

CHAPTER XI: MINISTRY OF POWER

Damodar Valley Corporation

11.1 Incorrect decision for payment of ex-gratia to the employees

The Corporation incurred extra expenditure of ₹31.38 crore due to its incorrect decision for payment of ex-gratia to its employees despite poor performance and incurring loss.

Damodar Valley Corporation (Corporation) grants ex-gratia to its employees who are not eligible for bonus as per provisions of Bonus Act, 1965. The employees who are eligible for bonus are also paid ex-gratia to the extent of difference between the admissible and the ex-gratia amount declared for the year.

As per CERC¹ regulations, the payment of ex-gratia is linked to the efficient operation and high performance level of generating station and is payable only in case the plant achieves or over achieves its normative operational levels. Such payment of ex-gratia would not be part of O&M² expenditure recoverable from the customers. CERC also stated (April 2014) that such expenses on manpower should be funded through the incentives and profit earned by the generating stations on account of better plant performance.

Audit observed that, during the period 2013-14 and 2014-15, the Corporation could achieve APAF³ to the extent of 55.56 *per cent* and 46.56 *per cent* during the year 2013-14 and 2014-15 respectively against the normative APAF of 85 *per cent*⁴ as fixed by the CERC. There was shortfall of 5,852 MKwH⁵ and 4,506 MKwH in power generation during the same period (2013-14 and 2014-15) against de-rated capacity. The Corporation also suffered losses during the year 2013-14 and 2014-15 to the tune of ₹995.43 crore and ₹1,333.56 crore respectively. Thus, the Corporation could not meet the efficiency criteria and high performance level for payment of ex-gratia. Despite this, the Corporation paid ex-gratia of ₹31.38 crore for the years 2013-14 and 2014-15 to its employees which was not correct.

The Management contended (September 2016) that the expenditure incurred on payment of ex-gratia is recoverable under Operation & Maintenance Expenses through tariff under the CERC Regulation.

The contention of the Management is not acceptable as Para No. 29.22 of Statement of Reasons of CERC (Terms and Conditions of Tariff) Regulations, 2014 stated that ex-gratia and other incentives should not be considered while determining O&M

¹ Central Electricity Regulatory Commission

² Operation & Maintenance

³ Annual Plant Availability Factor

⁴ 85 *per cent* for all thermal generating stations of the Corporation except BTPS (75 *per cent*), CTPS (75 *per cent*) and DTPS (74 *per cent*).

⁵ Million Kilowatt Hour

expenditure norms. It was noticed that while sanctioning the ex-gratia to its employees for the year 2013-14, the Corporation indicated that payment of ex-gratia was dependent on the performance of the Corporation and should not be a precedent for the future grant of bonus/ ex-gratia.

Thus, the decision of the Corporation to pay ex-gratia to its employees, who were not eligible for payment of bonus/ex-gratia as per the payment of Bonus Act, 1965, despite poor performance and incurring losses was not appropriate and led to Corporation incurring extra expenditure of ₹31.38 crore.

The matter was reported to the Ministry in September 2016; their reply was awaited (January 2017).

11.2 Loss due to delay in rectification of defect

Due to delay in rectification of defects in Unit 1 of Talaiya Hydel Power Station, the Corporation could not generate 19.39 million units of power leading to loss of ₹8.60 crore towards under-recovery of capacity charges.

Talaiya Hydel Power Station (THPS) of Damodar Valley Corporation (Corporation) is situated on the River Barakar and comprises of two units with a generation capacity of 2 MW¹ each. The generation of power at THPS is done on the basis of water level of Talaiya reservoir² and as per instructions of the Manager Reservoir Operations, Maithon. Both the units of THPS had been operational till January 2013. On 31 January 2013, the operation of Unit I had to be stopped on account of water leakage from guide vane³ of Unit I, which caused water and lubrication oil to mix.

Audit noticed that the unit could not attend to the above defect due to lack of skilled manpower. It was also observed that a monthly statement on Generation, Outage and Availability of units was regularly sent by the Unit to the higher management which indicated that Unit I had been shut-down. Yet, no remedial action was taken either by the Unit or the higher management for rectification of the defect and operation of Unit I.

The incident was finally reported formally only on 9 July 2014, 17 months after shut-down of the unit. The departmental estimate for rectification of the defect was made in September 2014 and the work order for ₹0.04 crore was issued in October 2014 on limited tender basis. The rectification work was completed in November 2014 and the generation of power from unit I commenced in the same month. The defect was rectified after nearly two years (21 months) since its detection. For this entire period (31 January 2013 to 21 November 2014), Unit I remained under shut-down. As a result, the Corporation could not generate 19.39 MU⁴ of power resulting in under-recovery of capacity charges allowed as per Tariff Regulations to the tune of ₹8.60 crore (**Annexure VII**).

¹ *Mega Watt*

² *Guide curve during monsoon period (June to October) and 1200 feet during non-monsoon period.*

³ *Guide Vane, a component of Francis turbine used in hydel power plants, is used to convert the pressure energy of water into momentum energy.*

⁴ *Million Unit*

The Management stated (July 2016 and August 2016) that

- Maintenance works have not been undertaken since commissioning of the units leading to forced outages/ shutdown of units. Corrective measures have already been taken to set right future problems through preventive maintenance, planned maintenance etc.
- During the period of shut-down of unit I (31 January 2013 to 21 November 2014), the crest gate was opened from 16 August 2014 to 25 October 2014 only and, hence, the loss of generation would be around ₹1.38 crore, much lower than the estimation of audit.

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

- While the Management assurance regarding early corrective action in future is noted by Audit, the inordinate delay of nearly two years in rectifying a defect in unit I has been highlighted.
- The crest gate is opened whenever the water level crosses 1,213 feet (369.73 meters) while the hydel power generation requires water to be above guide curve level (1,190 to 1,210 feet) during monsoon period (June to October) and 1,182 feet during non-monsoon period as per Regulation Manual for Damodar Valley Reservoirs. Audit noticed that even after the operation of Unit 2, there was sufficient water, as per the manual, for generation of power in both the Units (I and II) simultaneously for 418 days (during June 2013 to November 2014). Audit has considered the actual available water for hydel power generation over the period of shut-down of Unit I which worked out to a loss of ₹8.60 crore.

Thus, due to delay in rectification of defect in Unit 1 of THPS, the Corporation could not generate 19.39 MU of power resulting in loss towards under-recovery of capacity charges amounting to ₹8.60 crore.

The para was issued the Ministry in September 2016. Reply is awaited (January 2017).

11.3 Water Resource Management

Water resources of the Corporation were not optimally utilized. Storage capacity of the four reservoirs depleted by 22 per cent with corresponding reduction in flood storage capacity by 15 per cent due to siltation, coupled with absence of an integrated programme for soil conservation. Dams were not operated as per the prescribed guidelines, entailing revenue loss due to lower generation of hydel power. Systemic lapses were noticed in repair and maintenance of dams, particularly inoperative under-sluice gates which affected de-siltation works, apart from causing power generation and revenue loss. Deficiencies in allocation of water for Municipal and Industrial purposes and in monitoring actual drawal of water led to potential revenue loss.

11.3.1 Introduction

Damodar Valley Corporation (Corporation/DVC) was established in July 1948. It aimed at securing unified development of Damodar river valley falling within the states of Jharkhand (erstwhile Bihar) and West Bengal. The Corporation has four dams located at Tilaiya and Maithon on river Barakar, Panchet on river Damodar and Konar on river Konar and one barrage located at Durgapur on river Damodar. The water is used for generation of hydel power, irrigation and water supply for industrial and municipal purposes. The operation of reservoirs and release of water are guided by the instructions of Damodar Valley Reservoirs Regulation Committee¹ (DVRRC).

A performance audit on Water Resources Management was conducted for the period 2002-07 and audit findings were included in the Annual Report of the Corporation for the year 2006-07. Systemic lapses in maintenance of dams and barrage, renovation and modernisation of hydel units, survey of dams, soil conservation etc. were highlighted in the performance report. In this backdrop, the present audit was carried out to assess the extent of remedial measures taken by the Corporation to address the deficiencies highlighted in the earlier performance audit.

11.3.2 Audit objectives and scope

The audit objectives were to assess whether: (i) adequate steps were taken to arrest the depletion in storage capacity of the reservoirs by effective de-siltation and soil conservation measures; (ii) operation and maintenance of dams and reservoirs were effective and carried out in line with prescribed guidelines; and (iii) the water resources were managed economically and efficiently. This audit covers the period from 2011-12 to 2015-16.

11.3.3 Implementation of the plan

The original plan (1945) for flood control and development of water resources along the river Damodar and its tributaries envisaged creation of total storage capacity² of 46.82 lakh acre feet (acft) with seven storage dams³ with flood storage capacity⁴ of 29.15 lakh acft. Storage capacity of 29.01 lakh acft was built through four dams at Tilaiya (1953), Konar (1955), Maithon (1957) and Panchet (1959) with corresponding flood storage capacity of 15.10 lakh acft. The effective total storage and flood storage capacities were limited to 24.56 lakh acft and 10.65 lakh acft respectively, considering the actual land acquired at Maithon and Panchet. Apart from the above, Government of Jharkhand (GoJ) constructed (1981) a storage dam at Tenughat without creation of flood storage capacity. No further capacity addition had been materialized since then. A Detailed Project Report

¹ DVRRC comprises of representatives of Central Water Commission, the Corporation, Government of West Bengal and Government of Jharkhand

² It is the level corresponding to the storage which includes both inactive and active storages including flood storage, if provided for. In fact, this is the highest reservoir level that can be maintained without spillway discharge or without passing water downstream through sluice ways.

³ Tilaiya, Konar, Maithon, Panchet, Bokaro, Balpahari and Aiyar (Tenughat)

⁴ It is the capacity of a reservoir required to be maintained to absorb foreseeable flood inflows to the reservoirs, so far as they would cause excess of acceptable discharge spillway opening.

(DPR) was prepared (March 2012) through Central Water Commission (CWC) for Balpahari dam. Construction of the dam was still pending (October 2016).

11.3.4 Audit findings

11.3.4.1 Loss of storage capacity of reservoirs

Erosion of soil from upstream leads to siltation and decreases storage capacity as well as power generation and irrigation potential. Due to siltation, the storage capacity of the reservoirs reduced from 24.56 lakh acft to 19.06 lakh acft, with corresponding reduction of flood storage capacity to 9.06 lakh acft. The reduction in the total storage capacity ranged from 4 per cent to 28 per cent¹ in the four dams of Maithon, Panchet, Konar and Tilaya with a 7 per cent to 31 per cent² reduction in flood zone. DVC has not taken effective and integrated soil conservation measures to arrest siltation (discussed in Paragraph 11.3.4.3) and failed to operate the under-sluice gates for flushing (discussed in Paragraph 11.3.4.4 (II)). This adversely affected the ability of the reservoirs to store optimum quantity of water and flood control, and to generate maximum revenue from power generation (discussed in Paragraph 11.3.4.6 (I)(a)) and irrigation activities.

DVC stated (October 2016) that all the intended objectives such as flood control, generation of hydel power, irrigation potential were obviously impacted due to siltation. But, the reply was silent on the reasons for not paying required attention to maintain the live storage capacity of the dams persistently over the years.

11.3.4.2 Survey of reservoirs

Survey of reservoirs at regular intervals is essential for realistic assessment of siltation rate as well as quantum of silt deposition and consequential loss of storage capacity. This facilitates appropriate corrective action to arrest silt deposition. As per CWC, such surveys are to be conducted every five years. Audit observed that the Corporation neither adhered to the time schedule for conducting the surveys nor framed any guidelines in this regard. Maithon and Panchet reservoirs were last surveyed in 2002 and 2011 respectively, while no survey has been taken up in Konar and Tilaiya reservoirs after 1997. In the absence of regular surveys, the actual storage capacity in each reservoir at present was not known.

DVC stated (October 2016) that the work for determination of extent of silt in different reservoirs was ascertained (2010) engaging M/s WAPCOS using projection method. The difference in the projected and the last survey data varied within +/- 5 per cent, which did not make considerable impact on the operational parameters.

The reply is to be viewed against the fact that assessment of silt through projection method was not prescribed by CWC and systematic survey of reservoirs could only provide the actual extent of silt deposit.

¹ Maithon-28 per cent, Panchet-22 per cent, Konar-26 per cent and Tilaiya-4 per cent

² Maithon-13 per cent, Panchet-17 per cent, Konar-31 per cent and Tilaiya-7 per cent

11.3.4.3 Soil conservation

Sedimentation in the reservoir reduces its storage capacity and with adequate measures of soil and water conservation, siltation in the reservoir could be controlled. Soil Conservation Department (SCD) of DVC is responsible for undertaking soil conservation work in the valley area. The Corporation has a total command area of 24.24 lakh hectares. This includes upper catchment area of 17.51 lakh hectares, of which 11.47 lakh hectares was identified as a problem area¹. Audit observed that only 3.05 lakh hectares (27 per cent of the problem area) was treated by the Corporation up to 2010-11. Thereafter, no soil conservation measures were taken.

IIT Kharagpur was engaged (June 2007) for assessing the progress of soil conservation work carried out and to formulate strategies to implement soil conservation measures in scientific manner to prolong the life of reservoirs. The report indicated that the sedimentation rate would have been decreased by 69, 34, 27 and 1.12 per cent in respect of Maithon, Panchet, Tilaiya, and Konar dams, respectively, had effective soil conservation measures been adopted. However, the Corporation did not take steps for treatment of the problem area in line with the recommendations of IIT Kharagpur in a time bound manner.

DVC stated (October 2016) that discontinuation of financial assistance from Government of India as well as non-acceptance of DVC as an implementing agency under State Government from Centrally sponsored scheme forced withdrawal of soil conservation works in the problem area. Continuous efforts to obtain financial assistance under micro-management scheme for taking up systematic soil conservation works has not yielded any results. The reply is to be viewed against the fact that DVC was statutorily responsible for soil conservation measures, lack of which had depleted the storage capacity of dams.

11.3.4.4 Operation of dams

(I) Reservoir levels above guide curves

DVRRC prescribed guide curves² for the reservoirs to ensure effective flood moderation together with optimal utilisation of water. Audit observed that the Corporation had not been adhering to the guide curves during the monsoon season and had been maintaining reservoir levels above the guide curves. As a result, water had to be released through crest gates³ on 197 days (67 days for Maithon and 130 days for Panchet accounting for 9.34 per cent and 17.76 per cent of monsoon days) during 2011-15. As per flood warning services, any release of water in excess of 9,000 cusec in case of Maithon dam and 14,000 cusec in case of Panchet dam during the period from June to October was considered part of flood control operation. Flood release during this period was up to 35,939 cusec from Maithon and up to 83,393 cusec from Panchet. Had the Corporation maintained the guide curves and released the excess water as and when the water levels exceeded guide curves, flood release quantum would have been lower which would have reduced the intensity of

¹ *Problem area means area highly prone to soil erosion and scarcity of water*

² *Daily water level to be maintained in the reservoir during monsoon season*

³ *A gate on the crest of a spillway to control overflow or reservoir water level*

flood during the monsoon season as the downstream area of the dam also received rain water during that time.

DVC stated (October 2016) that the reservoir levels were kept above the guide curves for the period under review as decided by an apex Technical Committee in the greater interest of the people of West Bengal (lower valley). Therefore, DVC alone cannot be held responsible for the situation.

The Management contention is not acceptable as guide curves were prescribed by DVRRC to ensure effective flood moderation together with optimal utilisation of water, which ought to have been adhered to.

(II) Leakage of under-sluice gates

Under-sluice gates of the dams are meant for release of water at the dead storage levels and these are required to be operated before every monsoon season to flush out the silt to control siltation in the reservoirs. Audit observed that all five under-sluice gates of Maithon dam and all ten under-sluice gates of Panchet dam were non-functional since long, due to lack of repair and maintenance. Leakage of water through these gates resulted in continuous flow of water downstream without the water being used for hydel power generation. Audit estimated the quantum of water leakage through under-sluice gates of both the dams¹ during the non-monsoon seasons from April 2011 to March 2016 which would have led to loss of power generation of 20.72 MU valuing ₹8.35 crore (₹7.36 crore for Maithon and ₹0.99 crore for Panchet).

While accepting the non-operation of under-sluice gates, DVC stated (October 2016) that rehabilitation work of the same would be taken up under Dam Rehabilitation and Improvement Project and was likely to be completed in 2018. The progress in this regard would be reviewed in future audits.

(III) Non-optimal use of water at Tilaiya

As per DVRRC manual, water from Tilaiya reservoir was to be released to the Minimum Draw Down Level (MDDL) of 363.32 meters by the end of January in each year in order to augment the storage position of Maithon reservoir in the downstream. This would facilitate increase in power generation from Maithon. Audit observed that this was not done since the under-sluice gates were inoperative and water from Tilaiya reservoir was released only through hydel units during non-monsoon seasons. As a result, water levels of Tilaiya reservoir were always maintained higher than the prescribed MDDL of 363.32 meters at January end during 2011-12 to 2015-16, while the water level in Maithon reservoir remained lower than the live storage level. Thus, water from Tilaiya reservoir was not optimally utilised.

DVC stated (October 2016) that the DVRRC manual was last revised in 2002 and over time, several consumers have been allocated water from Tilaiya reservoir, which required extra water (8,000 acft above the MDDL). Hence, the water levels in the Tilaiya reservoir were kept above the MDDL.

¹ *Taking the daily reservoir level along with the daily inflow and outflow of water*

The reply needs to be viewed against the fact that the water levels at the end of January during the years under review ranged from 31,885 acft to 95,631 acft above MDDL, which was much beyond the additional 8,000 acft above MDDL required by committed consumers. Failure to regulate water according to DVRRC manual, therefore, defeated the stated objective of capacity utilisation at Maithon.

11.3.4.5 Maintenance of dams

Dam Safety Cell (DSC) is the apex committee in DVC for carrying out maintenance and inspection of dams and funds were earmarked in annual budget for meeting expenditure on maintenance of the dams. Audit observed that the budget allocations were not fully utilized for maintenance of dams during the period under review. No manual stipulating a comprehensive framework for different types of maintenance of the dams was in place and maintenance works were carried out as and when required. As a result, no plan was prepared even for annual preventive maintenance of the dams. There was also no Emergency Action Plan in place, despite being mandated by specific guidelines issued (July 2012) by the National Committee on Dam Safety (NCDS).

Audit further observed that the Corporation carried out physical inspection of dams during pre-monsoon and post-monsoon season based on a checklist prepared by DSC. However, the inspection reports and the checklists were not regularly submitted in the annual pre and post-monsoon meetings on dam safety held for discussing the same. In addition, some of the findings of the inspection reports were not adequately acted upon though repeatedly discussed in these meetings. DVRRC, therefore, expressed concern that no concrete action had been initiated by the Corporation on maintenance and repair of the crest gates and under-sluice gates, despite repeated instructions. DVRRC also commented that the Corporation failed to realize the gravity of the situation as de-siltation exercise got affected due to non-operation of the under-sluice gates which ultimately resulted in reduction of storage capacity of the reservoirs.

While accepting the audit observations, DVC stated (October 2016) that Dam Safety Review Panel (DSRP) has been constituted in 2012 and dam safety review would be carried out by DSRP every ten years. DSRP inspected all the dams and submitted a report in 2014 and as per their recommendation, repair and maintenance work for resolving the issues pointed out above have been taken up under Dam Rehabilitation and Improvement Project and are likely to be completed in 2018.

11.3.4.6 Utilisation of water

As per DVRRC manual, the water stored in the reservoirs are used for hydel power generation, irrigation (Kharif, Rabi and Boro) and Municipal and Industrial (M&I) purposes. Audit examined the utilisation of water and observed the following:

(I) Hydel power generation

The Corporation has three hydel power stations at Maithon (2 x 20 MW and 1 x 23.2 MW), Panchet (2 x 40 MW) and Tilaiya (2 x 2 MW) with total installed capacity of 147.2 MW.

(a) Avoidable outages during monsoon season leading to generation loss

As per the operating guideline, hydel power units are required to be ready for generation during the monsoon season (June to October) as water is available in abundance during this period. Maintenance schedule of the hydel power units are, therefore, planned for optimal utilisation of such units during monsoon season. Audit, however, observed that the hydel power units of Maithon and Panchet were not available for generation on account of outages (scheduled as well as forced) for 2084 hours and 1384 hours respectively from June 2011 to July 2015. As a result, the water available in the reservoirs could not be utilised for power generation during this time. A total of 8.65 lakh acft (2.61 lakh acft for Maithon and 6.04 lakh acft for Panchet) water had to be released through crest gates, which resulted in generation loss of 42.99 Million Unit (MU) (Maithon 10.40 MU and Panchet 32.59 MU) valuing ₹19.22 crore (₹4.33 crore for Maithon and ₹14.89 crore for Panchet).

The Management confirmed (October 2016) the outages of the units and release of water through crest gates during monsoon periods. However, Management did not agree that there was loss of generation on the plea that the outages were unavoidable.

The contention of Management is not acceptable as outages of Maithon hydel during monsoon seasons were due to scheduled maintenance which could have been avoided with better planning. Forced outages occurred in Maithon due to non-rectification of problems in Generation Turbine and touch screen of Unit 2 though the same had been detected earlier. Similarly, forced outages of Panchet during monsoon seasons occurred due to non-rectification of water cooler leakage (Unit 1) as well as problems in intake gates (Unit 2) which had been identified earlier but not rectified.

(b) Delayed rectification of known fault led to generation loss

Residual Life Assessment Study (RLA) of Unit 1 of Panchet carried out (August 2007) through M/s NHPC, *inter-alia*, revealed deterioration of stator winding insulation due to ageing, thermal stress and load cycling, and recommended urgent rectification to avoid major breakdown of the unit. Audit observed that no rectification work for resolution of this problem was carried out over the next five years. The stator failed in September 2012 and the fault was rectified in October 2013. Due to stator fault, Unit 1 of Panchet was completely taken out of generation from November 2012 to September 2013 leading to release of 7.77 lakh acft of water through crest gates, which resulted in generation loss of 60.45 MU valuing ₹26.17 crore.

DVC stated (October 2016) that renovation works suggested in RLA could not be taken up due to acute financial crunch and the unit was maintained through rigorous opportunity/ preventive/breakdown maintenance. It was also informed that presently, the renovation of the unit was in an advanced stage.

The reply is not acceptable. The rectification of stator suggested in RLA could have been carried out pending renovation works to avoid major breakdown of the unit. The same rectification was, in fact, carried out after failure of the stator which entailed avoidable generation and revenue losses.

(c) Avoidable liability due to lower power generation

As per section 86 of Electricity Act 2003, DVC, being a distribution licensee, has to fulfil Renewable Purchase Obligation (RPO) targets fixed by Jharkhand State Electricity Regulatory Commission (JSERC) since July 2010. The RPO was to be met either through purchase/generation of renewable power or through purchasing Renewable Energy Certificates (REC) from power exchanges. The power generation from Maithon and Tilaiya hydel units qualified for meeting the non-solar RPO target fixed by JSERC. Audit observed that during 2011-12 to 2014-15, Corporation had a shortfall of 422 MU in meeting RPO targets and had to procure REC for the same. This shortfall could have been bridged to the extent of 10.39 MU, had there been no outages in Maithon (as discussed in para 11.3.4.6 (I) (a)) for which the Corporation had to bear an additional liability to procure REC for ₹1.56 crore (₹15 lakh per MU).

DVC stated (October 2016) that hydro projects upto 25 MW only qualified for RPO and Maithon hydro project having capacity of 63.2 MW was beyond the purview of RPO.

The reply is not acceptable as DVC itself while furnishing tariff petition, had included generation from individual units (2 x 20 MW and 1 x 23.2 MW) of Maithon for meeting RPO targets, which was approved by JSERC.

(II) Water for irrigation

The water rates for Kharif, Rabi and Boro irrigation in West Bengal were ₹15 per acre, ₹20 per acre and ₹50 per acre respectively. These rates were fixed in 1977 and are lower compared to the rates charged by many other States. Audit observed that though an agenda for revision of water rates for irrigation was placed (March 2011) in DVRRC meeting, it could not be considered in DVRRC and DVC was asked to approach their Board for appropriate action. However, the Corporation did not take effective steps to pursue the matter (September 2016) for revising the water rates. It is pertinent to note that the Corporation incurred ₹237.04 crore towards supply of water for irrigation during the last five years up to 2015-16 while it earned a revenue of ₹48.64 crore only. Thus, there was under recovery of ₹188.41 crore from irrigation.

DVC stated (October 2016) that Government of West Bengal (GoWB) was approached for revision of irrigation rates in 2011 and the matter for revision of rates would be taken up further in line with DVC Act.

However, no effective steps was taken since 2011 even though there had been considerable under recovery from irrigation.

(III) Water for Municipal and Industrial purposes

(a) DVRRC, on the basis of information obtained from the Corporation, allocated 435 million gallon per day (MGPD) and 470 MGPD of water to the Municipal and Industrial (M&I) consumers of West Bengal and Jharkhand respectively. Audit observed that the actual drawal of water by these consumers during 2013-14 to 2015-16 was far below the allocated quantity and ranged from 7 per cent to 12 per cent for Jharkhand and 35 per cent to 53 per cent for West Bengal. No action was taken by the Corporation to re-allocate the

water to prospective M&I consumers in West Bengal and Jharkhand based on actual drawal by the users despite increasing demand for water. As a result, the Corporation lost an opportunity to generate revenue of ₹389.34 crore¹ for water not drawn by existing consumers. Audit further observed that no penal clause was available in the agreement with existing consumers for less drawal of allotted quantity of water in order to protect the opportunity loss suffered by the Corporation. It was also noticed that though the agreements stipulated installation of meter to measure actual drawal of water, 81 *per cent* of existing consumers had been drawing water without having any meter. This meant that the water consumption bills raised by the Corporation were not realistic.

DVC stated (October 2016) that reconciled water account has been finalized and the same would be placed in the next DVRRC meeting. It also added that suitable system would be installed for better monitoring of water drawn by the consumers.

(b) Durgapur barrage was constructed in 1955 on river Damodar to divert the water to irrigation canals and Water Supply Canal (WSC). One harbour pond was also created, upstream of the barrage, to facilitate diversion of water smoothly into the irrigation canals and WSC. The demand of water for M&I uses was also being met from WSC. Audit observed that over several years of operation, the capacity of the harbour pond and WSC was depleted due to siltation. The situation further aggravated after a flash flood in September 2009 when the harbour pond became almost defunct and water was supplied to the WSC directly from barrage pond. This also restricted uninterrupted water supply to the M&I consumers from WSC. The Corporation, however, did not take any effective action to restore the original capacity of WSC and harbour pond by carrying out de-siltation work.

DVC stated (October 2016) that since the operation and maintenance of Durgapur barrage along with its network of canals was handed over to the GoWB in 1964, the de-siltation of the barrage was not under DVC. The reply is not acceptable. Operation and maintenance of Durgapur barrage along with its network of canals was handed over to GoWB, but that of WSC and harbour pond has been with DVC. Since the Durgapur barrage, irrigation canals and WSC are situated downstream of the harbour pond, its maintenance is essential to store optimal quantum of water and protect revenue earning potential of DVC.

Conclusion

Water resources of the Corporation were not optimally utilized. Storage capacity of the four reservoirs depleted by 22 *per cent* with corresponding reduction in flood storage capacity by 15 *per cent* due to siltation, coupled with absence of an integrated programme for soil conservation. Dams were not operated as per the prescribed guidelines, entailing revenue loss due to lower generation of hydel power. Systemic lapses were noticed in repair and maintenance of dams, particularly inoperative under-sluice gates which affected de-siltation works, apart from causing power generation and revenue loss. Deficiencies in allocation of water for Municipal and Industrial purposes and in monitoring actual drawal of water led to potential revenue loss.

¹ *Considering the lower rate of ₹1.15/ KL applicable for municipal purposes.*

Recommendations

The following recommendations are suggested for resolving the deficiencies noticed in audit. The Corporation may:

- *Take necessary steps to complete the repair and maintenance works of dams and reservoirs in a time bound manner to avoid release of water through crest gate and resultant generation loss.*
- *Initiate survey of reservoirs, de-siltation and soil conservation measures in a time bound manner to ensure that the storage capacity of the reservoirs are restored.*
- *Prepare annual maintenance schedule in advance and carry out the maintenance works during the non-monsoon season, to avoid generation loss during the monsoon season.*
- *Carry out operation of dams in line with the guidelines issued by DVRRC including maintenance of guide curves and release of water.*
- *Take up the issue of revising rates applicable for sale of water for irrigation and to municipal and industrial consumers. Meters may be installed for accurate measurement of use of water by respective consumers.*

The matter was reported to the Ministry in October 2016; their reply was awaited (January 2017).

NHPC Limited

11.4 Violation of CVC guidelines resulted in undue benefit to contractor

Failure of NHPC Limited to recover interest free down payment in a time bound manner led to violation of CVC guidelines and resulted in extension of undue benefit of ₹6.99 crore to the contractor.

As per guidelines issued (10 April 2007) by Central Vigilance Commission (CVC), interest free mobilisation advances, if extended to contractors, should be recovered in a time bound manner without linking the same with the progress of work. This was to ensure that even if the contractor was not executing the work or executing it at a slow pace, the recovery of advance could commence and scope for misuse of such advance could be reduced. CVC guidelines further stipulated that part Bank Guarantee should be taken in as many numbers as the proposed recovery instalments and should be equivalent to the amount of each instalment. This would ensure that at any point of time, even if the contractor's money on account of work done was not available, recovery of advance could be ensured.

NHPC Limited awarded (22 January 2009) a contract for execution of Kishanganga Hydro Electric Project to M/s Kishanganga Consortium on turnkey basis at ₹2,919.07 crore. As per terms and conditions of Electro-Mechanical (EM) and Hydro Mechanical (HM) packages, the Contractor was entitled for an interest free down payment equivalent to five

per cent of FOB and ex-work component of the contract price. Accordingly, NHPC Limited released ₹27.42 crore¹ as interest free down payment to the contractor between December 2009 and January 2010.

Audit noticed that no specific time schedule was stipulated for recovery of interest free down payment. Instead, the recovery was linked to the progress payments (linked to the progress of work) in contravention of the CVC guidelines.

The Contractor was to commence supply from May 2010 and July 2011 for HM and EM packages. The work was delayed and the actual supply commenced from May 2013 and January 2013 for HM and EM packages respectively. Consequently, the Contractor submitted first Running Account bill in January 2013 against scheduled submission in January 2011². Thus, the interest free down payment remained with the Contractor for an additional two years, which resulted in extension of undue benefit of ₹6.99 crore³ to the Contractor. Moreover, since the recovery was linked with the progress of work, down payment has not yet been fully recovered (October 2016) even after six years.

The Management stated (July 2016) that in case of supply contracts, payments were due on delivery of equipment, which took two years or more from contract signing date. The payments made to the contract were not an advance but down payment against Bank Guarantee to meet cash flow requirement for initial purchase of material/plant. Such down payments were not recovered, but adjusted at the time of partial shipment or balance amount was paid progressively in stages on achieving intermediate milestones.

The reply is not acceptable. Interest free down payments released to meet cash flow requirement for initial purchase of material/plant is essentially an interest free advance. As per CVC guidelines, such interest free down payment/advance should have been recovered in a time bound manner without being linking to the progress of work. With the delay in progress of work, the recovery of the down payment/advance was postponed.

Thus, failure of NHPC Limited to recover interest free down payment/advance in a time bound manner and linking such recovery to progress of work in violation of CVC guidelines resulted in extension of undue benefit of ₹6.99 crore to the Contractor.

The matter was reported to the Ministry in October 2016; their reply was awaited (January 2017).

Rural Electrification Corporation Limited

11.5 Injudicious investment of REC

Decision of REC to invest in Universal Commodity Exchange Limited without adequate due diligence regarding market potential for upside, performance of existing players, exit options resulted in eventual loss of ₹16 crore.

¹ Includes ₹18.70 crore and Euro 13,03,985 @ ₹66.88 per Euro (i.e., ₹8.72 crore)

² As per the contract, the first bill was to be presented 24 months after the date of order to commence. As the order to commence was dated January 2009, the first bill was expected in January 2011.

³ ₹27.42 crore x 12.75 per cent (being the State Bank Advance Rate (SBAR) applied in interest bearing advances for the same contract) x 2 years

Rural Electrification Corporation Limited (REC) decided (December 2011) to invest ₹16 crore in Universal Commodity Exchange Limited (UCX) by way of equity participation. The proposal was accepted on the rationale that (i) it would provide for knowledge transfer in terms of market scenario, trends etc. and help in credit appraisal of borrowers and (ii) the valuation of existing commodity exchanges were high, which, in turn, would lead to high valuation for UCX also.

The Board of Directors (Board), while approving the proposal (16 December 2011) observed that the market share projection of 40 *per cent* after five years for a new entity appeared too ambitious and possibility of upside and exit options needed more careful study and analysis. Management, initiated an internal note to the Chairman and Managing Director (CMD), reiterating the facts that had already been presented to the Board. No further study of these aspects were initiated, neither did the Management revert to the Board on the subject. Instead, the Management went ahead with the investment in UCX.

Audit noticed that there were five national commodity exchanges and performance of only two of them were presented to the Board. While commenting on their performance it was indicated that both exchanges had earned profits. However, the fact that one of these exchanges had suffered operational losses and the profit was on account of income received from other sources was not highlighted. One of the other national commodity exchanges too incurred losses from operation which was not brought out. The annual reports of Forward Markets Commission (FMC) during 2009-10 and 2010-11 indicated that commodity exchange market was dominated by a single player, Multi Commodity Exchange, with over 82 *per cent* market share. Another exchange, National Commodity and Derivatives Exchange had over 12 *per cent* market share leaving the other three exchanges competing for the balance 6 *per cent* share. In this context, the assumption that UCX would acquire 5 *per cent* market share in the first year, increasing to 40 *per cent* over five years was unduly optimistic, which was not critically analysed as desired by the Board.

UCX commenced operation on 19 April 2013 and was suspended on 16 July 2014. During 2013-14, the first and only year of its operation, UCX registered a market share of only 0.72 *per cent*. The suspension of operation of UCX was on account of depletion of funds in the Settlement Guarantee Fund (SGF), investment of SGF in liquid assets, lack of active participation of clients on the exchange platform, non-compliance of instructions/guidelines issued by the regulator (FMC) as well as mismanagement and siphoning of funds by the promoter – director in collusion with his associate entities resulting in erosion of capital of UCX. Being a 16 *per cent* equity stakeholder in UCX, REC was represented on its Board through a nominee director. An internal guideline of REC provided that the nominee director should report upon the operation of UCX. Audit noticed, however, that nothing was reported to REC till July 2014 by which time, the entire share capital of UCX had eroded and operation of the exchange was suspended. It was seen that REC (February 2016) had made a 100 *per cent* provision against its investment in UCX in the books of accounts. Thus, the injudicious decision of equity investment in UCX, coupled with lack of close monitoring of its performance, resulted in loss of ₹16 crore to REC.

The Management stated (September/November 2016) that the investment in UCX was purely an investment decision based on due diligence by senior committee of directors and feasibility studies by Price Waterhouse Coopers where it was offered shares at face value while other potential investors were ready to invest at a premium. The possibility of upside and exit options were duly considered and deliberated subsequent to the Board meeting and the decision was taken accordingly. As the nominee director was a non-executive director, he was not involved in day to day operations and could not have been known of the misdeeds of the promoter-director. The nominee director could, at best, exercise his business judgement over matters/agenda put up to the Board. Further, REC filed First Information Report (FIR) with Economic Offence Wing on 03 August 2016 with a copy to the Commissioner of Police, Mumbai against the promoter-director.

The reply is to be viewed against the fact that the upside and exit options as well as rationale for expected market share of 40 *per cent* within five years were not analysed as desired by the Board. The potential investors stated to be willing for investment in UCX at premium never actually invested in UCX. The existing guideline for feedback by nominee director was not effective as the first feedback was received only in July 2014 by which time the entire share capital of UCX had been eroded. Though REC came to know of the misdeeds of promoter-director in July 2014, the FIR was filed only in August 2016.

The matter was reported to the Ministry in October 2016; their reply was awaited (January 2017).