in AT&C loses and ACS-ARR gap

2.4.21 The DISCOM-wise summarised position of reduction in AT&C loses and ACS-ARR gap for eligibility of LS is given in the **Annexure-2.4.6** and discussed below:

PuVVNL

Incentive for liquidity support of ₹ 1377.76 crore equivalent to the value of reduction in AT&C losses could not be availed of due to non- reduction in ACS-ARR gap in any of the DISCOMs

Purvanchal Vidyut Vitran Nigam Limited (PuVVNL) could not reduce the AT&C losses in 2012-13 beyond the prescribed limit. The AT&C losses for the year 2013-14 were reduced by 5.65 *per cent* beyond the prescribed limit. However, this reduction in AT&C losses could not fetch LS of ₹ 404.04 crore from GoI ***(Annexure-2.4.7)***, as the ACS-ARR gap of ₹ 1.95 per KWh in 2010-11 increased to ₹ 4.22 per KWh (116. 41 *per cent*) in 2013-14. Further, non-reduction in ACS-ARR gap led to increase in losses by ₹ 1615 crore and ₹ 3334 crore during 2012-13 and 2013-14 respectively as against that of 2010-11 **(*Annexure-2.4.8*)**.

MVVNL

Madhyanchal Vidyut Vitran Nigam Limited (MVVNL) could not reduce the AT&C losses in 2012-13 beyond the prescribed limit. The AT&C losses for the year 2013-14 were reduced by 4.35 *per cent* beyond the prescribed limit. However, this reduction in AT&C losses could not fetch LS of ₹ 282.77crore from GoI ***(Annexure-2.4.7)***, as the ACS-ARR gap of ₹ 1.41 per KWh in 2010-11 increased to ₹ 4.05 per KWh (187.23 *per cent*) in 2013-14. Further, non-reduction in ACS-ARR gap led to increase in losses by ₹ 1610 crore and ₹ 3038 crore during 2012-13 and 2013-14 respectively as against that of 2010-11 **(*Annexure-2.4.8*)**.

PVVNL

Paschimanchal Vidyut Vitran Nigam Limited (PVVNL) could not reduce the AT&C losses in 2012-13 beyond the prescribed limit. The AT&C losses for the year 2013-14 were reduced by 4.47 *per cent* beyond the prescribed limit. However, this reduction in AT&C losses could not fetch LS of ₹ 563.83 crore from GoI ***(Annexure-2.4.7)***, as the ACS-ARR gap of ₹ 0.81 per KWh in 2010-11 increased to ₹ 2.52 per KWh (211.11 *per cent*) in 2013-14. Further, non-reduction in ACS-ARR gap led to increase in losses by ₹ 2036 crore and ₹ 3517 crore during 2012-13 and 2013-14 respectively as against that of 2010-11 **(*Annexure-2.4.8*)**.

DVVNL

Dakshinanchal Vidyut Vitran Nigam Limited (DVVNL) could not reduce the AT&C losses in 2012-13 beyond the prescribed limit. The AT&C losses for the year 2013-14 were reduced by 1.06 *per cent* beyond the prescribed limit. However, this reduction in AT&C losses could not fetch LS of ₹ 78.10 crore from GoI ***(Annexure-2.4.7)***, as the ACS-ARR gap of ₹ 1.86 per KWh in 2010-11 increased to ₹ 4.34 per KWh (133.33 *per cent*) in 2013-14. Further, non-reduction in ACS-ARR gap led to increase in losses by ₹ 2615 crore and ₹ 3591 crore during 2012-13 and 2013-14 respectively as against that of 2010-11 **(*Annexure-2.4.8*)**.

KESCO

Kanpur Electricity Supply Company Limited (KESCO) reduced the AT&C losses for the year 2012-13 and 2013-14 by 2.28 *per cent* and 0.44 *per cent* respectively beyond the prescribed limit. However, this reduction in AT&C losses could not fetch LS of ₹ 39.42 crore in 2012-13 and ₹ 10.60 crore in 2013-14 from GoI ***(Annexure-2.4.7)***, as the ACS-ARR gap of ₹ 1.28 per KWh in 2010-11 increased to ₹ 2.75 per KWh (114.84 *per cent*) in 2012-13 and

₹ 2.99 per KWh (133.59 *per cent*) in 2013-14. Further, non-reduction in ACS-ARR gap led to increase in losses by ₹ 357 crore and ₹ 497 crore during 2012-13 and 2013-14 respectively as against that of 2010-11 **(*Annexure-2.4.8*)**.

The Management accepted (August 2015) audit observation and stated that the gap could not be reduced due to increase in power purchase cost and interest on loans in FRP.

Recommendation

DISCOMS should reduce ACS-ARR gap to avail of incentive for liquidity support for the remaining period.

Monitoring Mechanism

2.4.22 For monitoring of the performance and achievements under the FRP, two monitoring committees, viz. State level monitoring committee (SLMC) and Central level monitoring committee (CLMC) were formed (March 2013). However, monitoring mechanism in place was found to be ineffective, as discussed below:

- Despite circulation of the Model State Electricity Distribution Responsibility Bill (SEDRB) by MoP (29 April 2013), the GoUP did not enact the SEDRB within prescribed period of twelve months (29 April 2014) to mandate the compliance of the provisions of FRP.
- The appointment of third party by the Central Electricity Authority (CEA) for annual verification of the performance achievements of the DISCOMs was not ensured by GoUP/UPPCL/DISCOMs/SLMC as of March 2015.
- The appointment of a third party agency by Power Finance Corporation Limited (PFC) to carry out random verification of the outstanding subsidy as on 31 March 2012 was not ensured by GoUP/UPPCL/DISCOMs /SLMC as of March 2015.

The Management stated (August 2015) that the GoUP was taking steps for enactment of SEDRB and the third party was not appointed by CEA and PFC respectively.

The fact remains that the management failed to take up the matter with CEA, PFC and MoP for appointment of third party agency.

Recommendation

GoUP/UPPCL should ensure enactment of State Electricity Distribution Responsibility Bill and appointment of third party by CEA/PFC for annual verification of achievements of FRP/random verification of outstanding revenue subsidy.

Impact of implementation of FRP

The accumulated losses of the DISCOMs amounting to ₹ 33600 crore as of 31 March 2012 increased to ₹ 60101.98 crore as of March 2014, which indicated that, instead of improvement, the financial health of DISCOMs further deteriorated

2.4.23 For ascertainment of impact of implementation of FRP on the financial health of the DISCOMs, we compared some symptomatic indicators (SIs) as of 31 March 2012 and 31 March 2014 ***(Annexure-2.4.8* and *2.4.9)*** and noticed that the accumulated losses of ₹ 33600 crore as of 31 March 2012 increased to ₹ 60101.98 crore as of 31 March 2014. Further, STLn, Government dues and outstanding revenue subsidy increased by 111.34 *per cent,* 58.03 *per cent* and 63.26 *per cent* respectively from 31 March 2012 to 31 March 2014. The revenue gap increased by 36.57 *per cent* in PuVVNL, 44.13 *per cent* in

MVVNL, 27.92 *per cent* in PVVNL, 38.66 *per cent* in DVVNL and 309.59 *per cent* in KESCO. However, during the aforesaid period, PPLs were reduced by 15.67 *per cent*. Further, despite reduction in AT&C losses in 2012-13 (KESCO) and 2013-14 (all DISCOMs), the DISCOMs could not get the LS of ₹ 1377.76 crore due to non-reduction in ACS-ARR gap to the minimum required extent of 25 *per cent.*

The above indicators depicted that, instead of improvement, the financial health of DISCOMs, further deteriorated resulting in non-fulfilment of object of the scheme mainly due to non-preparation and implementation of the FRP as per the provisions of the scheme, as discussed in preceding paragraphs (paragraphs 2.4.8 and 2.4.9).

The Management stated (August 2015) that the DISCOMs were at the receiving end and did not have much say in the formulation of the scheme. The management further stated that gap between ACS and ARR had not changed as per the stipulation due to burden of interest and the loss making distribution companies required at least five years to show results. The reply is not tenable as the UPPCL did not adhere to the provisions of the scheme in preparation of FRP, which resultantly overburdened the DISCOMs with liability of excess drawl of loan and interest thereon. Further, implementation of FRP by UPPCL yielding improvement in financial health of the DISCOMs in coming years seems remote as during the period subsequent to implementation of FRP, the financial position has further deteriorated and losses of ₹ 33600 crore as of 31 March 2012 increased to ₹ 60101.98 crore as of 31 March 2014.

Conclusion and Recommendations

We conclude that:

- **Non-preparation of FRP by UPPCL in accordance with the Financial Restructuring Scheme of MoP, GoI resulted in incorrect ascertainment of short term liabilities and projected operational losses which overburdened the DISCOMs by drawl of excess loan of ₹ 19829.82 crore with avoidable liability of interest of ₹ 2365.07 crore during 2013-14 and 2014-15.**

- **Non-compliance of mandatory conditions viz. non-release of outstanding subsidy by GoUP, non-release of payment against electricity dues of Government Departments and delay in filing of True-up petitions by DISCOMs etc. led to ineligibility of State Government for capital reimbursement support of ₹ 3952.59 crore from GoI.**

In compliance to the provisions of the scheme, the GoUP should release the outstanding subsidy and payment against the electricity dues of the Government Departments. The DISCOMs should also ensure timely filing of the True-up petitions.

- **Incentive for liquidity support of ₹ 1377.76 crore equivalent to the value of reduction in AT&C losses could not be availed of due to non-reduction in ACS-ARR gap in any of the DISCOMs.**

DISCOMS should reduce ACS-ARR gap to avail of incentive for liquidity support for the remaining period.

- **Monitoring mechanism was ineffective as the appointment of third party by CEA and PFC for annual verification of performance of DISCOMs and random verification of outstanding subsidy respectively could not be ensured.**

GoUP/UPPCL should ensure enactment of State Electricity Distribution Responsibility Bill and appointment of third party by CEA/PFC for annual verification of achievements of FRP/random verification of outstanding revenue subsidy.

2.5 Long Paragraph on Information Technology Support System of Revenue Billing in Kanpur Electricity Supply Company Limited, Kanpur

Executive summary

Introduction

Kanpur Electricity Supply Company Limited (KESCO) was incorporated (January 2000) with the main objective of distribution of electricity to consumers of urban area of Kanpur City District. KESCO had 700 HT consumers and 5.02 lakh LT consumers as on 30 September 2014. Billing of LT consumers is done through four outsourced agencies under supervisory control of Computer Billing Service Centre (CBSC) headed by an Executive Engineer and billing of HT consumers is done manually by bulk billing section at the company headquarters.

(**Paragraph 2.5.1**)

The important audit findings on information technology support system of revenue billing of LT consumers in KESCO are detailed below:

Information Technology (IT) strategy and IT plan

- As per best practice, there should be a steering committee for overall direction of IT, formulation of IT policy/plan and a long term/medium term IT strategy.

Though the KESCO has adopted the online billing system since 2007, it neither constituted a steering committee nor documented a formal IT policy/plan and a long term/medium term IT strategy for carrying out billing activities of LT consumers independently.

(**Paragraph 2.5.8**)

- As per best practice, every change/modification in application software consequent upon change in business rules, legislation and upgradation of application system should have been documented and approved by top management.

The changes/modifications made in application software in consonance with change in business rules were neither documented nor tested by taking fair representation of entire population resulting in short assessment of revenue of ₹ 35.41 lakh, short levy of fixed charge of ₹ 2.66 crore and excess levy of fixed and energy charge of ₹ 3.27 lakh.

(**Paragraphs 2.5.14 to 2.5.16**)

- As per best practice, appropriate input control and data validation should have been ensured for creation of correct, complete and reliable database.

Input controls and validation checks were either not there or deficient as meter number in 460 cases, service connection number in 2,729 cases and security deposit in 88320 live LT consumers were found either zero or blank. Meters having same number had been installed with 29.48 *per cent* live consumers.

(**Paragraphs 2.5.10 and 2.5.17**)

- Monitoring by CBSC was deficient because it was not headed/manned by an IT expert. CBSC failed to ensure generation of bills as per provisions of tariff orders and applicable business rules and to get 100 *per cent* operative billable consumers billed through billing agencies.

(**Paragraph 2.5.11**)

- As per best practice, business continuity and disaster recovery plan and associated controls should be in place so that the organisation can go ahead in an interruption or disaster.

The KESCO did not have a disaster recovery and business continuity plan outlining the action to be taken in the event of disaster. The backup of the database was maintained in the premises of CBSC only rather than maintaining backup of entire database in an off-site fire-safe location.

(**Paragraph 2.5.12**)

Mapping of business rules

- As per best practice, business rules being abstraction of policies and practices of a business should be mapped into software. There were discrepancies in mapping of various business rules which resulted in release of connections without obtaining security deposit of ₹ 16.54 crore from consumers.

(**Paragraph 2.5.22**)

Billing application system

The billing application system was deficient as KESCO failed to provide User Requirement Specifications to system developer which resulted in billing of urban consumers under rural schedule and absence of system alerts.

(Paragraphs 2.5.19, 2.5.20 and 2.5.21)

Introduction

2.5.1 Kanpur Electricity Supply Company Limited (KESCO) was incorporated (January 2000) with the main objective of distribution of electricity to consumers of urban area only of Kanpur City District. The consumers of KESCO are mainly divided into two categories viz. High Tension[23] (HT) and Low Tension[24] (LT).The consumers of KESCO are getting supply as per urban schedule and are billed as per tariff orders approved by Uttar Pradesh Electricity Regulatory Commission (UPERC). HT consumers are billed in-house manually since inception and LT consumers are billed through online billing system from 2007. As LT consumers are billed online, IT support system of revenue billing of LT consumers only has been covered for audit scrutiny.

There are 5,01,588 LT consumers as on 30 September 2014. During the period 2011-12 to 2013-14, the total revenue assessment and realisation from LT consumers were ₹ 2670.82 crore and ₹ 1984.11 crore respectively. The total arrears at the end of March 2014 was ₹ 2125.23 crore.

Computer Billing Service Centre (CBSC) of KESCO headed by Executive Engineer is responsible for online billing of LT consumers. CBSC engaged (2007) CMC Limited for the work of Data Base Administration and maintenance of server and Infinite India for operation and maintenance of hardware and software. For billing of the consumers, CBSC engaged (2007) three billing agencies which carry out the work of meter reading, bill

[23]HT means consumer getting supply at voltage level above 650 volts and up to 33000 volts.

[24]LT means consumer getting supply at voltage level on or below 440 volts.

generation by using hand held machine and bill distribution to consumers. These agencies obtain the data of consumers from CBSC on monthly basis and after completing aforesaid activities the billing agencies provide the data to CBSC at the end of each working day for data updation. The data is uploaded to the server for updation of the details of payment to be received from the consumers. The collection of revenue is done through 48 payment collection centres working under the control of CBSC. The KESCO incurred expenditure of ₹ 13.14 crore on online billing system between the period October 2011 and September 2014.
The online billing system was setup on oracle 10g platform and the billing application setup was developed on *mPower*. The Operating System used for online billing was Solaris of *Linux*.

Organisational set up

2.5.2 KESCO is governed by a Board of Directors (BOD) consisting of Managing Director (MD) who is the Chief Executive and is assisted by Chief Engineer (CE), a Superintending Engineer (SE) and four Executive Engineers (EEs) at headquarters. The area of operation is divided in four circles and 18 divisions headed by Superintending Engineer and Executive Engineer respectively. The CBSC, responsible for overall monitoring and supervision of billing system of LT consumers is headed by an Executive Engineer.

Scope and methodology of audit

2.5.3 LT billing of all Divisions of KESCO for the period from October 2011 to September 2014 was analysed using Interactive Data Extraction and Analysis (IDEA), an audit tool during 20 October 2014 to 4 April 2015.

The methodology adopted for attaining the audit objectives with reference to audit criteria consisted of explaining the audit objectives to the Management in the Entry Conference held on 11 November 2014, collection of data and analysis thereof with the help of IDEA, issue of preliminary audit observations to the Management, discussion with the Management and issue of long draft paragraph to the Management/Government in June 2015 for comments.

The results of queries on the databases were cross verified with physical records, wherever made available to the audit team. An Exit Conference was held on 22 July 2015 with the Management. The replies of the Management were received on 19 July 2015 and have been duly considered while finalising the long paragraph. The reply of the Government is awaited (November 2015).

Audit objectives

2.5.4 The audit objectives were to assess whether:

- Company had adequate Information Technology (IT) infrastructure, documented strategy and IT plan, adequate IT controls, business continuity and disaster recovery plan and monitoring mechanism to derive benefits of IT support system to achieve intended objectives; and
- the billing is done effectively, timely, correctly and efficiently in accordance with business rules viz. applicable tariff orders, codal provisions, laid down procedures and Regulations issued by UPERC.

Audit criteria

2.5.5 The audit criteria adopted by the audit were as under:

- the rate schedule approved by the UPERC;
- U.P. Electricity Supply Code, 2005 (supply code);
- Electricity Act, 2003;
- agreements executed with outsourced billing agencies;
- circulars and orders issued by the KESCO/UPPCL/UPERC; and
- best practice.

Audit findings

2.5.6 The objective wise audit findings as a result of analysis of 100 *per cent* online billing data of 5.02 lakh LT consumers for the period October 2011 to September 2014 are discussed in succeeding paragraphs:

IT strategy and IT plan

2.5.7 As per best practice, IT strategy and plan should be well formulated and documented while developing and further maintain the system. Following shortcomings were noticed:

Non-constitution of steering committee

2.5.8 As per best practice, there should be a steering committee comprising of members from senior and middle management and user representatives from all areas of the business including the IT department. The steering committee should be responsible for the overall direction of IT including the issues beyond accounting and financial systems. Once the steering committee agrees on a future direction for IT, the decisions should be formalised and documented in an IT strategic plan.

Besides, a formal IT policy and a long term/medium term IT plan, incorporating the time frame, key performance indicators and cost benefit analysis for developing its own software and integration of various systems should be formulated and documented.

KESCO did not constitute steering committee for formulation and documentation of formal IT policy including long term/medium term IT strategy

We noticed that KESCO neither constituted any steering committee nor documented a formal IT policy/plan and a long term/medium term IT strategy. Instead, KESCO engaged vendors for all the activities of online billing of LT consumers under the supervisory control of CBSC. In absence of IT strategy and plan, KESCO ultimately remained fully dependent on vendors for carrying out online billing of LT consumers.

The Management stated (July 2015) that a committee was formed for computerisation of KESCO.

Management reply is not acceptable as committee was formed for fixation of technical specifications and finalisation of tenders in respect of computerisation of KESCO. The facts remains that KESCO did not constitute steering committee, required to decide a formal IT policy/strategy and to keep pace with the development in IT.

Change/modification in application software

2.5.9 As per best practice, every change/modification in application software consequent upon change in tariff by UPERC, business rules, supply code, legislation and upgradation of application system should have been documented and approved by the top management. Correctness of change in application software should also be tested by taking fair representation of entire population.

During analysis of billing data of 5.02 lakh LT consumers for the period October 2011 to September 2014, we noticed that KESCO changed/ modified application software three times during the period due to change in business rules regarding booking of 120 KWh in place of 80 KWh in case of provisional billing and twice due to revision in tariff by UPERC. The change/modification made were neither documented nor tested by taking fair representation of entire population.

Due to non-testing of the application software after changes/ modifications, cases of not following the uniform basis for provisional billing, incorrect assessment of fixed charges and incorrect application of rate were noticed as discussed in paragraphs 2.5.14, 2.5.15, 2.5.16 and 2.5.21.

The Management stated (July 2015) that any change in billing for tariff is done as per direction of UPERC and authorised by MD of KESCO. Further, testing of changed software is carried out in dummy environment before implementation of final modification.

The reply is not acceptable as preparation of provisional bill on different basis, incorrect assessment of fixed charges and incorrect application of rates for billing were indicative of inadequate testing of changed software.

Input controls and validation checks

2.5.10 As per best practice, it is necessary to ensure appropriate input control and data validation during the data entry for creation of correct, complete and reliable database which would help in reduction of duplication of efforts and redundancy of data.

Billing system did not have appropriate input controls and validation checks which resulted in entry of invalid data in data bank

We noticed that all input entries to databank were entered into by the clerk/assistant posted at different divisions and validated by Executive Engineer of the respective division. The system did not have input controls to ensure correct and complete data capture as analysis of billing data of 5.02 lakh LT consumers as on September 2014 using IDEA showed that some vital fields viz. service connection number, meter numbers, security deposit etc. were either left blank or invalid data were entered into data bank, as detailed below:

- meter number in 460 cases, service connection number in 2,729 cases and address of the consumer in five cases were found either zero or blank.
- in data for the period 30 September 2014 date of connection was recorded after 30 September 2014 in 36 cases.
- security deposit of 88,320 live LT consumers of different category was recorded zero in billing databank of 30 September 2014.

The Management accepted (July 2015) the observation and stated that necessary steps are being taken to update, complete and rectify the required fields in data bank.

Monitoring mechanism

2.5.11 The KESCO has Computerised Billing Service Centre (CBSC) for monitoring of online billing system of LT consumers through outsourced billing agencies. CBSC has to ensure 100 *per cent* meter reading and correct

Monitoring mechanism of online billing system in KESCO was deficient as it failed to ensure generation of bills as per tariff orders and business rules

and timely generation of bills of operative billable consumers by hand held billing agencies as per the provisions of tariff orders, supply code and prevailing business rules. CBSC also provided a node (a connection point /work station that can create receive or repeat a message) to all 18 distribution divisions for further monitoring of the billing of their consumers, correction of the bills and generation of prescribed MIS reports by the concerned Executive Engineers.

We noticed that CBSC failed in its duties and could not ensure

- generation of bills as per tariff orders as discussed in paragraphs 2.5.15, 2.5.16 and 2.5.21;
- application of business rule as discussed in paragraph 2.5.14; and
- 100 *per cent* meter reading and spot billing of billable consumers in each billing cycle as hand held billing agencies could bill only 82.31 to 97.24 *per cent* operative billable consumers during October 2011 to September 2013.

Deficient monitoring by CBSC was mainly due to fact that it was not headed/manned with IT expert.

The Management stated (July 2015) that concerned EEs (Distribution) and EE-CBSC closely monitor the billing through MIS and other tools. The irregularities/deficiencies pointed out above concluded that concerned EEs and CBSC failed to ensure error free billing.

Business continuity and disaster recovery plan

2.5.12 As per best practice, business continuity and disaster recovery plan and associated controls should be in place so that the organisation can go ahead in the event of an interruption or disaster leading to temporary or permanent loss of computer facilities and it would not loose the capability to process, retrieve and protect the data. Business continuity and disaster recovery plan consists of

- availability of standby facilities at alternative sites;
- identification of key members of IT department and their alternative in case of loss of key members;
- regular backup of systems software, financial applications and underlying data files; and
- storage of backups together with a copy of the disaster recovery plan and systems documentation, in an off-site fire-safe location.

KESCO did not have a disaster recovery and business continuity plan and backup of data base was also not maintained in an off-site fire safe location

We noticed that

- KESCO did not have a disaster recovery and business continuity plan outlining the action to be taken in the event of disaster.
- The backup of the database was maintained in the premises of CBSC only. Backup of entire database was not maintained in an off-site fire-safe location.
- The key configuration items viz. hardware, software and key IT staff which were required for business continuity had not been identified and documented.
- KESCO did not have any alternative key IT personnel for continuing its billing activities in case of default on the part of outsourced billing agencies.

We further noticed that all the online billing activities of LT consumers were outsourced to vendors but agreements with them did not contain any clause to give prior notice for terminating the agreements or discontinuing the billing operation by them to avoid hampering of billing activities at any point of time. The Management accepting (July 2015) the view point of audit, stated that plan to take billing database to a well equipped data centre with facility of disaster recovery will be implemented very soon.

Recommendation

KESCO needs to constitute a steering committee to develop a long term/medium term IT plan including business continuity and disaster recovery plan so that IT infrastructure is developed and dependency on outside agencies is eliminated.

Mapping of business rules

2.5.13 As per best practice, business rules being abstractions of the policies and practices of a business organisation should be mapped into software. Mapping of business rules is used to define, deploy, execute, monitor and maintain the variety and complexity of decision logic that is used by operational systems within an organization and to determine the tactical actions that take place in applications and systems.

Infinite India, the vendor, was responsible for mapping of business rules while developing the billing application software (*mPower*) and making necessary change in the application software in accordance with changed business rules.

An analysis of data bank of 5.02 lakh LT consumer showed that mapping of business rules viz. manual of computerised system of billing, tariff order and supply code while developing billing application software in 2007, and subsequent changes made therein from time to time was not done properly. As a result, cases of short/excess billing were noticed as discussed in the following paragraphs:

Short assessment of revenue

2.5.14 Clause 6.2 of Supply Code provides that if licensee is not able to read the meter, a provisional bill may be issued on the basis of the average consumption of the previous three billing cycles in respect of 'Billing when Meter Reading not available'.

Further, Manual of "computerised system of billing" adopted by KESCO, provides that billing of LMV-1 category applicable to domestic light, fan of consumers shall be done on provisional basis at 80 units/KW/month and with effect from 19 February 2014, 120 units/KW/month in case of average consumption of previous three billing cycle is not available and meter status is Identified Defective/Appeared Defective/Reading Defective (IDF/ADF/RDF).

Consumers of LMV-1 category having defective meter were not billed as per applicable rules resulting in short assessment of revenue by ₹ 35.41 lakh

We noticed that in 10,880 cases, consumers were not billed uniformly at the rate of 80/120 units /KW/month due to incorrect mapping of business rules in the billing system software. This resulted in short assessment of revenue of ₹ 35.41 lakh (Energy Charge: ₹ 34.07 lakh and Electricity Duty: ₹ 1.34 lakh) during October 2011 to September 2014 as detailed in **Annexure-2.5.1**.

The Management stated (July 2015) that they were following billing rules as prescribed in clause 6.2 of supply code and manual of computerised system of billing.

The reply does not address our observation as to why provisional bills in 10880 cases were not raised uniformly at the rate of 80/120 units.

Short levy of fixed charges

2.5.15 As per rate schedule of LMV-6 applicable to small and medium power consumers, fixed charges on the contracted load should have been charged at the rate of ₹ 115/KW/month up to 30 September 2012 and thereafter at the rate of ₹ 225/ KW/month.

LMV-6 consumers were short billed by ₹ 2.66 crore due to incorrect levy of fixed charges

We noticed that in 42,197 cases, fixed charges were levied on the basis of billable demand (75 *per cent* of contracted load or actual load whichever was higher) instead of contracted load during October 2011 to September 2014. This resulted in short charge of ₹ 2.66 crore from the consumers as detailed in **Annexure-2.5.2**.

The Management stated (July 2015) that the short charge of ₹ 2.44 crore on account of fixed charges already been charged to consumers in months of May 2013 and November 2013.

The Management's reply confirms the deficiency in the software. Further, the required change/rectification in the software was not made by the management to restrict occurrence of such deficiency as short charged amount of ₹ 7.71 lakh for the period December 2013 to September 2014 still could not be levied on the consumers.

Excess charge of fixed and energy charge

2.5.16 Rate schedule LMV-1 applicable to domestic light, fan & power consumers and also to consumers getting supply at single point for bulk load and effective from 15 April 2010 provided that consumers getting supply at single point for bulk load (50 KW or more) shall be charged at the rate of ₹ 40/KW/month for fixed charge and ₹ 3.20/KWh for energy charge whereas other consumers shall be charged at the rate of ₹ 65 /KW/month for fixed charge and ₹ 3.45/KWh up to 200 units and beyond it, ₹ 3.80/KWh for energy charge.

LMV-1 consumers having bulk load were not billed as per applicable rate schedule resulting in excess charge of ₹ 3.27 lakh

We noticed that in 65 cases, consumers getting supply at single point for bulk load were billed as per the rate of charge applicable to domestic light, fan & power consumers during October 2011 to September 2012. This resulted in excess charge of ₹ 3.27 lakh from consumers getting supply at single point for bulk load as detailed in **Annexure-2.5.3**.

The Management accepted (July 2015) the observation and stated that consumers having load more than 50 KW and getting supply at single point are being identified by the concerning divisions and being transferred to Bulk billing division for further billing.

Duplicate meter numbers

2.5.17 The software developed and used by KESCO does not have adequate input controls to check that duplicate meter numbers are not entered into the system. The meter serial number, phase, make and rating are unique within itself and no other meter entry with the same parameters should be accepted by the system.

We noticed that data bank in respect of 1,46,479 consumers (29.48 *per cent*) for the month of September 2014 showed same meter number installed at two to 102 consumers' premises as detailed in **Annexure-2.5.4**.

The Management accepted (July 2015) the observation.

Discrepancies in due date

2.5.18 Clause 6.1 (g) of the supply code prescribes that the licensee shall allow seven days time to consumer for payment of the bill.

We noticed that the system is not applying this provision uniformly to all consumers. This was due to manual feeding of due date by billing clerk and lack of validation control by the Executive Engineer of distribution divisions.

Due date was allowed in excess of prescribed seven days in 990 cases and less than prescribed in 4285 cases

It was observed that in 990 cases, time for payment was allowed in excess of seven days and in 4,285 cases, time for payment was allowed less than seven days as detailed in **Annexure-2.5.5**. As a result, in 990 cases consumers were facilitated for payment beyond the prescribed period without late payment surcharge and in 4,285 cases consumers were over burdened for payment prior to the period prescribed in supply code.

The Management stated (July 2015) that software has provision to provide seven days for the payment however due date was different in cases where bills were revised and due dates were fed manually by the concerning officials/officers.

The reply confirms that billing was not free from manual intervention due to which payment days were allowed in contravention of provisions of the Supply Code.

Absence of system alerts

2.5.19 A load of one KW can consume a maximum of 24 units of energy in 24 hours and 720 units in a month of 30 days.

The billing system did not have system alert to check and control higher consumption enabling KESCO to mitigate unwarranted bill revision

We noticed that the consumption of energy shown in 2,857 cases against LMV-1 and LMV-2 consumers ranged from 721 to 10,00,035 units per KW/month as detailed in **Annexure-2.5.6** which is impossible. Absence of system alert not only deprived KESCO to check actual connected load of such consumers but also led to unwarranted bill revisions and obstruction of revenue realisation, as in 844 cases out of 2,857, payment was made by the consumers within the due date.

The Management accepted (July 2015) the observation and stated that rectification in the software will be carried out.

Recommendation

KESCO should map the business rules correctly so that the generation of incorrect bills is checked.

Billing application system

2.5.20 Billing application system should be designed in such a manner that business rules are not compromised. A written statement "User Requirement Specifications" (URS) in non-technical language should have been provided by the KESCO to system designer/ developer/vendor at the initial stage of system development.

The KESCO did not provide URS to Infinite India, the vendor/developer of computerised billing system (Hardware and Software) due to which system designed was deficient as discussed in the following paragraphs:

Incorrect application of rate

2.5.21 Manual of "computerised system of billing" classified consumers on the basis of supply type (ST[25]) i.e. urban schedule, rural schedule. The rate of charge prescribed for urban schedule were applicable to the consumers of KESCO as the jurisdiction of KESCO was limited to Kanpur city only. Thus, the rates prescribed for urban schedule in tariff orders were applicable to all LT consumers of KESCO.

An analysis of the billing data of 5.02 lakh consumers for the period October 2011 to September 2014 showed that in 243 cases KESCO classified consumers under rural schedule in place of urban schedule. As a result, consumers were short charged by ₹ 1.72 lakh.

The Management, while accepting our observation, stated (July 2015) that concerning divisions have been asked to correct supply type of the consumers and charge the bill accordingly. The fact remains that corrective action has not been taken as of November 2015.

Existence of consumers without security Deposit

2.5.22 Chapter 3 of Cost Data Book provides that initial security shall be charged per KW/HP/KVA or part thereof as the case may be at the rates specified therein.

88320 consumers of different category were depicted without security deposit in databank

We noticed that out of 5.02 lakh consumers, 88,320 consumers of various categories were depicted without security deposit as on 30 September 2014. It indicated that connections to such consumers were released either without security amount of ₹ 16.54 crore or security recovered from the consumers was not recorded in the data bank as detailed in **Annexure-2.5.7.**

The Management accepted (July 2015) the audit observation.

Recommendation

KESCO should provide User Requirement Specifications to the vendor/developer of computerised billing system to ensure correct application of tariff order, supply code and cost data book.

Performance of hand held billing agencies

2.5.23 KESCO entered (September 2008) into agreements with three firms for meter reading, bill generation and its distribution to consumers for the period September 2008 to September 2013 and for period October 2013 to September 2018 again (October 2013) with these three firms. The scope of work in the agreements mainly provided recording the present meter reading and generation and distribution of bills. We noticed that:

Data to billing agencies were provided in editable form instead of encrypted form

- billing data obtained by the billing agency from CBSC on monthly basis was to be updated with respect to present meter reading only and no other field/data was to be modified/edited. After recording present meter reading, billing agency had to provide the data at the end of each working day to CBSC for uploading the same on the server.

[25]Supply Type (ST) indicates the sub-classification of consumers in a particular rate schedule

We noticed that data ranging between 0.69 and 3.37 *per cent* provided by billing agencies for uploading on server during October 2011 to September 2013[26] was not accepted due to mismatch of data. This indicated that data were provided to billing agencies were in editable form instead of encrypted form.

The Management stated that the billing agencies were provided data in text format through email and vice-versa and billing data provided by the billing agency is rejected due to bill already generated on the system by divisional officials/officers. The reply confirms our observation that data is submitted to agencies in editable format.

- billing agencies were required to take 100 *per cent* meter reading of operative billable consumers and issue the bills to the consumers.

We noticed that the agreements executed were deficient as it did not provide the number of person required for meter reading of given number of consumers to ensure 100 *per cent* and timely billing. As a result, billing agencies could bill only 82.31 to 97.24 *per cent* of operative billable consumers during October 2011 to September 2013 and revenue realisation of remaining consumers could not be tapped timely.

Management stated that 100 *per cent* billing can be achieved in ideal condition. Reply is not acceptable as agreement provided for meter reading, billing and distribution of bills to 100 *per cent* operative billable consumers by the billing agencies.

- the cases of not access/not read (NA/NR) where access of consumer premises was not possible, billing agencies were required to report such cases to the divisions fortnightly in each month so as to check that cases of NA/NR were reported after visit of consumer's premises and in case of false reporting the penalty at the rate of ₹ 100 per bill was levied on the billing agency.

We noticed that 37,992 cases of NA/NR found in the billing data for the period October 2013 to September 2014 were not reported by the billing agencies to the division. As a result, the division failed to impose penalty, if any, on the billing agency and ensure billing on the basis of meter reading.

The Management stated (July 2015) that consumers billed on NA/NR basis and master data had been provided to distribution division every month. If false reporting is found division can penalize the billing agency.

The fact remains that in the cases pointed out by audit penalty was not imposed in terms of provisions of the agreement.

Conclusion and Recommendations

On the basis of IT audit of KESCO, we conclude that:

- **KESCO neither constituted a steering committee nor documented a formal IT policy/plan and a long term/medium term IT strategy for carrying out billing activities of LT consumers independently since adoption of the online billing system in 2007. Further, it did not have a disaster recovery and business continuity plan.**

KESCO needs to constitute a steering committee to develop a long term/medium term IT plan including business continuity and disaster

[26]Records for the period made available.

recovery plan so that IT infrastructure is developed and dependency on outside agencies is eliminated.

- **The changes/modifications made in application software in consonance with change in business rules were neither documented nor tested by taking fair representation of entire population resulting in short assessment of revenue of ₹ 35.41 lakh, short levy of fixed charge of ₹ 2.66 crore, excess levy of fixed and energy charge of ₹ 3.27 lakh and short charge of revenue of ₹ 1.72 lakh.**

KESCO should map the business rules correctly so that the generation of incorrect bills is checked.

- **There were discrepancies in mapping of various provisions of rate schedules, U.P Electricity Supply Code and manual as due date for making payment was allowed less/more than the prescribed, system alerts were not inbuilt and 88320 consumers of various categories were either released connections without security amount of ₹ 16.54 crore or security if recovered, was not recorded in the data bank.**

KESCO should provide User Requirement Specifications to the vendor/developer of computerised billing system to ensure correct application of tariff order, supply code and cost data book.

Statutory corporation

2.6 Long Paragraph on Implementation of urban water supply schemes under UIG - a sub-mission of JNNURM by Uttar Pradesh Jal Nigam

Executive summary

Introduction

Jawaharlal Nehru National Urban Renewal Mission (JNNURM) was launched by the Government of India (GoI) to encourage reforms and fast track planned development of identified cities. Urban Infrastructure and Governance (UIG) is a sub-mission of JNNURM, which inter-alia included creation/augmentation of water supply infrastructure.

The Government of Uttar Pradesh (GoUP) engaged Uttar Pradesh Jal Nigam (Nigam) as the executing agency for execution of the 11 water supply projects sanctioned under UIG in Kanpur, Lucknow, Varanasi, Meerut, Allahabad and Agra.

(Paragraph 2.6.1)

The mission city-wise important audit findings are detailed below:

Kanpur

- There was delay of more than four years in completion of the projects leading to cost overrun of ₹ 133.48 crore. The main reasons for delay were delay in award of work, delay in handing over the sites by the Urban Local Body (ULB), delay in obtaining clearances from the concerned authorities and slow execution of work by the contractors.

(Paragraph 2.6.7)

- Excavation of trenches of size outside diameter of pipe plus 0.60 m instead of outside diameter of pipe plus 0.30 m in case of Polyvinyl Chloride (PVC) / Asbestos Cement (AC) pipes and 0.40 m in case of Ductile Iron (DI) pipes as provided in the Manual led to avoidable expenditure of ₹ 41.92 crore.

(Paragraph 2.6.9)

Lucknow

- Use of DI pipes for laying of clear water feeder mains instead of Pre-stressed Concrete (PSC) pipes which was more economical led to avoidable expenditure of ₹ 18.89 crore.

(Paragraph 2.6.14)

Varanasi

- Raw water rising main, water treatment plant and clear water feeder mains constructed during 2012-13 to 2014-15 at a cost of ₹ 36.44 crore remained unutilised as the work of intake well (primary work) could not be started till date (March 2015) due to non-availability of site by the ULB/GoUP.

(Paragraph 2.6.18)

Meerut

- Water treatment plant and clear water feeder mains constructed during 2011-12 to 2014-15 at a cost of ₹ 67.74 crore remained unutilised as the work of canal lining (primary work) could not be started till date (March 2015) due to non-deposit of the cost of canal lining with the Irrigation Department as suitable provision for the same was not made in the DPR.

(Paragraph 2.6.24)

Allahabad

- There was delay of more than three years in completion of the project leading to cost overrun of ₹ 52.71 lakh. The main reasons for delay were delay in award of work and delay in obtaining clearances from the concerned authorities.

(Paragraph 2.6.28)

Agra

- There was delay of more than four years in completion of the project leading to cost overrun of ₹ 11.88 crore. The main reasons for delay were delay in award of work, delay in handing over the sites by the ULB and delay in obtaining clearances from the concerned authorities.

(Paragraph 2.6.30)

Introduction

2.6.1. The Government of India (GoI) launched (December 2005) the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) with the aim to encourage reforms and fast track planned development of identified cities. The Urban Infrastructure and Governance (UIG) is a sub-mission of JNNURM, which inter-alia included creation/augmentation of water supply infrastructure. Under JNNURM, the projects were to be financed by the GoI, Government of Uttar Pradesh (GoUP) and the concerned urban local body (ULB). The period of JNNURM was seven years (2005-06 to 2011-12) which was extended up to 2013-14. The GoI approved (April 2015) central funding under the "Atal Mission for Rejuvenation and Urban Transformation (AMRUT)" for incomplete projects sanctioned earlier under JNNURM.

The projects under UIG were sanctioned and approved by the GoI. The GoUP appointed the Director, Local Bodies, GoUP as the nodal agency to appraise the projects, coordinate with the GoI as well as GoUP, release funds to the executing agency and monitor the projects. The GoUP also engaged Uttar Pradesh Jal Nigam (Nigam) as the executing agency for execution of water supply projects in the State. The Nigam, after completion of the works/components under the scheme, handed over them to the concerned ULBs for operation and maintenance and release of connections to the beneficiaries.

In Uttar Pradesh, 11 water supply projects consisting of water treatment plants, tubewells, service reservoirs and pipelines were sanctioned (August 2007 to September 2009) by the GoI in six cities (Kanpur, Lucknow, Varanasi, Meerut, Allahabad and Agra) for ₹ 2197.95 crore which was revised (December 2011 to March 2015) to ₹ 2749.73 crore. Against release of fund of ₹ 2591.79 crore to the Nigam, ₹ 2240.50 crore was spent on the projects up to March 2015 as detailed in **Annexure-2.6.1**. Physical progress ranging between 60 and 98 *per cent* was achieved and none of the project was fully completed even after a delay of 36 to 59 months as of March 2015 (***Annexure-2.6.2***).

The projects were being implemented by the Nigam through its units/divisions headed by Project Managers/Executive Engineers, under the supervision of Chief Engineer (JNNURM) at the headquarters. Detailed project reports (DPRs) of 10 projects were also prepared by the Nigam at the behest of the GoUP/concerned ULB while one DPR (Meerut water supply project) was prepared by the concerned ULB.

Scope and methodology of audit

2.6.2 The present audit was conducted during November 2014 to April 2015 to evaluate implementation of the water supply projects by the Nigam during 2006-07 to 2014-15. Audit examination involved scrutiny of records of 10 water supply projects of ₹ 2654.68 crore, out of 11 projects of ₹ 2749.73 crore.

The methodology adopted, consisted of explaining the audit objectives to the top Management during an Entry Conference held on 3 November 2014, scrutiny of records of the selected projects at 20 Units/Divisions[27] of six cities along with headquarters of the Nigam, analysis of records and data, interaction with the personnel of the auditee organisation, raising of audit queries and issue of long draft paragraph to the Management/Government in July 2015 for comments.

An Exit Conference was held on 9 July 2015 with the Government and Management to discuss the audit findings. The replies of the Management were received in October 2015 and have been duly considered while finalising the long paragraph. Reply of the Government is awaited (November 2015).

Audit objectives

2.6.3 The audit objectives of the long paragraph were to assess whether:

- the projects were executed timely to ensure achievement of desired goals; and
- works were executed efficiently and economically.

Audit criteria

2.6.4 The audit criteria considered for achievement of audit objectives for ascertainment of compliance of the scheme were:

- guidelines, instructions, circulars and orders issued by the GoI, GoUP and the Nigam;
- manual on water supply and treatment, 1999 of the Ministry of Urban Development, GoI, detailed project reports of the projects and monthly progress reports; and
- agenda and minutes of board meetings.

Audit findings

2.6.5 The mission city-wise findings are discussed in the succeeding paragraphs:

[27] 12 Civil Construction Units/Divisions and eight Electrical & Mechanical Construction Units/Divisions.

Kanpur

2.6.6 Two water supply projects were sanctioned in October 2007 (₹ 270.95 crore) and January 2009 (₹ 377.79 crore) by the GoI, which was revised in May 2014 (₹ 393.93 crore) and December 2011 (₹ 475.15 crore) respectively. Against these two projects, funds of ₹ 853.14 crore were released and expenditure of ₹ 716.93 crore were incurred till March 2015.

The projects were to be completed within 24 to 36 months (October 2010 and January 2011) but were partially completed (90 and 78 *per cent*) as of March 2015. The major components almost in every project were water treatment plants (WTPs), tubewells, service reservoirs and pipelines. Of the three WTPs, 16 tubewells, 121 service reservoirs and 1858.89 Kms pipelines envisaged in the projects, one WTP, 13 tubewells, 11 service reservoirs and 225.71 Kms pipelines were completed and put to public use as of March 2015.

The deficiencies in execution of the projects are discussed in the succeeding paragraphs:

Delay in completion of projects

There was delay of more than four years in completion of the projects, which resulted in cost overrun of ₹ 133.48 crore

2.6.7 As discussed in paragraph 2.6.6, the projects were to be completed by October 2010 and January 2011 but were partially completed (90 and 78 *per cent*) as of March 2015.

We observed that delay of more than four years in completion of the projects was mainly due to delay in award of work (up to 35 months) further leading to cost overrun of ₹ 133.48 crore, delay in handing over the sites by the ULB (up to 48 months), delay in obtaining clearances/ approvals from the concerned authorities and slow execution of work by the contractors.

Non-prioritisation of works

2.6.8 A water supply project comprises of several inter-connected activities/works and hence to ensure immediate utilisation of works completed under the projects, the chronological order, in which the activities/works are executed, is of utmost importance. To ensure this, the Managing Director of the Nigam directed (March 2008) that while executing a project, primary works on which other works of the project are dependent, should be executed first.

Works costing ₹ 159.79 crore remained unutilised due to non-completion of primary work

We noticed that the Nigam, before starting construction of clear water feeder mains (primary work), incurred (October 2007 to March 2015) an expenditure of ₹ 159.79 crore on works (overhead tanks, zonal pumping stations, rising mains and distribution mains) that were dependent on completion of the primary work. As the work of clear water feeder main could not be started till date (March 2015) due to pending clearance from Ministry of Defence, GoI, the said works remained unutilised since 2011-12 to 2014-15.

The Management stated (October 2015) that had the proposed works not been completed, the cost of the project would have been increased. The reply is not acceptable as proper planning is of utmost importance to avoid cost escalation and non-utilisation of created infrastructure of ₹ 159.79 crore.

Avoidable expenditure on excavation of trenches of larger size

2.6.9 As per Para 6.6.4, 6.7.2.1 and 6.10.4.2 of the Manual, width of trench for laying of pipes should be equal to outside diameter of the pipe plus 0.30 m in case of laying of Polyvinyl Chloride (PVC) pipes and Asbestos Cement (AC) pipes and 0.40 m for Ductile Iron (DI) pipes.

Excavation of trenches of larger size led to avoidable expenditure of ₹ 41.92 crore

We noticed that contrary to such provisions, the Nigam excavated trenches, for laying of PVC, AC and DI pipes, equal to outside diameter of pipe plus 0.60 m. This led to excavation of trenches of larger size involving avoidable expenditure of ₹ 41.92 crore on three counts viz., road cutting, excavation and reinstatement of roads.

The Management stated (October 2015) that IS 6530-1972 permits the width of trench from 30 cm to 90 cm over the outside diameter of pipe. The reply is not acceptable as work was to be executed as per the provisions of the Manual which clearly specifies the width at 0.30/0.40 m over the outside diameter of pipe.

Undue favour to contractors due to allowing price escalation

2.6.10 The Nigam entered (May 2008 to August 2009) into eight contracts amounting to ₹ 39.54 crore for construction of 31 zonal pumping stations at Kanpur.

The terms and conditions of the contracts provided that the price quoted by the bidders would be firm for the entire currency of the contract. Despite such provision in the contracts, Nigam paid (May 2010 to October 2013) price escalation of ₹ 1.70 crore to the contractors for no reason on records resulting in undue favour to the contractors.

Lucknow

2.6.11 Two water supply projects were sanctioned in September 2007 (₹ 388.61 crore) and February 2009 (₹ 146.57 crore) by the GoI, which was revised in December 2011 (₹ 454.66 crore) and March 2014 (₹ 186.89 crore) respectively. Against these two projects, funds of ₹ 641.55 crore were released and expenditure of ₹ 576.29 crore was incurred till March 2015. The projects were to be completed within 24 to 36 months (September 2010 and February 2011) and were almost completed (97 and 96 *per cent*) as of March 2015. Of the one WTP, 146 tubewells, 47 service reservoirs and 782.26 Kms pipelines envisaged in the projects, one WTP, 145 tubewells, 44 service reservoirs and 782.26 Kms pipelines were completed and put to public use as of March 2015.

The deficiencies noticed in execution of works are discussed in the succeeding paragraphs:

Delay in completion of projects

2.6.12 As discussed in paragraph 2.6.11, the projects were to be completed by September 2010 and February 2011 but were not fully completed as of March 2015.

There was delay of more than four years in completion of the projects, which resulted in cost overrun of ₹ 39.62 crore

We observed that delay of more than four years in completion of the projects was mainly due to delay in award of work (up to 32 months) further leading to cost overrun of ₹ 39.62 crore, delay in handing over the sites by the ULB (up to 73 months), delay in obtaining clearances/ approvals from the concerned authorities and slow execution of work by the contractors.

Avoidable expenditure on excavation of trenches of larger size

2.6.13 The Nigam, in contravention to the provisions of Para 6.6.4, 6.7.2.1 and 6.10.4.2 of the Manual, excavated trenches for laying of PVC, AC and DI

Excavation of trenches of larger size led to avoidable expenditure of ₹ 11.30 crore

pipes equal to outside diameter of pipe plus 0.60 m instead of outside diameter of pipe plus 0.30/0.40 m. This led to excavation of trenches of larger size involving avoidable expenditure of ₹ 11.30 crore on three counts viz., road cutting, excavation and reinstatement of roads.

Avoidable expenditure due to use of pipes of higher specifications

2.6.14 Para 6.3.1 of the Manual provides that a quantitative and qualitative assessment be made to arrive at the most economical and reliable pipe material.

Use of pipes of higher specifications led to avoidable expenditure of ₹ 18.89 crore

We noticed that the Nigam used DI pipes for laying of clear water feeder mains instead of PSC pipes which was more economical and was also used in projects at Kanpur and Meerut, without specifying any reason. The use of pipes of higher specifications led to avoidable expenditure of ₹ 18.89 crore.

The Management stated (October 2015) that the selection of pipe material was dependent upon various technical factors. The reply is not acceptable as the projects were to be executed in urban areas similar to projects in Kanpur and Meerut where PSC pipes were used. Therefore, the technical factors were same hence, use of pipes of higher specifications in the projects was not justified.

Short levy of liquidated damages

2.6.15 As per terms of the contract entered (May 2008) into for supply and laying of 9580 metres PSC pipes for ₹ 17.03 crore, the supply was to be completed by 24 June 2010, otherwise, liquidated damages (LD) at the rate of one *per cent* of the contract value per day subject to a maximum of 10 *per cent* of the contract value was to be levied.

The contractor could supply only 1645 metres pipe up to the stipulated period of June 2010. Due to failure in supplying and laying of agreed quantity of PSC pipe by the supplier, LD of ₹ 1.70 crore was to be levied against which ₹ 0.16 crore only was levied resulting in short levy of LD of ₹ 1.54 crore.

The Management stated (October 2015) that penalty amounting to ₹ 0.16 crore being 10 *per cent* of cost of curtailed scope of work had been levied. The reply is not acceptable because, as per the conditions, penalty at the rate of 10 *per cent* of the contract value was to be levied.

Varanasi

2.6.16 Three water supply projects were sanctioned in August 2007 (₹ 111.02 crore), October 2008 (₹ 86.10 crore) and September 2009 (₹ 209.16 crore) by the GoI, which was revised in January 2015 (₹ 139.79 crore), March 2014 (₹ 110.51 crore) and March 2015 (₹ 268.36 crore) respectively. Against these three projects, funds of ₹ 398.54 crore were released and expenditure of ₹ 321.87 crore was incurred till March 2015. The projects were to be completed within 24 to 36 months (August 2010, October 2010 and March 2012) but were partially completed (92, 70 and 60 *per* cent) as of March 2015. Of the one WTP, 14 tubewells, 100 service reservoirs and 771.511 Kms pipelines envisaged in the projects, 12 tubewells, 33 service reservoirs and 203.23 Kms pipelines were completed and put to public use as of March 2015.

The deficiencies in execution of works are discussed in the succeeding paragraphs:

Delay in completion of projects

2.6.17 As discussed in paragraph 2.6.16, the projects were to be completed by August 2010, October 2010 and March 2012 but were only partially completed as of March 2015.

There was delay of more than three to four years in completion of the projects, which resulted in cost overrun of ₹ 57.08 crore

We observed that delay of more than three to four years in completion of the projects was mainly due to delay in award of work (up to 26 months) further leading to cost overrun of ₹ 57.08 crore, delay in handing over the site by the ULB (up to 66 months), delay in obtaining clearances/ approvals from the concerned authorities and slow execution of work by the contractors.

Non-prioritisation of works

2.6.18 As discussed in paragraph 2.6.8, primary works i.e. works on which other works of the project are dependent should be executed first.

Works costing ₹ 36.44 crore remained unutilised due to non-completion of primary work

We noticed that the Nigam, before starting the construction of intake well (primary work), incurred (September 2009 to March 2015) an expenditure of ₹ 36.44 crore on works (raw water rising main, water treatment plant and clear water feeder mains) that were dependent on completion of the primary work. As the work of intake well could not be started till date (March 2015) due to non-availability of site by the ULB/GoUP, the said works remained unutilised since 2012-13 to 2014-15.

The Management stated (October 2015) that the work of water treatment plant had been stopped due to stay by Hon'ble High Court and the matter was being pursued effectively by the Varanasi Nagar Nigam. The reply is not acceptable as proper planning is of utmost importance to avoid cost escalation and non-utilisation of created infrastructure of ₹ 36.44 crore.

Avoidable expenditure on excavation of trenches of larger size

Excavation of trenches of larger size led to avoidable expenditure of ₹ 3.65 crore

2.6.19 The Nigam, in contravention to the provisions of Para 6.6.4, 6.7.2.1 and 6.10.4.2 of the Manual, excavated trenches for laying of PVC, AC and DI pipes equal to outside diameter of pipe plus 0.60 m instead of diameter of pipe plus 0.30/0.40 m. This led to excavation of trenches of larger size involving avoidable expenditure of ₹ 3.65 crore on three counts viz., road cutting, excavation and reinstatement of roads.

Avoidable expenditure due to use of pipes of higher specifications

2.6.20 As discussed in paragraph 2.6.14, the Nigam did not adhere to the provisions of Para 6.3.1 of the Manual and without specifying any reason, used DI pipes instead of PSC pipes for laying of clear water feeder mains, DI pipes instead of AC pipes for laying of distribution mains of 200 mm and above dia and PVC pipes of grade 6 Kg/sq cm instead of PVC pipes of grade 4 Kg/sq cm for laying of distribution mains of below 200 mm dia. The use of pipes of higher specifications led to avoidable expenditure of ₹ 17.41 crore.

Use of pipes of higher specifications led to avoidable expenditure of ₹ 17.41 crore

The Management's reply (October 2015) that the selection of pipe material was dependent upon various technical factors is not acceptable as the projects were to be executed in urban areas similar to projects executed in Kanpur, Lucknow, Meerut, Allahabad and Agra where PSC/PVC pipes were used. Therefore, the technical factors were same and use of pipes of higher specifications in the projects was not justified.

Undue favour to contractor due to allowing price escalation

2.6.21 The Construction Division, Varanasi entered (May 2008) into two contracts with a contractor for construction of 27 Clear Water Reservoirs (CWRs), 17 Overhead Tanks (OHTs) and associated works at Varanasi at an aggregate value of ₹ 36.33 crore on lump sum turnkey contract basis with completion date of November 2010. The terms and conditions of the contracts provided that the price quoted by the bidders would be firm for the entire currency of the contract. Despite such provision in the contract, Nigam provided (July 2012) price escalation of ₹ 1.91 crore to the contractor resulting in undue favour to the contractor.

The Management stated (October 2015) that price escalation was paid due to delayed handing over of sites. The reply is not acceptable because, as per the terms and conditions of the contract, no price escalation was admissible.

Meerut

2.6.22 The Meerut water supply project was sanctioned (January 2008) by the GoI at a cost of ₹ 273.01 crore which was revised (December 2011) to ₹ 341.30 crore. Against it, funds of ₹ 341.30 crore were released and expenditure of ₹ 295.50 crore was incurred till March 2015. The project was to be completed by January 2011 and it was completed 98 *per cent* as of March 2015. Of the one WTP, 74 tubewells, 37 service reservoirs and 820.76 Kms pipelines, 74 tubewells, 31 service reservoirs and 607.80 Kms pipelines were completed and put to public use as of March 2015.

The deficiencies in execution of works are discussed in the succeeding paragraphs.

Delay in completion of projects

There was delay of more than four years in completion of the projects, which resulted in cost overrun of ₹ 27.79 crore

2.6.23 As discussed in paragraph 2.6.22, the project was to be completed by January 2011 and it was completed up to 98 *per* cent as of March 2015.

We observed that delay of more than four years in completion of the project was due to delay in award of work (22 months) further leading to cost overrun of ₹ 27.79 crore, delay in obtaining clearances/ approvals from the concerned authorities and slow execution of work by the contractors.

Non-prioritisation of works

2.6.24 As discussed in paragraph 2.6.8, primary works i.e. works on which other works of the project are dependent should have been executed first.

Works costing ₹ 67.74 crore remained unutilised due to non-completion of primary work

We noticed that the Nigam, before starting the work of canal lining (primary work) for drawing water from the canal to water treatment plant, incurred an expenditure of ₹ 67.74 crore up to January 2015 on the works (water treatment plant and clear water feeder mains) that were dependent on completion of the primary work. As the work of canal lining could not be started till date (March 2015) due to non-deposit of the cost of canal lining with the Irrigation department as suitable provision for the same was not made in the DPR, the said works remained unutilised since 2011-12 to 2014-15.

The Management stated (October 2015) that the estimate for canal lining had been approved by the State Government and recently the Irrigation Department had provided raw water from Upper Ganga Canal. The fact remains that due to not ensuring execution of primary work, expenditure of ₹ 67.74 crore remained unutilised.

Avoidable expenditure on excavation of trenches of larger size

Excavation of trenches of larger size led to avoidable expenditure of ₹ 6.99 crore

2.6.25 The Nigam, in contravention to the provisions of Para 6.6.4, 6.7.2.1 and 6.10.4.2 of the Manual, excavated trenches for laying of PVC, AC and DI pipes equal to outside diameter of pipe plus 0.60 m instead of outside diameter of pipe plus 0.30/0.40 m. This led to excavation of trenches of larger size involving avoidable expenditure of ₹ 6.99 crore on three counts viz., road cutting, excavation and reinstatement of roads.

Avoidable expenditure due to use of pipes of higher specifications

Use of pipes of higher specifications led to avoidable expenditure of ₹ 4.15 crore

2.6.26 As discussed in paragraph 2.6.14, the Nigam did not adhere to the provisions of Para 6.3.1 of the Manual and without specifying any reason used HDPE pipes for laying of distribution mains instead of PVC/AC pipes that were more economical and were also used in projects at Kanpur, Lucknow, Allahabad and Agra. The use of pipes of higher specifications led to avoidable expenditure of ₹ 4.15 crore.

The Management's reply (October 2015) that the selection of pipe material was dependent upon various technical factors is not acceptable as the project was to be executed in urban areas similar to projects executed in Kanpur, Lucknow, Allahabad and Agra where PVC/AC pipes were used. Therefore, the technical factors were same and use of pipes of higher specifications in the projects was not justified.

Allahabad

2.6.27 The Allahabad water supply project, Part-II was sanctioned (December 2008) by the GoI at a cost of ₹ 162.34 crore which was revised (March 2015) to ₹ 181.10 crore. Against it, funds of ₹ 159.22 crore were released and expenditure of ₹ 146.62 crore was incurred till March 2015. The project was to be completed by June 2011 and it was completed 90 *per cent* as of March 2015. Of the 46 tubewells, 21 service reservoirs and 710 Kms pipelines, 46 tubewells, 21 service reservoirs and 669 Kms pipelines were completed and put to public use as of March 2015.

The deficiencies in execution of works are discussed in the succeeding paragraphs:

Delay in completion of the project

There was delay of more than three years in completion of the project, which resulted in cost overrun of ₹ 52.71 lakh.

2.6.28 As discussed in paragraph 2.6.27, the project was to be completed by June 2011 and it was completed up to 90 *per* cent as of March 2015.

We observed that delay of more than three years was due to delay in award of work (10 months) further leading to cost overrun of ₹ 52.71 lakh and delay in obtaining clearances/ approvals from the concerned authorities.

Agra

2.6.29 The Agra water supply project was sanctioned (February 2008) by the GoI at a cost of ₹ 82.71 crore which was revised (March 2014) to ₹ 102.99 crore. Against it, funds of ₹ 102.99 crore were released and expenditure of ₹ 92.48 crore was incurred till March 2015. The project was to be completed by April 2010 and it was completed 90 *per cent* as of March 2015. Of the 18 service reservoirs and 483 Kms pipelines, 12 service reservoirs and 251.75 Kms pipelines were completed and put to public use as of March 2015.

The deficiencies in execution of works are discussed in the succeeding paragraphs:

Delay in completion of the project

There was delay of more than four years in completion of the project, which resulted in cost overrun of ₹ 11.88 crore.

2.6.30 As discussed in paragraph 2.6.29, the project was to be completed by April 2010 and it was completed up to 90 *per cent* as of March 2015.

We noticed that delay of more than four years in completion of the project was mainly due to delay in award of work (up to 25 months) further leading to cost overrun of ₹ 11.88 crore, delay in handing over the site without any encumbrances by the ULB (up to 23 months) and delay in obtaining clearances/ approvals from the concerned authorities.

Extra expenditure due to award of higher rates

2.6.31 The Agra water supply project inter-alia included construction of a new intake well of 12 m dia including pumping station at Jeevan Mandi water works at a cost of ₹ 0.76 crore as per the approved DPR. The World Bank Unit-I, Agra awarded (April 2010) this work to the contractor at a cost of ₹ 2.62 crore. As per prevalent practice in the Nigam, the unit evaluates the tender taking into account the updated rates of DPR (based on applicable price indices) vis-à-vis the offered rates.

We noticed that the unit, while evaluating the tender for award of above work, compared the offered rate of ₹ 2.62 crore with ₹ 2.98 crore arrived at, by the unit by updating cost of an intake well constructed in the year 1994 rather with ₹ 0.92 crore being the updated rate of the DPR.

Thus, due to evaluation of tender by the unit on the basis of incorrect updated rate, the decision to award the work at higher rate (185 *per cent*) resulted in extra expenditure of ₹ 1.70 crore.

The Management accepted (October 2015) the above facts but did not give any reason for evaluation of tender based on rates of 1994 rather with the updated rate of DPR leading to an extra expenditure of ₹ 1.70 crore.

Excess expenditure on laying of pipes

2.6.32 As per approval accorded by the GoI for execution of projects, unit was to start the work after necessary clearance/ approval from Railway Authorities.

We noticed that the World Bank Unit-I, Agra started (June 2009) the work of laying of pipes for crossing of railway tracks before obtaining the requisite approval from the Railways. The Railways subsequently granted (July 2009) the approval for a location that was away from the location where unit had laid the pipe, necessitating laying of additional pipes involving extra expenditure of ₹ 46.58 lakh.

The Management stated (October 2015) that the work was started in view of the permission applied. The reply is not acceptable because the work should have been started only after obtaining requisite approval of the Railways.

In addition to above, we also noticed the following irregularities in the aforesaid cities:

Short deduction of Building and Other Construction Workers' Welfare Cess

2.6.33 As per Rule 4 (3) of Building and Other Construction Workers' Welfare Cess Rules, 1998 and notification issued (February 2009) by the GoUP, the Nigam was required to deduct Cess at the rate of one *per cent* from the bills of contractors from February 2009 and deposit it with the Welfare Board.

We noticed that the Units at Kanpur, Lucknow, Varanasi, Meerut and Allahabad made payments of ₹ 1190.12 crore to contractors during April 2009 to March 2015 and deducted Cess of ₹ 5.47 crore only against the required deductible amount of ₹ 11.90 crore. This resulted in short deduction of cess of ₹ 6.43 crore.

The Management stated (October 2015) that Cess was now being deducted from the bills of the contractors. The fact remains that Cess of ₹ 6.43 crore short deducted remained unrecovered as of March 2015.

Irregular expenditure

2.6.34 Para 379 of the Financial Handbook Vol.-VI (FHB) provides that only those works which are included in the sanctioned estimate should be executed.

We noticed that, in contravention to above, the Nigam incurred an expenditure of ₹ 5.65 crore on works (construction of camp office at Kanpur - ₹ 0.59 crore; construction of helipad and operation and maintenance of pumping plants and water treatment plant at Lucknow - ₹ 1.13 crore; supply and installation of 108 electro-magnetic flow meters at Varanasi - ₹ 1.29 crore and reconstruction of whole road instead of the portion of road dismantled for laying of pipelines at Meerut - ₹ 2.64 crore), out of funds received for execution of the projects, despite the fact that said works were not provided for in the sanctioned DPRs.

The deployment of funds for works not provided for in the sanctioned DPRs was irregular and constituted diversion of fund.

Extra expenditure due to award of higher rates

2.6.35 The cost of sub-stations provided for in the DPRs, inter-alia, included cost of transformers, which constituted 23 to 59 *per cent* of the cost of sub-station.

We noticed that, while finalising the rate for construction of sub-stations, Nigam did not consider the prevailing rates of transformers. On comparing the rates awarded (June 2008 to April 2010) by the Nigam for transformers at Kanpur, Lucknow and Agra with the stock issue rates (rates charged from consumers) of Uttar Pradesh Power Corporation Limited (UPPCL), we found that the rates awarded by the Nigam were 100 to 430 *per cent* higher. This led to extra expenditure of ₹ 1.88 crore on construction of 62 sub-stations.

The Management stated (October 2015) that the UPPCL purchased transformers on centralised basis for the whole Uttar Pradesh from specified manufacturers of the makes, different from that procured by the Nigam. The reply is not acceptable as the UPPCL procures transformers in small lots and of the same makes, as procured by the Nigam.

Conclusion and Recommendations

We conclude that:

- **After incurring an expenditure of ₹ 2149.69 crore on the projects in six municipalities (mission cities), none of the project was fully completed (60 and 98 *per cent*) even after a period of 36 to 59 months beyond scheduled period of completion as of March 2015.**

The Nigam should evolve a mechanism for timely award of work and for obtaining prior clearances from the concerned authorities to avoid delay in execution of work.

- **Due to non-prioritisation of works, infrastructure (water treatment plants, overhead tanks, zonal pumping stations, raw water rising mains, clear water feeder mains, rising mains and distribution mains) of ₹ 263.97 crore remained unutilised for a period from 2011-12 to 2014-15 as of March 2015 owing to non-execution of primary works.**

The Nigam should plan execution of various works of a project in such a manner that none of completed works remains unutilised for want of execution of primary work.