SUPREME AUDIT INSTITUTION OF INDIA
लोकहितार्थ सत्यनिष्ठा
Dedicated to Truth in Public Interest

Report of the Comptroller and Auditor General of India for the period ended March 2024

Union Government (Commercial)

Report No. 39 of 2025

(Compliance Audit Observations)

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CONTENTS

PREFACE

1. This report deals with the results of audit of Government Companies, Government controlled other Companies and Statutory Corporations under the purview of 15 Ministries and 4 Departments **(Annexure I)** for the year ended March 2024.

2. The accounts of Government Companies and Government controlled other Companies, set up under the provisions of the Companies Act, are audited by the Comptroller and Auditor General of India (CAG) under the provisions of Section 143 of the Companies Act, 2013. The accounts certified by the Statutory Auditors (Chartered Accountants) appointed by the CAG under the Companies Act are subject to supplementary audit by officers of the CAG and the CAG gives his comments or supplements the reports of the Statutory Auditors under section 143(6) of the Act. In addition, these Companies are also subject to test audit by CAG under the provisions of Section 143(7) of the Act.

3. The statutes governing some Corporations and Authorities require their accounts to be audited by CAG. In respect of five such Corporations viz., Airports Authority of India, National Highways Authority of India, Inland Waterways Authority of India, Food Corporation of India and Damodar Valley Corporation, the relevant statutes designate CAG as their sole auditor. In respect of one Corporation viz., Central Warehousing Corporation, auditor is appointed by the Government, on the advice of the CAG, for audit of the accounts of the Central Warehousing Corporation. CAG has the right to conduct the audit as he may consider necessary.

4. Reports in relation to the accounts of a Government Company or Corporation are submitted to the Government by CAG for laying before the Parliament under the provisions of Section 19-A of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971.

5. The Audit Report for the year ended 31 March 2024 contains nine individual audit observations and seven compliance audit paragraphs relating to 12 CPSEs under control of seven Ministries/Departments. These Ministries/Departments have been further grouped in the Audit Report under three Clusters namely, Energy, Industry and Infrastructure. There are nine audit observations under Energy Cluster, four under Industry Cluster and three under Infrastructure Cluster. The instances mentioned in this Report are those which came to notice in the course of test audit for the period 2023-24 as well as those which came to notice in earlier years, but could not be reported in the previous Audit Reports: Matters relating to the period subsequent to 2023-24 have also been included, wherever necessary.

6. All references to 'Companies/Corporations or CPSEs' in this Report may be construed to refer to 'Central Government Companies/Corporations' unless the context suggests otherwise.

7. The audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

8. Audit wishes to acknowledge the cooperation received from the Managements of CPSEs and their respective Administrative Ministries/Departments at each stage of audit process.

EXECUTIVE SUMMARY

I Introduction

1. This Report includes important Audit findings noticed as a result of test check of accounts and records of Central Government Companies and Corporations conducted by the officers of the Comptroller and Auditor General of India under Section 143 (6) of the Companies Act, 2013 or the statutes governing the particular Corporations.

2. The Report contains nine individual audit observations and seven compliance audit paragraphs relating to 12 Central Public Sector Enterprises (CPSEs) under seven Ministries/Departments. These Ministries/ Departments have been further grouped in the Audit Report under three clusters namely, Energy, Industry and Infrastructure. There are nine audit observations under Energy Cluster, four under Industry Cluster and three under Infrastructure Cluster. The draft observations were forwarded to the Secretaries of the concerned Ministries/ Departments under whose administrative control the CPSEs are working to give them an opportunity to furnish their replies/ comments in each case. Replies to two observations were not received even as this Report was being finalised as indicated in para 3 below. Earlier, the draft observations were sent to the Managements of the CPSEs concerned, whose replies have been suitably incorporated in the report.

3. The paragraphs included in this Report relate to the CPSEs under the administrative control of the following Ministries/ Departments of the Government of India:

Sl. No.	**Ministry/ Department (CPSEs involved)**	**Number of paragraphs**	**Number of paragraphs in respect of which Ministry/ Department's reply was awaited**
Energy Cluster			
1.	Coal (Central Coalfields Limited, Mahanadi Coalfields Limited and NLC Tamil Nadu Power Limited)	3	1
2.	Petroleum and Natural Gas (Bharat Petroleum Corporation Limited, Indian Oil Corporation Limited and Oil and Natural Gas Corporation Limited)	4	1
3	Power (Damodar Valley Corporation and North Eastern Electric Power Corporation Limited)	2	0

Sl. No.	Ministry/ Department (CPSEs involved)	Number of paragraphs	Number of paragraphs in respect of which Ministry/ Department's reply was awaited
Industry Cluster			
4	Heavy Industries (Instrumentation Limited)	1	0
5	Micro, Small and Medium Enterprises (National Small Industries Corporation Limited)	1	0
6.	Steel (Steel Authority of India Limited)	2	0
Infrastructure Cluster			
7.	Road Transport and Highways (National Highways Authority of India)	3	0
Total		**16**	**2**

4. Total financial implication of individual audit observations is ₹14,777.92 crore. Individual audit observations in this Report are broadly of the following nature:

- Non-compliance with rules, directives, procedure, terms and conditions of the contract etc., involving ₹559.56 crore in seven Audit paragraphs[1].
- Non-safeguarding of financial interest of organisations involving ₹491.23 crore in four Audit paragraphs[2].
- Defective/deficient planning involving ₹8,195.28 crore in seven Audit paragraphs[3].
- Inadequate/deficient monitoring involving ₹5,531.85 crore in three Audit paragraphs[4].

It is pertinent to mention that the compliance audit paragraphs, contain observations of more than one category and accordingly, the amount under the observations have been classified.

[1] ***Para no. 1.1, 1.2, 2.4. 5.1, 7.1, 7.2 and 7.3***
[2] ***Para no. 2.1, 4.1, 6.1 and 7.1***
[3] ***Para no. 1.3, 2.2, 2.3, 3.1, 3.2, 6.1 and 6.2***
[4] ***Para no. 1.3, 3.2 and 6.1***

5. The Report also contains a Chapter on "Recoveries & corrections/rectifications" by CPSEs at the instance of Audit. The Chapter contains two paragraphs *viz.*, (a) Management of seven CPSEs have recovered an amount of ₹205.49 crore at the instance of Audit, made during March 2023 to March 2024, and (b) corrections/rectifications carried out by seven CPSEs in their systems/agreements/guidelines at the instance of Audit.

II Highlights of the paragraphs included in the Report are given below:

Cluster: Energy

Avoidable expenditure of ₹21.22 crore due to violation of Forest Regulations

Central Coalfields Limited (CCL) diverted forest land for non-forest purposes (for mining activities, without obtaining prior permission of competent authorities. The diversion, not only violated the provisions of the Forest (Conservation) Act 1980 but also led to the non-compliance to judgement of Supreme Court. Consequently, CCL had to incur an avoidable expenditure of ₹21.22 crore.

(Para 1.1)

Mining Operations in Mahanadi Coalfields Limited

Mahanadi Coalfields Limited (MCL), subsidiary of Coal India Limited (CIL), was incorporated in April 1992, with its Headquarters office in Sambalpur district of Odisha. MCL started its mining operations with production of 23.14 million tonnes (MT) of coal (1992-93), which has increased to 206.10 MT as of 31 March 2024. Presently, MCL is the largest coal producing subsidiary of CIL. Audit reviewed the mining operations undertaken by MCL during 2017-18 to 2021-22 to examine the adequacy and effectiveness of the mining activities.

Review revealed that Mahanadi Coalfields Limited did not align the target for coal production and over burden removal commensurate with the capacity assessed by Central Mine Planning & Design Institute Limited. It did not frame any manual/SOP defining the factors to be consider for fixation of targets. Audit noticed that consideration of Heavy Earth Moving Machinery (HEMMs) which are under long breakdown and surveyed off HEMMs, without assessment of the productivity of such machines impacted the achievement of targets for production and overburden removal. Shortage of operators not only resulted in idling of HEMMs but also impacted the achievement of targets.

There were instances having matching of IP addresses among bidders in the E-tenders, matching of IP addresses of MCL with that of bidders, and lack of validation controls in the tendering system. These indicate risk of compromise in bidding system and were a pointer to weak control and monitoring mechanism in the bidding system.

Audit also highlighted the instances of non-adherence to the provisions of Fuel supply agreement. MCL also did not levy compensation as stipulated under the provisions of the agreements, resulting in short levy of charges ₹19.28 crore.

With regard to Audit findings in the Para, Audit recommends that:

- ***MCL should frame Manual/SOP prescribing the methodology and factors/parameters to be considered for assessment of capacity and fixation of target***

- ***MCL should implement a proper mechanism and enhance validation control system to bring transparency in the e-tendering process. Further steps need to be implemented in a time bound manner, to avoid risk of compromise in the bidding system.***

(Para 1.2)

Functioning of NLC Tamil Nadu Power Limited

NLC Tamil Nadu Power Limited (NTPL) is a joint venture between NLC India Limited and TANGEDCO in Tuticorin, Tamil Nadu. Unit-I and Unit-II of NTPL's coal-based thermal power plant (500 MW each) were commercially operationalised with a total cost of ₹7,293.48 crore in June 2015 and August 2015 respectively.

Audit assessed the implementation of the project for economy and efficiency and Operation and performance of the Company for the period from 2015 to 2021. Audit observed that the absence of a DPR and inadequate land (267 acres) led to poor planning, lack of synchronization in construction activities, and inordinate delays in completing the project. Even though Ministry of Coal sanctioned ₹19.95 crore for preliminary activities in September 2009, these activities were delayed by 6 to 16 months. The commissioning of Unit I and Unit II were delayed by 38 months and 35 months respectively primarily due to lack of monitoring by NTPL and its project management consultant. This also resulted in a total cost overrun of ₹2,383.94 crore including increase in Interest During Construction period of ₹435.63 crore.

During the period from 2015-16 to 2022-23, NTPL could not recover annual fixed costs in entirety as it could not achieve Plant Availability Factor mandated by CERC resulting in non-recovery of ₹771.88 crore. Unplanned and forced outages resulted in power generation loss of 8,496.53 MUs with a potential revenue implication of ₹2,515.15 crore. NTPL could not maintain normative Plant Load Factor of 85 *per cent* since commercial operation date. Similarly, it could not achieve Station Heat Rate declared by CERC resulting in excess consumption of coal amounting to ₹742.93 crore (June 2015 to March 2023). Non containment of auxiliary power consumption to the levels mandated by CERC resulted in excess cost of ₹163.18 crore. Inefficiency of cooling towers and subsequent maintenance resulted in additional expenditure of ₹5.99 crore in addition to power generation loss of 52.98 MUs.

With regard to Audit findings in the Para, Audit recommends that:

- ***NTPL should identify and monitor controllable factors to strengthen operational planning to achieve the normative Plant Availability Factor for full recovery of Annual Fixed Costs.***
- ***NTPL should conduct an analysis of high heat rate factors and implement targeted corrective measures.***
- ***NTPL should implement adequate control system to optimize energy consumption by individual equipment like conveyor system, shore unloader, desalination plant etc.***

(Para 1.3)

Infructuous expenditure of ₹300.15 crore due to discontinuation of Polyol project by Kochi Refinery

Bharat Petroleum Corporation Limited (BPCL) had planned a Petrochemical Project at its Kochi Refinery, approved in September 2018 at an estimated cost of ₹11,294 crore. The Board had directed (September 2018), the management to submit the final project design and detailing within 12 months; however, this was delayed by 27 months and submitted only in January 2022. The delay led to a cost escalation to ₹13,145 crore, rendering the project financially unviable. Consequently, BPCL decided to discontinue the project and setup a different mini project in its place. By then, ₹455.29 crore had already been incurred on preliminary works and facilities, of which only ₹155.14 crore is expected to be repurposed for the new project, resulting in an infructuous expenditure of ₹300.15 crore due to ineffective project planning.

(Para 2.1)

Infructuous investment of ₹77.36 crore

Indian Oil Corporation Limited (IOCL) enhanced its ownership in Petronet Vadinar Kandla Limited (PVKL) from 26 *per cent* to 50 *per cent* despite PVKL consistently defaulting in loan repayment due to idling of its Vadinar-Kandla Product Pipeline. IOCL also extended loan to PVKL without ensuring the functionality of the said pipeline and concrete utilisation plan for the same whereas other partners had refused to infuse funds. Lately, despite realizing that operation of PVKL was not beneficial to its network, IOCL extended the moratorium for loan granted to PVKL. This resulted in infructuous investment of ₹77.36 crore due to loss of entire outstanding loan excluding interest accrued thereon apart from equity investment of ₹26.02 crore.

(Para 2.2)

Idle investment of ₹ 8.22 crore

Indian Oil Corporation, based on assessment of demand for bitumen in North Eastern Region, commissioned (March 2018) at its Digboi Refinery a Crumb Rubber Modified Bitumen (CRMB+) production plant with 25 thousand metric tonnes per annum capacity at a cost of ₹7 crore. However, no assessment of demand of CRMB+ in North Eastern Region was carried out inspite of it being a hybrid bitumen having certain limitations in its applicability, none of the users of bitumen in North Eastern Region recommending CRMB+ for pavement construction and there being availability of alternate grade bitumen in North Eastern Region.

Due to non-assessment of demand for CRMB+ in North Eastern Region and consequent lack of customers resulted in the stoppage of production at CRMB+ plant from 2020-21 onwards and idling of investment of ₹8.22 crore.

(Para 2.3)

Procurement Activities by Corporate Material Management of ONGC

The Corporate Material Management (CMM) unit of ONGC restructured as the Central Procurement Department (CPD) in November 2023 is responsible to maintain an effective and holistic supply chain across ONGC in order to meet the urgent operational activities of different work centres and manage timely availability of materials/services, without disruption in ONGC's field operations. The procurement framework is governed by the ONGC Integrated Material Management (IMM) manual under which 43 items are procured centrally by CPD. During the period from April 2018 to March 2023, total 439 purchase orders valuing of ₹8,459.56 crore were placed by the CPD. Based on the randomly selection through CAAT software, 106 purchase orders (77 tenders) valuing ₹6,405.20 crore were selected for review.

Audit assessed planning and procurement process for transparent, economic, efficient and effective procurement of materials centrally during the period from April 2018 to March 2023. Audit observed delays in submission of indents by work centres and in the consolidation of purchase requisitions by the Procurement & Evaluation (P&E) section due to the absence of defined timelines, which resulted in disrupted procurement cycles and adversely impacted supply chain efficiency. Weaknesses in requirement assessment were also evident from inventory management issues including prolonged holding periods, accumulation of non-moving inventory, absence of economic reorder quantity checks, and non-adoption of the FIFO principle. Instances of materials lying unutilised for extended periods and frequent dropping of requirements further contributed to higher costs and inefficiencies.

During the period from April 2018 to March 2023, variation between estimates and actual cost in selected 77 tenders (106 POs) was ranged between (-) 49.25 *per cent* and (+) 137.63

per cent. Inventory worth ₹266.58 crore of drill pipe, casing and tubing as on 31 December 2024, which was beyond nine months norms. Non-moving inventory had increased from ₹63.04 crore to ₹180.93 crore. Due to improper classification of stock months and dropping procurement, current year related procurement had to done in next procurement cycle/tender resulted in avoidable extra expenditure of ₹14.92 crore. Significant delays in delivery noticed in 76 out of 106 POs examined, with median delay of 111 days. From total 106 POs under review, Performant Bank Guarantee (PBG) against 50 POs was submitted by the suppliers with a delay of 2 to 114 days however, no action was taken by the Company against the contractors for delay in submission of PBG. Despite above, Audit also noticed inadequate vendor management systems, deficiencies in vendor appraisal and development order execution, along with non-compliance in meeting statutory procurement targets for SC/ST and women-owned MSEs, reflect weak monitoring and accountability mechanisms.

With regard to Audit findings in the para, Audit recommends that:

- ***The Company may review and establish a clear methodology for cost estimation. Sector-specific guidelines covering different types of materials, projects and services may be developed to address variations, gaps in procedures, and inadequate market analysis.***

- ***Ensure movement/transfer of idle inventory lying at work centres for more than four years to other work centres where it is required so that inventory holding period and non-moving inventory can be reduced.***

- ***ONGC may develop the mechanism for vendor appraisal as specified in the IMM manual and evaluate vendor performance metrics to identify better-performing suppliers.***

(Para 2.4)

Environment Management and Pollution Control in Damodar Valley Corporation

Damodar Valley Corporation (Corporation) set up in 1948, for the development of Damodar Valley, functions within a command area of 24,235 sq. km covering eleven districts of Jharkhand and six districts of West Bengal. As on March 2025, the Corporation had coal based thermal power plants at six locations with a total installed capacity of 6,540 megawatts (MW) and hydel power generating stations at three locations with total installed capacity of 147.2 MW. Audit reviewed the environment management and pollution control in its power plants/stations during the period from 2016-17 to 2021-22. Generation from renewable sources of energy including solar energy, by Corporation, was also reviewed.

The Corporation could not adhere the timelines given by Ministry of Environment, Forest and Climate Change for meeting emission norms of the pollutants viz. Particulate Matter and Oxides of Nitrogen. The legacy ash clearance by the Corporation remained poor during

2022-23 to 2024-25.The limited capacity of ash ponds coupled with ineffective pond ash management at three of the thermal power plants and accumulation of hazardous waste, due to inadequate disposal mechanism, at six thermal power plants and one hydel power station posed threats to surrounding environment. Untreated effluents and absence/delay in establishment of STPs/ETPs at thermal power plants of the Corporation further aggravated the environmental issues.

Renovation, Modernisation and Upgradation of age-old hydel units were not taken up resulting in generation losses. Progress in solar and renewable energy projects remained slow owing to delays in detailed project report preparation, statutory clearances, and award of works. Consequently, the Corporation could not meet its renewable purchase obligation targets in any year during 2016-25 from renewable energy generation and had to resort to buying Renewable Energy Certificates amounting to ₹1,305.48 crore.

(Para 3.1)

Construction and Operation of Kameng Hydro Project

North Eastern Electric Power Corporation Limited (Company), incorporated on 2 April 1976 to plan, investigate, design, construct, generate, operate, and maintain power stations in the country is running the Kameng Hydro Project (Project) which was completely operationalised by February 2021. Audit reviewed the Project planning and execution.

Audit observed that due to deficiencies; in site assessment, detailed project report preparation, Project planning and Project execution:

- The project could be operationalized after forty years from preparation of its detailed project report (1982) which also contributed for increase of the Project cost from ₹2,496.90 crore to ₹8,404.47 crore.

- The Company incurred an extra lead amount of ₹426.01 crore against ₹1.19 crore provided in the civil contracts.

- Leakages (March 2018) in Penstocks made Company bear avoidable cost of ₹20.16 crore on repair of penstocks, infructuous transmission charges of ₹124.43 crore for the delay period of three years besides there being loss of opportunity to generate 8,658 million units, during April 2018 to January 2021, valuing ₹3,463.03 crore.

Non-construction of the plunge pool at Bichom Dam resulted in damage to slopes on both the banks of river near dam and erosion of river bed.

(Para 3.2)

CLUSTER: INDUSTRY

Irrecoverable loss of ₹6.58 crore on account of non-recovery of advances prior to the retirement of employees

Instrumentation Limited, Palakkad (ILP) had given ₹7.58 crore to its 363 employees as advance to be recovered against the pay revision benefits. Out of ₹7.58 crore, ILP could recover only ₹1.00 crore from these employees on their retirement. Failure of ILP to incorporate enabling conditions to recover the advances before retirement of employees resulted in irrecoverable loss of ₹6.58 crore.

(Para 4.1)

Raw Material Assistance Scheme

National Small Industries Corporation (NSIC) Limited was established (February 1955) with the objective to aid, counsel, assist, finance, protect and promote the interest of micro, small and medium enterprises (MSMEs) in India. In order to assist MSMEs in procuring essential raw materials and other inputs, NSIC provided credit support under the Raw Material Assistance (RMA) Scheme against Bank Guarantees (BG). This Scheme had been contributing up to 90 *per cent* of revenue of the Company.

Audit observed that the coverage of MSMEs under the Scheme during the period 2018-19 to 2021-22 was mere 0.05 *per cent* (4,316 MSMEs) of the total registered MSMEs on Udyam Portal (80.08 lakh as of 31 March 2022). This was due to the fact that NSIC supported only those MSMEs who were capable of furnishing BGs. Further, the BG format prescribed by NSIC for MSMEs/Banks did not contain any clause that mandated the BG issuing Bank for payment of interest in case of delay in releasing payment against the invoked BG, due to which NSIC was unable to recover the interest from the banks in case of such delays.

It was also observed that the benefit of reduced borrowing cost (interest) for NSIC was not effectively passed on to MSMEs. While NSIC's borrowing cost reduced from 7.97 *per cent* per annum (April 2018) to 4.00 *per cent* per annum (March 2022), the lending rates of NSIC under the Scheme had only reduced from 11 *per cent* to 9 *per cent*, which led to reduction in the number of MSMEs availing assistance under the scheme.

Thus, the current structure of the Scheme did not adequately serve the needs of MSMEs and there was a need for NSIC to review and revamp the Scheme in light of MSMEs' requirements.

With regard to Audit findings in the Para, Audit recommends that:

- ***NSIC may consider rationalising the interest rates under the Scheme to enhance affordability by MSMEs and ensure long-term viability of the Scheme.***

- ***NSIC needs to identify the reasons for low coverage and prepare a plan to enhance coverage of the scheme. NSIC may also consider conducting a survey amongst MSMEs to assess their requirements.***

- ***NSIC may devise a system so that the interest for the period from date of invocation of BG to the date of its realisation could be recovered.***

(Para 5.1)

Performance of Chandrapur Ferro Alloy Plant of SAIL

Chandrapur Ferro Alloy Plant (CFP) of SAIL is engaged in production and supply of Silico Manganese and Ferro Manganese to the steel plants of SAIL. CFP had a production capacity of 1.9 lakh tonne per annum of Ferro Manganese or 1.3 lakh tonne per annum of Silico Manganese.

Though there was requirement of Silico Manganese by SAIL, target for production of same was set by the management below the production capacity of CFP. Further, production of Silico Manganese was lower than the production target fixed in Annual Business Plan. There was potential shortfall in production of 2.33 lakh tonne than the rated capacity of Submerged Arc Furnace-III and 1.79 lakh tonne of Silico Manganese than the Annual Business Plan target of SAF-III which has resulted in forgoing potential contribution of ₹100.97 crore during August 2017 to March 2024.

CFP received only 56 *per cent* to 97 *per cent* of required quantity of coke from the steel plants during 2017-24. Shortage of coke led to less production of 0.39 lakh tonne of Silico Manganese and forgoing potential contribution of ₹13.54 crore. CFP lost the opportunity to earn potential revenue amounting to ₹198.88 crore against generation of 0.75 lakh tonne undersized product more than the norms during 2017-24 considering differential value of prime product and undersize products. CFP incurred avoidable expenditure of ₹36.10 crore on account of less manganese content of 0.11 lakh tonne in the Manganese ore procured from MOIL during 2017-24 (except in 2019-20).

There was excess consumption of 1.03 lakh tonne of coke valuing ₹230.24 crore above the norm as envisaged in the Feasibility Report of Submerged Arc Furnace during 2017-24.

The accumulation of Gas Cleaning Plant sludge and non-installation of Gas flaring system in Submerged Arc Furnaces I & II, caused environmental hazards. The project for briquetting plant conceived five years back was yet to be completed which led to accumulation of solid waste materials which adversely impacted the environment

With regard to Audit findings in the Para, Audit recommends that:

- ***Company may put in efforts to address various reasons adversely impacting production of Silico Manganese like design deficiencies of SAF-III, timely***

completion of capital repairs and explore alternatives for procurement of coke to increase the production of Silico Manganese in future.

- ***Company may take steps to protect its financial interest to ensure that payments are made based on the Manganese content in the ore that is received at its end as certified in the chemical analysis at its own laboratory.***

- ***Company may ensure that adequate arrangements are put in place on high priority basis for flaring of gases released from all its Submerged Arc Furnaces to prevent deterioration in air quality or damage to the environment in future.***

(Para 6.1)

Unfruitful expenditure on cold repair of Coke Oven Battery

IISCO Steel Plant of SAIL incurred ₹28.95 crore on cold repair of Coke Oven Battery #8 (COB#8). Repair and preheating of COB#8 was completed (October 2013), but start-up of the battery was kept on hold due to limited usage and reduced demand of coke. COB#8 could be operated only with the proper working of its by-product plant. Despite this, the condition of the by-product plant of COB#8 was extremely unsatisfactory and was out of service. Management was able to meet the requirement of coke from its other Coke Oven batteries. COB#8 could not be commissioned after its cold repair and was subsequently phased out (August 2019) and disposed of in February 2021. Thus, due to inadequate planning and inability to assess the necessity and viability of repair of COB#8 with the by-product Plant led to unfruitful expenditure of ₹ 18.58 crore (₹28.95 crore - ₹10.37 crore realised from sale of COB) towards cold repair of the battery. It was recommended that ***Management may carry out a comprehensive feasibility assessment including technical viability, environmental compliance, operational demand forecasts, and condition of all interdependent systems before taking up major repair or capital expenditure projects to prevent recurrence of such unfruitful expenditure in future***.

(Para 6.2)

Cluster: Infrastructure

Toll Operations in Gujarat and Maharashtra

NHAI, established under the NHAI Act 1988 is operational since 1995. It functions under MoRTH to develop, maintain, and manage National Highways. Tolls are levied post-construction to recover costs—either collected by NHAI through agencies (Public Funded Projects) or by private partners under BOT Toll/TOT models. The Audit covered 24 toll plazas across Gujarat and Maharashtra under 13 Project Implementing Units (PIUs), focusing on toll collections and highway amenities. The total toll collection from the 24 toll plazas during the audit period April 2020 to March 2023 was ₹5,290.78 crore. The toll collection is regulated by the National Highways Fee Rules, 2008 and its amendments.

Audit observed that NHAI could not effectively implement the directives of MoRTH and Policy Circulars of NHAI for timely commencement of toll collection resulted in loss of revenue to NHAI by ₹9.60 crore. Abnormally high manual exemptions were found to be granted in certain public funded toll plazas. NHAI was continuing to grant irregular concessions to local people in two Toll Plazas that were audited. The relevant provisions of NH Fee Rules, 2008 requiring reduction of toll to 40 per cent while NHAI taking over toll collections after expiry of concession period were not complied with resulting in undue financial burden of ₹180.44 crore to road users. The provisions relating to recovering charges from overloaded vehicles were not seen to be complied with in public funded toll plazas and the provision of offloading the excess load before allowing the vehicle to proceed further were not at all complied with. Delays in collecting double toll from Concessionaires and remitting it to the Central Government was observed.

Delay in making settlement payments to a Concessionaire resulted in loss of toll revenue ₹9.68 crore to NHAI. Failure to comply with the provisions of BOT contracts on traffic survey for determination of the modification of the concession periods was seen in all the five BOT projects audited.

NHAI needs to improve its internal controls in toll operations by ensuring usage of Toll Monitoring & Control Centre (TMCC) dashboard, cross checking the toll collection reports of Concessionaires and Toll Collection Agencies (TCAs) with corresponding information in TMS and Acquirer bank. NHAI needs to standardise the Toll Management System (TMS) used by various System Integrators so that data-migration challenges etc., are avoided. Road users have expressed concern on waiting time of toll plaza, and inadequate facilities on NHs.

With regard to Audit findings in the Para, Audit recommends that:

- ***MoRTH/ NHAI may ensure that toll collection commences within 45 days from date of completion of project.***
- ***NHAI/MoRTH may establish a framework to address the compelling situations for ensuring that concessions granted are consistent with the provisions of the NH Fee Rules.***
- ***NHAI and MoRTH may ensure that toll is collected only according to the applicable rates in vogue as per the provisions of the NH Fee Rules 2008.***
- ***NHAI may ensure compliance of NH Fee Rules 2008 relating to collection of toll from overloaded vehicles and offloading of excess load before allowing vehicle to proceed further on NH.***

- ***NHAI may take action against defaulting Concessionaires as per the provisions of the Concession Agreements to recover double toll dues and promptly remit them to the Consolidated Fund of India.***

- ***NHAI may ensure that traffic surveys are conducted on the dates specified by following the traffic survey methods mentioned in the Concession Agreements.***

- ***NHAI, along with its sister concern IHMCL, may standardise the Toll Management System to ensure uniformity across various System Integrators. Further, the custody and control of toll data should rest with NHAI to safeguard its financial interests and maintain data integrity.***

- ***Ministry/NHAI may establish a structured mechanism for collecting feedback from road users, systematically assess the inputs received, and initiate appropriate remedial measures to improve the quality of services.***

(Para 7.1)

Excess burden on road users and undue favour to toll operators

National Highways Authority of India (NHAI) levies fees on road user for use of any section of national highway including permanent bridge, bypass or tunnel in accordance with Rule 3 of the National Highways Fee (Determination of Rates and Collection) Rules, 2008. Rule 5 further allows NHAI to annually revise the rate with effect from first of April each year to reflect the annual increase in Wholesale Price Index. Office of the Economic Advisor (OEA), Ministry of Commerce and Industry publishes the Wholesale Price Index. NHAI has been using WPI-All commodities of 2004-05 series for user fee revision and price variation formula till March 2017. NHAI (PIU/Hazaribagh) however used higher linking factor of 1.641 for calculating user fee to be charged by the toll operators from road users instead of revised linking factor of 1.561 published by the OEA. This resulted in excess burden on road users and undue favour to toll operators by ₹19.66 crore during 2021-25. Ministry has assured that they are considering the linking factor of 1.561 as published in the website of the OEA to be adopted in NHAI also for user fee revision as well as for all contracts of NHAI.

(Para 7.2)

Irregular payment of bonus for early completion

NHAI issued Provisional Certificate of Completion for the stretch and declared it fit for commercial operation and tolling was commenced without ensuring completion of works in compliance to observations as highlighted by the Safety Consultant in its Safety Audit Report resulting in irregular payment of bonus of ₹8.13 crore to the Concessionaire**.**

(Para 7.3)

CHAPTER I: MINISTRY OF COAL

Central Coalfields Limited

1.1 Avoidable expenditure of ₹21.22 crore due to violation of Forest Regulations

Central Coalfields Limited diverted forest land for non-forest purposes (mining activities), without obtaining prior permission/approval of MoEF&CC, thus, not only violated the provisions of the Forest (Conservation) Act 1980 but also led to the non-compliance to judgement of Supreme Court. Consequently, CCL had to incur an avoidable expenditure of ₹21.22 crore.

Central Coalfields Limited (CCL) is engaged in coal mining activities, which are to be carried out in conformity with stipulated forest regulations as prescribed under the relevant Acts and Statutes. The Ministry of Environment, Forest and Climate Change (MoEF&CC) is the nodal agency for granting the Forest Clearance (FC), in compliance with the Forest (Conservation) Act 1980.

The Hon'ble Supreme Court directed (December 1996) that prior approval of Central Government is required for any non-forest activity within the area of any "Forest" and all on-going activity within any forest in any State throughout the country, without the prior approval of the Central Government, must cease forthwith. MoEF&CC clarified (December 2007) that Jungle Jhari land is a type of forest land on which the provision of Forest (Conservation) Act, 1980 is applicable. Thus, prior approval from MoEF&CC for diversion of forest land for non-forest purposes was mandatorily required in compliance to the judgement of Supreme Court for Jungle Jhari land. Section 2 (ii) of the Act also stipulates that all the proposal for diversion of forest land, for any non-forest purpose, irrespective of its ownership, requires prior approval of the Central Government and non-compliance of the same is considered as violation of the said Act. There is also a provision for *ex-post facto* approval, with payment of penalty to regularise such violation.

Magadh is a mining project of Central Coalfields Limited (CCL) in the State of Jharkhand, for which land was acquired by the Central Government and rights over the land was provided to CCL in June 2001 and onwards. Mining land of Magadh project is characterised by two types *viz.,* forest land (includes Jungle Jhari land) and non-forest land. The Project Report of Magadh was approved in 2008 and mining commenced in February 2015, with the capacity of 12 million tonne per year (MTY). Capacity of the project was proposed for enhancement (January 2019) to 20 MTY. Accordingly, CCL initiated proposal (March 2021) to obtain approval for the diversion of 192.36 ha forest land including 135.07 ha Jungle Jhari land for mining purposes.

Review of records revealed that MoEF&CC, while carrying out the inspection (2023) for examining the legitimacy of the proposed diversion, found that 34.54 ha Jungle Jhari land was already in use by CCL for mining purposes since September 2015, which continued till 2021, without obtaining requisite approvals. Records also revealed that Revenue Department of Jharkhand, while providing the details of the nature/types of the land of the Magadh project, shared the copies of the land records to CCL (2015-16), wherein the plot was classified as Jungle Jhari land. However, no initiative was taken by CCL for obtaining the necessary approvals for such diversion.

According, MoEF&CC while granting the approval (May 2024) for diversion proposal, imposed a penal amount ₹21.22 crore[1] (five times more than the normal NPV) for *post facto* approval for carrying out mining activities, on forest land of 34.54 ha, without approval of the authorities. This amount was paid by CCL in December 2024.

Audit noted that diversion of forest land for non-forest purposes, without obtaining prior permission, not only violated the provisions of the Forest (Conservation) Act 1980 but also led to the non-compliance to judgement of Supreme Court. Further, CCL also had to incur an avoidable expenditure of ₹21.22 crore.

Management stated (August 2025) that:

- Land for Magadh Project, including parcel of land in question *i.e.* 34.54 ha JJ land, was vested in CCL vide notification dated June 2001 and February 2006. However, CCL approached (March 2021) the State Government Authorities for verification of land to know the nature of the land for extending the compensation and R&R benefits. The State Government provided the authentication for parcels of land. As such, the raiyats (*i.e.* the tenants) in whose name the authentication was done, have been using the land for farming and other livelihood purpose. Thus, it could be said that the above JJ land was under non-forest utilisation since long.

- Hon'ble Supreme Court order (dated 07 May 1985) stated that while granting permission to start mining operations, section 2 of the FC Act 1980 has to be complied with, it is not necessary to seek the prior approval of the Central government for purposes of carrying out mining operations in a forest area which is broken up or cleared before the commencement of the Act.

- Though the mining on land had led to payment of ₹21.22 crore as penal NPV, however, it contributed 13.31 lakh tonne coal to national coal production and generated revenue of ₹1,699.52 crore along with interest gain of ₹319.62 crore during 2015-16 to 2020-21.

The reply of the Management may be viewed in light of the following facts:

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[1] ***34.54 ha x ₹1228590 per ha x 5 times= ₹21.22 crore as penal NPV.***

- Supreme Court in its decision (December 1996) stated that prior approval of Central Government is required for any non-forest activity within the area of Forest. Also, as per Forest (Conservation) Act, 1980, all the proposals for diversion of forest land, for any non-forest purpose, irrespective of its ownership, requires prior approval of the Central Government.

  Land for Magadh project was vested in the company only in 2001 and mining on that parcel of land commenced in September 2015. Therefore, before starting utilisation of land for mining purpose, responsibility of obtaining prior approval of using such land was of CCL.

- It is also worth considering that CCL has never contested the penal demand raised by the MoEF&CC for not obtaining the required approvals from the authorities within stipulated time.

- While contribution of this coal mine to national coal production and revenue to the company is duly noted, requirement of compliance to the provisions of legislation and to the directions of the Supreme Court, can't be ignored. Therefore, due diligence of these requirements should be properly carried out by the Company.

Thus, diversion of 34.54 ha of forest land for non-forest purposes without obtaining prior permission violated the provisions of the Forest (Conservation) Act 1980, for which CCL had to bear avoidable expenditure of ₹21.22 crore.

The para was issued to the Ministry in September 2025; their reply was awaited (September 2025).

Mahanadi Coalfields Limited

1.2 Mining Operations in Mahanadi Coalfields Limited

1.2.1 Introduction:

Coal plays a key role in power generation in the country because of abundant thermal coal reserves and affordability. India ranks second after China in coal production amongst all countries in the world. The largest coal reserve in India is found in the State of Odisha. Total coal reserves[2] in India as on March 2024 are 389.42 Billion Tonne (BT), of which reserves in Odisha are estimated to be 99.20 (BT) which is around 25.47 *per cent* of the total coal reserves of the country. Mahanadi Coalfields Limited (MCL), a subsidiary of Coal India Limited (CIL) has two coalfields, namely Talcher (55.98 BT) and IB valley (43.22 BT) in Odisha.

[2] ***Total coal reserve includes measured/proved reserve (212.21 BT), indicated reserve (148.72 BT) and inferred reserve (28.49 BT)***

1.2.2 Profile of Mahanadi Coalfields Limited

Mahanadi Coalfields Limited, one of the seven coal producing subsidiaries of CIL, was incorporated in April 1992, with its Headquarters office in Sambalpur district of Odisha. MCL was granted Miniratna (Category-I) status in March 2007. MCL started its operations with production of 23.14 million tonnes (MT) of coal (1992-93), which has grown to 206.10 MT as of 31 March 2024. Presently, MCL is the largest coal producing subsidiary of CIL. During 2017-18 to 2023-24, contribution of MCL in the total coal production of the country, ranged from 19.20 *per cent* to 21.64 *per cent*. The production of coal by MCL during 2017-18 to 2023-24 is as detailed below:

Table 1.1: Year-wise coal production of India, CIL and MCL

(Figures in MT)

Year	Overall Coal production in India	Total Production by CIL	Production of Coal in MCL	Share of MCL in coal production of country (in percentage)
2017-18	675.40	567.37	143.01	21.17
2018-19	728.72	606.89	144.15	19.78
2019-20	730.87	602.13	140.36	19.20
2020-21	716.08	596.22	148.01	20.67
2021-22	778.21	622.63	168.17	21.61
2022-23	893.19	703.20	193.26	21.64
2023-24	997.23	773.64	206.10	20.67

1.2.3 Profile of Dispatch of Coal

The coal produced by MCL was mainly supplied to power sector (67.26 *per cent* to 77.32 *per cent*) while steel, cement, fertiliser, and sponge iron sector consumers also take coal from MCL. Year-wise production and sector-wise dispatch of coal during 2017-18 to 2023-24 is detailed below:

Table 1.2: Year-wise production and dispatch of coal by MCL

Year	Total coal production by MCL	Total dispatch	Sector-wise Dispatch					
			Power		Cement		Other[3]	
	(MT)	(MT)	(MT)	Percent	(MT)	Percent	(MT)	Percent
2017-18	143.01	138.27	99.27	71.79	0.19	0.14	38.81	28.07
2018-19	144.15	142.31	102.53	72.05	0.22	0.15	39.56	27.80
2019-20	140.36	134.02	92.68	69.15	0.21	0.16	41.13	30.69
2020-21	148.01	146.01	98.20	67.26	0.17	0.12	47.64	32.62
2021-22	168.17	176.16	127.22	72.22	0.09	0.05	48.85	27.73
2022-23	193.26	192.75	149.03	77.32	0.12	0.06	43.60	22.62
2023-24	206.10	199.02	150.17	75.45	0.12	0.06	48.73	24.49

(Source: MoC site and data furnished by MCL)

[3] ***Include sale to Aluminium and steel sectors and other sales***

It can be seen from the above that production of coal has increased from 143.01 MT in 2017-18 to 206.10 MT in 2023-24. The dispatch has also increased over the years from 138.27 MT in 2017-18 to 199.02 MT in 2023-24.

1.2.4 Scope of Audit and coverage

Audit reviewed the mining operations undertaken by Mahanadi Coalfields Limited during 2017-18 to 2021-22 (updated upto March 2024) to examine the adequacy and effectiveness of the activities of mining undertaken by the MCL. Entry conference for the Audit was held on 21 November 2022 wherein Management was appraised of the objective, criteria and scope of Audit. During the audit, records were examined at Headquarters and Area/ Project Offices of MCL. The exit conference was held on 9 April, 2025. Report has been prepared based on the audit observations raised, after incorporating Management/Ministry replies, wherever received.

1.2.5 Audit Observations

1.2.5.1 Capacity assessment and fixation of targets

MCL carried out production of coal from opencast (OC) mines as well as underground (UG) mines which are spread across coal bearing areas in the State of Odisha. Every year, Central Mine Planning and Design Institute Limited (CMPDIL) assesses the capacity of all the mines both in terms of production of coal and Overburden (OB)[4] removal. The setting up of targets for production of coal and overburden removal are based on the various factors such as capacity/ availability of machines and their working conditions, availability of transportation facility, etc.

Ministry of Coal decides the quantum of production of coal, to be achieved during the year by Coal India Limited. Considering the targets so provided by Ministry, CIL, in turn provides the Annual production targets/ Annual Action Plan (AAP) targets for coal production as well as for overburden removal to all its subsidiaries.

MCL carries out is mining activities for production of coal including overburden removal through departmental as well as outsourcing mode. In departmental mode, the production of coal and removal of OB is carried out by using departmental resources whereas in outsourcing mode, these activities are carried through engaging outsourced contractors. The year-wise capacity for coal extraction *vis-à-vis* targets during the period from 2017-18 to 2023-24 is given below:

[4] ***In open cast mines, coal can be extracted only after removing layers of soil, stone etc. This soil and stone etc is known as over burden***

Table 1.3: Capacity assessment and target of coal extraction

(Figures in MT)

Year	Capacity assessed by CMPDIL			Annual Action Plan Target			Shortfall Percentage		
	MCL	Depart mental	Out-source	MCL	Depart mental	Out-source	MCL	Depart mental	Out-source
2017-18	173.15	51.29	121.86	150.00	35.36	114.64	13.37	31.06	5.92
2018-19	163.89	56.89	107.00	151.50	41.52	109.98	7.56	27.02	(2.79)
2019-20	191.79	70.62	121.17	160.00	45.02	114.98	16.58	36.25	5.11
2020-21	187.99	57.58	130.41	160.00	43.23	116.77	14.89	24.92	10.46
2021-22	212.14	74.44	137.70	163.00	49.65	113.35	23.16	33.30	17.68
2022-23	256.70	73.10	183.60	176.00	47.49	128.51	31.44	35.03	30.01
2023-24	317.75	59.85	257.90	204.00	39.57	164.43	35.80	33.88	36.24

(Source: Data furnished by MCL)

Coal production targets set ranged between 150 MT to 204 MT against the assessed capacity which ranged between 163.89 MT to 317.75 MT during 2017-18 to 2023-24. The annual targets for coal production were always on the lower side in comparison to its mine capacity as assessed by CMPDIL. Further, shortfall in target fixation was also observed both in case departmental as well as outsourcing mode of coal production.

The year-wise capacity for OB removal *vis-à-vis* targets during the period from 2017-18 to 2023-24 is given below:

Table 1.4: Capacity assessment and target of OB removal

(Figures in mcum)

Year	Capacity assessed by CMPDIL			Annual Action Plan Target			Shortfall Percentage		
	MCL	Depart mental	Out-source	MCL	Depart mental	Out-source	MCL	Depart mental	Out-source
2017-18	157.42	65.59	91.83	160.00	56.01	103.99	(1.64)	14.61	(13.24)
2018-19	171.21	65.37	105.84	157.00	60.35	96.65	8.30	7.68	8.68
2019-20	206.94	61.42	145.52	160.00	52.62	107.38	22.68	14.33	26.21
2020-21	210.05	54.85	155.20	203.00	45.38	157.62	3.36	17.27	(1.56)
2021-22	226.79	45.29	181.50	200.00	47.68	152.32	11.81	(5.28)	16.08
2022-23	368.43	61.83	306.60	208.00	55.93	152.07	43.54	9.54	50.40
2023-24	383.63	62.32	321.31	278.80	45.86	232.94	27.33	26.41	27.50

(Source: Data furnished by MCL)

Targets for overburden removal ranged between 157 mcum to 278.80 mcum during 2017-18 to 2023-24. The annual targets for OB removal were always on the lower side except in 2017-18 in comparison to its mine capacity assessed by CMPDIL. Further, shortfall in target fixation was also observed both in case departmental (except in 2021-22) as well as outsourcing mode of production (except in 2017-18 & 2020-21).

The year-wise targets for coal production *vis-à-vis* achievements during the period from 2017-18 to 2023-24 is given below:

Table 1.5: Target and achievement of coal production of MCL
(Figures in MT)

Year	Annual Action Plan Target			Achievement			Shortfall Percentage		
	MCL	Depart mental	Out-source	MCL	Depart mental	Out-source	MCL	Depart mental	Out-source
2017-18	150.00	35.36	114.64	143.06	30.60	112.46	4.63	13.46	1.90
2018-19	151.50	41.52	109.98	144.15	38.54	105.61	4.85	7.18	3.97
2019-20	160.00	45.02	114.98	140.36	33.74	106.62	12.28	25.06	7.27
2020-21	160.00	43.23	116.77	148.02	37.14	110.88	7.49	14.09	5.04
2021-22	163.00	49.65	113.35	168.17	37.44	130.73	(3.17)	24.59	(15.33)
2022-23	176.00	47.49	128.51	193.26	37.69	155.57	(9.81)	20.64	(21.06)
2023-24	204.00	39.57	164.43	206.1	37.01	169.09	(1.03)	6.47	(2.83)

(Source: Data furnished by MCL)

MCL achieved the targets in last three years of the period under review. The targets were not met in four years from 2017-18 to 2020-21. MCL could not achieve production targets of departmental mode in any of the years. The shortfall in targets in departmental mode ranged from 6.47 *per cent* to 25.06 *per cent*.

The coal production from the outsourced mode increased from 112.46 MT in 2017-18 to 169.09 MT in 2023-24. As seen from the table that the performance/ achievement of coal production by outsourced mode is better than the departmental performance.

The year-wise targets for OB removal *vis-à-vis* achievements during the period from 2017-18 to 2023-24 is given below:

Table 1.6: Target and Achievement of OB removal
(Figures in mcum)

Year	Annual Action Plan Target			Achievement			Shortfall Percentage		
	MCL	Depart mental	Out-source	MCL	Depart mental	Out-source	MCL	Depart mental	Out-source
2017-18	160.00	56.01	103.99	138.18	29.41	108.77	13.64	47.49	(4.60)
2018-19	157.00	60.35	96.65	130.00	23.11	106.90	17.20	61.71	(10.61)
2019-20	160.00	52.62	107.38	124.51	19.49	105.03	22.18	62.96	2.19
2020-21	203.00	45.38	157.62	173.15	20.54	152.61	14.70	54.74	3.18
2021-22	200.00	47.68	152.32	206.17	19.89	186.29	(3.08)	58.28	(22.30)
2022-23	208.00	55.93	152.07	245.97	20.17	225.80	(18.25)	63.95	(48.49)
2023-24	278.80	45.86	232.94	276.48	18.28	258.20	0.83	60.13	(10.85)

(Source: Data furnished by MCL)

Analysis of the table, revealed that MCL achieved its targets for OB removal only in 2021-22 & 2022-23 out of last seven years. Further, targets for OB removal through departmental mode were not achieved in any of the years under review. As seen from the table, the performance/ achievement of OB removal by outsourced mode is better than the departmental performance.

Review of records related to assessment of capacity/fixation of targets vis-à-vis achievement revealed the following:

a) Manual for setting up of targets: MCL has not laid down any Manual/Standard Operating Procedure (SOP) prescribing the methodology to be adopted for assessment of capacity/setting up of target. Also, factors/ parameters to be considered during the capacity assessment/ fixation of the targets has not been defined.

Audit also noticed that the Ministry of Coal decided the quantum of production of coal and OB removal to be achieved during the year by Coal India Limited. Considering the targets so provided by Ministry, CIL, in turn provide the targets to all its subsidiaries.

In absence of manual/SOP, target was not fixed in synchronisation of the assessed capacity. Also, there was also no defined factors/parameters/methodology for segregation of target between departmental and outsourcing mode. Consequently, the optimum utilisation of resources could not be ensured.

b) Heavy Earth Moving Machinery (HEMMs):

HEMMs under breakdown are those whose spare parts were not available and the repairing of such machines was not economically viable. Such HEMMs are surveyed off by MCL. Examination revealed that 38 HEMMs out of 401 HEMMs were under breakdown, for period of one year to 22 years. However, these break down HEMMs were considered, at their 100 *per cent* capacity, while assessment of the capacity by CMPDIL. The age-wise breakdown tenure till 2023-24 is as under:

Table 1.7: Aging analysis of HEMMs under breakdown

Sr. No	Period of breakdown	HEMMs
1	One to two years	6
2	Two to three years	1
3	Three to four years	7
4	Four to five years	3
5	Five years to 22 years	21

It was also noticed that despite HEMMs being under breakdown, MCL took abnormal time for surveying off these HEMMs and technical department of MCL did not carry out any review for such break-down machines to assess their availability for the upcoming years and never intimated CMPDIL, for non-inclusion of these machines under capacity assessment.

As such, considering such breakdown HEMMs for capacity assessment without technical analysis of their availability, led to defective capacity assessment.

c) Surveyed off HEMMs include HEMMs which have completed useful life in terms of years and hours. It also includes such machines which were under break-down and their spare parts were not available and repairing was not economically viable.

The productivity of HEMMs surveyed off during the period covered under the Audit is given in Table 1.8:

Table1.8: Productivity of HEMMs surveyed off during the year

	Productivity Range (in percentage)						
Years	**Nil**	**0-10**	**10-20**	**20-30**	**30-40**	**40-50**	**Total**
2017-18	11	11	7	10	1	0	**40**
2018-19	12	10	10	3	2	0	**37**
2019-20	4	5	10	7	1	1	**28**
2020-21	3	11	30	25	10	2	**81**
2021-22	2	3	2	5	1	0	**13**
2022-23	1	4	0	0	0	0	**5**
	33	**44**	**59**	**50**	**15**	**3**	**204**

Source: Information by MCL

Examination revealed that the Technical department of MCL has not carried out any review/ assessment for surveyed off HEMMs for their productivity for the upcoming years. The actual productivity of the HEMMs surveyed off during the period of audit was less than 50 per cent. Out of 204 HEMMs surveyed off, actual productivity of 186 HEMMs was less than 30 percent. However, capacity of surveyed off HEMMs, was considered at 50 per cent. Thus, due to consideration of such surveyed off HEMMs, without any review led to defective assessment of capacity.

d) Non synchronisation/ Mismatch in departmental excavation and transportation capacity of mines: MCL uses Surface Miner for extraction of 90 *per cent* of its coal, which uses tippers for transportation of the extracted coal. The balance extraction is carried out with the combination of shovel-dumper wherein the extraction is done with shovel and dumper is used for transportation of coal. Accordingly, in case of usage of shovel-dumper, synchronisation of extraction and transportation capacity is pre-requisite for smooth operations.

Review revealed that there is always a mismatch in the excavation and transportation capacity in mines in case of shovel-dumper. Resultantly, where excavation capacity was more than the transportation capacity, shovel remains idle. Similarly, where transportation capacity was more than the excavation capacity, dumpers remain idle. Excavation and transportation capacity of the mine are required to be in synchronisation, for smooth mining operations. Mismatch of the two capacities led to idling of capacities and defective setting up of target.

Thus, MCL should have synchronised the excavation and transportation capacity of a mine for optimal utilisation of resources.

e) **Shortage of operators:** HEMMs need trained operators for smooth operations in mining activities. Analysis of sanctioned strength *vis-à-vis* men-in-position of departmental operators of Surface miners, Shovels and Dumpers, deployed during 2017-18 to 2023-24 is detailed below:

Table 1.9: Sanction strength and men-in-position of operators

Year	Surface miner			Shovel			Dumper		
	Sanction strength (Nos.)	Existing strength (Nos.)	Short fall *(per cent)*	Sanction strength (Nos.)	Existing strength (Nos.)	Shortfall *(per cent)*	Sanction strength (Nos.)	Existing strength (Nos.)	Shortfall *(per cent)*
2017-18	145	37	74.48	277	240	13.36	1086	949	12.62
2018-19	147	41	72.11	291	227	21.99	1185	914	22.87
2019-20	154	48	68.83	283	217	23.32	1095	914	16.53
2020-21	161	59	63.35	327	237	27.52	1123	890	20.75
2021-22	166	66	60.24	324	233	28.09	1087	873	19.69
2022-23	184	68	63.04	297	235	20.88	1089	838	23.05
2023-24	166	77	53.61	289	228	21.11	1143	819	28.35

Source: Data by the Management

The mining activities/extraction of coal in MCL was carried predominantly through Surface miners, which is more than 90 *per cent*. However, there is acute shortfall in operators of Surface Miner as seen in the table. Further, shortfall is also for the operators of shovel and for dumpers. Shortage of operators, led to idling of HEMMs which resulted in shortfall in achieving targets of production through departmental mode.

Management/Ministry stated (August 2024/March 2025) the following:

- With regard to capacity assessment and target fixation, it was stated that CMPDIL assesses Mine capacity considering excavation and transportation capacity of the available machineries. However, mine production depends on various factors like land constraints, geo-mining conditions of the mine, available infra-structure, R&R issues, evacuation facilities and socio-political situation including capacity of the mines. The potential of the mine is assessed based on the above factors and accordingly, the target is fixed.

- Regarding consideration of HEMMs under breakdown in capacity assessment, it was stated that there is no provision for such type of equipment's to be excluded from the calculation of capacity.

- For non-synchronisation of excavation and transportation capacity, while accepting the facts, it stated that excess of either excavation or transportation capacity was due to unreliable and long breakdown of HEMMs.

- For shortage of operators, it replied that there is a ban on all types of open recruitment except in statutory categories such as overman, mining sirdar and surveyor. MCL had to give jobs to the land losers on compassionate ground. Employees were regularly encouraged to take-up the work of HEMM operation by training. The Ministry added (March 2025) that MCL was encouraging permanent employees to take on rolls as HEMM operators to address the current operational constraints.

- For low utilisation of HEMMs, while accepting the fact, it was mentioned that there was low utilisation of HEMM like shovel, dumper, dozer and drill. MCL further added that low utilisation of shovel and dumper was due to acute land acquisition crisis, resistance of villagers even after providing all benefits. Steps are being taken to improve utilisation.

Reply of the Management/Ministry need to be viewed in the light of the following facts:

- Regarding breakdown HEMMs considered during capacity assessment, CMPDIL was intimated only about breakdown dates of HEMMs. However, the technical department of MCL neither carried out any review for such machine regarding their availability for the upcoming years nor it intimated CMPDIL for non-inclusion such machines based on the actual condition of HEMMs. Further, there was no SoP/Manuals, regarding fixation of targets.

  This led to widening of gap between the assessed capacity vis a vis fixation of targets for coal production and for overburden removal.

- For shortage of operators, it is a fact that there was persistent shortfall of operators which adversely impacted in departmental coal production.

- Regarding idling of departmental HEMMs, it is a fact that idling of departmental HEMMs was persistent during the period under review.

- While fixation of the targets for coal production, due analysis should have been carried out for various constraints and potentiality of mine viz. geo-mining conditions of the mine, available infra-structure, R&R issues, evacuation facilities as highlighted by the Management in its responses. These factors were very-much known to the Management.

Recommendation No. 1: MCL should frame Manual/SOP prescribing the methodology and factors/parameters to be considered for assessment of capacity and fixation of target.

1.2.5.2 Contract Management

Coal production in MCL is predominantly carried out through OC mining in which coal is extracted after removal of OB. MCL produces coal through three means *viz.,*

a) completely departmental mode
b) partly departmental and partly outsourcing mode
c) Completely outsourced mode.

Mining contracts were awarded for hiring of HEMM services wherein the contractors who removed OB and extracted coal were paid based on the quantity of OB removed and coal extracted. During the period from 2017-18 to 2021-22, MCL awarded 10,452 contracts[5] (both mining and non-mining contracts) valuing ₹94,330 crore.

Audit examined the records related to contracts and the following was noticed:

A E-tendering System:

With the objectives of reducing human intervention in the receipt and processing of tenders and reduction of procurement cycle time, CIL engaged (February 2013) National Informatics Centre (NIC), which designed and hosted the e-Procurement portal (the portal) for all its subsidiaries. CIL and its subsidiaries were to own and maintain the contents of the portal. Accordingly, MCL implemented (April 2013) e-Procurement System. The portal enabled the tenderers to download the tender schedule and submit the bids online through the portal.

To review the system of e-Procurement, Audit requested (December 2022), NIC for providing data dump of the MCL portal, which was furnished in January 2023. Audit analysed data relating to e-Procurement System of MCL for the period 2017-18 to 2021-22 through "PGAdmin4" (SQL[6] based application), which was provided by NIC and observed the following:

(i) Matching of IP addresses among bidders

Clause 4 of section 5 (Instruction to Bidders) of Contract Management Manual (CMM) stipulated for "one bid per bidder". Further, Clause 4.1 stated that "Each Bidder shall submit only one Bid, either individually, or as a proprietor, or as a partner in a partnership firm or as a partner in a joint venture or as a Company registered under Companies Act. A Bidder who submits or participates in more than one Bid (other than as a sub-Contractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Bidder's participation to be disqualified."

MCL awarded 10,452 number of contracts wherein 42,318 number of bidders participated during the period 2017-18 to 2021-22. Review revealed that:

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[5] ***These cases are carried out either Partly departmental and partly outsourcing mode or completely outsourced mode***

[6] ***Structured Query Language***

- In 2745 tenders wherein 17503 bidders participated, two or more bidders in 3328 cases involving 7803 bidders had same IP addresses[7]

- In 2745 number of tenders, 1482 number of tenders valuing ₹299.54 crore were awarded to the bidders whose IP addresses were same involving 3670 bidders.

- Also, 1 tender involved 27 IP addresses of two or more bidders, involving 107 participants out of 130 bidders. Work was allotted to one of the bidder whose IP address was matched.

- In case of 283 tenders valuing ₹39.79 crore, the IP addresses of all the bidders[8] (involving 890 participants) were same.

- During review of sample of 25 of these tender cases, it was observed that (i) in 21 tenders, phone numbers of the bidders were also same, and work was also awarded to one of them (ii) in 19 tenders, the postal address of the bidders whose IP addresses matched were same, and work was also awarded to one of them (iii) in three tenders, there were three bidders and all were co-related as PAN card indicated that they were part of family, and the work was awarded to them (iv) two bidders appeared to be co-related, being the partners and both of them participated in four tenders and the works were awarded to them only (out of 30 bidders).

(ii) Matching of IP addresses with bidders and MCL

Audit noticed that as per the terms and conditions of tenders floated through GEM portal, it was mentioned that "the received bids having matching/common IP address with either Bidders/Sellers or Buyer, shall be outrightly rejected and shall not be considered for further evaluation". However, in case of e-procurement portal, no such condition was prescribed. As a result, the tenders/ cases wherein the bids having matching/common IP address were not rejected.

The detailed review of IP addresses revealed that:

- MCL has taken Static IP[9] address from the Internet Service Providers (ISP) which can be used only by the officials concerned. Static IP address cannot be allotted to any other user. However, it was observed that in 14 number of tenders, seven number of bidders used the Static IP address allotted to MCL for participating in the tender. In four instances out of 14, tender (valuing ₹0.61 crore) was awarded to the bidder having the matching address.

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[7] ***An IP address is a unique address that identifies a device on the internet or a local network. IP stands for 'Internet Protocol', which is the set of rules governing the format of data sent via the internet or local network.***

[8] ***minimum two to maximum eight bidders***

[9] ***A computer on the internet can have a static IP address, which means it stays the same over time or a dynamic IP address, which means the address can change over time.***

- Audit analysed the data with time stamp and observed that in 126 tenders, IP address of MCL were matching with the bidder's IP address on the same day. Out of 126 number of tenders, 35 number of tenders valuing ₹5.22 crore were also awarded to the contractors who uploaded the tender documents same day using the dynamic IP address allotted to MCL officials. Matching of dynamic IPs of MCL and bidders for the same day within a close time period indicated that bidders were using network of MCL.

- Media Access Control (MAC) is a 12 digit hexadecimal number assigned to each device connected to the network and it identifies a device on a network. As no MAC address is recorded in the database of NIC, Audit could not verify whether the officials and bidders used the same computer.

From the above, it is evident that there were usages of same network by more than one bidder (matching of IP addresses among bidders) at the time of submission of the tenders. Further, matching of IP addresses of tenderer (MCL) and bidders is a pointer to risk of compromise in the bidding system.

(iii) Absence of Validation control

As per manual of e-procurement of MCL, in order to create a user account and use e-tender portal of MCL, user have to submit genuine, authentic, true and valid information.

Review of records revealed the following:

- Bidders are required to submit the Permanent Account Number (PAN) details during bid submission. On review of PAN related details it was noticed that in 80 tenders, PAN details of 93 bidders found to be entered as 'TEMPZ9999Z'.
- It was also noticed that in 11 tenders, PAN details of multiple bidders were found to be entered as 'TEMPZ9999Z'.
- In four tenders, no PAN details were available in the tender submission as the PAN details were found as 'NULL'.
- In 459 cases, it was noticed that Mobile numbers used in e-tender portal were recorded with seven to 13 digits as against 10 digit numbers.

Thus, there was lack of validation control in the bidding system indicating weak control and monitoring mechanism.

Management stated (August 2024) that IPs from different pools were dynamically allotted to users at the start of the session or at any point of time. Hence, it could not be ascertained that MCL and bidders are using the same PC for bidding. Further, to maintain the integrity of bidding system, MCL requested NIC for tracking of MAC address and enhancing monitoring tools for detection of suspicious patterns like multiple bids originating from same MAC address or IP range. While endorsing the views of the management, the Ministry stated (January 2025) that as matching IP addresses among bidders and an MCL

official is a serious concern that undermines the integrity of the procurement process, the incident needed additional investigations and the strengthening of existing protocols to ensure transparency and fairness in all future procurement. Ministry also called for remarks of Chief Vigilance Officer of MCL on this matter. Further, MCL intimated that it has issued (August 2024) an advisory addressing the issues on matching of IP address, phone numbers, and postal addresses viz. Monitoring of IP address duplication, providing of unique and valid phone numbers during bid submission, cross verification of PAN etc.

Ministry agreed that matching IP addresses among bidders and MCL official is a serious concern that undermines the integrity of the procurement process. Though MCL has issued an advisory addressing the issues raised by Audit, Ministry and MCL should ensure strict implementation of the instructions. Also, as suggested by the Ministry, additional investigations may be carried for strengthening existing protocols to ensure transparency. The Management/ Ministry should frame a timeline to complete the planned action.

Recommendation No. 2: MCL should implement a proper mechanism and enhance validation control system to bring transparency in the e-tendering process. Further steps need to be implemented in a time bound manner, to avoid risk of compromise in the bidding system.

B. Modification of terms and clauses

Model Contract Agreement (MCA) for Mining contracts under Mine Development and Operator mode was approved (February 2020) by CIL. Further, Contract Management Manual (CMM) - 2014/2021 of CIL stipulated the terms and conditions in respect of payment of price variation in a contract. Functional Directors of CIL were authorised to approve any modification in the above documents. Audit, however, observed the following instances wherein MCL carried out the modifications, without obtaining the requisite approval from Functional Directors of CIL:

(i) While floating the tender for Siarmal Project in July 2020, MCL altered the clauses of MCA viz. Overburden Shortfall Formula and Price Index weightage for High Speed Diesel Oil, lubricants etc. without obtaining requisite approvals.

(ii) CMM stipulated that in respect of payment of price variation in a contract, the base date for working out such price variation should be the last date on which bids were to be received. However, without obtaining the necessary approvals, MCL modified the NIT by considering the base date as mentioned in the Bill of Quantity.

Management/Ministry stated (August 2024/January 2025) that modification was aligned with the project-specific provisions.

The reply of the Management/Ministry may be viewed in light of the fact that as per CIL directions, only Functional Directors of CIL were authorised to approve the modifications. However, the necessary approval were not obtained from the functional directors which is in contravention of CIL's directions.

1.2.5.3 Agreement for sale of coal

Coal, belonging to different grades, was sold to consumers as per the notified price fixed by CIL, through Fuel Supply Agreements (FSA), E-auction scheme or Memorandum of Understanding (MOU). MCL enters into FSAs with customers for supply of coal. E-Auction scheme provide access to customers, who are not able to source their coal requirements through the available institutional mechanisms for various reasons such as small quantity. MOUs are short term arrangements such as bridge linkage (valid till FSA was signed).

Review of records pertaining to agreements for the sale of coal revealed that:

A Less collection of STC

Surface Transport Cost (STC) was recovered from consumers for lifting of coal from sellers towards transportation cost incurred from pithead of the mines to dispatch point. STC charges were notified by MCL every six months. In case of lead distance being more than 20 KMs, STC charges were to be calculated on actual expenditure for the lead distance plus 10 *per cent*.

Kanika siding of Basundhara Area was more than 20 KM from its two mines Garjanbahal OCP and Kulda OCP. Accordingly, STC charges were applicable on actual transportation cost plus 10 *per cent*. However, during the period from August 2018 to December 2022, there was short charging of STC amounting to ₹6.75 crore at Basundhara Area.

Management while accepting the fact (August 2024) stated that verification of STC was under process and assured for necessary recovery from consumers. Ministry stated (February 2025) that MCL had already recovered claims of ₹2.47 crore from the respective customers. Balance amount is under verification for recovery.

B Non-imposition of Compensation as per FSA clauses

MCL executed Fuel Supply Agreements (FSA) with consumers for supply of coal. FSA stipulated that compensation was to be charged/levied on the consumer (for non-lifting) or on the seller (for non-supply) of the threshold limit as fixed in the FSA. Further, if the level of delivery or lifting falls below the Annual Contracted Quantity (ACQ)[10] in any year, the defaulting party would be liable to pay compensation to the other party for such shortfall in delivery or lifting. MCL is charging the compensation from the consumers for the

[10] ***75 per cent/ 90 per cent under pre-NCDP FSA***

instances of short lifting, which is reviewed on annual basis. Review of records relating to compensation levied and collected from the consumers revealed the following:

- MCL entered into the FSAs with Tamil Nadu Generation and Distribution Corporation Limited (three FSAs), Tamil Nadu Electricity Board (two FSAs) and Andhra Pradesh Power Generation Corporation Limited (one FSA) for supply of coal. There are two types of rakes (BOX-N and BOBR-N) used for the transportation of coal. Rakes, so used for transportation, are of varying capacity. BOX-N has the capacity of 3894 tonne whereas BOBR-N rakes has capacity of 3717 tonne. MCL was allocated the BOBR-N type rake during the year 2020-21.

  - In above five FSAs (two FSAs of Tamil Nadu Generation and Distribution Corporation Limited, two FSAs of Tamil Nadu Electricity Board and one FSA of Andhra Pradesh Power Generation Corporation Limited), MCL supplied coal to above consumers through BOBR-N type of rakes. However, while calculating compensation, MCL wrongly considered the capacity of BOX-N rakes instead of capacity of BOBR-N rakes.

  - In the FSA with Tamil Nadu Generation and Distribution Corporation Limited, it was observed that due to consideration of wrong capacity of rakes, MCL did not levy compensation as the lifted quantity was calculated as 76.72 *per cent* of ACQ (based on BOX-N rakes capacity), which should have been 73.63 *per cent* (based on capacity BOBR-N rakes actually used).

    The above led to short levying of compensation amounting to ₹12.51 crore.

    Management while accepting the facts (August 2024) stated that compensation bill of ₹12.51 crore has been raised, of which ₹12.30 crore has been realised from the customer. The Ministry endorsed (January 2025) the views of the management.

- As per the directives of Hon'ble High Court of Odisha (Feb 2019), M/s Hinduja National Power Corporation Limited (HNPCL) should lift coal at the rate of 100 rakes per month from MCL. However, HNPCL did not book the stipulated number of rakes per month which resulted in short lifting of coal during 2018-19 to 2021-22. Audit noticed that MCL did not charge compensation as per the laid down provisions of FSA.

Management, while accepting the facts (August 2024), stated that it has raised (August 2023) compensation bills of ₹250.53 crore. It also stated (August 2024) that of the recoverable amount, ₹177.95 crore had already realised till July 2024. MCL also intimated that HNPCL had agreed to pay the balance amount. The Ministry (January 2025) endorsed the views of the Management.

Recommendation No. 3: MCL should ensure strict adherence to the provisions/ clauses of the agreement. Compensation for the deviations, if any, may be levied in timely manner.

C Weighment of extracted coal

Ministry of Coal directed (12 December 2011) that weighbridges need to be installed at all pitheads to weigh the coal coming from the mine faces and also at the Railway sidings/stockyards to check quantity of coal sold out to the customer. In Yellow book[11], it was provided that all dumpers/ tippers transporting coal to different destinations such as pit head stockyard, siding, washery, Silo shall be weighed and production should be reported accordingly. The Standard Operating Procedure (SOP) of MCL regarding weighbridge (May 2019) stipulated that installation of weighbridges should be at both end of weighment (dispatch end and receiving end) of coal. The Contract Management Manual (November 2014/August 2021) prescribed that for transportation of coal, the tipping truck/dumper shall be weighed both at the loading end as well as unloading end, the figures of weighment at both the ends shall be reconciled every month in respect of each contractor and if there is any shortage of coal received at the unloading end, the value of coal found short, will be deducted from the security deposit of the transporting contractor.

Audit noticed that at Basundhara Area, coal transported was weighed[12] at mining end (dispatch end) but was entered manually in a register at Kanika siding (receiving end), despite the fact that weighbridge is available and functional at Kanika siding. In absence of reliability of data of the coal received at siding and non-utilisation of available weighment system, Audit could not verify the coal lost in transit and consequently, the amount of recovery to be made from the transporter for claim for coal lost in transit, if any, could not be ascertained.

Management/ Ministry stated (August 2024/March 2025) that corrective measures such as installation of new road weighbridge and circulation (December 2023) of new Standard Operating Procedure to ensure both end weighment, were taken.

D Quality assessment of coal

After introduction of New Coal Distribution Policy (NCDP) 2007 by Ministry of Coal, quality assurance is carried out through joint sampling of coal at the loading end through involvement / presence of representative of both seller and purchaser. As per Ministry of Coal's directive (November 2015), CSIR- Central Institute of Mining and Fuel Research (CIMFR) and Quality Council of India (QCI) started sampling from August 2016 and August 2017 respectively. Further, CIL also formulated (August 2020) a guideline on Coal Quality Assurance Policy for sampling process.

Audit observed the followings discrepancies:

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[11] ***The code for uniform system of maintenance, control, verification of coal stock and measurement, verification of over burden removal in all mines of Coal India Limited which is known as Yellow Book***

[12] ***Through i3MS software of State government of Odisha for monitoring of weight of mineral extracted***

- Coal Quality Assurance Policy (August 2020) and FSA provide that for sampling, Augur method[13] was to be considered so as to avoid human intervention. Under the Augur method, 25 *per cent* of wagons are to be selected for sampling so as to have better representation. In contravention, Augur method was not implemented for sampling process by MCL.

  Management while accepting the fact (August 2024) stated that amendment to FSA/Third Party Agency agreement with respect to sampling clause was under purview of CIL. The implementation of sampling by Augur Method is included in sampling agreement of newly empaneled sampling agencies. Ministry endorsed (January 2025) the views of the Management and stated that now mechanical Augur and cost thereon shall be borne by the third party agency.

- As per the tripartite sampling agreement among MCL, consumer and third party agency, coal sample result shall be declared within stipulated time period by CIMFR (18 working days) and QCI (10 working days). Further, if MCL/consumer is not satisfied with the result of third party sampling, the case may be forwarded to referee[14], who is to submit the results within 15 days from the date of submission.

  - Audit noticed that CIMFR and QCI submitted sampling result in 51,056 cases, with delays ranging from 1 day to 282 days.

  - Also, in 25,069 cases MCL referred the cases to referee for further testing, results were submitted with delays ranging from 5 days to 873 days.

The delay in obtaining results of sampling, led to delay in settlement of claims from the client.

Management/Ministry stated (August 2024/January 2025) that clause have been incorporated for adherence to timelines of analysis results submission (both third party and Referee) in the agreement of all newly empaneled third party sampling agencies. Also, in the agreement with QCI, the penal clause has been incorporated.

There is lack of monitoring and efforts on part of MCL, which is evident for such abnormal delay in receiving the results from the testing agencies. Further, no such revision has been made in the agreement with CIMFR.

- CIL formulated (June 2017) a guideline for protest of samples for referee analysis in case of disputed results of the third party. The protest should be raised within seven days of the submission of the results by the third party. The guidelines, *inter alia*, provide that sample should always be sent to referee in case:

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13 ***Sampling process through mechanical means for avoiding human intervention.***

14 ***Referee is a sampling agency who settles the disputes of third-party agency result in case of disagreement between coal company and the consumer.***

- When third party declared grade was lower than the grade found in coal companies laboratory test;

- When Gross Calorific Value of the lab or third-party test result was within 70 Kcal/kg from the next higher coal grade transition point (borderline cases).

Results of the referee sample shall be binding and final on MCL and consumers. Accordingly, amount/ claims will be adjusted based on the final results.

Audit noticed that, during 2017-18 to 2023-24, 82,898 cases were forwarded to referee. Of the protested third-party cases, results ranging from 22 per cent to 34 per cent had been upgraded in favour of MCL whereas downgraded results ranged from 13 per cent to 23 per cent during the period of Audit. It was also noticed that, a total of 31,802 cases were not even sent to referee despite fulfilling the laid down criteria. Since the upgradation trend during the period, was favourable, MCL lost the opportunity to earn additional revenue by not referring the eligible samples for further review.

Management/ Ministry stated (August 2024/January 2025) that in order to facilitate timely referral of eligible samples for Referee analysis, a suitable clause for developing web portal to facilitate seamless data transfer between the interfaces of Sampling agencies and MCL (ERP-SAP) has been incorporated. However, development of the web portal was yet to be completed. The Ministry also added that CIL guidelines for protest for all eligible cases were being implemented/followed at full spirit to prevent forgo of revenue due to non-referring the eligible samples to referee.

Despite fulfilling the laid down criteria for further testing, a total of 31,802 cases were not referred to referee by the MCL. Considering the trend of the results, which are in favour, MCL lost the opportunity to earn additional revenue.

1.2.6 Conclusion:

Mahanadi Coalfields Limited did not align the target for coal production and over burden removal commensurate with the capacity assessed by CMPDIL. MCL did not frame any manual/SOP defining the factors to be consider for fixation of targets. Audit noticed that consideration of HEMMs which are under long breakdown and surveyed off HEMMs, without assessment of the productivity of such machines impacted the achievement of targets for production and overburden removal. Shortage of operators not only resulted in idling of HEMMs but also impacted the achievement of targets. MCL need to ensure transparency in establishing robust monitoring mechanism in e-tendering system. There were instances having matching of IP addresses among bidders in the E-tenders, matching of IP addresses of MCL with that of bidders, and lack of validation controls in the tendering system. Thus, risk of compromise in bidding system could not be ruled out and was a pointer to weak control and monitoring mechanism in the bidding system. Audit also highlighted the instances of non-adherence to the provisions of Fuel supply agreement.

MCL also did not levy compensation as stipulated under the provisions of the agreements, resulting in short levy of charges.

NLC Tamil Nadu Power Limited

1.3 Functioning of NLC Tamil Nadu Power Limited

1.3.1 Introduction

NLC Tamil Nadu Power Limited (NTPL) *(Company),* a joint venture company of NLC India Limited (NLC India) and Tamil Nadu Generation and Distribution Corporation (TANGEDCO) was promoted (November 2005) for development of 1000 Mega Watt (2 units x 500 Mega Watt) coal based thermal power project. The equity share capital of NTPL was held in the ratio of 89:11 by these two promoters.

Government of India sanctioned (May 2008) the project at a capital cost of ₹4,909.54 crore. The project cost was to be financed out of internal resources (Equity: 30 *per cent*) and borrowings (Debt: 70 *per cent*). Subsequently, the project cost was revised[15] (April 2016) to ₹7,293.48 crore.

The Unit-I and Unit-II of the project were scheduled to be commissioned in March 2012 and August 2012, i.e. after 46 months and 51 months respectively from the date of sanction (May 2008) of the project by Government of India. The Commercial Operations Date for Unit-I and Unit-II of the project was declared in June 2015 and August 2015 respectively.

Power Purchase Agreements were signed with power distribution companies (DISCOMs) of Tamil Nadu, Karnataka, Puducherry and Kerala in December 2006, May 2007, June 2007, and February 2008 respectively.

1.3.2 Organisational Setup

The Company was headed by a Chairman[16] and managed by Board of Directors, duly assisted by officers including Chief Executive Officer, Chief Vigilance Officer, Chief Finance Officer and Company Secretary. Further, the various functional departments for carrying out day to day operations of the plant and activities of the Company were being managed by General Manager/Deputy General Manager level officers. Executive and Non-executives of the Company were from NLC India Limited on secondment basis.

1.3.3 Financial and Operational Performance

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15 ***This project cost was the second revision in cost estimates. Approval of the first revision of the project cost estimates (₹6,602.74 crore at June 2013 price level) and revision of commercial operation date to February 2014 and May 2014 for Unit I and Unit II respectively was intimated by the Ministry of Coal in December 2013.***

16 ***The Chairman-cum-Managing Director of NLC India Ltd. was the Chairman of the two subsidiaries viz. NLC Tamil Nadu Power Ltd. and Neyveli Uttar Pradesh Power Limited of the NLC India Limited (March 2023).***

The financial performance of the Company since start of commercial operation in 2015 to financial year 2022-23 is given in Table 1.11 and the financial position is given under the table 1.12.

Table 1.11: Financial Performance of NTPL

(₹ in crore)

Particulars	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Total Income	1,234.43	2,624.10	2,899.83	2,899.16	2,670.95	2,958.87	2,353.69	3,577.91
Total Exp. excluding depreciation & Finance Cost	893.23	1,671.17	1,906.81	1,997.11	1,759.02	1,775.34	1,548.01	2,620.59
Gross Margin	341.20	952.93	993.02	902.05	911.93	1,183.53	805.68	957.31
Depreciation	268.62	360.47	361.86	375.04	375.76	379.79	380.59	381.10
Finance Cost	317.31	457.18	412.68	457.28	451.55	367.51	208.93	256.95
Profit After Tax	(160.03)	87.85	146.33	270.74	143.15	363.00	211.28	278.64

Source: Annual Reports of NTPL

Table 1.12: Financial Position of NTPL

(₹ in crore)

Particulars	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Share Capital	1,962.27	2,188.04	2,188.04	2,188.04	2,188.04	2,188.04	2,188.04	2,188.04
Reserve and Surplus	(160.07)	(79.83)	21.18	291.93	303.19	597.03	437.11	606.36
Long term Borrowings[17]	3,884.46	3,495.94	3,330.05	2,862.41	2,395.26	1,908.59	1,438.79	1,053.54
Short term Borrowings[18]	841.65	1,099.15	1,422.73	1,558.53	2,379.95	2,583.17	1,800.13	2,276.12
Trade receivables	726.96	1,043.35	1,191.88	1,580.76	1,837.49	1,942.39	642.90	556.02
Cash and Cash Equivalent	2.28	4.46	7.57	4.64	3.97	4.89	15.66	6.07
Current Assets	1,021.36	1,661.56	1,699.31	1,967.99	2,530.45	2,636.23	1,073.52	1,355.38
Current Liabilities	1,581.48	2,424.90	2,294.48	2,584.38	3,386.59	3,423.19	2,230.39	2,665.65
Debt Equity Ratio[19]	1.98	1.60	1.52	1.31	1.09	0.87	0.66	0.48
Current Ratio	0.65	0.69	0.74	0.76	0.75	0.77	0.48	0.51

Source: Annual Reports of NTPL

The Company was able to improve the debt equity position over the years from 1.98 (2015-16) to 0.48 (2022-23). There was increase in short term borrowings during the period 2015-16 to 2022-23 except during the year 2021-22 when the Company could realise the power dues of power distribution companies.

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17 ***Loan for project.***

18 ***Loan for working capital and cash credit.***

19 ***Long term borrowings and Shareholders' equity have been considered for the ratio.***

The details of power generated and exported[20] during the period from 2015-16 to 2022-23 is given in Table 1.13:

Table 1.13: Details of Generation and Export of Power

(in million units)

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Generation	3,655.41	6,252.74	5,412.99	5,486.62	4,844.40	5,290.58	4,182.46	5,929.99
Export	3,313.30	5,806.85	5,026.36	5,113.27	4,496.98	4,900.15	3,853.10	5,523.90

Source: Annual Reports of NTPL

The decrease in the generation of power during 2019-20 and 2021-22 were mainly due to forced outages of Unit-II Generator from Mid of January 2019 to July 2019 and shortage of coal respectively.

1.3.4 Audit Objectives

Audit was carried out to assess the

- Efficiency and economy in implementation of the project.
- Operational efficiency of the plant in maximising the power generation at optimum level and least possible cost.

1.3.5 Audit Scope and methodology

Audit reviewed the project implementation and the operational performance of the Company for the period from 2015 to 2022 at the NTPL's power plant, Tuticorin.

The audit objectives, scope, criteria, sample and timelines were discussed with the Management during the Entry Conference held on 17 November 2021. Preliminary observations in the form of Audit Notes were issued during field audit. Draft Audit Report was issued to the Management and the Ministry of Coal in July 2022 and November 2022 respectively. Exit Conference was conducted with the Management on November 2022 and with the Ministry of Coal on 11 July 2023 to discuss the issues identified. The responses of the Management/Ministry and the views expressed in the Exit Conference have been incorporated appropriately in the report. The report was updated to March 2023.

1.3.6 Audit Findings

NLC India Limited (earlier known as Neyveli Lignite Corporation Limited) proposed (May 2002) for setting up a 500 Mega Watt pulverized coal based Thermal Power Station at Tuticorin either as a Joint venture with Tamil Nadu Electricity Board or on its own. The proposal was subsequently modified (March 2003) by Tamil Nadu Electricity Board to install a 1000 Mega Watt power station to reap the benefits of Mega Power Policy[21] of the

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[20] ***Export refers to the supply of the electricity to the power distributing companies/State Electricity Boards. The balance units were consumed as Auxiliary Power Consumption.***

[21] ***The mega power policy envisaged benefits like complete waiver of customs duty on project imports, 15 per cent price preference and deemed export benefits for domestic bidders.***

Government of India. The Board of Directors of NLC India Limited approved modified project proposal in March 2003. The Ministry of Coal sanctioned (July 2003) ₹2.50 crore under advance action proposal to incur expenditure for carrying out preliminary activities like preparation of Feasibility Report, soil investigation studies, etc.

A Feasibility Report was prepared (May 2006) by a Consultant[22] and in anticipation of Government of India's approval for the project, the project consultancy contract was awarded (March 2007) to MECON Limited, Ranchi by NLC India Limited. Public Investment Board recommended (July 2007) the project for approval to Cabinet Committee on Economic Affairs after considering the feasibility of the project. The approval of the project by Government of India was communicated (May 2008) by the Administrative Ministry.

The thermal power plant installation including 'Main Plant' comprising Steam Generator (Boiler) and Turbine Generator and Balance of Plant[23] was divided into sub-components and tendered between May 2007 and February 2015. Thus, 36 contracts were awarded for implementation of the project.

The Steam Generator (Boiler) and Turbine Generator were designed for use of indigenous Low Gross Calorific Value coal and imported High Gross Calorific Value coal in the ratio of 70:30. The Low Gross Calorific Value coal was to be procured from Mahanadi Coal Fields Limited.

Unit-I and Unit-II (500 Mega Watt each) of NTPL Thermal Power Plant were commercially operationalised with a total cost of ₹7,293.48 crore (with a cost overrun of ₹2,383.94 crore as compared to the original cost estimate of ₹4,909.54 crore) and were operationalised in June 2015 and August 2015 (with a delay of 38 months and 35 months since commercial operation was initially scheduled in March 2012 and August 2012) respectively.

Audit assessed the implementation of the project for economy and efficiency. The deficiencies noted in this regard are discussed in subsequent paragraphs.

1.3.6.1 Project implementation

A Gaps in Project Planning

i) Non-preparation of Detailed Project Report

Management of NLC India Limited projected (October 2006) to its Board of Directors that a Detailed Project Report has to be prepared for the project implementation within scheduled time and to engage a consultancy firm. Subsequently, the Project Consultancy services contract was awarded (March 2007) to MECON Limited, Ranchi. The scope of the contract included within its ambit basic engineering, detailed engineering, procurement services, inspection services, and site services including assistance during commissioning,

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[22] ***M/s Development Consultants Pvt. Limited, Chennai***

[23] ***Coal Handling Plant, Ash Handling Plant, Circulating Water System, Bi-flue Chimney, Cooling Towers, Power Evacuation System etc.***

project management and expediting services but did not include preparation of a Detailed Project Report.

The project implementation activities were completed by the Company based on Feasibility Report. Non-availability of Detailed Project Report led to gaps in planning and in synchronisation of various project construction activities.

The Management replied (September 2022) that Detailed Project Report was not envisaged for the project. The project was delayed because of non-mobilisation of skilled manpower and inadequate mobilisation of resources by the package contractors. During Exit Conference (July 2023), it was also stated that Central Electricity Authority approved the project without DPR.

Ministry while endorsing the Management's reply added (March 2023) that NLC India ventured into coal based Thermal Power project for the first time. The specification preparation by Project Consultant directly from feasibility report is in practice in NLC India's other projects as well and is continued even for the ongoing projects also. Ministry also stated that such practice is followed by leading PSUs such as NTPC.

The reply of the Management and Ministry is to be viewed in light of the fact that Feasibility Report serves the purpose of projects identification with preliminary project estimates for in principle approval rather than substituting a Detailed Project Report. Also, no details were provided of other power projects of other PSUs which have been implemented successfully in scheduled time and cost without preparation of a Detailed Project Report.

Further, Ministry of Coal, while conveying (May 2008) to NLC India about the sanction of the project, stipulated that if the Detailed Project Report revealed any material changes in the estimates of the basic parameters it would have to be referred to the Government for consideration. It indicated that preparation of Detailed Project Report was an important project planning requirement for project implementation. Thus, significance of a Detailed Project Report for project planning was not taken into consideration by NTPL.

Audit further analysed the reasons for the project time overrun and observed delays in different stages of project implementation work as discussed in subsequent paragraphs.

ii) Lack of adequate land availability

The available land (267 acres) as considered in the Feasibility Report for project was not adequate for setting up two Units of 500 MW. The 'Project Completion Report, submitted (May 2018) by MECON Limited, Project Consultants, also highlighted the issue of inadequate land availability as an important common reasons for delay in implementation of the project as discussed in detail in Para 1.3.6.1(D).

The Management replied (September 2022) that the project area was sufficient for setting up only one 500 Mega Watt unit however another unit of 500 MW was added considering the commercial sustainability, overhead and other establishment charges. The Management further stated that land (32 acres) was arranged from V.O. Chidambaram Port Trust and Tamil Nadu Power Generation and Distribution Company Limited for storage and fabrication work during project construction and erection of main plant structures to ensure the progress of work. The Ministry concurred (March 2023) with the reply of the Management.

Replies may be viewed in light of the fact that the project contracts execution should have been planned factoring in the land constraint challenges before commencement of the contract works due to non-availability of required size of land. This resulted in inordinate delay in completion of the project.

B Delay in completion of preliminary activities

Ministry of Coal approved ₹2.50 crore in July 2003 and ₹17.45 crore[24] in March 2007 for preliminary activities, viz. payment to Tuticorin Port Trust for land (₹5 crore), site clearances/re-routing infrastructure facilities (₹5 crore), Project Consultancy (₹4 crore), construction of power supply, water supply, approach road, etc. (₹3.45 crore). Advance action activities were to be completed within 30 months (September 2009) from date of sanction of the funds. However, there were delays ranging from 6 to 16 months[25] in completion of these preliminary activities from the scheduled completion i.e. September 2009. NTPL took 23 to 33 months to complete these activities after the Government of India sanction for the project. Delay in finishing the preliminary works, in turn, had a cascading effect on the project construction works. Few instances of delay noted by the Audit were as given below:

- Land was not graded before the issue of letters of award of contracts for major contractors for the Steam Generator and Turbine Generator, Coal Handling System, Ash Handling System, Cooling Towers etc.

- Non-availability of construction power and water supply in time posed challenges for the contractors.

- Delay in construction of approach road resulted in delay of ten months for the execution of civil works of Bi-Flue RCC Chimney contract.

The Management replied (September 2022) that the project land area was in close proximity to the operational area of Tuticorin Thermal Power Station and VO

[24] ***It includes savings of ₹1.93 crore out of ₹2.50 crore approved in July 2003***

[25] ***Rerouting of Ammonia and Naphtha Pipelines (April 2010), Construction of water supply (June 2010), Power Supply (July 2010), approach road (November 2010), Rerouting the Water Lines (February 2011)***

Chidambaranar Port due to which encumbrances like oil and naphtha pipelines of Indian Oil Corporation, Ammonia pipeline of SPIC Limited, overhead High Tension electricity lines of Tamil Nadu Power Generation and Distribution Company Limited and underground water pipelines of Tamil Nadu Water and Drainage Board etc. were running across the NTPL Project area. Re-routing of the above various service lines had to be executed by the concerned agencies. Management further replied that it had taken steps to proceed with the tendering of main plant package anticipating that all these hindrances would be removed/rerouted by outside firms well in time. However, the execution delays by outside firms like Indian Oil Corporation, SPIC, Tamil Nadu Water and Drainage Board, and Tuticorin Thermal Power Station etc. contributed to delay in preliminary activities. The Ministry concurred (March 2023) with the reply of the Management. During Exit Conference (July 2023), Ministry also stated that land leased form VO Chidambarnar Port Authority was already occupied by other entities and litigations from these entities resulted in delay which was beyond its control.

The reply of the Management and Ministry is to be viewed in light of the fact that the funds for preliminary activities were sanctioned by the Ministry as early as in July 2003 and March 2007 i.e. before sanction (May 2008) of the project and therefore, time was available for carrying the work for re-routing of the various infrastructure/utilities lines. However, these preliminary works were not completed before issue of letter of award (January 2009 to July 2010) of major construction contracts such as Steam Generator and Turbine Generator, Coal Handling plant and Ash Handling plant etc. This also indicated lack of planning and coordination with other departments in ensuring that all the hindrances are cleared before the start of the work.

C Delay in issue of letters of award for project construction contracts

The Project Consultancy services contract was awarded (March 2007) to MECON Limited, Ranchi. The scope of the contract included basic engineering, detailed engineering, procurement services, inspection services, and site services including assistance during commissioning, project management and expediting services. The contract was awarded to the Consultant before obtaining the final sanction (May 2008) from Government of India. The scheduled completion for vendor selection for steam generator contract was 12 months and for other contracts it was 18 months from the date of letter of award of the Project Consultancy services.

Audit noted that initially total project work was planned to be executed in 24 packages (contracts). However, later 15 new contracts (including contract for Shore Unloader) were included in the project work while certain initial contracts were split, merged with other contracts, and deleted during the project execution between January 2009 and September 2016. Eventually the project work was executed through 36 contracts. The details of modifications carried in the initial defined contracts are given in **Annexure II**. These changes in the major works like Steam Generator, Turbine Generator, Coal Handling

System, Shore unloader, Cooling Towers, Chimney, etc. impacted the scheduled date of completion of the project and original estimated project cost.

Audit observed that based on changing project requirements[26], frequent and repeated modifications, the time taken for finalisation of Concept notes was upto 64 months, as against one month for Steam and Turbine Generator contract and two months for other contracts and time taken for completion of various activities such as technical specifications, issue of Expression of Interest/Notice Inviting Tender and techno commercial evaluation was upto 49 months **(**Details are given in **Annexure III),** as against 12 months for Steam Generator and Turbine Generator contract and 18 months for other contracts.

Consequently, the process of issue of Letters of Award (LOA) was also delayed in various contracts as detailed in the **Annexure IV**.

Audit also noted that the target time for issue of award for Package TA 1 – Steam and Turbine Generator was March 2008, whereas the LOA was issued in January 2009, with a delay of 9 months. Similarly, the LOA in respect of other major works scheduled to be issued by September 2008, were issued with a delay which ranged between 9 months to 89 months.

The Management replied (September 2022) that being the first venture of NLC India in the coal based thermal power plant of 500 Mega Watt unit capacity; the specifications were fine tuned in line with the specification of NTPC tenders and in discussions with the bidders along with the Project Consultant. Depending on requirement/priority, convenience of execution etc. packages was finalised/re-organised. Finalisation of layouts was challenging due to space constraints, disproportionate size of the project site and finalisation of terminal points[27]. Package-wise Concept Notes were prepared independently taking care of the interface activities, terminal points with demarcation of scope for each package tender.

Further, the Management stated that the packages were floated with Expression of Interest enquiry, pre-bid discussions were held, qualification requirements evaluation was also carried out after getting necessary bidder confirmations. Techno-commercial meeting and related correspondences also needed time. All these would have contributed to the delay. The Ministry concurred (March 2023) with the reply of the Management.

The Management and Ministry admitted the delay. The reply that this was the first coal based project of NLCIL is not justifiable. Since NLCIL had significant exposure in lignite

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[26] ***Due to non-finalisation of ash dumping area (ash pond) TA3 (Ash Handling System) was delayed, Shore Unloaders was removed from the Coal Handling System and was tendered separately which caused the delay in TA2 (Coal Handling Plant), delay in completion of preliminary activities and statutory clearances, Changes in the type of foundation delayed TA1 (Steam Generator and Turbine Generator) etc.***

[27] ***Terminal points of process/activity/system/equipment.***

based thermal power projects, it should have utilised its expertise in better project planning. Robust project planning and preparation would have helped in mitigating these delays.

D Delay in completion of project implementation contracts

The Unit-I and Unit-II of the project were scheduled to be commissioned in March 2012 and August 2012 i.e. after 46 months and 51 months respectively from the date of sanction (May 2008) by Government of India. However, Commercial Operations Date for Unit-I and Unit-II of the project was declared in June 2015 and August 2015 respectively after a delay of 38 months and 35 months respectively.

Audit noticed that there was delay in the range of one month to 110 months in completion (March 2023) of all the 36 project implementation contracts. There were 14 contracts which were completed after the commencement of actual Commercial Operations Date (August 2015). The delay in execution of contracts indicated inadequate monitoring by NTPL and the Project Consultant, which resulted in delay in achieving the initial scheduled Commercial Operation Date.

The details of delay in completion of major project implementation contracts are given in table below**.**

Table 1.14: Details of delay in completion of major project implementation contracts

Unit	Scheduled date of Completion	Actual date of Completion	Delay in months	Major reason for delay
Steam Generator & Turbine Generator Package (TA 1) BHEL				
Unit-I	28.04.2012	18.06.2015	38	• Finalisation of sub-contract works • Supply of materials • Shortage of skilled manpower • Start of turbine erection and condenser erection • Completion of TG foundation • Release of Design Engineering and release of drawings for TG station building in Unit-I • Completion of RCC foundation for boiler column erection in both units • Commencement of civil works due to delay in finalisation of sub-contractor
Unit-II	28.10.2012	29.08.2015	34	
Coal Handling Systems (L&T)				
Unit-I	31-12-2011	09-03-2015	39	• Non-availability of work fronts like North Cargo Berth, Junction towers and bunker bay VoCPT/ BHEL etc. • Delay in diverting the overhead power line
Unit-II	30-04-2012	20-07-2015	39	
Ash Handling System (TA3) - M/s Energo Engineering Projects Limited[28]				
Unit-I	07.08.2012	18.06.2015	35	• Deployment of inadequate manpower, slow progress in supply and work
Unit-II	07.01.2013	29.08.2015	31	
Circulating Water System (TA4) - KBL				
Unit-I	18.08.2012	31.03.2017	56	• Inadequate mobilisation of resources
Unit-II	30.08.2012	12.12.2016	52	

[28] ***COD of Unit-I and II of the Main Plant adopted as the date of completion as the work was not completed by the contractor.***

Unit	Scheduled date of Completion	Actual date of Completion	Delay in months	Major reason for delay
				• Non availability of work front - BHEL's plant & equipment were stored in the area earmarked for Package TA4. The area was cleared by BHEL in October 2010. • Delay in supply
Desalination and De-mineralised Plant (TA5) - TECTON				
Unit-I & II	Trial Operation 22.02.2012	10.04.2016	50	• Delay in supplies • Inadequate mobilisation of resources • Slow progress of civil works • Non-availability of skilled manpower
Chimney (TA6) – GIL				
Unit-I & II	28.03.2012	29.06.2015	39	• Completion of approach road, in diverting the underground water line, in availability of work front and in approval for design. • Inadequate mobilisation of resources • Slow progress of civil works
Cooling Tower (TA7) - GIL				
Unit-I & II	18.09.2012	27.07.2016	47	• Inadequate mobilisation of resources • Commencement of civil works • Slow progress of civil works • Non-availability of work front
220 & 400 KVGIS Switch Yard (TA8) - L&T				
Unit-I	28.1.2012	20.11.2013	22	• Site grading work due to dewatering by BHEL, in replacement of damaged equipment and consequent delay in availability of start-up power supply, in deployment of erection engineer at site
Unit-II	28.01.2012	05.11.2013	22	
Power Transformers (TA9) – ABB				
Unit-I & II	25.07.2012	15.04.2015	33	• Finalisation and commencement of civil works
Shore Unloader - TRF				
Unit-I & II	18.11.2013	09.09.2015	22 months	• Though the decision to remove the Shore Unloaders from the Coal Handling system was taken in September 2007 itself, the tendering process was delayed and the LOA was issued only in May 2012.

Source: Project Completion Report

The Management replied (September 2022) citing various reasons for delays regarding contract execution and acknowledged the delays as stated above.

The Ministry concurred (March 2023) with the reply of the Management.

The Management did not ensure that sufficient land was available not only for installation of equipment but also for storage of materials (as commented 1.3.6.1(A)i. A more robust project planning (as commented in Para 1.3.6.1(B) and 1.3.6.1(C) would have helped in mitigating the delays to a significant extent. Further, these delays in commissioning of Unit-I and Unit-II resulted in financial burden due to increase in interest cost during construction (IDC) period and project construction cost overrun as discussed in succeeding Para no. 1.3.6.1(E) and 1.3.6.1(F).

E Project cost overrun

The project faced time overrun due to inadequate planning and inefficient project execution as explained in the preceding paragraphs. The original estimated project cost (May 2008) of ₹4,909.54 crore was revised (December 2013) to ₹6,602.74 crore and further revised (April 2016) to ₹7,293.48 crore, as the project faced time overrun. Thus, there was a total cost overrun of ₹2,383.94 crore.

The Management replied (September 2022)/Exit Conference (July 2023) that the project cost was revised to ₹7,293.48 crore in April 2016, majorly on account of price escalation (₹802 crore), market conditions (₹697 crore), time overrun (₹1,190 crore), delayed resource mobilisation and after adjusting the effect of IDC (₹419 crore). Ministry did not (March 2023) reply to the audit observation. Management/Ministry stated in Exit Conference (July 2023) that delay in project execution was due to delayed resource mobilisation by the contractors.

The Management, in its reply, reiterated the justifications given in the Revised Cost Estimates (RCE-II) based on which the GoI accorded its approval. The price escalation in award of contracts had already been considered in the first revision in Cost Estimates (RCE-I in December 2013). Audit noted that a major part of cost overrun was on account of the following contracts:

- The main plant (Steam and Turbo generator) was awarded (January 2009) at a cost of ₹3,196 crore, which was 193 *per cent* of the estimate (₹1,649.81 crore) which was approved in May 2008.
- The Coal Handling System, initially estimated (May 2008) at ₹327.93 crore was awarded (July 2009/May 2012) at a cost of ₹574.35 crore[29] i.e. 175 *per cent* of the estimate and actual cost (July/September 2015) reached ₹608.74 crore[30].
- Interest during construction was estimated (May 2008) at ₹597.33 crore but ended up being ₹1379.15 crore, 230 *per cent* higher than the estimate approved in May 2008.

Audit could not draw assurance on the effectiveness of Management in avoiding project cost overrun in above cases, as all requisite records pertaining to implementation of the project were not available in NTPL and due to lapse of time same were also not available in NLC India.

F Financial closure for the project and increase in interest during construction

NTPL Thermal power project was sanctioned (May 2008) by Government of India at the estimated cost of ₹4,909.54 crore including interest during construction to be financed out of equity and borrowings on 70:30 debt equity basis, i.e. ₹3,436.68 crore and ₹1,472.86

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[29] ***Coal Handling System – ₹453.54 crore + USD 7,361,035 (1 USD = approx. ₹47) & Shore Unloader – ₹86.22 crore***

[30] ***Coal Handling System – ₹525.69 crore and Shore Unloader – ₹83.05 crore***

crore respectively. Audit noted that NTPL availed (July 2008) Rupee Term Loan (RTL) of ₹3,437 crore at 11.10 *per cent* from Rural Electrification Corporation (REC). Till November 2009, NTPL had drawn only ₹271 crore and proposed to replace the loan by availing fresh loan at 9.70 *per cent* from Bank of Baroda Consortium (BoB). REC loan was repaid (May 2010) at ₹282.97 crore including interest and prepayment interest. Subsequently, NTPL availed (April 2010) ₹2,500 crore from Bank of Baroda Consortium and remaining ₹937 crore was availed (November 2012) from Bank of India Consortium (BoI) at 10.75 *per cent*. Audit noted that interest during construction was estimated at ₹597.33 crore, ₹855.39 crore and ₹1,379.15 crore in original project cost (May 2008), first revised project cost (December 2013) and in second revised project cost (April 2016), which was higher by ₹781.82 crore as compared to the original project cost estimates. In this connection, the Audit observed the following:

a) Due to increase in project cost estimates (June 2013) by ₹1,693 crore[31], NTPL took Rupee Term Loan of ₹1,184 crore, being 70 *per cent* of ₹1,693 crore, from NLC India Limited (NLC) at 10.86 *per cent* for 12 months. This was replaced by Rupee Term Loan of ₹1,184 crore at 10.41 *per cent* from Power Finance Corporation by incurring ₹0.70 crore towards upfront fee and legal fee. Audit noted that the NLC loan did not offer moratorium and the loan amount was to be drawn within 364 days which forced NTPL to draw ₹492 crore without any specific requirement. Of this fund, ₹204.40 crore was used for repayment of amount due in the same NLC loan for the period from January 2015 to March 2015 and the balance amount was invested in short term deposits.

The Management replied (September 2022) that the loan from NLC was not a permanent loan facility and had no moratorium period. The Ministry concurred (March 2023) with the reply of the Management.

Reply of the Management and Ministry need to be viewed in light of the fact that bridge loan terms were against the financial interests of NTPL. NTPL did not obtain favourable terms from its own parent company.

b) Due to delay in commissioning of project, the moratorium period of BoB loan was extended from 30 November 2013 to 31 October 2015. This resulted in additional interest during construction period to ₹435.63 crore[32].

The Management replied (September 2022) that the interest paid for BoB loan from the original scheduled date of commencement of repayment was extended due to delay in commencement of the thermal power plant Unit I & II and accordingly the Company had incurred additional interest during construction period which the Company had recovered from the package contractors through liquidated damages.

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[31] ***₹6,602.74 crore - ₹4,909.54 crore: Original Cost Estimate was ₹4,909.54 crore which was revised to revised to ₹6,602.74 crore (June 2013) and then to ₹7,293.48 crore (June 2015)***

[32] ***@11.00 per cent p.a. from November 2013 to December 2014, 10.45 per cent p.a. from January 2015 to June 2015, 10.20 per cent p.a. during July 2015 and 10.05 percent p.a. during August 2015***

The Management did not provide documents to support the fact that NTPL had recovered the additional interest during construction from the contractors through liquidated damages. Audit noticed that liquidated damages to the extent of ₹24.98 crore only were recovered under nine contracts till July 2024.

1.3.6.2 Plant Operations and Management

A Regulatory and monitoring mechanism for plant operations

The Electricity Act, 2003, consolidates the laws relating to generation, transmission, distribution, trading, and use of electricity. It provides for constitution of Central Electricity Authority, Regulatory Commissions, and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto.

As per Section 79 of Electricity Act, 2003, Central Electricity Regulatory Commission shall regulate the tariff of generating companies, regulate the inter-State transmission of electricity and determine tariff for inter-State transmission of electricity. The Central Electricity Regulatory Commission (CERC) and State Electricity Regulatory Commissions (SERCs) are entrusted with determination of tariff by ensuring commercial viability, recovery of costs and safeguarding the interests of consumers (Section 61 of Electricity Act).

The process involved in determining tariff/price is as follows:

- Provisional tariff order is issued for a period of five years block, viz. 2014-19, 2019-24, etc. by CERC based on the applications filed by generating companies.
- On completion of the tariff period, CERC carries out truing up exercise based on truing-up petition as per actual expenditure filed by the generating company. The truing up is based on various controllable parameters such as station heat rate, secondary fuel oil consumption, auxiliary power consumption and refinancing of loan. Uncontrollable parameters, force majeure, change in law and primary fuel cost is also considered by Central Electricity Regulatory Commission while truing up of the tariff.
- For thermal power generating stations (coal, lignite and gas based), CERC adopted a two-part tariff viz., Capacity Charges (for recovery of Annual Fixed Costs) and Energy Charges (for recovery of Primary Fuel Costs)

The Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations also prescribed various norms, viz. Annual Plant Availability Factor, Annual Plant Load Factor, Gross Station Heat Rate, Secondary Fuel Oil Consumption, and Auxiliary Energy Consumption. NTPL's operations are regulated by Central Electricity Regulatory Commission. Accordingly, the power tariff of NTPL is based on the guidelines/regulations notified by CERC from time to time.

Audit assessed economy and efficiency of NTPL's operations and observed non-achievement of operational norms, generation loss due to outages, avoidable expenditure, and various contracts related issues etc. as discussed in following paras.

B Non-achievement of Plant Availability Factor

CERC regulations define 'Plant Availability Factor' (PAF) in relation to a generating station for any period as the average of the daily declared capacities for all the days during the period expressed as a percentage of the installed capacity in Mega Watt less the normative auxiliary power consumption.

As per CERC tariff regulations for recovery of capacity charges, generating company could recover the Annual Fixed Costs in full only if the Normative Annual PAF[33] is achieved during the year.

Audit observed that NTPL could achieve the normative PAF only in 2020-21. Resultantly, it was not able to recover the Annual Fixed Cost (Capacity Charges) to the tune of ₹771.88 crore for the remaining years. Details of year-wise PAF achieved against the norms applicable to NTPL and unrecovered fixed cost are given in table 1.15

Table 1.15: Plant Availability Factor and unrecovered fixed cost by NTPL

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Normative Annual Plant Availability Factor for recovery of fixed cost for NTPL (in *per cent*)	83	83	85	85	85	85	85	85
Plant Availability Factor achieved (in *per cent*)	36.61 (Unit I) 59.77 (Unit II)	81.20	80.08	79.41	78.16	91.16	64.08	84.75
Annual Fixed Costs allowed by CERC(₹ in crore)	761.93	1,107.98	1,099.68	1,090.16	1,090.17	1,090.17	1,090.17	1,090.17
Annual Fixed Costs recovered from beneficiaries (₹ in crore)	519.28	1,083.95	1,036.04	1,018.43	1,002.40	1,090.17	841.70	1,056.57

[33] ***Normative Annual Plant Availability Factor in relation to a generating station means the availability factor as specified in CERC Regulations on Terms and Conditions of Tariff for thermal power generating station. The regulations for the period 2014-19 and 2019-24 prescribed Normative Annual Plant Availability Factor as 85 per cent of installed capacity.***

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Unrecovered fixed cost due to low plant availability factor (₹ in crore)	242.65	24.03	63.64	71.73	87.76	-	248.47	33.60

Source: Data as provided by the Management

Management replied (August 2022) and also stated in Exit Conference (July 2023) that the low PAF for 2015-16 was due to initial teething problems and forced outages and for the years 2017-18, 2021-22 and 2022-23, it was due to coal shortages. Management also stated that prolonged outages due to rectification of damaged generator stator and rotor caused low Plant Availability Factor and led to under recovery of costs for the year 2018-19 and 2019-20. The Ministry concurred (March 2023) with the Management reply.

The reply of the Management need to be viewed in light of the fact that the initial teething problems, forced outages, and coal shortage causing low Plant Availability Factor and under recovery of fixed costs primarily were controllable factors as brought out in paras below.

Recommendation No. 4: NTPL should identify and monitor controllable factors to strengthen operational planning to achieve the normative Plant Availability Factor for full recovery of Annual Fixed Costs.

C Loss of power generation and consequent revenue loss because of forced outages and partial load operations

The non-availability of the plant for power generation due to various reasons is referred as 'Outage.' A power plant has Planned Outage for routine 'Preventive Maintenance'. The Unplanned or Forced Outage can occur due to reasons such as non-availability of coal, failures in Steam Generator -Turbine Generator/plant equipment, and accidents etc.

Audit reviewed the handling of the outages which prevented NTPL from achieving the required Plant Availability Factor and caused losses in operations and noticed that there were 258 forced outages due to various operational issues in the NTPL thermal power plant during the period 2015-16 to 2022-23. The details of loss of generation due to forced outages are given in table below.

Table 1.16: Loss due to forced outages of the power plant

Year	Forced outages (Number of trips)	Outages (in hours)	Power generation loss (in MUs)
2015-16	83	3,749.18	1,874.59
2016-17	61	1,682.71	841.36
2017-18	31	1,412.83	706.42
2018-19	21	2,369.45	1,184.75
2019-20	12	3,183.37	1,591.68

Year	Forced outages (Number of trips)	Outages (in hours)	Power generation loss (in MUs)
2020-21	19	647.97	323.98
2021-22	19	2,822.08	1,411.04
2022-23	12	1,125.42	562.71
Total	**258**	**16,993.01**	**8,496.53**

Source: Data as provided by the Management

It was also noticed that the status of forced outages showed an improving trend over the years. However, since the Commercial Operation Date (COD), there were total 16,993.01 outage hours and consequent power generation loss of 8,496.53 MUs with a potential revenue implication of ₹2,515.15 crore.

Further, an analysis of the 258 forced outages revealed that reasons for the power generation losses included 225 Steam Generator and Turbine Generator failures (6,581.31 MUs : 77 *per cent*), nine instances of coal shortages (1,806.34 MUs : 22 *per cent*) and 24 other plant related failures (108.88 MUs : one *per cent)*.

On every outage, the plant tripped and plant shut down required a 'start-up'[34] of the Steam Generator Turbine Generator. Hence, apart from loss of generation, the resultant start-up required additional expenditure[35] on each outage which was non-recoverable. Audit observed that start-up details i.e. type of start-up and expenses incurred for start-up pertaining to 175 forced outages between the period from 2015-16 to 2017-18 were not maintained. Each outage impacts the life of the plant and though, CEA had framed the regulations (2010) for the same, records furnished to Audit did not indicate any action taken to adhere to the same in the initial years of plant operations. Audit noticed that the start up expenditure of ₹30.76 crore was incurred for 83 forced outages which occurred during 2018-19 to 2022-23.

The Management replied (September 2022) that start-up analysis was being carried out since 2018-19 and analysis reports were complete in all aspects. It also stated that sea water corrosion was the major reason for Boiler Tube Leakages. NTPL assured to improve its monitoring mechanism to reduce outages of the plant to enhance the life of the plant and keep them within accepted industry standards. Ministry confirmed (March 2023) the reply of the Management.

Further, in October 2016, OEM (BHEL) had recommended for spare rotors. However, NLC India delayed the procurement. Subsequently, in January 2019, Audit noted that a fire in Generator of Unit-II caused severe damage to rotor, and had to be repaired at BHEL Haridwar. Due to the absence of a spare rotor, NTPL explored alternatives from NTPC/Damodar Valley Corporation, which did not materialise due to stringent conditions

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[34] ***Commencement of the plant after shut down.***

[35] ***Expenditure on oil, power, water, etc. required to start up a plant after a trip.***

put forth by NTPC and Damodar Valley Corporation. The time taken to repair the rotor at Haridwar led to a six-month forced outage and estimated potential revenue loss of ₹633.82 crore[36]. Despite prior knowledge of requirement of spare rotor, NTPL did not ensure critical spares and delayed placement of purchase order till June 2022.

The Management replied (September 2022) that the nature of failure was unprecedented and therefore no precautionary steps could have been taken. The Ministry stated (March 2023/July 2023) that a calculated risk was taken by not procuring rotor which was priced at around ₹40 crore to ₹60 crore. The failure of rotor in 2019 was unfortunate.

The Management/Ministry reply contradicted industry practice, as NTPL's Board had approved the procurement of emergency spares in February 2016. However, the Purchase Order was placed by NLC India for the generator rotor in June 2022 and the same was yet to be received at site till March 2023.

Audit comments on the forced outages due to coal shortages are given in Para no. (i) and (ii) below.

(i) Inadequate coal supply and non-maintenance of prescribed coal stock and its impact on plant operations

Audit reviewed the coal supply arrangements, coal procurement and availability of coal stock in NTPL plant and analysed the forced outages caused by coal shortage as discussed below:

a) Delay in obtaining statutory environment clearances leading to reduction in Fuel Supply Agreement quantity

Setting up of a thermal power project necessitates various clearances from Central and State Government agencies like Ministry of Environment, Forests and Climate Change, Government of India, Forest Department of State Government, State Pollution Control Board, etc.

A letter of assurance (LoA) was issued (August 2006) by Mahanadi Coalfields Limited as per the order (July 2006) of Standing Linkage Committee[37] of Ministry of Coal for supply of 4.624 MMTPA[38]. However, Audit observed that wildlife clearance, forest clearance and coastal zone clearance was delayed[39] by 33 months, 32 months and 20 months respectively which led to the expiry of LoA. A new LoA was issued (September 2010) for a lesser quantity of coal i.e. 3.0 MMTPA which impacted coal supply.

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[36] ***1,939.47 MUs x Average ECR ₹3.27 = ₹633.82 crore***

[37] ***Standing Linkage Committee was set up in January 1973 for planning of coal supplies to thermal power stations.***

[38] ***Million Metric Tonnes Per Annum***

[39] ***Delay calculated from original scheduled Commercial Operation Date (August 2012)***

The Management cited (September 2022) non-achievement of various milestones such as acquisition of land, environment clearance and forest clearance for expiry of the LoA. The Ministry replied (March 2023) that in view of negative coal balance at Coal India Limited, it was decided (November 2008) by Standing Linkage Committee that coastal projects may meet 30 *per cent* requirement through imports and hence LoA was revised to 70 *per cent* of recommended capacity.

The reply needs to be viewed in light of the fact that delay in obtaining statutory clearances resulted in lesser allotment of coal to NTPL by the Standing Linkage Committee in view of the prevalent coal shortage in the country.

b) Coal supply arrangements and coal procurement from various sources

NTPL had coal supply arrangements from various sources in India and import of coal from outside India. The projected annual coal requirement was 4.48 MMTPA. The domestic coal was sourced from Mahanadi Coalfields Limited (MCL), Eastern Coalfields Limited (ECL) and Talabira Coal Block as per the details given below.

Table 1.17: Sources of coal supply from India for NTPL

Name of Supplier	Date of Fuel Supply Agreement (FSA)	Quantity	Grade of Coal
Mahanadi Coalfields Limited (MCL)	24 September 2013	3.00 MMTPA[40]	Low Gross Calorific Value Coal (Grade 8 to Grade 13)
Eastern Coalfields Limited (ECL)	14 September 2016	0.30 MMTPA[41] 1.00 MMTPA	High Gross Calorific Value Coal (Grade 4)
Talabira Coal Block	NLC India was allotted (2 May 2016) this block by the Ministry of Coal to meet coal requirements of NTPL. The production was operationalised from 26 April 2020.		Low Gross Calorific Value Coal (Grade 14)

Source: Data as provided by Management

During the period from 2017-18 to 2022-23, it was observed that there was an estimated shortfall of 22.56 lakh MT coal[42] from all sources (domestic and import) as worked out by Audit

MCL and ECL stopped supplies from September 2021 due to commissioning of Talabira coal block. For the year 2022-23, MCL supplied coal under a coal-swapping arrangement between the coal produced from Talabira II and III Mines (owned by NLC India) and coal

[40] ***The quantity of 3.00 MMTPA to be supplied by MCL was reduced to 2.56 MMTPA subsequent to the FSA with ECL (FSA amendment dated 16 November 2016)***

[41] ***(out of 3.0 MMTPA from MCL)***

[42] ***Monthly requirement = 3,30,000 MT, Annual requirement = 39,60,000 MT, Total requirement for 6 years from 2017-18 to 2022-23-2,37,60,000 MT. Totul procurements during the period = 2,15,04,366 MT. Shortfall 22,55,634 MT***

from NTPC's Aggregated Annual Contracted Quantity (ACQ) with Mahanadi Coalfields Limited for two years. This swapping arrangement was aimed at gaining logistics benefits for NTPL and NTPC. The total quantities of domestic coal procured by NTPL from various sources are given in table 1.18.

Table 1.18: Coal procured by NTPL from 2017-18 to 2022-23 (in Metric Tonne)

MCL	ECL	Imported Coal of HGCV	Talabira[43]	Total	Percentage of Coal from MCL
1,20,97,653	31,56,785	27,87,666	34,62,262	**2,15,04,366**	56.26

Source: Data as provided by Management

From table 1.18, it could be seen that NTPL procured around 56.26 per cent of coal from MCL till 2022-23. In this regard, Audit observed that during the 54 months from April 2017 to September 2021, the allocation by MCL was less than 90 per cent of Monthly Scheduled Quantity (MSQ) only in ten months out of 54 months. However, as against the allocation by MCL, NTPL was not able to lift the 100 per cent of the quantity allocated in 40 months out of 54 months. This led to shortage in coal stock availability at NTPL plant. The month-wise coal allocation and actual lifting by NTPL is given in the **Annexure V.**

The Management stated (August 2022) that monthly rakes allocation was done by Railways. The materialisation depend upon the coal availability at mines, daily rakes allocation from Railways. Whenever coal is available at MCL or ECL additional coal will be procured to keep sufficient coal stock at NTPL coal stock yard as per the CERC norms. During the monsoon period, production and supply of coal will be less and materialisation of coal will be minimum. Coal procurement division has been procuring coal as per the monthly requirement of the power plant. The Ministry did not offer any remarks on the Audit observation.

The Management reply need to be viewed in light of the fact that the lifted quantity was even less than the monthly scheduled quantity in 29 months out of the 54 months. NTPL had appointed a logistics contractor to transport the monthly scheduled quantity. NTPL and its logistics contractor did not coordinate with the coal suppliers and Railways for managing monthly schedule of coal supply and rake allocation respectively. However, the reply was silent on the action taken by the Company/logistic contractor for tying up with the agencies to ensure lifting of the allocated quantity.

c) Coal stock position and its impact

As per the Standard Design Criteria/Guidelines for Balance of Plant of (2 X 500 MW or above) Thermal Power Project (September 2010) of Central Electricity Authority, NTPL was required to maintain coal stock level of 30 days (3,30,000 MT) for its power plant units being a coastal location power plant. It was noted that the stock level of coal was below

[43] ***Talabira coal from October 2021.***

thirty days' requirement of 3,30,000 MT during[44] two months in 2016-17, six months in 2017-18 (due to coal import stoppage), two months in 2018-19, eleven months in 2019-20 (Short supply by MCL), three months in 2020-21, all months in 2021-22 (Due to delinking of ECL/MCL coal), and five months in 2022-23 (Marginal shortage of supply from MCL, Talabira Block and Imports).

Further, CEA classifies[45] (November 2017) critical stock position as coal stock less than seven days and super critical stock position as coal stock less than four days for non-pit head stations. NTPL's coal stock position reached super critical stock levels for 5 days, 153 days, and 12 days in 2019-20, 2021-22 and 2022-23 respectively. Further, critical stocks levels for 11 days, 116 days, and 25 days were not maintained in 2019-20, 2021-22 and 2022-23 respectively.

Audit noted that during the above periods, the power plant units either faced forced outages (as discussed in Para 1.3.6.2C(ii)) or plant operated at partial load on account of coal shortage. Audit analysed the forced outages caused by coal shortage as discussed in succeeding paragraphs.

(ii) Loss of power generation due to coal shortage resulting in forced outages

Audit reviewed the coal availability for power generation from inception of plant operation to 2022-23 and noted that inadequate coal supply due to stoppage of imported coal, shortage of high GCV coal from ECL in the year 2017-18 and shortage of coal due to delayed finalisation of logistics contractor for supply of coal from Talabira mines during 2021-22 and 2022-23 resulted in forced outages as given in the table below and further discussed in sub-para (a) and (b) below.

Table 1.19: Forced Outages owing to coal shortage

Year	Number of Outages	Period of Outage	Outage hours	Generation Loss (MUs)	Potential Revenue loss (₹ in crore)	Reasons
2017-18	2	08.09.17 to 01.10.17 and 20.10.17 to 26.10.17 (Unit II)	705.93	352.97	110.30	Decision to short close import contracts and delay in arranging alternate coal from ECL due to non-availability of logistics contract.
2021-22	6	08.09.21 to 29.09.21 (Unit-I) 28.09.21 to 06.10.21	2,618.13	1,309.07	420.47	MCL and ECL stopped supply to NTPL as Talabira coal block was allocated to NLC

[44] ***2016-17: May and October; 2017-18: August to January; 2018-19: June and July; 2019-20: April to February; 2020-21: July, February and March; 2021-22: April to March; 2022-23: April, May, June, November and February***

[45] ***Guidelines for preparing Daily Coal Report***

Year	Number of Outages	Period of Outage	Outage hours	Generation Loss (MUs)	Potential Revenue loss (₹ in crore)	Reasons
		and 11.11.21 to 17.12.21 (Unit-II)				India. However, NTPL could not avail coal from Talabira due to non-availability of railway infrastructure, and logistics contract.
		28.12.21 to 13.01.22 (Unit-I)				
		23.02.22 to 28.02.22 and 10.03.22 to 31.03.22 (Unit-II)				
2022-23	1	01.04.22 to 13.04.22 (Unit-II)	288.58	144.29	60.18	
Total	**9**		**3,612.64**	**1,806.33**	**590.95**	

Source: Data as provided by Management

(a) Forced outage due to shortage of high GCV coal

NTPL issued (July 2016) a Letter of Award (LoA) for the supply of 1.44 MMT and 0.96 MMT of high GCV imported coal at total CIF value USD 72,273,600 and USD 48,182,400 from two different contractors. The LoA stipulated that the delivery was to be completed within 12 months from the date of LoA, i.e. by July 2017. However, the Chairman cum Managing Director of NLC India directed (October 2016) NTPL that the matter regarding coal import has been under review by Ministry of Coal and as per the guidelines, imports are to be discouraged. Accordingly, for import substitution, apart from domestic coal from MCL, coal supply from ECL was tied up (September 2016). Logistics/transport arrangement for the same was to be firmed up quickly latest by 31 December 2016 and to stop import of coal by 31 March 2017. After the stoppage of import, NTPL could not immediately arrange coal from ECL due to delay in finalisation of logistics contract (June 2017). This resulted in reduction of available coal stock for the plant.

Audit observed that the stoppage of imported coal (April 2017) coupled with the delay in arranging High GCV coal from ECL led to coal stock shortage situation. This resulted in forced outage in Unit II during September and October 2017 which led to lower power generation by 352.97 million units and potential revenue loss of ₹110.30 crore.

The Management replied (September 2022) that the full FSA quantity of coal with MCL was not available due to monsoon, poor availability of rail rakes etc. It was also stated that import coal was cheaper than the Indian coal (ECL coal). As per the Govt. of India policy decision, NTPL stopped the import of coal from April 2017 and substituted import by ECL coal. Accordingly, high GCV coal was procured from ECL. It was also replied that depending on the coal stock situation and power demand, the available source of coal stock

was to be utilised irrespective of the type of coal available (indigenous coal or imported coal).

Ministry replied (March 2023) that during 2017-18 imported coal was much cheaper than ECL coal. However, due to national interest and also to limit foreign exchange, NTPL stopped purchasing imported coal. By stopping imported coal, NTPL achieved a saving of foreign exchange. Being a PSU, deviating the Government of India Order will be treated as violation.

The reply of the Management and Ministry needs to be viewed in the light of the fact that stoppage of imports coupled with delay in finalisation of logistics arrangement for high grade coal supply from ECL resulted in forced outage which led to a potential revenue loss of ₹110.30 crore.

(b) Forced outages due to coal shortage on account of logistics issues in procuring coal from Talabira mines

Ministry of Coal allotted (May 2016) Talabira II and III open coal blocks to NLC India[46]. As per the Mine Development and Operation contract of Talabira Mines awarded (February 2018) by NLC India, the first production and subsequently full production of coal from the Talabira Mines was expected in April 2019 and in next seven years respectively. The proposal for transportation of coal from Talabira Mines was approved by the NTPL Board in January 2019. After cancelling the tenders thrice during January 2019 to June 2021, due to changes in pre-qualification criteria, the logistics contract was awarded[47] to a contractor in July 2021.

In September 2021, the Ministry of Coal directed that coal requirement for NTPL is to be met from its own coal block (Talabira Coal Block) and thus, supplies from MCL and ECL was stopped immediately. The first consignment of coal from Talabira mines reached NTPL in October 2021 upon finalisation of logistics contract in July 2021. The supply from Talabira mines was not adequate and a total coal quantity of 13.36 lakh MT was received during October 2021 to March 2022. Audit noted that NTPL could not maintain coal stock level of 30 days (3,30,000 MT) in 2021-22. Further, super critical stock position (coal stock less than four days) was reached in 153 days in 2021-22.

Thus, NTPL had to shut down the plants intermittently[48] due to coal shortage during September 2021 to April 2022, which could have been avoided had the logistics contract for lifting the coal from Talabira mines been finalised well in advance. This led to loss of power generation[49] of 1,453.36 MUs and potential revenue loss of ₹480.65 crore during September 2021 to April 2022.

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[46] ***For NTPL project and Talabira Pit Head project***

[47] ***After floating tenders thrice during January 2019 to June 2021***

[48] ***8 September 2021 to 29 September 2021, 1 October 2021 to 10 October 2021, 11 November 2021 to 17 December 2021, 28 December 2021 to 13 January 2022, 23 February 2022 to 28 February 2022, and 10 March 2022 to 13 April 2022***

[49] ***2021-22 – 1309.07 MUs; 2022-23 – 144.29 MUs (₹420.47 crore + ₹60.18 crore)***

The Management replied (September 2022) that Ministry of Coal directed to take the entire coal supply from Talabira Coal Block. Hence, ECL and MCL coal supply was stopped from 1 September 2021. The movement of coal from Talabira mines commenced from 10 September 2021. Thus, NTPL had to face the shortage of coal. The landed cost of Talabira coal was on higher side compared to the landed cost of MCL coal; hence NTPL opted for MCL coal through coal swapping arrangement under the Coal Mines Special Provision Act, 2015. While concurring with the reply of the management, Ministry cited (March 2023) non-availability of railway siding at Talabira to nearest port resulted in delay in transportation of coal. Ministry also stated in Exit Conference (July 2023) that logistics and resource limitations were the main reasons for coal shortages.

The reply of the Management and Ministry need to be viewed considering the fact that NTPL did not initiate steps to procure coal from Talabira mines though the coal block was allocated as early as in May 2016. NTPL was aware (February 2018) that the production would commence from February 2019. Thus, even though the production from Talabira mines was commenced in April 2020, NTPL was not in a position to receive coal in the absence of logistics.

Thus, the logistics issue to procure coal from Talabira mines resulted in inadequate coal supply. Consequently, power plant shutdowns led to potential revenue loss of ₹480.65 crore during September 2021 to April 2022.

Recommendation No. 5: NTPL should ensure availability of logistics for coal transportation and maintenance of coal stock as per norms by proper coordination with coal suppliers and railways.

(iii) Partial load Operations resulting in loss of generation

Plant Load Factor is the ratio of the actual energy generated by the plant to the maximum possible energy that can be generated with the plant working at its rated power for a particular duration of time. It indicates, how much of the available plant capacity was utilised for power generation. Higher Plant Load Factor signifies better utilisation of capacity, higher operational efficiency and hence, better performance of a thermal power plant.

The CERC Tariff regulations prescribed normative Plant Load Factor. However, NTPL could not achieve the normative Plant Load Factor of 85 *per cent* since Commercial Operation Date. Plant Load Factor achieved by NTPL for the period 2016-17 to 2022-23 is as given in table below.

Table 1.20: NTPL's Plant Load Factor for the period 2016-17 to 2022-23

(in *per cent*)

2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
71.38	61.79	62.63	55.15	60.39	47.74	67.69

Source: Annual Reports of NTPL

It could be seen from the above table that the Plant Load Factor was below the CERC norms in all the years which indicated that the plant was operated at partial load. Audit noted that there were various reasons, viz. load restrictions by Southern Regional Load Despatch Centre (SRLDC)[50], equipment problems and start-ups which resulted in power generation loss due to partial load operations as given in table 1.21.

Table 1.21: Power Generation loss due to Partial Load operations

Reasons	Generation loss (MUs)						
	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
Load restriction	-	1510.62	1419.48	1720.94	2335.49	1347.85	1472
Equipment problems/ Other	223.88	186.89	73.65	21.32	3.95	4.07	102.80
Start up	-	22.39	13.94	15.27	10.33	9.14	10.50
Total	**223.88**	**1719.90**	**1507.17**	**1757.53**	**2349.77**	**1361.06**	**1585.30**

Source: Data as provided by the Management

It could be seen from the table 1.21 that major reason for partial load operation was due to load restriction by Southern Regional Load Despatch Centre and equipment failures during 2016-17 to 2022-23. Further analysis of the losses due to partial load operations have been given in Para no. 1.3.6.2(C)(iii)(a) and 1.3.6.2(C)(iii)(b).

(a) Partial Load operations because of load restrictions

The Southern Regional Load Despatch Centre schedules and requisitions the supply of power by different generating companies as per the Merit Order. Merit Order means the sequence in which power plants are requisitioned to deliver power, with the aim of economically optimising the electricity supply. Power plants incur marginal costs for producing power. The merit order is based on the marginal costs incurred for power generation. Power plants that supply electricity at very low prices would be the first to be called upon to supply power and plants with higher marginal costs would be subsequently requisitioned until the power demand is met. The Merit order rankings of NTPL during the period 2018-19 to 2022-23 was in the range between 18th (July 2020) and 39th position *(*December 2022*)*. This indicated higher power generation cost of NTPL plant. During this period the variable costs[51] ranged between ₹2.70 per unit and ₹6.94 per unit. Audit noted that the Board had directed (October 2019) the Management to take all efforts to reduce the variable cost to improve its position in the Merit Order Dispatch (MOD). The frequent load restrictions resulted in partial load loss of around 9,806.38 MUs[52] during 2017-18 to 2022-23.

Management replied (September 2022) that the load restrictions imposed by SRLDC on generating stations depends on power demand in the grid. States generally request power from the generating stations considering the merit order dispatch. It was also added that

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[50] ***Grid Controller of India Limited operates National Load Dispatch Centre and five Regional Load Dispatch Centre***

[51] ***Cost of coal, Furnace Oil etc. are variable according to the generation.***

[52] ***Total generation loss due to load restrictions for 2017-18 to 2022-23 as given in Table 1.21***

NTPL being a non-pit head power plant, cost of fuel along with logistics cost was higher. However, NTPL would explore the various possibilities to reduce INR/Kcal of coal which is the only controllable parameter by Generator to reduce Energy Charge Rate as other parameters viz. Station Heat Rate, Auxiliary Power Consumption and Specific Oil Consumption are only normative parameters approved by CERC in the Tariff Order. Ministry concurred (March 2023) with the views of the Management.

The Management's reply need to be seen in view of the fact that higher cost of generation was because of various inter-related factors like forced outages (Para 1.3.6.2 C(ii)), partial load losses (Para 1.3.6.2C (iii), excess Station Heat Rate (Para 1.3.6.2c(iv)(a)), excess Auxiliary Power Consumption (Para 1.3.6.2 C(iv)(b), and sub-optimal performance of cooling towers (Para 1.3.6.2C(v)). Higher variable costs would result in load restrictions and partial load loss which would in turn increase the variable costs, thus creating a vicious cycle.

(b) Avoidable partial load generation loss due to non-availability of spare Forced Draught fan motor

Forced Draught (FD) fans, supplement the primary air fans to supply combustion air to the Steam Generator (Boiler). One of the FD fans of Unit II tripped on 11 June 2016 due to earth fault protection. As there was no spare FD fan motor, the Company decided (June 2016) to repair and rewind the faulty motor. The motor was repaired after 55 days on 5 August 2016. Unit II was operated at partial load during this period resulting in generation loss of 69.06 MUs amounting to ₹15.88 crore[53].

The Management replied (September 2022) that the FD fan motors were supplied and erected by BHEL for both the units of NTPL. To sustain the unit above 50 *per cent* load, two FD fans should be in continous service. Spare FD fan motors was not in the list of mandatory spares supplied by BHEL. Hence, NTPL took advance action to procure spare FD Fan motor prior to the incident. Accordingly, purchase order for procurement for one FD fan motor was issued to OEM (BHEL) on 6 May 2016 with a delivery schedule of four months. However, FD fan 2A motor tripped and hence partial load operation was resorted to. The company further added that the spare motor was received from BHEL on 16 November 2016. The Ministry concurred (March 2023) to the remarks offered by the Company.

The reply of the Company needs to be viewed in light of the fact that in spite of being aware that two FD fans were required for sustaining load above 50 *per cent*, NTPL did not procure spare fan motors in time after commisioning of the plant in August 2015 . Even after the above partial load loss as a result of failure of a fan motor, NTPL procured only one motor instead of two motors for both the units.

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[53] ***Energy Charges @ ₹2.30/ unit for the month of June 2016 (₹15.88 crore :69.056*1000000*2.30)/10000000***

Recommendation No. 6: NTPL may carry out an analysis of critical spares requirements to ensure their availability during outages to avoid associated generation losses.

(iv) Non-achievement of Gross Station Heat Rate and Auxiliary Power Consumption parameters/norms

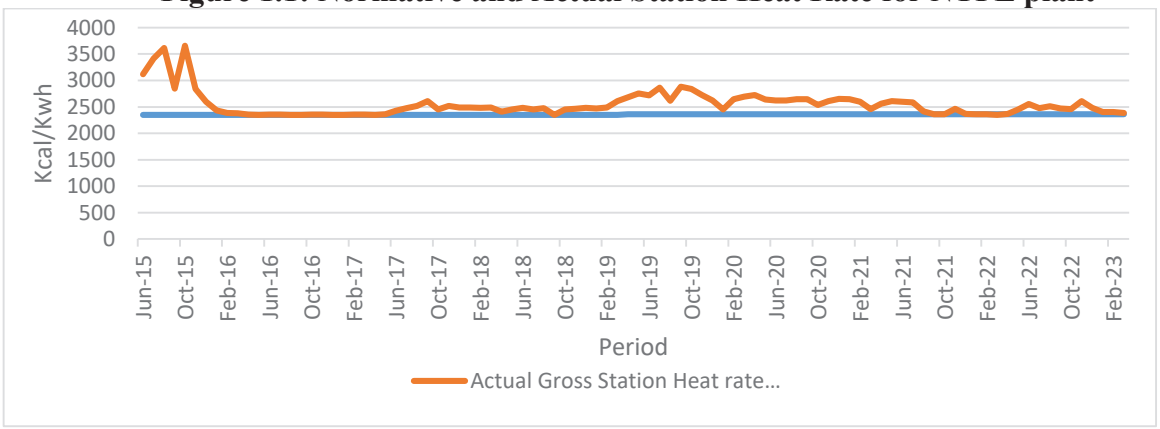
The operational efficiency of a thermal power plant is evaluated by normative parameters prescribed by CERC. In addition to non-achievement of Plant Availability Factor and Plant Load Factor as already discussed in preceding Para no 1.3.6.2 B and 1.3..6.2. C (iii), Audit assessed NTPL's performance against the other significant parameters and observed the non-achievement of Gross Station Heat Rate and Auxiliary Power Consumption parameters/norms as brought out in Para 1.3.6.2 C (iv)(a) and 1.3.6.2 C (iv)(b).

(a) High Gross Station Heat Rate beyond the norms

Heat rate expressed in Kcals per KWh is a measure of performance of a thermal power plant. It signifies the amount of thermal energy consumed for production of one unit of electricity. Low heat rate indicates better performance of a power plant. Normative heat rate of 2,351.25 Kcal and 2,358.84 Kcal was declared by CERC for NTPL plant for the period from June 2015 to March 2019 and from April 2019 to March 2023 respectively.

The Company was able to achieve the normative heat rate for ten months only during June 2015 to March 2023. The heat rate level maintained during June 2015 to March 2023 (93 months) is depicted in the figure 1.1.

Figure 1.1: Normative and Actual Station Heat Rate for NTPL plant



As a result of high heat rate i.e. more than CERC norms, Audit estimated excess consumption of 15,55,956.19 MT of coal amounting to ₹742.93 crore (June 2015 to March 2023).

Management replied (September 2022) that there were 82 forced outages and light ups during 2015-16 due to which it was difficult to maintain various critical parameters, and subsequently station heat rate was brought down in 2016-17. In 2017-18, the plants were running in partial load due to coal shortage. In the remaining years, the heat rate was higher

due to higher circulating water temperature, condenser scaling, degradation in coal quality and quantity at stockyard, partial loading and inefficiency of Intermediate Pressure Turbine (IPT) cylinder. Further, higher Energy Charge Rate was the main reason for surrender of power which resulted in partial load operation and consequent higher Station Heat Rate. Ministry concurred (March 2023) with the reply of the Management.

The reply of the Management need to be seen in light of the fact that NTPL did not analyse the reasons for outages and take corrective actions during 2015-16 and 2017-18. Further, the reasons pointed out by the Company for coal shortage, partial load operations, increased higher circulating water temperature and condenser scaling had significant aspects of controllability as brought out in Para 1.3.6.2 C (ii), 1.3.6.2 C (iii)and 1.3.6.2 C (v).

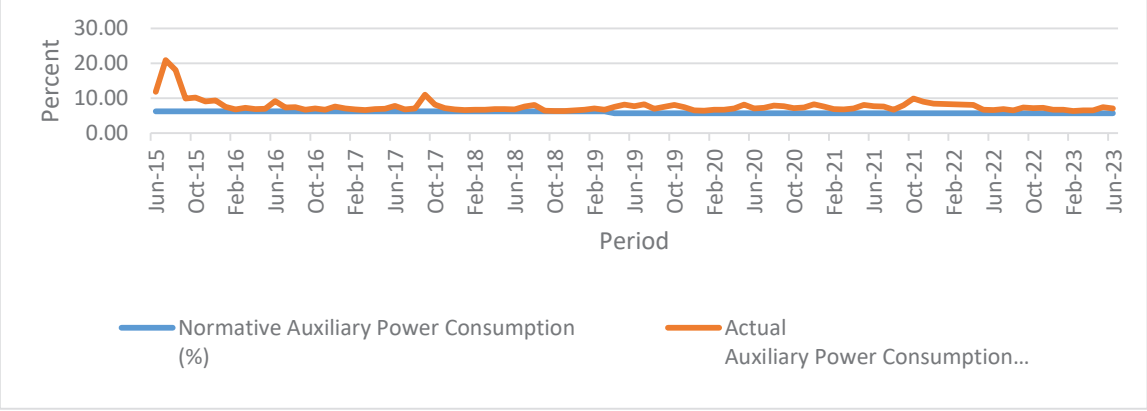
Recommendation no. 7: NTPL should conduct an analysis of high heat rate factors and implement targeted corrective measures.

(b) Excess expenditure due to Auxiliary Power Consumption in excess of norms

Auxiliary Power Consumption (APC) is the amount of energy consumed within the plant for normal operation of a power plant. The APC of a power plant depends on various factors like type of equipment provided, fuel quality, site specific conditions and operating practices/operating efficiency. The net energy exported by a plant is the energy available after accounting for APC. Low APC indicates better performance of a power plant.

NTPL did not achieve the normative auxiliary consumption parameter during the period 2015-16 to 2022-23. As against the normative auxiliary consumption of 6.25 *per cent*[54] (2014-19) and 5.75 *per cent*[55] (2019-24) fixed by CERC, the actual consumption ranged from 6.34 *per cent* to 20.87 *per cent* as given in figure 1.2 below:

Figure 1.2: Normative and Actual Auxiliary Consumption for NTPL plant



The overall excess auxiliary consumption for the period from June 2015 to March 2023 was 543.01 MUs amounting to ₹163.18 crore. NTPL replied (September 2022) and also stated in Exit Conference (July 2023) that as per CERC Tariff Regulations 2014-19, the

[54] ***Revised rate after additional one per cent.***
[55] ***Without considering additional enhancement as allowed in previous period.***

Normative APC was 5.25 *per cent* whereas CERC allowed an APC of 6.25 *per cent* for NTPL vide Tariff Order dated 11 July 2017 considering its special features viz., Cross Country Conveyor system, Shore Unloader and Desalination Plant. Similarly, for the tariff period 2019-24, one *per cent* additional APC has been claimed with CERC i.e., upward revision of Normative APC from 5.75 *per cent* to 6.75 *per cent* considering external coal handling plant (jetty and associated infrastructure) and Desalination Plant. However, NTPL assured (September 2022) that it would take measures to reduce Station Heat Rate, APC and oil Consumption below CERC Norms. Ministry did not reply on the audit observation.

The reply of the Management may be seen in light of the fact that actual APC for NTPL ranged between 6.34 *per cent* to 20.87 *per cent,* which was more than the enhanced rate of APC (6.25 *per cent* for 2014-19). NTPL needs to develop a system to monitor the consumption of power by individual equipment like conveyor system, shore unloader, desalination plant etc. to contain APC within allowed limits.

Recommendation No. 8: NTPL should implement adequate control system to optimise energy consumption by individual equipment like conveyor system, shore unloader, desalination plant etc.

(v) Loss of power generation and additional expenditure due to below par performance of Cooling Towers

Cooling towers are intended to cool the hot water from Condenser. The Condenser in power plant condenses the exhaust steam from turbine for reuse in the cycle and maximises turbine efficiency by maintaining proper back pressure (vacuum). In NTPL, the sea water is directly used as circulating water which is being run through cooling tower for re-use and circulation.

A letter of award (LoA) was issued to Gammon India Limited for construction of two cooling towers in March 2010 at a cost of ₹127.05 crore. As per LoA, the Performance Guarantee test[56] of the same was scheduled to be completed in July 2012 and December 2012 for the cooling towers. However, mechanical works of the cooling towers were completed only in October 2015 (Unit I) and July 2016 (Unit II) after a delay of 44 and 47 months[57] respectively.

A Consultant was appointed (April 2018) by the Company to study the deficiencies of the cooling towers. The Consultant reported (June 2018) that as the capability of both the cooling towers was lower than the minimum required capability, both the towers were performing at a much lower value as compared to its design capability. The report further advised for redesigning and revamping of the water distribution systems completely.

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[56] ***Performance Guarantee Test is provided in the LOA, in order to demonstrate the performance of the equipment in the standard working condition and carried out to assess the desired outputs. PG tests assures the design performance vis-à-vis actual performance.***

[57] ***Mechanical Completion Schedule was 23 and 28 months from date of LoA.***

However, the Company did not take any action in this regard and the Performance Guarantee test also remained incomplete (March 2023).

Audit noted that high circulating water temperature due to poor performance of cooling towers and consequent excessive scaling[58] at the Condenser/cooling tower affected the condenser back pressure. As such the back pressure of the condenser was maintained between 95.60 mm Hg to 114 mm Hg for Unit I and 77.30 mm Hg to 114 mm Hg for Unit II[59] as against the design value of 77 mm hg.

Thus, due to non-maintenance of Condenser back pressure at the designed level, the Company was forced to operate at partial load and suffered loss of generation of 52.98 MUs[60] during the period 2017-18 to 2019-20. Due to corrective actions taken by the Management, the issue was resolved during 2020-21 to 2022-23. On account of the design deficiency in the cooling towers, the Company incurred additional expenditure of ₹5.99 crore during 2019-20 to 2022-23 for dozing chemicals to prevent scaling inside the condenser tubes.

Audit also noted that liquidated damages amounting to ₹9.37 crore for delay in completion of the cooling towers, was claimed (August 2018) and recovered (July 2019) from the contractor (M/s Gammon India Limited).

The Management replied (September 2022) that it planned to improve cooling towers capability by installing Natural Draft Cooling Tower Retrofitting of Water Distribution System for which preparation of domestic competitive bidding proposal was under progress. Ministry did not reply on the audit observation.

Thus, the performance of the cooling towers impacted the condenser back pressure and overall power generation efficiency. Further delay in addressing the design deficiencies would adversely affect operational and financial performance on a recurring basis.

(vi) Absence of operational safety monitoring mechanism to prevent recurrence of fire incidents

The Factories Act 1948 inter-alia states that "*every occupier shall ensure, so far as is reasonably practicable, the health, safety and welfare of all workers while they work in the factory*" (Section 7A). Further, it also stipulates for "*Precautions in case of fire*" that "*in every factory, all practicable measures shall be taken to prevent outbreak of fire and its spread, both internally and externally*" (Section 38).

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58 ***Scale is a dense coating of predominantly inorganic material formed from the precipitation of water-soluble constituents. Some common scales are Calcium Carbonate, Calcium Phosphate, Magnesium silicate, Silica***

59 ***As checked randomly during the period 2017-18 to 2021-22.***

60 ***2017-18: 45.88 MUs @ ₹3.13 per unit; 2018-19: 3.49 MUs @₹3.17 per unit; and 2019-20: 3.61 MUs @ ₹2.97 per unit.***

NTPL entered into two MoUs (July 2014 and July 2016) with Central Industrial Security Force (CISF) for providing Security Service and Fire Fighting Service to NTPL. When a fire incident occurs in the NTPL premises, on receipt of fire call from the concerned place/location, fire crews (CISF officials) were deployed to extinguish the fire and a report indicating brief details of incidents, probable cause of fire, suggestions, etc. was submitted by CISF to NTPL.

The number of fire incidents which occurred during 2017-18 to 2022-23 are given below.

Table 1.22: Fire incidents in NTPL

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	Total
No. of incidents	Data not available		12	20	14	20	5	5	**76**

Source: Extracted from the Fire Reports provided by Management

Audit noted that major causes of fire were oil spillages/leakages, piling of coal, accumulation of coal dust, self-combustion of coal dust and electrical fault/spark. Further, there were multiple instances of fire in the same locations for the same causes.

Further review in audit revealed that NTPL did not dispose the mill reject[61] but stored it at different locations across the plant premises. There were 11 fire incidents[62] which occurred between September 2019 and July 2021 in the premises, in which, fire emanated from mill reject. In this connection, CISF also suggested (14 July 2020) that NTPL may stop dumping mill reject at cooling tower area. However, NTPL did not follow the advisory.

The Management replied (September 2022) that oil spillage/leakage and unsafe electrical conditions were monitored and attended during preventive maintenance. Also, coal dust cleaning was daily monitored and cleaned immediately whenever noticed. It was further stated that based on the report and cause of fire submitted by the CISF fire crew the same was attended and the recurrence of fire in the similar area was eliminated. Management further stated (February 2023) that mill reject was not disposed of because third parties had not shown interest in collecting the same.

The Ministry replied that (March 2023) corrective action has now been taken, which included system improvements, better housekeeping, introduction of water spray system in stock yard, cleaning of dry vegetation and formulation of HSE policy for the Company.

The reply of the Management and Ministry needs to be viewed in light of the fact that NTPL had not taken steps to dispose the mill reject. Audit noted (February 2023) that around 1.2 lakh tons of mill reject was generated in NTPL since inception. Out of this,

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[61] ***Rejects expelled by coal mill***

[62] ***Near Cooling Tower Area (25 May 2020, 23 June 2020, 11 July 2020, 12 July 2020, 29 July 2020, 26 September 2020); Near Crusher house area (7 September 2020, 16 September 2020, and 26 September 2020); Unit-I mill (11 September 2019); and Store Area (12 July 2021)***

60,000 tons was used to fill low lying area in the plant premises to prevent water stagnation and the remaining quantity was stored at various points across the premises. Hence, fire risk due to mill reject was not mitigated fully.

Recommendation No. 9: NTPL should implement a mill reject disposal plan to eliminate fire hazards, improve housekeeping practices, and strictly adhere to fire safety measures recommended by CISF to prevent recurrence of fire incidents.

1.3.7 Conclusion

Audit review of the implementation of the NTPL Thermal Power Project highlighted several critical shortcomings in planning and execution of the project. The project lacked a detailed project report leading to gaps in planning and synchronisation of activities. Preliminary activities were delayed significantly causing further delays in project implementation. Lack of adequate planning to mitigate land constraints significantly hampered the timely completion of contracts. Delay in contract execution was attributed to various factors such as space-related issues, manpower shortages, and contractors' delays. Delay in obtaining statutory environmental clearance resulted in delayed finalisation of fuel supply agreement and the allotment of a lesser quantity of coal, impacting the project's operation.

The project suffered higher interest expenditure of ₹781.82 crore during construction period due to upward revision in project cost estimates. Unit I and Unit II (500 Mega Watt each) of NTPL Thermal Power Plant were commercially operationalised at a final project cost of ₹7.29 crore per Mega Watt[63]. The total project cost overrun was of ₹2,383.94 crore. As against the scheduled commercial operation in March 2012 and August 2012, the Unit I and Unit II of the plant commenced commercial operation in June 2015 and August 2015 with a delay of 38 months and 35 months respectively.

During operation of the plant, NTPL could not achieve the normative Plant Availability Factor due to forced outages caused by operational issues. Shortage of coal due to shortfalls in coal lifting from mines, stoppage of imported coal and delays in finalising logistics issues for coal supply from Talabira mines etc. led to the stoppage of plant (forced outages) and partial load operation of the plant and consequent power generation losses and potential revenue loss of ₹3,106.10 crore. Operational inefficiencies due to various factors such as equipment failures and start-up issues also affected the Plant Load Factor and ended up in significant generation losses.

NTPL also could not achieve several operational norms prescribed by CERC, including Gross Station Heat Rate and Auxiliary Power Consumption parameters resulting in excessive consumption of coal and electricity and consequent financial losses of ₹906.11 crore. NTPL faced operational limitations and incurred additional expenditure of ₹5.99

[63] *₹7,293.48 crore (June 2015 price level) divided by 1000 (Mega Watt)*

crore due to the below-par performance of its cooling towers and the consequent increase in the condenser back pressure.

CHAPTER II: MINISTRY OF PETROLEUM AND NATURAL GAS

Bharat Petroleum Corporation Limited

2.1 Infructuous expenditure of ₹300.15 crore due to discontinuation of Polyol project by Kochi Refinery

Bharat Petroleum Corporation Limited board had given approval to setup a Petrochemical Project at Kochi Refinery at an estimated cost of ₹11,294 crore by September 2019. However, due to delays, subsequently, the project cost escalated to ₹13,145 crore as per the revised estimates which rendered the project unviable for execution and was eventually discontinued. During this period, an amount of ₹455.29 crore was incurred towards various facilities and other expenditure, out of which an expenditure of ₹300.15 crore was rendered infructuous.

Bharat Petroleum Corporation Limited (BPCL) envisaged to enhance the petrochemicals portfolio from 0.80 *per cent* to 15 *per cent* by implementing various petrochemical projects in refineries of BPCL. With this in view, BPCL proposed to produce value added petrochemicals (Polyols, Propylene Glycol and also Mono Ethylene Glycol) at Kochi by utilising Propylene and ethylene feedstock available at Kochi Refinery. Post commissioning of the Integrated Refinery Expansion Project (IREP) in Kochi Refinery, 500 Kilo Tonnes Per Annum (KTPA) of Polymer Grade Propylene was available for utilisation as petrochemical feedstock of which 250 KTPA propylene was being utilised by Propylene Derivatives Petrochemical Project (PDPP) for manufacture of Niche/ speciality petrochemicals[1]. The balance 250 KTPA of Propylene and Ethylene feedstock was to be utilised for production of the value added petrochemicals at Kochi.

M/s IHS Chemical Consulting was selected to conduct a Detailed Market Study for Propylene Oxide, Propylene Glycol and Polyols Petrochemical at Kochi, in October 2017. Considering the complexities and specialisation required for the implementation of project, BPCL hired a consultant viz. M/s Fluor Daniel India Private Limited (M/s. Fluor Daniel) to prepare a Detailed Project Report (DPR). M/s Flour Daniel submitted the DPR in November 2017 with an estimated Capex amount of ₹11,294 crore net of Input Tax Credit (net of ITC) with +/- 30 *per cent* that would be incurred on the implementation of Polyol project in Kochi Refinery.

After receipt of DPR from M/s Flour Daniel, BPCL internally reviewed the capital cost estimate and financial analysis for the proposed facilities, and the overall capital cost of the project was reworked to ₹7,806 crore (net of ITC) with IRR of 16.41 *per cent* and cost estimate accuracy of +/- 30 *per cent*.

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[1] ***viz. Acrylic Acid, Oxo Alcohol and Acrylates***

In July 2018, M/s Fluor Daniel submitted revised project estimate after considering the recommendations of management wherein the capital cost was estimated at ₹9,688 crore (net of ITC) at an accuracy level of +/- 20 *per cent* and IRR of 15.24 *per cent*. The Board of BPCL (hereinafter referred to as Board) was informed that although IRR for base case scenario is calculated as 15.24 *per cent* based on import parity price[2] for Propylene, but in reality, it was projected that the IRR worked out to 18.01 *per cent* considering the advantage of internally available feedstock from IREP project. It was also informed to the Board that project was estimated to be completed within 50 months from the date of investment approval. While approving the proposal[3] in September 2018, the Board had specifically directed that the design and detailing of the project needs to be prepared within 12 months and submitted at an accuracy of +/-10 *per cent* alongwith detailed schedule.

In June 2021 (i.e., after 33 months) M/s Fluor Daniel submitted the revised estimates (alongwith design and more detailed equipment specification while developing basic design and Engineering Package) considering an increase in cost by 35.68 *per cent* as compared to the cost earlier approved by the Board in September 2018 and with an accuracy level of +/- 10 *per cent* as directed by the Board. The increased cost was estimated as ₹13,145 crore. The revised estimate was higher by 16.39 *per cent* from the initial estimate of ₹11,294 crore (November 2017) and higher by 68.40 *per cent* from the downward in-house revision done by BPCL (₹7,806 crore) on PMC's final estimate.

The Company went ahead with the project activities from October 2018 and incurred ₹455.29 crore towards various facilities like Management Consultancy, Licensors Fees[4], Site Grading and road works, setting up of various facilities and other expenditure/overheads (**Annexure VI**). The final details of the project was submitted in January 2022 i.e., after a delay of almost 27 months. In the final report submitted to the Board in January 2022, the project was found unviable.

During January 2022, Management submitted to the Board that the revised estimated project cost of ₹13,145 crore (net of ITC) as confirmed by the Project Consultant is not viable for execution since the IRR as per the revised estimate came down to 6 *per cent* at 70 *per cent* capacity utilisation and 9 *per cent* at 90 *per cent* capacity utilisation. Management is contemplating to write off the expenditure on the discontinued Polyol project which is yet to be submitted to the Board.

In this regard, Audit observed that:

i) As per directives of Board (September 2018), the revised estimate of ₹13,145 crore at an accuracy of +/- 10 *per cent* was submitted by Fluor Daniel in June 2021 and

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[2] ***It represents the price that importers would pay in case of actual import and includes the elements of FOB price, ocean freight, insurance, custom duty etc.***

[3] ***At an estimated project cost of ₹9,688 crore net of input tax credit (+-20 per cent)***

[4] ***BPCL does not have expertise in manufacturing and marketing of niche chemicals (Polyol). For the purpose of sharing the technology to manufacture niche chemicals/polyols, Kochi Refinery hired the service of Licensor and paid fees***

it was presented to the Board in January 2022 after 27 months from the stipulated date. Thus, Board's directive with respect to the submission of revised cost estimate within 12 months from the date of approval of project was not adhered to.

ii) An amount of ₹455.29 crore[5] was incurred towards various facilities and other expenditure for the Polyol project, of which ₹155.14 crore only can be utilised for future project rendering an expenditure of ₹300.15 crore as infructuous due to discontinuance of the project.

iii) Moreover, it was envisaged in the Approach Paper on Petrochemical Strategy of BPCL that for realisation of full benefit of IREP, it is required to utilise the surplus quantity of 250 KTPA of propylene for production of value-added derivatives on an urgent basis. Since Polyol project has been discontinued, full benefit of IREP could not be derived due to diversion of 250 KTPA propylene towards other low value stream.

Management in its response (February 2024) stated that delay in preparation of +/-10 *per cent* estimate was due to delays encountered for awarding the contract for Project Management Consultant, outbreak of Covid-19 from Dec 2019 and related slowdown. Expenditure incurred towards site grading, conversion of overhead power lines to underground, purchase of land for AWSS facility etc. can be utilised for future projects at Kochi Refinery. BPCL is venturing into petrochemicals and as part of the diversification, potential for setting up downstream industries based on the product from proposed Poly Propylene project will also be studied and based on the outcome, utilisation of remaining land will be explored. Based on the experience and learnings from PDPP project at Kochi Refinery (KR), BPCL has reviewed its Petchem strategy for future projects. Direct entry into the Niche Petrochemicals space was not advisable without active partnership with the technology providers/enablers or licensors.

Ministry while reiterating the reply (November 2024) furnished by the management further added that out of ₹419.77 crore incurred for Polyol project, ₹141.33 crore will be utilised for setting up of Polypropylene and future projects. The balance amount of ₹278.44 crore incurred on Licensor Fee to make BDEP[6] and DFR[7] for the Polyol project are the normal expenditure to determine the feasibility of the project which is as per industry norm. Therefore, the cost of ₹278.44 crore also cannot be treated as infructuous expenditure.

Reply of Ministry/Management indicates that the decision taken in 2018 to implement Polyol/Niche chemicals project in Kochi Refinery before getting experience in commissioning and stabilisation of PDPP was not sound. While feasibility expenditure is common in industry practice, in the present case, the project had already been approved for

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5 ***BPCL started the project activities from October 2018 and incurred ₹455.29 crore as on 31 May 2024***

6 ***Basic Design and Engineering Package***

7 ***Detailed Feasibility Report***

implementation in 2018, with a direction to submit the final design and details to the Board within 12 months which the company could not do. Hence, the Licensor Fee of ₹278.44 crore became infructuous due to poor planning and non-compliance with Board's directives.

Further, lack of experience and absence of considerable exposure in the segment coupled with low plant reliability and low IRR has made the project unviable. While taking approval for the project in September 2018, project was estimated to be completed within 50 months, but Kochi refinery did not even submit the final project cost till Jan 2022 therefore causing undue delay of 27 months. Moreover, the reason of delay due to Covid-19 does not hold ground, since Covid came in full force in March 2020 onwards which was 18 months from Board approval whereas the Board has specifically instructed that the project design and details must be completed within 12 months (i.e., till September 2019). Thus, it can be seen from the above that except Covid all other reasons for the delay in project was attributable to Kochi refinery.

Kochi Refinery has now decided to drop the Polyol project and is now setting up a low-value mini petrochemical project to produce Polypropylene, which is completely different from the original plan aimed to make high-value petrochemicals like Polyols, Propylene Glycol, and Mono Ethylene Glycol.

Thus, lack of preparedness and delays in finalisation of estimates rendered the project unviable resulting in discontinuation of project and infructuous expenditure of ₹300.15 crore on the capital assets/facilities created for Polyol project.

Indian Oil Corporation Limited

2.2 Infructuous investment of ₹77.36 crore

IOCL decided to enhance its ownership in Petronet Vadinar Kandla Limited (PVKL) despite defaults in repayment of loans due to idling of its Vadinar-Kandla Product Pipeline and attachment of its assets by Debt Recovery Tribunal. Further, without ensuring the functionality of the said pipeline and concrete utilisation plan for the same, extended loan whereas other partners had declined to infuse funds. Lately, IOCL realised that PVKL's operation was not beneficial to its network and its liquidation may be initiated. This resulted in infructuous investment of ₹77.36 crore due to loss of entire outstanding loan excluding interest accrued thereon.

Indian Oil Corporation Limited (IOCL) accorded (April 1998) approval for implementation of a project for laying of 117 km long Vadinar-Kandla Product Pipeline, which would connect the proposed refineries of Essar Oil Limited (EOL) at Vadinar and Reliance Industries Limited (RIL) at Sikka, traversing sub-sea to Luni, and further onland from Luni to Kandla, where it would connect with IOCL's existing Kandla-Bhatinda Product Pipeline (KBPL). The Vadinar-Kandla Product Pipeline, with a capacity of 11.5 Million Metric

Tonnes per annum (MMTPA), was designed to transport different petroleum products[8] from Vadinar to Kandla through KBPL. Accordingly, a JV company, namely, Petronet Vadinar Kandla Limited (PVKL) was incorporated (1998-99) to implement the said Vadinar-Kandla Product Pipeline project. Petronet India Limited (PIL) and IOCL were the main promoters of the said JV, each with an investment of ₹26 crore (i.e., 26 *per cent* shareholding each). The Vadinar-Kandla Pipeline, with an operational length[9] of 100 km, was commissioned on 30 May 2000.

Figure 2.1: Vadinar-Kandla Pipeline, with an operational length

(Map not to scale. For illustrative purpose only)

IOCL concurrently (August 1999) planned for the business expansion of its Panipat refinery and in order to meet its increasing crude oil requirements ranging from 6 MMTPA to 12 MMTPA due to such proposed business expansion, approved (January 2002) conversion of its Kandla-Bhatinda Product Pipeline into a crude[10] oil carrier, which would render the Vadinar- Kandla Product Pipeline unusable[11] for the intended purpose of transporting petroleum products. IOCL, therefore, created (2004-05) a provision on its equity investment of ₹26 crore in PVKL. The said Kandla-Bhatinda Product Pipeline was eventually converted (August 2006) as crude oil pipeline.

In this connection, Audit noticed that:

a) PVKL had borrowed funds from two banks[12] for laying the said pipeline and had no source of revenue[13] due to its idling. Resultantly, it defaulted in repayment of the bank loans and eventually, one of the lender banks approached (2007), the Debt Recovery

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8 ***High Speed Diesel, Motor Spirit and Superior Kerosene Oil.***

9 ***Out of total length of 117 km, 17 km stretch from the proposed EOL refinery, Vadinar to Sikka was not constructed in view of delay in construction of EOL's Refinery at Vadinar.***

10 ***Separate pipelines are used for crude oil and petroleum products so as to maintain quality standards and prevent contamination.***

11 ***Except for the initial section used by RIL at an annual rent of approximately ₹2.25 crore.***

12 ***As on 31.3.2016, PVKL had outstanding debt of ₹120.31 crore from Central Bank of India and ₹106.77 crore from Standard Chartered Bank including interest.***

13 ***Except for an annual rental income of approximately ₹2.25 crore on the initial portion of the said pipeline, which had been allowed to be used by RIL.***

Tribunal (DRT) for recovery of its debt. DRT issued an Order (September 2015) for attachment of the assets of PVKL and also a recovery certificate (October 2015) for ₹51.05 crore along with interest thereon till realisation.

b) Though IOCL had already made a provision in respect of the equity invested in PVKL, its Multi-Disciplinary Committee recommended (April 2016) to assess the health of the pipeline by Intelligent Pigging Survey/ Inline Inspection (IPS/ILI)[14] to see if there was any chance of its revival. Accordingly, PVKL approached DRT (April and May 2016) for permission to carry out ILI of the pipeline, which was denied (June 2016). IOCL, having decided (August 2016) to revive the pipeline citing strategic reasons like savings in freight & demurrages and creating an alternative to coastal input at Kandla, acquired (August- December 2016) additional 24 *per cent* shareholding in PVKL at a consideration of ₹2.40 lakh despite its fair market price being nil.

c) Despite having indication that the aforesaid pipeline was susceptible to be unusable and lack of requisite timely maintenance of the pipeline lying idle for more than 10 years, IOCL extended (December 2016 & March 2018) a short-term loan of ₹77.36 crore to PVKL for one-time settlement with the lending banks, after which the banks withdrew their cases from the DRT. The Company conducted Inline Inspection (ILI) for health assessment of the pipeline by launching (March 2021) various Pipeline Inspection Gauges (PIGs) into the pipeline. However, none of these PIGs could be recovered despite attempting different pig combinations, pressure conditions etc. leading to failure of this exercise.

d) Despite the failure of above health assessment exercise, the Company converted the short-term loan granted to PVKL into long-term loan for a period of three years though upon this loan falling due in December 2021, a moratorium period of three years (i.e., upto December 2024) was granted to PVKL.

e) As PVKL was not able to make the repayment in the absence of revival of pipeline, IOCL made (April 2022) a provision of ₹110.90 crore against the entire outstanding loan including interest accrued thereon. Further, IOCL also extended the moratorium period upto December 2025 for the cumulative loan value of ₹145.07 crore (including interest of ₹67.71 crore[15]).

Management stated (April 2023) that IPS/ILI could not be done before taking over of the loan because DRT had disallowed (April/May 2016) the same. However, a Committee was nominated to explore usage of the Pipeline in interconnection with its crude oil pipelines to hedge the risk in crude oil supply. Accordingly, further action towards health check-up and restoration of its operations would be undertaken upon assessing the utilisation of

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[14] ***A technique of conducting inline inspection of pipelines with a pipeline inspection gauge (PIG) to detect pipeline health prescribed by Oil Industry Safety Directorate. OISD Standard 141 provided for periodic conduct of Intelligent Pigging Survey of pipelines atleast once in 10 years for cross country pipelines and once in five years for offshore pipelines.***

[15] ***Upto December 2024***

PVKL Pipeline for IOCL's strategic usage.

The Ministry added (October 2024) that at various stages of approval before extending the loan, its Management was aware that the pipeline's health might not allow immediate use and had considered further investments to relay the offshore pipeline, if required. It also mentioned that IOCL had extended loan to PVKL with the intent to revive its pipeline and utilise the same to meet its long-term product placement requirements at Kandla. However, due to change in the demand-supply scenario and other developments, no product movement through PVKL from Jamnagar to Kandla in the long term is foreseen. In addition, there was no justifiable need for utilisation of PVKL in crude oil supply by interconnecting Salaya Mathura Pipeline (SMPL) and Mundra Panipat Pipeline (MPPL).

Replies may be viewed against the fact that despite the pipeline being idle for more than 10 years, IOCL had acquired (August 2016) additional 24 *per cent* stake in PVKL and also infused funds subsequently (December 2016 & March 2018) in the form of short-term loan whereas its other partners had decided not to infuse funds in PVKL. IOCL also disregarded its negative net worth of ₹164 crore as on 31.03.2017.

Further, the contention of IOCL for possible revival of the pipeline for hedging the risk in crude oil supply may be seen in light of the fact that there was no requisite spare capacity at Vadinar or Mundra for this purpose.

Finally, only while obtaining approval from the Board for extending the moratorium period from December 2024 to December 2025, the Company accepted (November 2024) that PVKL's operation is not beneficial to its network and it is unlikely that it will be operationalised in the near future. Accordingly, the moratorium was granted to enable PVKL to initiate liquidation activities.

Thus, lack of proactive steps by the Company to assess the viability of reviving the pipeline before making further investment in the pipeline or providing/ extending the moratorium resulted in blockage of funds on the unusable pipeline and infructuous investment of ₹77.36 crore (excluding interest of ₹67.71 crore) apart from equity investment of ₹26.02 crore.

2.3 Idle investment of ₹8.22 crore

Non-assessment of demand for hybrid bitumen in North-Eastern Region and consequent lack of customers resulted in idle investment of ₹8.22 crore.

Indian Oil Corporation's Digboi refinery (Refinery), with installed crude processing capacity of 6.5 lakh metric tonnes per annum (LMTPA) produces Motor Spirit, High Speed Diesel, Liquid Petroleum Gas, Wax and Furnace Oil etc. The Refinery is designed for processing indigenous Assam Crude. Indian Oil Corporation (Company) assessed (May 2016) that though there was demand for bitumen {upto 100 thousand metric tonnes per annum (TMTPA)}in North-Eastern Region, but still no bitumen was being produced by any refinery in North-Eastern Region due to Assam Crude being non-bituminous in nature.

The Company being the prominent supplier (May 2016) of bitumen requirements in North-Eastern Region, met the requirements from its refineries situated in Haldia (West Bengal), Koyali (Gujarat) and Mathura (Uttar Pradesh) thereby, incurring additional transportation cost on the same. For increasing the profitability of the Refinery, the Company approved (June 2016) production of hybrid bitumen, after research & development/pilot study established possibility of its development from Assam Crude, by setting up of a Crumb Rubber Modified Bitumen (CRMB+) production plant with 25 TMTPA capacity at a cost of ₹10.40 crore. The CRMB+ plant was commissioned in March 2018 at cost of ₹7 crore.

The plant could start production in 2019-20 only because of uncertain demand of CRMB+ in North Eastern Region, dynamic market scenarios and uncertainty over price fixation. It produced 185.91 MT of CRMB+ and thereafter, the production at the plant stopped during 2020-21 due to want of demand for CRMB+. Of the produced bitumen, 151.35 MT of CRMB+ was sold to private parties at a profit of ₹6.57 lakh during 2019-20, 25 MT was utilised internally by the refinery for construction of road while remaining 9.56 MT of CRMB+, with cost of sales of ₹2 Lakh, was lying unused at Digboi refinery till date (September 2025). Also, the raw material purchased for value of ₹1.20 crore for further production of CRMB+ was lying unutilised, of which inputs valuing ₹0.69 crore had already expired their shelf life in June 2020 itself.

As of September 2025, Company did not have any plans for starting the production again from CRMB + plant or marketing/salvaging the unused CRMB+ and its raw material.

Audit observed that:

i. The Company decided to install CRMB + plant at the refinery on the basis of assessment of demand for bitumen in North-Eastern Region rather than carrying out the market analysis for CRMB+ itself, which was a hybrid bitumen and had certain limitations[16] detailed below because of which it became difficult to market it:

- It needed storage tanks with stirring provisions to keep mixture consistent;
- Proper temperature regulation needed to be maintained at the time of hot mixing making difficult for the contractors to regulate the temperature at the work site;
- It required higher setting time compared to other bitumen grades resulting in a longer closure of roads under construction affecting traffic movements for a longer period.
- For maintenance/repair works only cold mix bitumen was required.
- There were infrastructural limitations in transportation of the CRMB+ in North-Eastern Region.

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[16] ***As analysed by the Management itself, customer's feedback being one of the source for the same.***

ii. In absence of any market analysis for CRMB+, the Company did not consider and analyse the fact that none of the users of bitumen in North-Eastern Region including National Highways Infrastructure and Road Development Corporation Limited (responsible for development of national highways in the region) and State PWDs had recommended the product for pavement construction, before deciding to install the CRMB+ plant.

iii. Availability of alternate grade of bitumen like VG-40 in North-Eastern Region was not analysed

The Cumulative impact of above, as analysed (May 2021 and June 2022) by the Management itself but post installing of CRMB+ plant, was that there was no demand of CRMB+ in the North-Eastern Region.

Thus, non-assessment of demand for CRMB+ and consequent lack of customers resulted in the stoppage of production at CRMB+ plant from 2020-21 onwards and idling of investment of ₹8.22 crore[17].

The Management in its reply (October 2024) stated that the installation of CRMB+ plant at the Refinery was a strategic initiative, taken post economic and viability study, to promote indigenous technology developed by the Company and to cater the bitumen deficiency in North Eastern Region. Management though accepted the fact that due to infrastructural limitation and application difficulties at customer's end, the upliftment of CRMB+ was constrained. Management further stated that it was working on development of CRMB+ market in North-Eastern Region and also options were being explored to utilise the facility for production of alternate products which could yield result by November 2024.

Reply of the Management may be viewed in light of the fact that the pilot study for installation of CRMB+ was devoid of the market analysis for CRMB+, which has certain application difficulties for its users. To develop market for CRMB+ in North Eastern Region no memorandum of understanding or commitments with potential customers of CRMB+ were entered into before installing the plant. Also, CRMB+ plant was not under production from 2020-21 onwards and the Company had no plan, as on September 2025, to start the production again or to have any alternate usage of the production facility having the indigenous technology of manufacturing CRMB +.

Thus, non-assessment of demand for CRMB+ resulted in idle investment of ₹8.22 crore.

The para was issued to the Ministry in January 2025; their reply was awaited (September 2025).

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[17] ***Cost of the plant i.e. ₹ 7 crore + cost of unutilised raw material for CRMB+ i.e. ₹1.20 crore + cost of sales of unutilised CRMB+ i.e. ₹ 0.02 crore.***

Oil and Natural Gas Corporation Limited

2.4 Procurement Activities by Corporate Material Management of ONGC

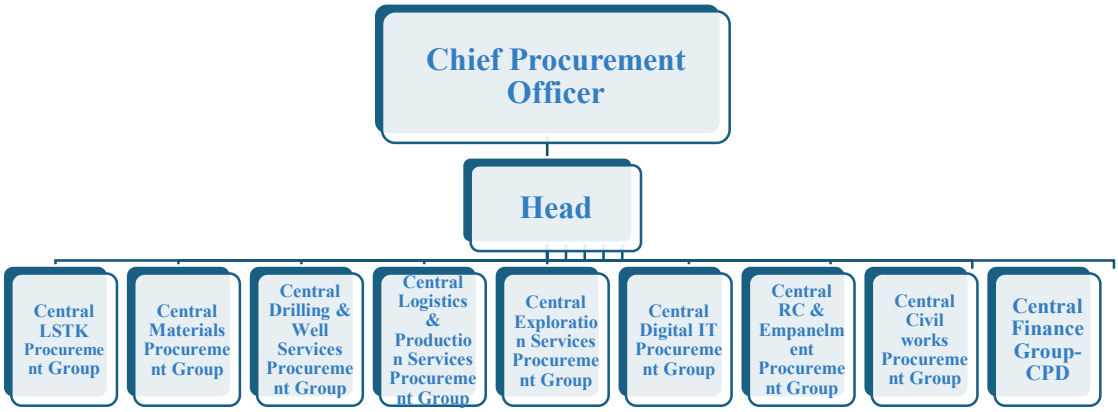
2.4.1. Introduction

Oil and Natural Gas Corporation Limited (ONGC) is a major Exploration & Production (E&P) Company of India and has a high level of capital-intensive operations that demand a highly efficient system of Materials and Supply Chain Management to make available the right material and service, at right time and at right cost to support the E&P efforts. For streamlining of procurements, Corporate Material Management (CMM) was established in the year 2002 to procure specified items enlisted in the Integrated Material Management Manual (IMMM) on centralised basis. The activities of CMM are of significance as they are directly related to ONGC's field operations. CMM aims to maintain an effective and holistic supply chain across ONGC in order to meet the urgent operational activities of different work centres and manage timely availability of materials/services, without disruption in ONGC's field operations. As per the IMMM updated upto July 2022, 43 items **(Annexure VII)** are procured centrally by CMM of ONGC.

2.4.1.1 Organisation Setup

The CMM was re-structured as Central Procurement Department (CPD) in November 2023 with provision for extra scope towards handling of Lump Sum Turnkey projects which was not in earlier scope of CMM. Current organisation structure of CPD is as under:

Figure 2.2: Organisational Structure of CPD



As indicated in above chart, the management of CPD is vested in CPO who is assisted by the heads of different Groups.

2.4.1.2 Tendering for procurement

Purchase Requisitions (PRs)/requirement for procurement of different types of materials are received from all work-centres in CPD. After consolidation of the PRs and scrutiny of

estimates, Last Purchase Rates, Formulation of technical Bid Evaluation Criteria (BEC), Technical specifications, Scope of Work, Special Conditions of Contract etc; CPD invites National Competitive Bidding (NCB), International Competitive Bidding (ICB) and Government e Marketplace (GeM) tenders. During the coverage of audit period i.e., from April 2018 to March 2023, total 219 tenders were finalised against which 439 purchase orders having value of ₹8,459.56 crore were placed. Details of category wise tender finalised by CPD during last five years ended 31 March 2023 were as under:

Table 2.1: Category wise Tenders awarded

Year	Total No. of Tenders Awarded	Tenders Awarded			
		NCB	ICB	GeM	Other[18]
2018-19	47	0	45	0	2
2019-20	26	1	24	0	1
2020-21	34	4	4	22	4
2021-22	57	1	9	47	0
2022-23	55	2	8	39	6
Total	**219**	**8**	**90**	**108**	**13**
Value of the tenders (₹ in crore)	**8,459.56**	**554.49**	**3,599.48**	**3,614.92**	**690.67**

Different type of tenders were invited based on the following methods:

i) As per section 8 of Integrated Material Management Manual of ONGC, for procurement of Goods/Services, the items/services available on GeM shall be procured through GeM portal only. In case item is not available in GeM, purchase through other procurement methods as specified in IMMM may be resorted to subject to a mention to this effect by Indenting Department.

ii) As per Government of India OM dated 15 May 2020, tender enquiry having value more than ₹200 crore shall be invited globally and having value upto ₹200 crore, tender enquiry can be invited indigenously.

2.2.1.3 Scope of Audit

The Audit covered the contracts placed by CPD during the period from 2018-19 to 2022-23. The Audit also covered activities and records of the work centres for which material was procured. This was also linked with inventory management wherever needed in relation to procurement carried out by CPD.

2.2.1.4 Audit Methodology

The Methodology adopted for the audit included entry conference with the ONGC for explaining the audit objective, scope and methodology criteria, collection of information

[18] ***Other tenders: Development orders, Emergency orders, Rate contracts, Nomination basis, Single tenders.***

through requisitions and questionnaires, visit to CPD and work centres to review the documents and related files, discussion with the Management, analysis and comparison of data and exit conference with the Management to discuss their response to the Audit findings.

2.2.1.5 Sampling of purchase orders

During the coverage of audit period i.e., April 2018 to March 2023, total 439 purchase orders valuing of ₹8,459.56 crore were placed by the CPD. These 439 purchase orders were sampled randomly through CAAT software and 106 purchase orders (77 tenders) valuing ₹6,405.20 crore were selected for review. Apart from the selected purchase orders for review, 13 POs (valuing ₹1332.84 crore) were further selected for field visits to verify status of supply of material, utilisation of the same, alternative arrangement due to delay/short supply of materials, payment made to the contractor, etc.

2.4.2 Audit findings

Audit findings have been detailed in paragraphs below:

2.4.2.1 Procurement planning and requirement assessment

Procurement planning ensures that the organisation takes coordinated and integrated action to fulfill its requirements for goods, services, or works in a timely manner and at a reasonable cost. It involves a timely assessment of requirements and defined timelines for procurement, ensuring the entire process is completed promptly. In this context, the Materials Management (MM) Manual serves as a comprehensive guide for ONGC in procurement planning. This manual outlines the step-by-step processes and best practices involved in procuring materials, goods, and services crucial for the organisation's operations. Covering needs assessment, cost estimation, tendering norms, vendor selection, budgeting, risk management, and contract negotiation, the MM Manual provides a structured framework to streamline procurement activities.

Procurement Manual

The old MM manual was released way-back in the year 1998. With objective to design an Integrated Material Management (IMM) Manual, the Company engaged a consultant (in 2014) to study the existing MM manual, works manual, the guidelines and circulars/amendments issued from time to time and also warehouse management, inventory

management, stock verification & disposal procedure. Based on the recommendations of the consultant, the Board of Company accorded approval (13 August 2014) for the policy changes with regard to the Procurement Process Transformation Project. Executive Procurement Committee approved new IMM manual with effect from 1 January 2015.

(A) Specific timelines for consolidation of Indents in Planning and Evaluation Section of CPD

The CPD directed (May 2002) to all work centers that, "all work centers should positively send in their requirement to CPD latest by 30 June of each year preceding the financial year." However, Audit observed that timeline for submission of requirements was not adhered by the work centers during last five years. It was also noticed that though the clause 34.10 of IMMM provided the requisite days for MM section for various tendering activities but timelines for submission of consolidated PRs by P&E section have not been provided in IMM manual of the Company.

Besides delayed receipt of requirements at Planning and Evaluation (P&E) section from the respective work centers in case of sixty-one (61) out of 77 tenders, P&E section also took considerable time to process the same and submission to MM Section for tendering process.

During the examination of 61 tenders, it was seen that P&E Section took 7 to 737 days beyond the receipt of last indent from the respective work center to submission of consolidated PR to MM section. Following table summarises the time taken:

Table 2.2: Time taken in tendering of Indent

No. of tenders selected for review	No. of Tenders reviewed[19]	No. of Tenders in which delay was noticed	Range of time taken (days)	Median time taken (days)
77	61	51	7 to 737	92

Management stated (May 2024) that cut-off date (i.e. 30 June of every year) for submission of indent by work centers to P&E was specified, but there was no mention of cut-off date for submission of consolidated indent by P&E to MM. Further, as per Circular (November 2023), Nodal Technical Agency (NTA) would submit complete indent to the CPD by 31st July every year. Ministry stated (December 2024) that the role of erstwhile P&E section of Corporate MM is being done by NTA and NTA with support of ICE MM had developed

[19] ***Out of 77, six (6) Tenders were for Rate Contract/Nomination. In respect of 10 Tenders Management could not provide the requisite data***

"NTA Dashboard." The initiative of NTA Dashboard has considerably reduced the time for demand aggregation.

Management/Ministry reply needs to be viewed in light of fact that specific reasons for significant delay of 7 days to 737 days in P&E Section in submission of consolidated PR to MM Section was not shared in the reply. Further, though the Company reformed entire system by which NTA was to submit the consolidated indent by 31st July, however, the same was submitted to CPD beyond 31st July for the year 2024-25 with delay ranging between 67 days to 260 days.

Recommendation No. 10: ONGC may adhere to specific timelines for submission of consolidated indents to CPD by 31st July of respective year.

(B) Estimation of Cost

As per the provisions of the IMM manual, cost estimation for tenders is to be carried out using prescribed methodologies such as Should Costing & Work Breakdown and Cost Methodology, to ensure realistic, logical, and market-reflective estimates. Provision 4.2 of IMM manual provides the methodology of cost estimation of tender wherein it was stipulated that "the estimated cost should be realistic, logical and scientific and should reflect the true picture of the market as far as possible." IMM manual also provides the basis of cost estimation viz. Should Costing (XX), Work Breakdown Cost Methodology (XX), Budgetary Quotes (BQ) and Last Purchase Rate (LPR) that can be used in cost estimation as applicable/suitable to the type of procurement.

It was noticed that the Company while implementing revised IMM manual w.e.f. 1 January 2015, decided that provisions regarding cost estimation would be implemented after issuance of detailed guidelines. Audit, however, observed that no formal guidelines or circulars have been issued by the Management to operationalise or standardise the implementation of cost estimation methodologies so far (December 2024).

Audit reviewed 77 tenders and noticed that cost estimates were varying widely from actual cost, as can be seen from the table:

Table 2.3: Tender Value Variation Estimated vs Actual

No. of Tenders Selected for Review	Cases where Estimate was higher than 20% of Actual Value of Tender		Cases where Actual Value of Tender was higher than 20% of Estimated Value	
	No. of Tenders	Range of Variation	No. of Tenders	Range of Variation
77	10	20.30-78.87%	26	20.32-137.63%

From the above table, it was observed that out of 77 tenders reviewed, there was significant variation of 20 per cent or more in 36 tenders. The variation between estimates and actual cost in all the 77 tenders (106 POs) ranged between (-) 49.25 per cent and (+) 137.63 per

cent whereas there were only 26 tenders in which variation between estimates and actual cost was below 10 per cent. Audit noticed issues relating to problems in budget quotations, improper evaluation of total cost value of tender, lack of proper consideration of market trends, upward price trend of raw materials, variation in estimates submitted by work centres, not ensuring rate reasonability and non- adherence to the IMM manual provisions in preparation of these estimates.

Audit observed that the estimates for tenders were being prepared based on the methodology mentioned in the IMM manual. However, in the absence of suitable guidelines for cost estimation methodologies mentioned in the IMM Manual such as should costing, work breakdown cost methodology, and last purchase rate, estimates for the 77 tenders reviewed were prepared based on available internal practices. Specifically, departments relied on (i) last purchase rates (ii) engineering inputs from technical teams and (iii) market intelligence gathered through vendor interactions, and recent tender data of similar items. While these practices were based on experience and professional judgment, the absence of codified, uniform procedures led to inconsistent application and significant variation between estimated and actual costs.

The Management stated (May 2024) that the outcome prices on tendering may or may not be in sync with the estimates on the basis of current provisions of IMMM. Hence it is agreed that policy changes/updates are needed to match the current market dynamics. It further added that NTA is mandated to follow the basis of cost estimation, as per IMMM and policy changes are already happening for making cost estimates more aligned to the current market conditions. Regarding non-issuing guideline for cost estimation methodology, Management stated that recommendation on cost estimation methodology submitted by consultant BCG is under deliberation for issuance of suitable guidelines.

Ministry stated (December 2024) that cost estimates were prepared on the basis of Last Purchase Rates (LPRs). Wherever LPRs are not available, cost estimates are prepared based on Budgetary Quotes (BQs). Further, price quoted depend on many factors like demand-supply, raw material prices, market competition, labour cost etc. Ministry also stated that strategic inputs are also taken for certain high value categories from MIND Group to consider demand and gap scenario, international geo-political situation, oil pricing and other drivers of Cost. Ministry, regarding guideline for cost estimation methodology, further added that initially, the exercise has been started in few high valued areas. It would be worth mentioning that E&P sector is highly susceptible to Market dynamics and may not follow normal industry practices.

Management/Ministry reply needs to be viewed in light of fact that despite the approved IMM Manual coming into effect from January 2015, no formal guidelines on cost estimation have been issued even after a decade. In absence of guidelines for cost estimation, significant variations in estimation methodology with gaps in estimation process and market analysis were noticed. Taking due note of the challenges in E&P Sector, Audit is of view that exploring indicators of cost estimation methodology for different types

of materials/projects/services would help in strengthening the analysis and due diligence required for this important exercise.

Recommendation No. 11: The Company may review and establish a clear methodology for cost estimation. Sector-specific guidelines covering different types of materials, projects and services may be developed to address variations, gaps in procedures, and inadequate market analysis.

2.4.2.3 Forecasting of requirement by CPD

(A) Holding period of inventory and inventory management

All work centers intimate the progress of all inventory management function to Corporate Inventory management on monthly basis. Further, Inventory Monitoring data and files (Materials at site, Materials in transit, Capital Item on Stock (CIOS), Slow moving liquidation status, Stock Months of centrally procured stores items, Stock status of Tubulars and other high value items list, etc.) are prepared by Corporate Inventory Management Section, which are further shared with all work-centers through MM Portal (mmportal.ongc.co.in) for them to access and act upon.

During the period from 2018-19 to 2022-23, Corporate MM made centralised procurement against placement/awarding of 439 POs/contracts having value of ₹8,459.56 crore. Audit reviewed inventory management against high valued materials amounting to ₹4,343.36 crore, viz. drill pipes (Material Group 01), casing pipe (Material Group 02) and tubing (Material Group 15) costing ₹258.58 crore, ₹3,137.60 crore and ₹947.18 crore respectively during the period from April 2018 to March 2023.

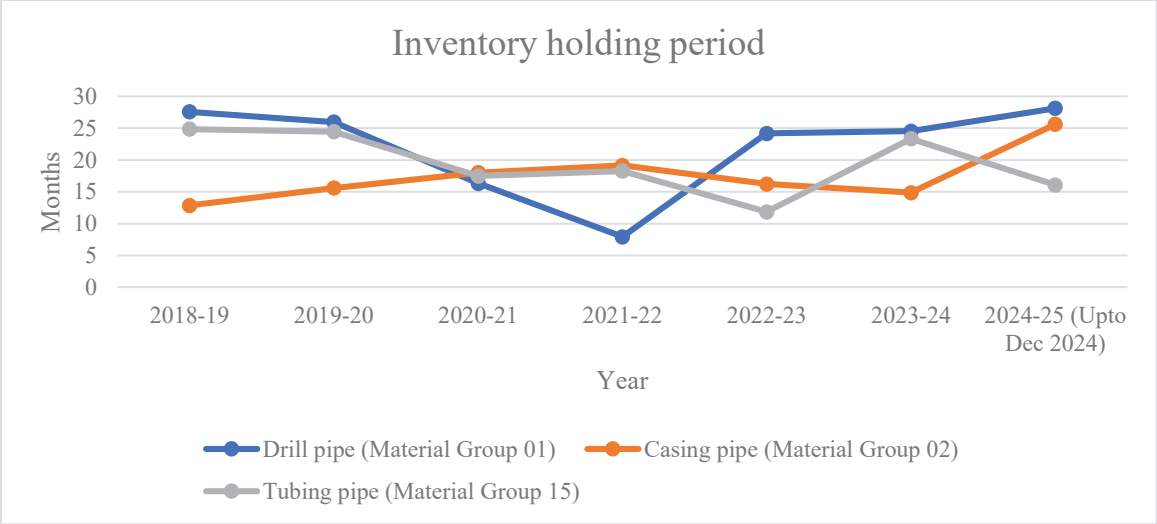
Audit observed that inventory holding period was higher than norms. There was increase in inventory holding period, non-moving inventory, etc. Further, in absence of checks like economic reorder quantity assessment of requirement of materials was not proper as discussed in the subsequent paragraphs:

A.1 High inventory holding period

IMM Manual of the Company stipulated that "all work centres shall have a quarterly review to identify and deliberate upon/resolve inventory related issues/concerns. Inventory management team at work centre will prepare and release report on stores with stock months greater than nine months per work centre. The concerned key executive shall use this report for liquidation of excess inventory. Stock months will be calculated on the basis of last one-year average monthly consumption and inventory held at the time of assessment."

Audit reviewed inventory holding period of drill pipes, casing pipes and tubing of last five years (2018-19 to 2022-23) and trend of inventory holding period is analysed through the graph below:

Figure 2.3: (Year-wise trend of inventory holding period)



From the above, it was observed that inventory holding months in respect of drill pipes, casing pipes and tubing were 8 to 28 months, 13 to 25 months and 12 to 25 months respectively during the period from April 2018 to December 2024. Audit observed that as against its norms, Company could not hold inventory of above three material groups (drill pipe, casing and tubing) within the stipulated norms of nine months except of drill pipe in 2021-22 (eight months). Due to non-following the norms for inventory holding period, inventory worth ₹266.58 crore of drill pipe, casing and tubing was older than one year as on 31 December 2024 and with better planning this locking of capital could have been avoided.

The Management stated (May 2024) that in order to arrest the further unwarranted growth of slow–moving/non-moving inventories, the respective key executives have been duly informed, about the status of such items and requested to liquidate the high value slow-moving/non-moving items, including tubulars and to provide an action plan for their liquidation at the earliest. Ministry further added (December 2024) that high inventory holding period in respect of high value inventories has been examined for their due compliances across different ONGC work-centre(s) and to mitigate such observations in the future. In order to arrest the further unwarranted growth of slow-moving/ non-moving inventories, the respective Key Executives have been duly informed by ONGC, about the status of such items. Ministry further added (December 2024) that they have also advised the ONGC to take requisite actions to curtail high inventory holding period in respect high value inventories.

Management/Ministry reply needs to be viewed in the light of the fact that though the Management took initiative for corrective action, the inventory holding period as reflected in next two years (2023-24 and 2024-25) showed increasing trend against norms of nine months viz. Inventory holding period of drill pipe increased from 13 months in 2023-24 to

16 months in 2024-25, casing was increased from 16 months in 2022-23 to 25 months in 2024-25 and tubing increased from 12 months in 2022-23 to 22 months in 2023-24.

A.2 Increase in non-moving inventory

As per the Company's policy, the inventories (stores, spares & capital items on stock) that have not been consumed at location level for four years period or more as on reporting date, will be treated as 'non-moving' inventories. Value of non-moving inventory of following materials during last five years (at the end of financial year) were as under:

Table 2.4: Non-moving inventory details

Description of material and material group	Value of material (₹ in crore)				
	2018-19	**2019-20**	**2020-21**	**2021-22**	**2022-23**
Drill pipe (01)	7.14	5.09	14.12	3.32	2.96
Casing pipe (02)	27.31	52.58	55.97	100.65	111.26
Tubing (15)	28.59	29.90	42.93	57.41	66.71
Total	**63.04**	**87.57**	**113.02**	**161.38**	**180.93**

It can be seen from the above table that during the five-year period from 2018-19 to 2022-23, total non-moving inventory had increased from ₹63.04 crore to ₹180.93 crore. Only non-moving inventory of drill pipe decreased from ₹14.12 crore in 2020-21 to ₹2.96 crore in 2022-23 but the non-moving inventory of casing pipe and tubing had increased over the years. The increasing trend of non-moving inventory showed that material was procured in excess but consumption of materials in comparison to that was very less.

The Management stated (May 2024) that observations of Audit have been examined for their due compliances across different work-centre(s) of ONGC and to mitigate such observations in the future. Management has also provided the non-moving inventory details as on 31 March 2024 including casing pipe and tubing having value of ₹92.32 crore and ₹84.31 crore respectively. Ministry further stated (December 2024) that they have advised the ONGC to take requisite actions to curtail high inventory holding period.

It was noticed that non-moving inventory of casing pipe had reduced to ₹92.32 crore in 2023-24 but value of non-moving inventory of tubing had increased from ₹66.71 crore (2022-23) to ₹84.31 crore (2023-24) indicating need for more effective measures to curb the accumulation of non-moving inventories.

Apart from the above, on review of the selected 106 POs/contracts, nil/less consumption of materials was noticed as given below:

- In Kakinada Asset, 4,988.6 meters casing pipes valuing ₹16.45 crore were received during the period from October, 2019 to April, 2020 through PO and 2,800 meters valuing ₹8.36 crore through inter Unit transfer from Basin & Satellite Asset, Mumbai

in October, 2020. However, due to 'Nil' consumption, Kakinada Asset had to transfer back 7,789 meters casing pipe to Mumbai.

- In EOA Kakinada, 25,549 meters Tubing was procured by Asset during 2018. However, consumption of the same was only 22 *per cent* till September 2023 which resulted in blockage of ₹18.19 crore due to unutilised stock of 19,999 meters of tubing.

- In Tripura Asset (Agartala), out of 29,994 meters of EUE tubing and 72 No. of pup joints procured in December 2022, only 4,622 meters EUE tubing was consumed up to September, 2023 whereas not a single pup joint was consumed.

- The Assam & Assam Fold Belt (AAFB), Silchar submitted its requirement of Polyamine of 20 MT whereas AAFB had 30 MT of Polyamine in stock. It was however observed that out of total 50 MT, AAFB could consume only 13 MT Polyamine till September 2023 and six (6) MT Polyamine was transferred to other work centre at Jorhat.

- As against tender ZNCLC18001, 13 CR Premium thread casing pipes (Mat. Code-020000294) having value of ₹2.60 crore was procured during October 2019 to November 2022 at B&S, Mumbai. However, the material remained un-used for three years.

- The work centres had submitted their material requirements based on the operational activities planned for the subsequent year. These requirements were forwarded to Corporate MM for initiating procurement action. During the procurement process, the stock availability, including stock-in-hand and stock months at the respective work centres, was generally reviewed and assessed by the erstwhile Procurement & Evaluation (P&E) Section. However, in five cases, the primary reasons for nil or limited consumption of certain materials were sudden changes in operational plans, delays in finalisation of tenders and delayed delivery of materials. These factors often led to shifting of operational priorities, wherein immediate requirements had to be met through material transfers from other work centres. As a result, the originally procured materials could not be utilised fully. This situation highlights gaps in operational and material planning, particularly in anticipating changes in field requirement and ensuring timely procurement. It underscores the need for improved coordination between planning, procurement and field operations to prevent inventory build-up and ensure optimal utilisation of resources.

Management stated (May 2024) that while preparing annual requirement, procurement cycle, stock in hand, past consumption and material plan for lead time to deal with any contingency were considered by work centre. However, actual consumption of casing during that period may vary depending upon many factors like change in field development plans, availability of other resources required for drilling, statutory approvals, well complications etc.

Ministry in it's reply (December 2024) re-iterated Management's reply. In respect of EoA Kakinada it was stated that due to changes in well design, reduction in wells planned for completions, quantities of tubing have remained un-utilised and will be consumed in future. Further, in respect of Tripura it was furnished that stock of tubing is Nil and balance quantity of pup joints of various sizes will be consumed during the well completion with WO\Drilling Rigs.

Management/Ministry reply needs to be viewed in the light of the fact that in spite of preparing annual requirement considering various necessary aspects as specified in reply, materials procured remained unused for more than three years in above mentioned cases. Further, Management had not offered comments on unused material lying with Kakinada, Mumbai and Silchar. Clause 2.2.4 of IMM manual specifically states that inventory on hand, in order and planned consumption before the planning period should be considered while forecasting the requirement of goods.

A.3 Absence of inventory level checks in the ERP

As per MM manual of the Company, the inventory management team should identify items at work centre and establish inventory levels such as safety stock, re-order point and economic order quantity for optimum levels of inventory. It was however, observed that inventory levels were not captured/ linked with ERP system i.e., SAP. The work centres forwarded the requirement to Corporate MM wherein requirement was assessed with stock months only. This has resulted in holding period of high valued inventory of drill pipes, casings and tubing is beyond nine months (as on 31 December 2024) against the provision of IMM manual. Requirement of the work centres should have been linked with SAP based on the various inventory levels.

Management stated (May 2024) that in E&P companies like ONGC, even for general nature items, consumption pattern is not predictable and depends on various factors. Therefore, procurement based on Maxima/ Minima/re-order level/EOQ is not suitable for ONGC and hence the data for the same is not being captured in SAP. Proposal will be initiated to review this provision of IMM manual. Ministry however stated (December 2024) that ONGC had informed that the matter is being reviewed at their end, in line & realistic with the actual working methodology being followed and in order to ensure that there is no difference in the related provisions of IMM manual and its actual implementation.

Management/Ministry reply may be viewed in light of the fact that inventory levels are essential to organisation for determining the economic order quantity, proper storage facilities, keeping check over obsolescence and therefore, there is need to capturing the dynamic level also and integrated in its ERP system.

A.4 Non-adoption of FIFO methodology

Provision 38.1 of IMM manual stipulates that "the stockholder's responsibility is to receive the material from receipt sections or material sent back by user, store the material as per

guidelines to maximise shelf life, follow "first in first out (FIFO)" and issue the material to user against indents." It was, however, observed that there was no system of FIFO in respect of high valued materials (drill pipe, casing pipe and tubing) captured in the SAP system to track the status of material against specific purchase order. The quantity of new lot of material was clubbed with previous quantity of same material which presented combined stock of the material and hence in this scenario, it could not be verified that the material was released from the stock against which delivery was received first.[20]

The Management stated (May 2024) that all the key executives of ONGC had been requested to ensure the implementation of the relevant provisions of IMM Manual. Ministry stated (December 2024) ONGC has maintained Stock removal strategy as FIFO for all the WM storage types in SAP system. The Ministry further added that ONGC has further submitted that the guidelines have been re-iterated to all the Key executives of ONGC, with the request for due implementation of FIFO methodology as per IMM Manual and FIFO strategy as maintained in SAP.

The Management/Ministry response regarding initiative for corrective action was noted. It was also noted that there was no existing system to verify the implementation of FIFO, without which it cannot be ensured that materials procured first are consumed first.

B Dropping of requirements of work centers resulting into higher costs

The P&E Section of CPD dropped/deferred the requirement of some work centres which led to cost escalation in subsequent procurement cycle as brought out in paragraphs below:

i) As against requirement of casing pipes for the year 2022-23 received from the different work centers, P&E section shifted the requirement of 10 different specifications of casing pipe under second phase **(Annexure VIII)**. Audit noticed that procurement of casing pipe under phase-I took place in July 2022 but procurement under phase-II was not initiated in procurement cycle 2022-23. After receiving the indents for 2023-24, the quantity of phase-II (2022-23) was merged with the requirement for the year 2023-24. Audit observed that due to improper classification on the basis of stock months, work centers could not get complete required material in current cycle and hence, remaining requirement was procured in next procurement cycle at higher rates which resulted in avoidable extra expenditure of ₹12.34 crore **(Annexure IX)**.

   Management stated (May 2024) that inventory having stock months less than 14 was procured in phase I, considering long lead-time of manufacture and supply and stock months more than 14 was proposed to be procured subsequently after four months in second phase after review of stock month based on available stock and monthly

[20] ***After procurement of new material, this quantity is merged with old quantity and thereafter system could not be able to bifurcate the earlier procurement and latest procurement separately to follow FIFO methodology. In this scenario, it cannot be ensured that first procurement material was used first and later procurement material used thereafter.***

consumption. Stock months may not be true indicator for Basin work centres as number of wells may vary on yearly basis. Ministry further stated (December 2024) that at the time of initiation of Phase II procurement of Casing pipes sufficient stock was available Pan ONGC basis to take care of work centres requirements. Hence Phase-II procurement was not done in 2022-23 and it was adjusted with procurement cycle of 2024-25.

Management reply may be seen in light of fact that on one hand it asserts that stock months may not accurately reflect Basin work centre needs and on the other it separates work centre requirements into two phases based on stock months. Ministry reply needs also to be viewed in light of fact that urgent requirement of casing pipes was again conveyed by both the work centres (WOB Mumbai & Cambay Asset) which was provided to them during procurement cycle FY 2022-23 partially. Moreover, these requirements could not be planned and procured within the same cycle in 2022-23, resulting in the procurement of the same items in the subsequent cycle at higher rates.

ii) The CPD placed order (GEM/2022/B/2103657) for regular casing pipe in July 2022. Audit noticed that the requirement for casing pipe of specification 7", P-110, 29 PPF (FB, Ahmedabad for 14,200 meters) were kept under phase-I procurement cycle as stock months as on 1 February 2022 was shown blank. However, requirement for FB, Ahmedabad was dropped. Further, 43,214 meters of the same casing size was purchased vide GEM tender GEM/2023/B2944474 (March, 2023) @ ₹7,046 per meters, out of which 23,200 meters was purchased for FB, Ahmedabad. Audit observed that due to dropping procurement for work-centers without proper analysing the requirements resulted into purchase of same quantity at higher prices by ₹2.58 crore in the next tender.

Management stated (May 2024) that work centres did not have any previous consumption data available hence their requirement was considered in first phase. With respect to requirement of FB Ahmedabad, since the desired wells in BE 2022-23 for which 7", P-110 casing requirement was placed to CPD were not drilled, it did not necessitate the requirement and there was no option for transportation of this material from other Assets/Basins. Ministry further stated (December 2024) that from FB Ahmedabad, detailed working of the requirement of the said casing for three wells (under OLAP) were received by ONGC, on the basis of which, the Casing quantity was included in Phase- I.

Management/Ministry reply needs to be viewed in light of the fact that Management on one side stated that work centres did not have any previous consumption data available whereas on the other side, the requirement of FB, Ahmedabad was dropped based on non-consumption of required casing against BE plan 2022-23. Further, requirement of FB, Ahmedabad was dropped by CPD without their confirmation.

Recommendation No. 12: Ensure movement/transfer of idle inventory lying at work centres for more than four years to other work centres where it is required so that non-moving inventory can be reduced.
Recommendation No. 13: ONGC need to include inventory levels in ERP system for better inventory control towards movement of inventories.
Recommendation No. 14: Ensure following FIFO methodology for issuing the materials as provided in the IMM manual.

2.4.2.4 Execution of procurement process

After consolidation of the requirements in P&E section, received in the form of indents from the various work centres, the consolidated PR is sent to MM section for further processing viz., approval of Bid Evaluation Criteria (BEC), publication of Notice for Inviting Tender (NIT), opening of bids, preparation of Comparative Statements and Awarding of Notification of Award (NOA)/Letter of Award (LOA). IMMM provides detailed norms for each step of processing of the tenders.

A Discrepancy in Policy of Reverse Auction[21]

Reverse Auction is a methodology for attempting to get maximum price reduction in a transparent manner by giving opportunity to all the qualified bidders who participated in the tender. Para 8.3 of IMM manual states that *"after techno commercial evaluation, if number of technically and commercially acceptable offers are less than four (4) for any items (where evaluation is done separately) then no Reverse Auction may be conducted for such items."*

In the International Competitive Bidding (ICB) tender (ZNLAC18001) for procurement of ERW line pipe, reverse auction was conducted for Group B[22]as per Management policy and provision in IMM manual. By conducting reverse auction for Group B, Management had saved an amount of ₹7.69 crore. However, for Group A, Reverse Auction could not be conducted due to non-availability of minimum four bidders. Thus, due to Management's inappropriate reverse auction policy, management could get benefit only in cases where minimum four bidders were available otherwise, they had to award the tender at higher value.

Management stated (May 2024) that ONGC tenders are being processed through GeM portals following the provisions of GeM GTC. As per the existing policy on GeM, option

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[21] ***Electronic reverse auction is an online real-time procurement technique utilised by the procuring entity to select the successful submission, which involves the presentation by suppliers or contractors of successively lowered bids during a scheduled period of time and the automatic evaluation of bids.***

[22] ***Requirement of ERW (Electric Resistance Welded) line pipes were classified into two groups viz. Group A and Group B, based on specification.***

of Reverse Auction is to be utilised for the cases wherever, at least two or more different manufacturers/ service providers are available. Ministry further stated (December 2024) that reverse auction was being conducted through ONGC e-portal wherein this feature was developed. Wherever reverse auction was not carried out as per policy, the provision of carrying out negotiation with L-1 bidder was existing thus contract were awarded only after ascertaining rate reasonability and carrying out negotiations wherever the prices were considered higher.

Management/Ministry reply needs to be viewed in light of the fact that while GeM guidelines promote wider applicability of RA and an evaluation may be carried out to identify need for revision in Company's internal policy for the same.

B Effectiveness of Monitoring Mechanism

Clause 20 of the IMM manual prescribes the procedure of Purchase Order Tracking Process. Clause 20.2.1 states that after the purchase order is issued, the MM Department will follow up the order so that supply is received in time by the ultimate consignee. Various tender activities including post contract issues are also monitored by CPD in review meetings held periodically in respect of remedial action, if required, in any case. Besides this, urgent/critical issues related to processing of tenders and post contract issues are also monitored in CPD on daily basis for necessary action. Issues emanating due to delay in supply are taken up with the supplier, in consultation with P&E and work centres.

B.1 Delays in execution of supply order

The Purchase Orders (POs) issued to the supplier after awarding of tender contains scheduled delivery date/period and the place at which the materials are to be delivered and/or dispatched. However, for staggered delivery, separate line items are to be created indicating quantity and date by which material are to be delivered. As per the terms & conditions of the respective Purchase Orders, the supplier should supply the requisite material at stipulated destination within the schedule delivery date/period as given below:

Lot No	Commencement	Completion
1	From Date of NOA	Within 23 weeks from date of NOA
2	After 29 weeks from date of NOA	Within 42 weeks from date of NOA

During the examination of 106 POs out of 439 POs, delay in delivery was noticed in 76 POs, summary of which is given below:

Table 2.5: (Details of delay delivery: PO wise) [23]

Delay Range (in days)	No. of POs	Median Delay (in days)
Delay 1 to 100 days	35	41
Delay 101 to 200 days	25	142
Delay 201 to 300 days	9	248
Delay 301 to 400 days	3	358
Delay 401 to 500 days	2	447
Delay 501 to 600 days	2	554
Total	**76**	

The reasons for delay in delivery noticed on the part of the Management were due to late providing of essential certificate (EC), space constraint at warehouse, delay in nomination of TPI Agency, late receipt of Letter of Credit (LC) and request from supplier for extension of scheduled delivery.

Management stated (May 2024) that during financial year 2022-23, out of all the applications received through system, 97.28 *per cent* ECs have been issued in less than five days' time. Management further added that the present warehouse management systems across ONGC work-centre(s) is already under integration with the ERP system through Warehouse Management Module. The proposed WMS project will further improve upon the material traceability and availability to its users even up to the installations (both offshore and onshore).

Ministry stated (December 2024) that ONGC has implemented Automatic Processing of LCs w.e.f. 1 July 2024 through Shared Finance Services (SFS) for centralising processing with the support of Shared Service Centre Partner (SSCP) Noida using SAP for fast clearance of LC's. This will reduce delays in processing of LCs. It was further furnished that during April 2018 to March 2023, there was a break in the supply chain due to COVID 19 which affected the scheduled delivery periods in case of many of the supplies. The issue of poor supply base of the suppliers is being addressed through DO's by INDEG group of ONGC which aims at enhancing the capacity of suppliers through development of newer vendors.

The reply of Management/Ministry does not correlate with observed significant delays in 76 out of 106 POs examined, with median delay of 111 days. Reasons like space constraints, repeated supplier extension requests, and delayed LCs reflect need for better contract enforcement and planning. COVID-19 impact is generic and cannot explain delays persisting well beyond recovery phase. The initiatives expressed in the response were duly noted in audit.

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[23] ***While comparing the scheduled delivery date with actual delivery date, the last scheduled delivery date has been compared with the last actual delivery date as single PO might contain multiple items with different delivery dates.***

Recommendation No. 15: ONGC may implement an online system to ensure timely availability of essential documents for customs clearance and establish a fast-track mechanism to resolve space constraints and expedite processes like Third Party Agency nomination within defined timelines.

C Vendor Management

Vendor Management is considered an important practice in any organisation in view of availability of suppliers for the items, enhancing healthy competition among them, reducing costing of operations and subsequently, increasing efficiency & profitability for the organisation. In this regard, Audit observed the following:

C.1 Delayed/Non-submission of PBG

Clause 16.6 of IMM manual stipulates that security deposit shall be furnished as per the terms in the contract. The date of submission of Security Deposit (SD)/Performance Security (PS) towards contract, security deposit shall be clearly specified in NOA and the contractor should be asked to submit the contract security within the specified date.

Provisions under GeM Bid regarding submission of Performance Bank Guarantee (PBG) provides that successful bidders can submit Performance Security in the form of Account Payee demand draft/ RTGS/Internet banking. Delivery of hard copy or proof of online payment will be provided to buyer within 15 days of award of contract.

From total 106 POs under review, PBG against 50 POs was submitted by the suppliers with a delay of 2 to 114 days. It was however, observed that no action was taken by the Company against the contractors for delay in submission of PBG against above stated 50 POs as provided in the terms & conditions specified in the tender under clause 16.6.1 of IMM manual.

Non-submission of Security Deposits or Performance Security delays contract enforcement and exposes the buyer to financial and performance risks in case of default. It weakens the contractual safeguard mechanism and may lead to loss recovery issues. Additionally, it constitutes a breach of procurement norms and accountability lapses.

In one GeM tender, the request of the contractor for consideration of the amount of ₹24.69 lakh withheld from the due payment against the contract (PO 4075009716) was accepted by the competent authority (15 December 2022) against required SD with a delay of 107 days after contractually allowed period i.e., within 15 days from the date of contract. Audit observed that the request of the contractor to adjust the amount of ₹24.69 lakh against another contract was accepted by the competent authority whereas no provision was available in the T&C of GeM contract as well as in IMMM of ONGC in this regard.

Management stated (May 2024) that this was a commercial decision to accept the performance security from the amount payable to the supplier. The same is covered under

IMMM para 16.6.4 which states "the Level-1 officer will have full powers to relax/waive condition relating to EMD/ security deposit, based on merit of each case and non-incorporation in the tender document prior to inviting tender. Ministry further assured that suggestion of Audit has been noted by ONGC for future compliance and the provisions will be reviewed.

Management/Ministry reply needs to be viewed in light of fact that management did not respond to remedial/penal action to be taken by the Company on the defaulting contractors who had submitted BGs with a delay ranging 2 to 114 days i.e. in approximately half of the POs under review. It is relevant to mention here that practices of submitting BGs become prominent in order to safeguard Company's interests. Furthermore, in absence of any suitable penal provisions, contractors did not find themselves bound to submit contract security timely.

Recommendation No. 16: Management may clearly specify the consequences of non-submission of PBG to vendors in the contracts and can automate the reminders for timely submission to improve the compliance.

C.2 Deficiencies in Vendor appraisal

Clause 17.4 of IMM Manual of the Company provides that appraisal of all the vendors is to be conducted at two stages i.e. tendering & contract execution which will be used for the purpose of vendor selection for subsequent steps and to determine if empaneled vendor need to be de-empaneled. These vendor ratings shall be included as technical criteria for evaluation of the bid in the next tender in the same category/item/ service. Besides above, clause 17.4.15 stipulates provisions for Vendor Feedback and Co-development which includes that vendor feedback process will be carried out to facilitate execution/ delivery without delays and actively work with quality vendors to further improve on project/ item/ service. It was found that M/s BCG was hired for appraisal system in 2014 and it submitted recommendations for this purpose. However, Company could not devise any such mechanism of vendor rating/ appraisal till December 2024.

Management stated (May 2024) that considering the complexities involved in the tenders/ contracts of E&P industries, it is very difficult to implement the standard Vendor Appraisal System. Hence, vendor appraisal system executed/ under execution in other similar complex industries is being searched and studied. Ministry endorsed (December 2024) the Company's reply and submitted that efforts are in progress to develop a robust, transparent and legally tenable vendor appraisal system for few areas (e.g. empanelled vendors) for implementation in ONGC. A working level committee has been constituted for finalisation of Vendor rating format for 'Procurement of materials' for inclusion in the tenders along with digitalisation of the appraisal process for transparency and avoiding manual errors in data entry.

Management/Ministry reply needs to be viewed in light of the fact that IMM manual clause 17.4 had already provided basic structure of vendor appraisal system. Moreover, M/s BCG was hired for appraisal system in 2014 and it submitted recommendations for this purpose. However, management did not formulate such mechanisms even after elapse of considerable period of more than 10 years. EPC deliberated (February 2015) the recommendations of BCG that before introducing the concept of vendor rating in the tenders, complete details need to be formulated as to how a vendor shall be rated based on their performance. However, such mechanism has not been established so far (December 2024).

Recommendation No. 17: ONGC may develop the mechanism for vendor appraisal as specified in the IMM manual and evaluate vendor performance metrics to identify better-performing suppliers.

C.3 Inadequate Vendor Development

Company used to process development orders[24] along with regular tendering process which was de-linked vide its Development Order Policy (DOP) approved in December, 2020. Development Order Policy (DOP), 2020 provides that after award of development order, Quality Assurance Plan shall be provided by the vendor covering inspection & Field Trial Testing (FTT) which will be approved by INDEG and after satisfactory inspection, field trial testing will be carried out by the user. The duration of field trial shall be decided by the ONGC.

It was noted that 55 *per cent* Development Orders (DOs) were still pending out of total 33 DOs placed till March 2023, for which either Field Trial Testing (FTT) was yet to be completed by the user or delivery was yet to be made by the supplier.

Audit noticed that policy had gaps to the extent of not providing any timelines for completion of FTT resulting in delay in issuance of certificates. Further, it was observed that adherence to timelines for delivery completion was also not taken into consideration for the issuance of certificate to any supplier. It is relevant to mention here that a total of 33 nos. development orders were placed till March 2023 and 55 *per cent* development orders were pending for completion. Out of which, 22 *per cent* cases were pending since 2021 and 50 *per cent* cases were pending since 2022 for which DOs were still under process till October 2023.

Management stated (May 2024) that intention of ONGC is that more and more indigenous vendors are developed for participation in tender. Further, development of new product requires R&D, field trials and hand holding. Field trial testing of such product is done whenever suitable well/installation is available. Hence, it may not be feasible to define

[24] ***A development order is a special, non-tender based procurement designed by ONGC to develop new, indigenous suppliers especially those who lack prior experience with ONGC contracts. It enables these vendors to demonstrate capabilities through small pilot orders.***

timeline for each stage. Ministry further added (December 2024) that the delivery period is mentioned in each DO which is decided based on the delivery period quoted by the bidder and mutual agreement between ONGC and bidder. There is no certainty that the product developed will be successful in the first instance itself because of involvement of a lot of R&D and nature of E&P industry.

Management/Ministry reply needs to be viewed in light of fact that till March 2023, half of the DOs were pending either in absence of delivery of items or FTT. All the aspects necessary in developing a new item are already taken into consideration by both the parties including involved R&D. Besides, completion of Development Orders was pending due to non-adherence to mutually agreed delivery schedule by the vendors and non-availability of any timelines/non-ensuring earliest Field Trial Testing of developed items which resulted into pendency of Development Orders.

C.4 Adherence to Public Procurement Policy (MSME):

Public Procurement Policy for Micro and Small Enterprises (MSME) vide order dated 13 November 2018 had mandated that every Central Ministry/Department/PSU shall have the objective of achieving an overall procurement goal of minimum 25 *per cent* of the total annual purchases from the products or services produced or rendered by MSEs. Out of 25 *per cent* target of annual procurement (w.e.f. 9 November 2018), four *per cent* is exclusively reserved for MSEs owned by SC/ST and three *per cent* for MSEs owned by Women entrepreneurs.

Year wise procurement (available at MSME portal) made by ONGC from MSEs is detailed below:

Table 2.6: Details of Procurement from MSME Vendors

Sl. No.	Year	Percentage procurement from MSEs out of total procurement	Percentage procurement from SC/ ST	Percentage procurement from Women
1.	2018-19	29.39	0.43	0.00
2.	2019-20	30.40	0.34	0.03
3.	2020-21	44.90	0.23	0.62
4.	2021-22	36.79	0.46	1.54
5.	2022-23	47.26	0.73	1.29

It may be seen from the above table that though ONGC achieved the 25 *per cent* target of annual procurement from MSEs in compliance to PPP (MSME) order of 2018 yet segregation of procurement targets as envisaged by ibid order for SC/STs and Women owned MSEs could not be achieved during years 2018-19 to 2022-23.

The Management while accepting audit observation, stated (May 2024) that circular has already been issued to hold focused vendor development program for MSEs and women

entrepreneurs. Further, Work Centres have been entrusted with the responsibility to conduct vendor meets periodically for resolution of MSME's issues and also to educate them about ONGC's vendor registration and tendering process. Ministry further added (December 2024) that Vendor meets for MSMEs with special emphasis on SC/ST and women were organised by ONGC in Mumbai during the year 2020 and 2023 in association with All India SC/ST Employees welfare association of ONGC.

The Management/Ministry reply does not address the consistent shortfall in meeting the mandated sub-targets for SC/ST and women-owned MSEs. While initiatives like vendor meets are noted, no concrete measures or timelines have been provided to ensure future compliance. Further, R&D and field trials are not directly relevant to procurement targets. Despite being aware of the policy since 2018, Company has not implemented any effective, measurable, or time-bound mechanism to fulfil these statutory obligations.

Recommendation No. 18: CPD needs to provide the timelines for each stage in development orders so that process is time bound.

Recommendation No. 19: ONGC may ensure the compliance of public procurement policy for MSME with respect to SC/ST vendors and women owned enterprises.

2.4.3 Conclusion

The Corporate Material Management (CMM) unit of ONGC was established in 2002 with the objective of procuring specified items listed in the Integrated Material Management Manual (IMMM). CMM was restructured as Corporate procurement Department (CPD) in November 2023. The procurement process is primarily guided by the ONGC IMM Manual, revised in 2015 on the basis of consultant report. However, crucial changes, such as establishment of cost estimation guidelines to minimise variations between estimated and actual costs, is yet to be executed.

During the planning stage, it was observed that work centers submitted requirements with delays. Additionally, without defined timelines, the P&E section of CPD took an undue amount of time to create consolidated purchase requisitions based on indents from work centers. This delay in requirement submission led to disruptions and inefficiencies in the procurement and supply chain activities.

The requirement assessment needed strengthening, which is reflected in various issues within Inventory Management. The consequences include a prolonged inventory holding period, a substantial amount of non-moving inventory, and the absence of checks such as economic reorder quantity in the system. Additionally, issues of the non-adoption of the First In, First Out (FIFO) method, long pendency of materials in transit and at site were observed. Instances of material being procured but not consumed for extended periods and the dropping of requirements have resulted in higher costs.

Despite the IMM Manual and related procedures being in place, significant lapses such as dropping of work centre requirements leading to avoidable costs, restrictive reverse auction norms constraining price discovery, delays in supply order execution due to poor coordination and document management, and inadequate vendor management mechanisms were noted. Further, deficiencies in vendor appraisal, development order execution and non-achievement of statutory procurement targets for SC/ST and women-owned MSEs reflect lack of structured monitoring and accountability.

Going forward, ONGC needs to strengthen its procurement ecosystem by aligning internal policies with broader Government guidelines (e.g., GeM and MSME), digitising and automating critical processes (PBG submission, document management, stock movement), and ensuring time-bound execution of development orders and vendor appraisals. Stronger monitoring of procurement timelines, transparent vendor rating, enforcement of penal provisions for delays and targeted measures for MSME sub-categories are essential to build accountability and efficiency.

CHAPTER III: MINISTRY OF POWER

Damodar Valley Corporation

3.1 Environment Management and Pollution Control in Damodar Valley Corporation

3.1.1 Introduction

Damodar Valley Corporation (Corporation) was set up in 1948 by an Act of Parliament for the development of Damodar Valley situated in Jharkhand (erstwhile Bihar) and West Bengal. It functions under the administrative control of Ministry of Power (Ministry). The Corporation is jointly owned by the Central Government and State Governments of Jharkhand and West Bengal. The Corporation functions within a command area of 24,235 sq. km covering eleven districts of Jharkhand and six districts of West Bengal. As on March 2025, the Corporation had coal based thermal power plants at six locations with a total installed capacity of 6,540 megawatts (MW) and hydel power generating stations at three locations with total installed capacity of 147.2 MW. Details of the thermal/hydel power plants of the Corporation are shown in **Table 3.1** below:

Table 3.1: DVC Power Stations at a Glance

Project	Installed capacity (MW)	State	Commercial Operation Date
Durgapur Steel Thermal Power Station (DSTPS)	1,000	West Bengal	It has two units which started operation between May 2012 to March 2013
Mejia Thermal Power Station (MTPS)	2,340	West Bengal	It has eight units which started operation between December 1997 to August 2012
Raghunathpur Thermal Power Station (RTPS)	1,200	West Bengal	It has two units which started operation in March 2016
Bokaro Thermal Power Station (BTPS)	500	Jharkhand	It has one unit which started operation in February 2017
Chandrapura Thermal Power Station (CTPS)	500	Jharkhand	It has two units which started operation between July 2011 to November 2011
Koderma Thermal Power Station (KTPS)	1,000	Jharkhand	It has two units which started operation between July 2013 to June 2014
Maithon Hydel Station	63.2	West Bengal	It has three units which started operation between October 1957 to December 1958
Panchet Hydel Station	80	Jharkhand	It has two units which started operation between December 1959 to March 1991
Tilaiya Hydel Station	4	Jharkhand	It has two units which started operation between February 1953 to July 1953

(Source: From Corporation Website)

3.1.2 Audit Scope

Scope of Audit included review of environment management and pollution control in six thermal and three hydel power generating stations of the Corporation during the period from 2016-17 to 2021-22 (figures updated up to 2024-25). Audit also reviewed generation from renewable sources of energy including solar energy by Corporation, during Audit scope period.

3.1.3 Audit findings

3.1.3.1 Emission Norms and their Compliances

Ministry of Environment, Forest and Climate Change (MoEF&CC) amended (December 2015) The Environment (Protection) Rules, 1986 and introduced the following emission norms/standards for thermal power plants (TPPs) as shown in **Table 3.2** below:

Table 3.2: Norms for emissions notified by MoEF&CC

Period of installation of thermal power plants	Standards in mg per cubic NM[1]			
	Particulate Matter[2]	Sulphur Dioxide	Oxides of Nitrogen	Mercury
Before 31 December 2003	100	600 for units smaller than 500 MW capacity 200 for units having capacity of 500 MW and more	600	0.03 for units equal to or more than 500 MW capacity
On or after 1 January 2004 and upto 31 December 2016	50		300 revised to 450 later[3]	0.03 for all the TPPs
On or after 1 January 2017	30	100 for all the TPPs	100	0.03 for all the TPPs

(Source: MoEF&CC notification dated 7 December 2015)

All the existing thermal power plants were to meet the emission standards within two years of the notification (i.e., by December 2017), while TPPs commissioned after 1 January 2017 were to comply the prescribed norms from commencement of their operations.

Subsequently, MoEF&CC vide notification (March 2021) classified the thermal power plants into three categories and extended the timeline for compliance of emission norms by thermal power plants as shown in Table 3.3 below:

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1 ***Milligrams of a substance per normal cubic meter of a gas***

2 ***It is a mixture of microscopic solid particles and liquid droplets found in the air and particularly composed of fly ash, soot, and unburnt fuel that are released into the atmosphere during combustion.***

3 ***Oxides of Nitrogen norms revised to 450mg/NM^3 vide MOEF&CC notification dated 19.10.2020.***

Table 3.3: Categorisation of thermal power plants and revised timelines for emissions

Category	Location/area	Timeline for compliance	
		Non-retiring Units[4]	Retiring units
A	Within 10 Km radius of NCR or Cities having million plus population	Upto December 2022	
B	Within 10 Km radius of Critically polluted Areas or Non-attainment Cities[5]	Upto December 2023	Upto December 2025
C	Others	Upto December 2024	Upto December 2025

(Source: MoEF&CC notification dated March 2021)

As per MoEF&CC notification of September 2022, the timelines for compliance of emissions norms for Sulphur Dioxide was extended upto 31 December 2025 and 31 December 2026 respectively for Category 'B' and Category 'C' units which was further relaxed (July 2025). As per latest notification, for Category 'B' thermal power plants, Central Government has been given the discretion for deciding the applicability of Sulphur Dioxide norms on case-to-case basis as per recommendations of Expert Appraisal Committee, while the Category 'C' thermal power plants have been exempted from Sulphur Dioxide norms upon fulfilling conditions regarding stack height by 31 December 2029.

Out of 17 units of six thermal power plants of the Corporation, two[6] were categorised (June 2022) as 'B' and remaining 15 units[7] as 'C'. Of these 17 units, three[8] units were commissioned before December 2003, 13 units[9] between January 2004 and December 2016 and one[10] unit was commissioned after January 2017. All these units were non-retiring units.

Audit could not notice any significant deviation regarding the emissions norms of mercury from the records made available, as per timelines prescribed by MoEF&CC while the norms for emission of Sulphur Dioxide has been relaxed/exempted by MoEF&CC as per its latest notification. The emission of Particulate Matter and Oxides of Nitrogen, by

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4 ***In order to conserve scarce natural resources like land, water and coal, Central Electricity Authority, on advice of Ministry of Power regularly explores the possibility of retiring/replacing the aged and inefficient coal/lignite based thermal power plants by installing new supercritical utilities in consultation with Power Utilities.***

5 ***As defined by Central Pollution Control Board***

6 ***Unit 1 and 2 of DSTPS***

7 ***Unit BTPS A of BTPS, Unit 7 and 8 of CTPS, Unit 1 and 2 of KTPS, Unit 1 to 8 of MTPS and Unit 1 and 2 of RTPS***

8 ***Unit 1 to 3 of MTPS***

9 ***Unit 7 and 8 of CTPS, Unit 1 and 2 of DSTPS, Unit 1 and 2 of KTPS, Unit 1 and 2 of RTPS and Unit 4 to 8 of MTPS.***

10 ***Unit BTPS A of BTPS***

Category 'B' units of the Corporation from January 2018 (date of applicability of notification of December 2015) to July 2025 is detailed in Table 3.4 below:

Table 3.4 Emission of Particulate Matter and Oxides of Nitrogen, by Category 'B' units beyond the norms

Year	No. of[11] unit months	Particulate Matter			No. of unit months	Oxides of Nitrogen		
		< 25 *per cent* above norms	25 to 50 *per cent* above norms	> 50 *per cent* above norms		< 25 *per cent* above norms	25 to 50 *per cent* above norms	> 50 *per cent* above norms
2018	**20**	0	0	0	**20**	5	2	9
2019	**22**	0	0	0	**22**	11	3	8
2020	**10**	0	0	0	**8**	7	1	0
2021	**23**	1	0	0	**21**	8	1	6
2022	**24**	3	0	0	**24**	0	0	4
2023	**24**	2	0	0	**24**	0	0	0
2024	**20**	0	0	0	**16**	0	0	0
2025 *(for Jan.-July)*	**14**	0	0	0	**14**	0	0	0

(Source: Data furnished by Management)

From the above table, it is evident that the emission of both the Particulate Matter and the Oxides of Nitrogen for Category "B" units of the Corporation has improved over the time especially post the deadline of 31 December 2023.

The details of emission of Particulate Matter and Oxides of Nitrogen, by Category 'C' units of the Corporation from January 2018 (date of applicability of notification of December 2015) to July 2025 are shown in Table 3.5 below:

Table 3.5: Emission of Particulate Matter and Oxides of Nitrogen, by Category 'C' units beyond the norms

Year	No. of[12] unit months	Particulate Matter			Percentage of unit months where emission was more than the norms	No. of unit months	Oxides of Nitrogen			Percentage of unit months where emission was more than the norms
		<25 *per cent* above norms	25 to 50 *per cent* above norms	>50 *per cent* above norms			<25 *per cent* above norms	25 to 50 *per cent* above norms	>50 *per cent* above norms	
2018	**130**	16	13	28	**43.85**	**148**	5	7	15	**18.24**
2019	**135**	18	6	21	**33.33**	**141**	10	9	40	**41.84**

[11] ***No of Category "B" units i.e. 2 * No. of months for which data has been furnished by Management.***

[12] ***No of Category "C" units i.e. 15 * No. of months for which data has been furnished by Management.***

Year	No. of[12] unit months	Particulate Matter			Percentage of unit months where emission was more than the norms	No. of unit months	Oxides of Nitrogen			Percentage of unit months where emission was more than the norms
		<25 *per cent* above norms	25 to 50 *per cent* above norms	>50 *per cent* above norms			<25 *per cent* above norms	25 to 50 *per cent* above norms	>50 *per cent* above norms	
2020	**153**	14	11	22	**30.72**	**155**	16	13	36	**41.94**
2021	**165**	15	11	11	**22.42**	**158**	27	10	24	**38.61**
2022	**175**	13	10	12	**20.00**	**175**	33	11	23	**38.29**
2023	**156**	27	12	14	**33.97**	**171**	22	8	25	**32.16**
2024	**161**	23	14	27	**39.75**	**160**	7	8	10	**15.63**
2025 *(for Jan.-July)*	**85**	15	11	1	**31.76**	**79**	3	0	5	**10.13**

(Source: Data furnished by Management)

From the above table, it is evident that the emission of Particulate Matter by Category "C" units was considerably more than the norms during the entire period of six years *i.e.,* 2018-24. Though the units showed downward trend during 2019-22, it increased again in the subsequent years. Even after the deadline of 31 December 2024, the emission of Particulate Matter was beyond the norms in 27 out of 85 unit months.

Similarly, the emission of Oxides of Nitrogen by Category "C" units was higher than the norms and ranged between 18.24 to 41.94 *per cent* of unit months during the period of five years *i.e.,* 2018-23. Even after the deadline of 31 December 2024, the emission of Oxides of Nitrogen was more than the norms during 10.13 *per cent* of unit months, which comprised 6.33 *per cent* of unit months (5 out of 79 months) having emission of more than 50 *per cent* of the norms.

The Corporation justified (August 2023) the emission of Particulate Matter beyond the norms, by stating that it was dependent upon quality of coal being supplied by Coal India Limited (CIL) over which it had no control. It further stated that actions have already been taken for maintaining emission standards of Particulate Matter and Oxides of Nitrogen as per timelines prescribed by MoEF&CC.

Ministry stated (November 2023) that the Corporation has taken initiatives to contain Particulate Matter and Oxides of Nitrogen within permissible limits and the issue of supply of poor-quality coal was also taken up with CIL.

In the Exit Meeting (November 2024), Corporation stated that the emission levels have been reduced during 2023-24, the Ministry advised the Corporation to submit data to Audit for the same.

The reply of the Ministry/Corporation may be viewed in light of the fact that even after the deadlines fixed by MoEF&CC, Category "C" units of the Corporation were still emitting the Particulate Matter and Oxides of Nitrogen more than the Norms. Further, with better coordinated efforts, the matter of poor quality of coal being supplied by CIL could have been resolved.

Recommendation No. 20: The Corporation should strive to achieve the emission of Particulate Matter and Oxides of Nitrogen, from its thermal power plants, as per the norms fixed by MoEF&CC.

3.1.3.2 Fly Ash management

The combustion of coal in Thermal Power Plants produces Coal Combustion Residues which is a collective term referring to fly ash, bottom ash *etc*. After ignition at high temperature, the coal resolve in to different solid fractions. The fine dust entrained by the flue gases leaving the boiler is collected in fabric filter or electrostatic precipitator and is known as precipitated fly ash, which is generally 80 *per cent* of the total coal combustion and the remaining 20 *per cent* particle, including unburnt carbon settle to the bottom of the boiler called Bottom Ash. The discrepancies in management of fly ash produced in thermal power plants of Corporation, are detailed in the subsequent paras:

A. Generation and Utilisation of Fly Ash

To reduce the requirement of land for disposal of fly ash in ash ponds and to address the problem of pollution caused by fly ash, the MoEF&CC issued notification (September 1999) on fly ash utilisation which was revised from time to time. As per notification dated 25 January 2016, all thermal power plants were to comply with 100 *per cent* utilisation of fly ash by 31 December 2017.

MoEF&CC notification of December 2021 (effective from 1 April 2022) inter-alia recommended the coal / lignite based thermal power plants to utilise 100 *per cent* ash generated during that year. In no case, the utilisation was to fall below 80 *per cent* in any year and the thermal power plants were to achieve average ash utilisation of 100 *per cent* in a three-year cycle (four-year cycles for plants utilising 60 *per cent* to 80 *per cent* ash during 2021-22 and five-year cycles for plants utilising below 60 *per cent* of ash generated during 2021-22). Notification further stated that the unutilised legacy ash, as on 31 March 2022, was to be utilised progressively by the thermal power plants within 10 years from the date of notification, over and above the utilisation targets prescribed for ash generation through current operations of the particular year, as per the formulae given in Table 3.6 below:

Table 3.6: Formulae for utilisation of legacy ash

Year from date of publication	1st	2nd	3rd-10th
Utilisation of legacy ash (in percentage of Annual Ash)	At least 20 *per cent*	At least 35 *per cent*	At least 50 *per cent*

(***Source: MoEF&CC guidelines dated 31 December 2021***)

The utilisation of fly ash by six thermal power plants of the Corporation during the period from 1 April 2018 (after date of applicability of notification of January 2016) to 31 March 2022 (before date of applicability of notification of December 2021) is shown in Table 3.7 below:

Table 3.7: Ash generated and utilised during the period from 2018-19 to 2021-22

Thermal Power Plant	Ash generated	Ash utilised	Percentage of ash utilisation
			(figures in lakh metric tonnes)
BTPS	30.48	30.46	99.92
CTPS	38.59	42.17	109.28
MTPS	165.14	122.57	74.22
DSTPS	69.89	58.90	84.28
KTPS	73.57	74.63	101.44
RTPS	53.89	5.71	10.59
Total	**431.56**	**334.44**	**77.50**

(Source: Data furnished by Management)

As evident from the table above, during the period from 2018-19 to 2021-22, out of six thermal power plants of the Corporation, four could not meet their target of 100 *per cent* utilisation of fly ash generated, while two thermal power plants were able to fully utilise the same along with certain portion of legacy ash generated by them. The overall utilisation of fly ash was 77.50 *per cent* during that period with overall shortfall in achievement of target by 22.50 *per cent*.

Further, during the period from 1 April 2022 (date of applicability of notification of December 2021) up to March 2025, it was observed that MTPS could not achieve its target of 100 *per cent* utilisation of fly ash during cycle of 2022-25 while RTPS (falling under five years cycle) could achieve fly ash utilisation of only 46.44 *per cent* during three years (2022-23 to 2024-25). All other four thermal power plants were able to achieve their targets of current fly ash utilisation during the three-year cycle up to 2024-25.

As against the total accumulated legacy ash of 379.49 LMT, the Corporation could utilise only 60.51 LMT (15.95 *per cent*) altogether during the three years' period of 2022-23 to 2024-25. The utilisation of legacy fly ash by six thermal power plants of the Corporation during the period from 1 April 2022 (date of applicability of notification of December 2021) up to March 2025 is shown in Table 3.8 below:

Table 3.8: Legacy ash utilisation during 2022-25

(figures in lakh metric tonnes)

Units	2022-23			2023-24			2024-25		
	Target @ 20% of Ash generated during the year	Target Achieved	Achievement as against ash generation during the year (in percentage)	Target @ 35% of Ash generated during the year	Target Achieved	Achievement as against ash generation during the year (in percentage)	Target @ 50% of Ash generated during the year	Target Achieved	Achievement as against ash generation during the year (in percentage)
BTPS	1.92	2.02	21.04	3.49	2.52	25.30	4.60	2.67	29.02
CTPS	1.83	2.7	29.51	4.17	1.07	8.98	5.89	3.5	29.74
MTPS	10.97	0	0.00	17.63	0.95	1.88	24.74	2.9	5.86
DSTPS	3.68	11.09	60.30	6.07	16.09	92.74	8.90	1.91	10.74
KTPS	3.82	5.47	28.62	6.53	4.19	22.45	11.27	3.43	15.22
RTPS	3.57	0	0.00	7.54	0.00	0.00	10.84	0	0.00
Total		**21.28**			**24.82**			**14.41**	

(Source: Data furnished by management)

As evident from the table above, none of the thermal power plants of the Corporation could achieve their targets of legacy fly ash utilisation during the period from 2022 to 2025. While MTPS and RTPS could not achieve the targets in any of the three years, all the six thermal power plants could not achieve targets during 2024-25. DSTPS could not achieve year-wise targets, it achieved the targets as a whole (in absolute numbers) for three years *i.e.*, from 2022-23 to 2024-25.

It was noticed that the Corporation vide its Ash Policy (2018) decided to utilise 100 *per cent* of fly ash generated from TPPs in a sustainable manner. As per policy, to accomplish the objective, several measures were defined such as a vigorous advertising campaign for awareness, constitution of marketing team at each station to explore various ash based industries and to promote fly ash sale *etc.*

Audit in this regard observed that:

(i) the advertising efforts made by the Corporation were insufficient as it could conduct only four advertising campaigns in eight years *i.e.,* 2016-17 to 2024-25.

(ii) the Corporation constituted marketing team in five out of six thermal power plants which conducted 13 visits in eight years *i.e.,* 2016-17 to 2024-25, to explore the respective ash-based industries for sale of fly ash.

Hence, it was evident from the above that the Corporation could not effectively implement its own policy which contributed in non-achievement of fly ash targets fixed by MoEF&CC.

The Management while accepting the fact of non-utilisation of fly ash as per MoEF&CC guideline claimed (August 2023) that due to efforts made by it, utilisation of fly ash has improved considerably in FY 2022-23. Ministry endorsed (November 2023) the reply of the management. In the Exit Meeting (November 2024), Ministry asked the Corporation to take concrete steps for achieving 100 *per cent* utilisation of fly ash.

Recommendation No. 21: The Corporation should prioritise clearance of legacy ash and strengthen measures for sustained 100% utilisation.

B. Management of Ash Pond

Ash Ponds are engineered structures used for storage of bottom ash and unutilised dry fly ash generated at thermal power stations. The six thermal power plants of the Corporation had 15 Ash Ponds having an area of 1,432.54 acres with total capacity of 455.35 lakh cubic meter.

During the audit of these thermal power plants, deficiencies were observed in management of seven out of 15 ash ponds which have been detailed below:

Mejia Thermal Power Plant: To cater the need of 630 MW capacity of the plant, Corporation constructed two ash ponds between 1997–1999, with an area of 244 Ha, having holding capacity of 220 lakh cubic meter. Further, five more units (capacity 1,710 MW) were added on the thermal power plant during 2005–2012. Audit observed that, though the capacity of the plant increased nearly four times, the number of ponds remained same. Besides there being no addition in ash ponds capacity, there was poor ash evacuation[13] from the existing ash ponds leading to accumulation of bottom ash in the ash ponds and limiting its holding capacity because of which incidents of leakage were observed over two decades polluting thereby two reservoirs *viz.* Jamgari and Nityanandapur. As of December 2022, Corporation had removed deposited fly ash only from the irrigation canal beds of the Jamgari dam with no concrete action taken on the ash accumulated in the affected reservoirs.

Bokaro Thermal Power Station: To cater the needs of BTPS (630 MW), the Corporation constructed two ash ponds during 1986 to 1993 over an area of 65 Ha. Subsequently, the

[13] ***The process of removing settled ash from an ash pond, using excavating machinery so as to prepare the pond for reuse.***

Corporation added one more unit (500 MW) in February 2017 and decommissioned two old units (210 MW each) in July 2017. Due to insufficient capacity of ash ponds coupled with deficient ash pond management, there was a breach in ash dyke[14] in September 2019 resulting in overflow of liquid ash to nearby low-lying area. Consequently, Jharkhand State Pollution Control Board imposed (May 2020) a penalty of ₹2.89 crore on the Corporation which was paid up to August 2020. The restoration and strengthening of breached portion of ash pond dyke was completed in the year 2021.

Koderma Thermal Power Station: Two units of KTPS (500 MW each) were commissioned in July 2013 and June 2014. Due to delay in acquisition of land for construction of ash pond, the Corporation constructed a temporary ash pond of 70 acres in February 2016. In the meantime (July 2013 to February 2016) the ash generated was disposed of in low land area inside its premises. Audit in this regard observed that only 75 *per cent* of structural work of the permanent ash ponds was completed upto May 2024.

Ministry/Management while accepting the audit observation stated (November 2023/August 2023) that in case of Mejia Thermal Power Plant dyke's height and strength was being increased and possibility for acquisition of land for construction of third ash pond was being explored. In case of Bokaro Thermal Power Plant and Koderma Thermal Power Plant, they stated that, due to efforts made by Corporation the ash evacuation work has increased considerably during recent years. In the Exit Meeting (November 2024), Management stated that the contracts have been awarded for strengthening of ash dykes.

Audit noted that the land for third ash pond at Mejia Thermal Power Plant was yet to be acquired while work of permanent ash pond at Koderma Thermal Power Station was still not completed (July 2025).

Recommendation No. 22: The existing capacity of ash ponds should be reviewed and effective ash pond evacuation mechanism need to be established so as to minimise the environmental threat.

3.1.3.3 Waste management

Water is one of the key input requirements in thermal power plants for cooling systems, boiler feed and ash disposal along with domestic use and plantation. It is mandatory, as per Environment Clearance/Consent to Operate, for the thermal power plants to construct Effluent Treatment Plant (ETP) and Sewage Treatment Plant (STP) for recycling the waste water before they are discharged to rivers/natural water bodies through drains.

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[14] ***Retaining structures to contain ash slurry and settled ash. At the disposal areas, storage space is created by constructing ash dyke embankments all around, within which ash particles will be allowed to settle and the decanted water is allowed to escape though outlet structure***

A. Discharge of effluents without treatment

As per records made available to Audit, it was observed that there were no plans at Corporate level for installation of ETP/STP in a time bound manner, which resulted in ETPs and STPs not being constructed and operated at all the thermal power plants of Corporation (as of 31 March 2025) as shown in Table 3.9 below:

Table 3.9: Status of construction of STPs/ETP

Name of the TPP	ETP	STP
MTPS	Not constructed separately for unit 7 and 8	Yes
CTPS	Yes	No
BTPS	No	No
DSTPS	Yes	No
KTPS	Yes	Yes
RTPS	No	No

(Source: Records furnished by management)

As evident from the table above, while ETPs were not constructed at BTPS and RTPS as on 31 March 2025, two units of MTPS were also being operated without any dedicated ETP. Similarly, CTPS, BTPS, DSTPS and RTPS did not have any STP, as on 31 March 2025.

It was further noticed that Jharkhand State Pollution Control Board show caused BTPS (November 2015) and CTPS (January 2020) for discharge of untreated/polluted water. However, the Corporation, belatedly undertook the work of construction of STPs at CTPS and BTPS colony in February and March 2022 respectively, which was yet (March 2025) to be completed.

Ministry/Management stated (November 2023/August 2023) that work for construction of requisite ETPs/STPs was under progress. In the Exit meeting (November 2024), Ministry accepted the audit recommendation for need of establishing a robust effluent treatment facility at thermal power plants so as to treat effluents before discharge.

In non-compliance to Environment Clearance /Consent to Operate, there was delay in construction of ETPs and STPs at the thermal power plants of the Corporation.

Recommendation No. 23: Establishment and effective operation of effluent treatment plants and sewage treatment plants should be expedited to prevent untreated discharges.

B. Storage of Hazardous Waste

Figure 3.1: Hazardous waste lying at Corporation Periphery

As per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, every occupier (Corporation in this case) of the facility who is engaged in handling, generation, collection, storage, packaging, transportation, use, treatment, processing, recycling, recovery, sale and disposal etc. of hazardous waste is required to obtain authorisation from State Pollution Control Board (SPCB) within 60 days of the notification (04 April 2016) of the above Rules. The rules further state that occupier may store the hazardous wastes upto 90 days and shall maintain the records of generation, storage and disposal of such hazardous & other waste. Thermal power plants/Hydel Power stations generally release hazardous waste like used Servo Tak-40, Lube Oil, waste resin and transformer oil etc., which are to be disposed of within 90 days of their generation.

The details of year-wise, generation and disposal of hazardous wastes by thermal power plants/hydel power generating station[15] is summarised in **Table 3.10** below:

Table 3.10: Generation and disposal of hazardous waste

(figures in kilolitres)

Year	Opening Balance	Generation	Disposal	Closing Balance
2016-17	606.88	135.32	347.24	394.96
2017-18	394.96	77.50	83.15	389.31
2018-19	389.31	95.09	37.30	447.10
2019-20	447.10	226.90	70.06	603.94
2020-21	603.94	89.75	30.25	663.44
2021-22	663.44	60.86	111.40	612.90
2022-23	612.90	192.92	75.13	730.69
2023-24	730.69	366.81	400.72	696.78
2024-25	696.78	437.87	420.66	713.99
Total		**1,683.02**	**1,575.91**	

(Source: Records furnished by management)

[15] ***Discrepancy observed in Maithon Hydel Station only.***

Analysis of the table revealed that there was large accumulation of hazardous waste at the start of 2016-17, which increased by 107.11 kilolitres by the end of 2024-25. Further, the Corporation could not dispose of the annual fresh generation of hazardous waste for a continuous period of three years during 2018-19 to 2020-21. Thus, the hazardous wastes were stored for more than 90 days at the thermal power plants/hydel power station of the Corporation in contravention to the extant rules thereby exposing environment to the probable risks.

Audit further observed that Maithon Hydel Station did not have any authorisation from SPCB, till 18 September 2024, to handle, generate, collect, store and dispose of the hazardous waste, though it was having accumulated hazardous waste of 51.87 kilolitres as in March 2023 which was reduced to 6.72 kilolitres by March 2024. Five instance of fire took place during 2015-16 to 2021-22 in switchyard, of Maithon Hydel Station, near storage place of these hazardous waste but the same were not reported to SPCB, in non-compliance to the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

Also as per records made available to Audit, the Corporation did not have any concrete plans to dispose of the accumulation of hazardous waste in time bound manner and as per norms established in the extant rules.

Ministry/Management reply (November 2023/August 2023) was silent in regard to non-disposal of hazardous waste by thermal power plants of the Corporation while for Maithon Hydel Station they stated that efforts were being made to dispose of the hazardous waste material and to obtain requisite authorisation from SPCB.

This may be viewed in light of the fact that as on 31 March 2025, hazardous waste totalling 713.99 kl was lying at the thermal power plants/hydel power station of the Corporation in violation to extant Rules.

Recommendation No. 24: Effective hazardous waste management system, based on best practises, should be established by the Corporation in compliance to the extant Rules.

3.1.3.4 Renewable sources of Energy

A ***Upgradation of hydel units***

Operation & maintenance of hydropower facilities is critical thus, Central Electricity Regulatory Commission vide notification (March 2019) stipulated that it is essential to have timely and efficient plan for Renovation, Modernisation and Upgradation (RM&U) of hydro generating stations having useful life of 35 years (extended to 40 years in 2019-24 tariff regulations).

The details of RM&U activities undertaken by the Corporation for its hydropower facilities which have completed the useful life of 40 years, are given in Table 3.11 below:

Table 3.11: Details of RM&U activities at Corporation's Hydel Power units

Hydel Power Station	Unit No.	Commissioned during	Useful life of 40 years completed during	RM&U	Status of RM&U Work as on August 2025
Maithon	Unit-1	October 1957	September 1997	Not done since inception	DPR approved by Central electricity Authority in September 2022 but no RM&U work carried out till August 2025.
	Unit-2	March 1958	February 1998	2002-06	-
	Unit-3	December 1958	November 1998	Not done since inception	DPR approved by Central electricity Authority in September 2022 but no RM&U work carried out till August 2025.
Panchet	Unit-1	December 1959	November 1999	Not done since inception	After approval (February 2021) of DPR by CEA, the RM&U work was awarded in January 2022 against which physical progress of 45 *per cent* has only been achieved up to March 2025.

(Source: Information furnished by management)

Audit in this regard observed that Corporation did not carry out any RM&U work in three out of four hydel power units, despite the fact that the study conducted on Maithon hydel station (January 2021) revealed serious issues like cracks in runner blades, water leakages, problems in governor & lubrication system, deterioration in generator & transformer etc. It is pertinent to mention here that all the three remaining units wherein no work was undertaken, were more than 65 years old and have already outlived their useful life. Hence, the plants would further deteriorate in absence of proper RM&U work. The scrutiny of generation data for the period from 2016-17 to 2024-25[16] revealed the generation loss of 165.561 million units (MU) in these units due to frequent forced outages in case of units 1 & 3 of Maithon and unit-1 of Panchet being run at derated capacity since 2013.

Audit further observed that, the increase efficiency and production of hydel power units because of their timely RM&U would not only contribute in conserving scarce fossil fuels by utilising the available water but also has potential benefits for environment.

Ministry/Management in the reply (November 2023/August 2023) has given the chronology of events leading to delay in RM&U works whereby it has explained that efforts were made to get the RM&U work done but due to procedural delays the same could not happen. In the Exit Meeting (November 2024) Ministry advised corporation to complete the RM&U work within stipulated time.

[16] ***Generation loss has been calculated on the data for the monsoon season i.e. from June to October of each year, except for the months of October-2016, 2017, 2018 & 2019.***

This may be viewed in light of the fact that as on 31 March 2025/August 2025, due to non-handling of procedural delays, which could have been avoided with better coordination, the three hydel units did not get the requisite renovation, modernisation and upgradation despite of them being commissioned more than 65 years back. It resulted in their under-performance and generation loss.

Recommendation No. 25: The Corporation should carry out RM&U work of aged hydel units in a time-bound manner to prevent further deterioration and energy loss.

B Installation of Solar Photovoltaic Power Project

Government of India launched (January 2010) Jawaharlal Nehru National Solar Mission (NSM) with an objective to establish India as a global leader in solar energy and to promote ecologically sustainable growth, while addressing India's energy security challenge. Government of India also initiated numerous facilitative programmes and schemes to promote solar energy in the Country by providing Central Financial Assistance (CFA) or viability gap funding (VGF) under NSM.

In furtherance to NSM, the Ministry of New & Renewable Energy (MNRE), introduced (December 2014) a scheme for development of solar parks and ultra mega solar power projects in the Country. In response, Corporation engaged (April 2019) Solar Energy Corporation of India (SECI) to conduct the feasibility study and preparation of DPR for setting up of grid connected Floating Solar Photovoltaic Project (FSPV) in all four reservoirs[17] of the Corporation. SECI submitted (July 2019) the DPR which envisaged for setting up FSPV in all its four reservoirs with aggregate capacity of 1,180 MW & 1,776 MW on use of average water body 10 *per cent* and 15 *per cent* respectively. The Corporation proposed (December 2019) to set up FSPV with total capacity of 2,000 MW under Ultra Mega Renewable Energy Power Projects (UMREPP) scheme of MNRE in three phases i.e., 200 MW in 2020-22, 900 MW in 2021-23 and 900 MW in 2022-24. For the purpose, a joint venture Company named Green Valley Renewable Energy Limited was formed (August 2022) with equity participation of the Corporation and NTPC Renewable Energy Limited in the ratio of 49:51.

MNRE on request of the Corporation, accorded (February/March 2022) in-principal approval under UMREPP, for setting up of FSPV with capacity of 755 MW in first phase and only 234 MW in 2nd phase, with no timelines being decided for completion of these phases. As on September 2025, contract for construction of only 310 MW of FSPV has been awarded (January 2024) against which physical progress of only 21 *per cent* has been achieved while the work for development of balance 445 MW of FSPV for Phase-I is still under tendering stage.

Audit observed that:

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[17] ***Maithon, Panchet, Tilaiya and Konar***

- The delay in implementing solar project by the Corporation was due to combined impact of procedural delays in completing the steps given below, which could have been avoided with better planning and coordination :
  - Engagement of SECI for preparation of DPR;
  - Compliances with statutory requirements for formation of joint venture company;
  - Obtaining approval of the MNRE; and
  - Award of work.
- The Corporation lost opportunity to develop its capacity in generation of power through a renewable energy source i.e. Solar energy which was not only environment friendly but also could have helped the Corporation in meeting its renewable purchase obligations and avoiding infructuous expenditure thereon (discussed in detail in Para 3.1.3.4 (C)).

Ministry/Management (November 2023/August 2023) has justified the delay in taking up of the Solar Power projects due to its poor financial condition.

Audit noted that as on September 2025, the Corporation could achieve physical progress of only 21 *per cent* in construction of 310 MW of FSPV while tendering process for balance 445 MW of Phase-I is still not completed. Further, the Corporation was constantly having increasing Profit trends during period from 2019-20 to 2024-25 ranging from ₹185.32 crore in 2019-20 to ₹1,239.48 crore in 2024-25 but still the progress made in development of Solar power project was not commensurate.

C *Renewable Purchase Obligations*

Under Section 86 (1)(e) of the Electricity Act 2003 and the National Tariff Policy 2006, State Electricity Regulatory Commission (SERC) fix Renewable Purchase Obligation (RPO)[18] targets, on distribution companies to fulfil certain percentage of electricity from renewable energy sources (Solar & Non-solar). Every distribution company would endeavour to meet its RPO targets from its own generation from renewable sources or purchasing from other renewable energy generators. Penalty is imposed for non-fulfilment of RPO targets.

The Corporation, being a distribution company which supplies electricity in two States viz. West Bengal and Jharkhand has to fulfil its RPO targets as fixed by SERCs of two states. The RPO targets fixed by SERCs and its compliances for the last nine years ending 31 March 2025 are shown in Table 3.12 below:

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[18] ***Every Distribution licensee has to meet its RPO targets by any one or any combination of own generation of renewable energy and/or purchase of renewable energy and/or purchase of renewable energy certificates from renewable energy producer.***

Table 3.12: Compliance of Renewable purchase obligation

(figures in million units)

Year	RPO Targets	RPO fulfilment		Total RPO fulfilled	RPO shortfall	Purchase cost of REC (₹ in crore)
		Renewable Energy generated or purchased	Renewable Energy Certificates purchased			
2016-17	599.21	76.68	493.27	569.95	29.26	78.97
2017-18	768.58	75.28	581.04	656.32	112.26	87.83
2018-19	961.97	72.54	596.19	668.73	293.24	87.91
2019-20	1,247.62	70.84	998.78	1,069.62	178	202.50
2020-21	1,640.36	179.80	0.00	179.80	1,460.56	0.00
2021-22	2,927.39	111.22	630.13	741.35	2,186.04	109.42
2022-23	4,119.28	410.13	3,656.01	4,066.14	53.14	463.26
2023-24	4,415.34	214.22	4,202.13	4,416.35	(1.01)	181.56
2024-25	4,153.38	308.09	3,878.39	4,186.48	(33.10)	94.03
Total	**20,833.13**	**1,518.80**	**15,035.94**	**16,554.74**	**4,278.39**	**1,305.48**

(Source: Information furnished by management)

It is evident from the table above, that during 2016-25, the Corporation could not meet its RPO targets during any single year through renewable energy generation/purchase and has to resort to purchasing of infructuous renewable energy certificates (REC) for value of ₹1,305.48 crore. Despite purchasing REC, the Corporation was still short of its year-wise RPO targets during the period from 2016-17 to 2022-23 which ranged between 29.26 MUs and 2186.04 MUs.

Audit further observed that the Corporation's plan to increase its renewable energy generation by setting Floating Solar Photovoltaic Project was also getting delayed as discussed in Para 3.1.3.4 (B).

Ministry/Management stated (November 2023/August 2023) that the Corporation was able to achieve 99 *per cent* of its RPO targets during 2022-23.

This may be viewed in light of the fact that for fulfilling its targets for 2022-23 alone, the Corporation had to make infructuous expenditure of ₹463.26 crore on purchase of REC for 3,656.01 MU. Further, it made infructuous payment of ₹275.59 crore on purchase of REC for 8,080.52 MU during the subsequent years.

Recommendation No. 26: The Corporation should expedite execution of sanctioned solar projects to align with its renewable energy targets.

3.1.4 Conclusion

Audit observed significant deficiencies in environment management and pollution control in Corporation. Despite clear regulatory timelines, several thermal units of Corporation continued to emit pollutants viz. Particulate Matter and Oxides of Nitrogen beyond the norms prescribed by MoEF&CC. The Corporation did not effectively implement its own Ash Policy, 2018 resultantly ash utilisation targets were persistently missed, with legacy ash clearance remaining poor during 2022-23 to 2024-25. Limited capacity of ash ponds coupled with ineffective pond ash management at three of the thermal power plants and accumulation of hazardous waste, due to inadequate disposal mechanism, at six thermal power plants and one hydel power station posed threats to surrounding environment. Untreated effluents and absence/delay in establishment of STPs/ETPs at thermal power plants of the Corporation further aggravated the environmental issues.

Age-old hydel units, though identified for Renovation, Modernisation and Upgradation, were not taken up, resulting in generation losses. Progress in solar and renewable energy projects remained slow owing to delays in detailed project report preparation, statutory clearances, and award of works. Consequently, the Corporation could not meet its renewable purchase obligation targets in any year during 2016-25 from renewable energy generation and had to resort to infructuous expenditure on Renewable Energy Certificates amounting to ₹1,305.48 crore, yet still remained short of its obligations.

The deficiencies point towards weak planning & coordination, inadequate monitoring, and lack of timely corrective action by the Corporation. Unless these systemic gaps are addressed, the Corporation's operations would continue to pose environmental risks and undermine its role in contributing to national renewable energy and emission reduction goals.

North Eastern Electric Power Corporation Limited

3.2 Construction and Operation of Kameng Hydro Project

3.2.1 Introduction

Detailed investigation report of Kameng Hydro Project (Project) was approved by the Government of India in 1968. Central Water Commission (CWC) prepared the detailed project report (DPR) in 1982 based on which Government of India assigned (1985) the execution of the Project to North Eastern Electric Power Corporation Limited (Company), incorporated on 2 April 1976 to plan, investigate, design, construct, generate, operate, and maintain power stations in the country. The Company finalised all the Project parameters and estimates, incorporating the views of the Central Electricity Authority (CEA) & CWC therein and submitted it to the CEA for approval in September 1989. In October 1992, the Government of Arunachal Pradesh (State Government) handed over the Project[19] to a

[19] ***Water being State subject.***

private company. However, in absence of any progress made in the project; it was again handed back to the Company, by the State Government, in March 1999.

The Cabinet Committee on Economic Affairs (CCEA) approved (2 December 2004) the Project with cost estimates of ₹2,496.90 crore and scheduled completion time of 60 months i.e. upto December 2009. The four units of the Project were operationalised between June 2020 to February 2021 with a final project cost of ₹ 8,404.47 crore.

Audit analysis revealed deficiencies in Project planning and execution which are detailed below:

3.2.2 Audit Findings

3.2.2.1 Delay in Project completion

The major activities of the Project were divided into seven packages whereby Packages I to III were related to civil works and Packages IV to VII were related with hydro/electro-mechanical works, switch yards and generator/power transformer works. In order to comply with the deadline of Project completion by December 2009, work orders for five Packages viz. I to V were issued in December 2004 i.e., immediately after clearance of investment proposal by CCEA.

Audit observed that the complete Project could be operationalized in February 2021 i.e. after a delay of more than 11 years majorly because of following reasons:

- During execution of the Project and without approval of the competent authority, the Company made changes in project design which majorly included shifting of proposed site for Project dams[20], changes in river diversion plans, changes in penstock profile and shifting of powerhouse. Such changes required revised approvals from Competent Authority viz, Ministry of Power (Ministry), CEA and CWC. After due deliberations and with further revisions in designs the necessary approvals could be granted upto August 2012 crediting the site conditions and unprecedented geology. As a result of these changes, the scope of work of contractors increased requiring not only additional manpower and machinery but also machinery with higher capacity and modification in the methodology of execution of work.

- Work for approach roads, required for easy access to the Project site and free movement of men and machinery, though awarded in July 2003, could not be completed before August 2013, against its schedule of completion by October 2004, due to inadequate study of underneath geology and surrounding environment as the

[20] ***Two dams viz, Bichom and Tenga were to be constructed under the Project.***

Company citing time constraint and difficult hilly terrain; relied on existing surveys of Border Road Task Force rather than doing any study afresh itself.

- Leakages (March 2018) in penstocks[21] led to delayed commissioning of Project by approximately three years (*discussed in detail in Para 3.2.2.3*)

The cumulative effect of the above not only contributed in time overrun but also in cost overrun as the Project cost increased from CCEA approval of ₹2,496.90 crore to ₹ 8,404.47 crore on completion of the project.

Audit further observed that the elaborate changes in Project design, post its approval by CCEA, and taking up construction work of approach road without doing any fresh survey highlighted gaps in assessment of site's geological conditions and its surrounding environment thereby, preparing imprecise project estimates and detailed project reports. Knowing the difficult hilly terrain prone to unprecedented geology and environmental factors, the Company should have invested more time and efforts in site assessment and surveys before finalizing the detailed project reports and technical parameters & designs so as to avoid post approval changes and delays. Issue related to leakages in penstocks highlighted weaknesses in supervision of the project execution.

The Management accepted (March 2024) the Audit observation regarding changes in Project designs while it attributed the delay in construction of approach roads to change in classification of soil, fragile and unpredictable geology, steep gradient of hill slopes, landslides and rainfall etc. Management in its further reply (January 2025) stated that it would establish rigorous process for the approval of project designs and drawings to minimise possibility of post detailed project report variations in the project.

Ministry also attributed (January 2025) delay in construction of approach road to fragile geology, steep gradients, frequent landslides, heavy rainfall and natural calamities. While for changes in Project designs, post detailed project report appraisal, it stated that with changes introduced in detailed project report preparation and contract management, it expected minimal possibility of post detailed project report variations in the project.

Audit noticed that the elaborate changes in project designs, delay in construction of approach roads and leakages in the penstocks could have been avoided with better planning & site assessment, preparation of detailed project report after giving due leeway to tough hilly terrain & unprecedented geology and with effective supervision of project execution.

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[21] ***A penstock is a pipe or channel that carries water from a reservoir or dam to a turbine in a hydroelectric power plant. The penstock controls the flow of water and converts the potential energy in the water into kinetic energy. The penstock is typically made of steel or reinforced concrete to withstand the high pressures and force of the flowing water.***

3.2.2.2 Requirement of stone quarry

The DPR prepared by the CWC in 1982 anticipated the availability of sufficient good quality aggregates, both fine and coarse, near the Project site. Based on this, the Company did not include the requirement for a designated stone quarry in its forest clearance application (August 2000). The civil works (divided into three packages viz. I to III) were awarded (December 2004) without designated quarry provisions. Considering the availability of aggregates at the Project site itself, the contract included provisions for loading, transportation, and unloading of geological over break, within 3 km or beyond 3 km of the site, at a cost of ₹1.19 crore only.

However, during the tunnel boring, the quality and quantity of extracted rocks were found insufficient for the Project's civil construction needs. Resultantly, the Company identified 42 hectares of additional forest land for quarrying. State Government notified the additional forest land in September 2010; however, the State Government halted (June 2011) the quarry operations in additional forest land as the quarry operations were not as per approved land use pattern. The Company instructed (August 2012) contractors to source materials from other approved quarries notified by the State Government for which the transportation cost was to be borne by the Company resulting in incurring an extra lead expenditure of ₹426.01 crore.

Audit observed that the Company did not assess the non-availability of requisite aggregates near the Project site i.e. within 3 km, which led to non-including the requirement of a designated stone quarry in the original forest clearance proposal and estimation of expenditure on loading, transportation, and unloading of geological over break from distant quarries in proposal put for CCEA approval originally.

The Management stated (March 2024) that due to non-availability of aggregates near the project site and the State Government not giving requisite forest clearance, the transportation cost of aggregates had to be borne by the Company. Management in its further reply (January 2025) stated that it would strengthen its contract management and supervision mechanism.

Ministry did not give specific reply (January 2025) to the Audit observation; however, it stated that absence of effective supervision and accountability of the Management led to the cost overruns.

Response of the Ministry/Management may be viewed in light of the fact that due to improper assessment of availability of aggregates and resultant non-inclusion of the stone quarry in the original forest clearance proposal led to an extra lead expenditure of ₹426.01 crore.

3.2.2.3 Erection and commissioning of Penstocks

The hydro-mechanical works (Package IV of the Project) included the works of design, fabrication, erection and commissioning of steel liners for the penstocks. The work was completed in February 2018 and trial run for the same was done in March 2018. During trial runs, leakages in the penstocks were observed thereby, necessary repairs/restoration works have to be carried out due to which Project could be fully commissioned in February 2021 i.e. with a delay of three years.

Audit observed that:

- The agency hired (March 2018) by the Package IV contractor identified, based on visual inspection, defects in 631 out of 1,260 weld joints in both the penstocks. However, the Company could not report any defects in weld joints during its supervision of penstocks erection, completed in February 2018.
- After leakage in the penstocks, the Company appointed (June 2018) a third-party inspection agency to check, advice and certify all quality control measures taken up by the executing agency and also certify every work for acceptance by the Company, a step which should have been taken during the erection of the penstocks. It again highlighted the weak supervision by the Company.
- Out of total cost of ₹ 40.32 crore spent on repair of penstocks, an amount of ₹ 20.16 crore was borne by the Company.
- Delay in commissioning of all the four units (planned for March 2018) resulted in loss of opportunity to generate 8,658 million units, valued at ₹3,463.03 crore[22].
- Power Grid Corporation of India Limited constructed a transmission line to evacuate power from the Project, post its scheduled commissioning in March 2018. However, due to delay in full commissioning of Project by three years, Company had to bear the infructuous transmission charges of ₹ 124.43 crore.

Management stated (March 2024) that the penstocks leakages were due to unprecedented geological reasons and subsidence which could not have been predicted. Management in its further reply (January 2025) stated that it would establish clear guidelines for contract management so as to ensure that contractors are held accountable for timely and cost-effective execution of work awarded to them.

Ministry did not give specific reply (January 2025) to the Audit observation; however, it also emphasised requirement of establishing clear guidelines for contract management.

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[22] ***Calculated on the proposed generation of the Project, for the period from April 2018 to January 2021, as per non- operation period of the four units (Unit I upto May 2020, Unit II upto June 2020, Unit III upto December 2020 and Unit IV upto January 2021) @ ₹ 4 per unit being the provisional tariff mutually agreed by the Company and the beneficiaries.***

Response of the Ministry/Management may be viewed in light of the fact that ineffective supervision of penstocks erection by the Company resulted in loss of opportunity to generate 8,658 million units, valued at ₹3,463.03 crore besides, incurring avoidable expenditure of ₹ 20.16 crore on repair work and infructuous transmission charges of ₹124.43 crore.

3.2.2.4 Plunge Pool

A plunge pool is required in a hydroelectric project to dissipate the energy of free-falling water and protect the dams. CWC, based on the study conducted by Irrigation Research Institute (IRI), Roorkee recommended (October 2008) to construct a plunge pool at Bichom Dam. However, the Company did not consider the construction of plunge pool in the final design of the Project.

Audit observed that the decision of the Company of not constructing the plunge pool, despite recommendation of CWC and IRI, Roorkee, proved to be incorrect because the slopes on the banks of the Dam showed signs of distress soon after commissioning of Unit 1 of the Project in June 2020. A portion of the approach road over 80 metre length of slope on right bank got collapsed. Moreover, slopes on left bank collapsed from time to time to varying extent causing loss of the formation at about 50 *per cent* length of the left bank approach. In all slope, upto a distance of about 100 m from the dam toe area on either bank developed sign of distress to varying extent. Significant erosion of the riverbed, ranging from 4 to 12 metres below the original level was noticed (June 2022). Thereafter, the Company awarded (August 2022) the work for constructing a plunge pool at a cost of ₹28.03 crore and the same was yet to be completed in September 2025.

Figure 3.2: Damage due to non-construction of plunge pool at Bichom Dam

Management stated (March 2024) that the plunge pool provision was dropped based on the design consultant's advice. Management in its further reply (January 2025) stated that it

would establish a rigorous process for approval of the project designs and drawings so that all the modifications were justified and documented.

Ministry in its reply (January 2025) stated that the delay in decision taken by the Management with regard to construction of the plunge pool resulted in unnecessary time and cost overrun.

Reply of the Ministry/Management may be viewed in light of the fact that design consultant's advice, overruling the recommendation of CWC, lacked validity and should have been reviewed by the Company with caution because the Company had to belatedly take decision to construct the plunge pool when damage was already done to slopes on both the banks of river near dam and erosion of river bed had already happened.

3.2.3 Conclusion

The Project whose DPR was prepared in 1982 could be operationalised approximately after forty years, in February 2021. The major reasons for such delay were delay in handing over the project by State Government to the Company, post CCEA approval changes in Project designs, delay in construction of approach roads and leakages in penstocks. The above highlighted gaps in site assessment & detailed project report preparation and weak Project execution supervision. Due to above, the Project cost has risen from ₹2,496.90 crore when it was approved in December 2004 by CCEA to ₹ 8,404.47 crore when it was completed.

Relying on the DPR projections, the Company did not include provision of loading, transportation and unloading of aggregates from distant notified quarries in the civil contracts, however, during excavation of the project site, the aggregates were found not of requisite quality and quantity. Therefore, the Company incurred an extra lead amount of ₹426.01 crore for sourcing the material from distant quarries as against ₹1.19 crore provided in the civil contracts.

Supervision of penstocks erection was weak, due to which as soon as it was put to trial in March 2018, leakages were observed because of defects in weld joints resulting in delay in operationalisation of the project by approximately three years. Besides, Company bearing an avoidable cost of ₹20.16 crore on repair of penstocks, there was loss of opportunity to generate 8,658 million units, during April 2018 to January 2021, valuing ₹3,463.03 crore. Also, the Company had to bear infructuous transmission charges of ₹124.43 crore for the delay period of three years.

The Company, on advice of Project's design consultant, did not accept the recommendation of CWC, and decided (August 2009) not to construct the plunge pool at Bichom Dam which proved to be incorrect as damage to slopes on both the banks of river near dam and erosion of river bed was observed (June 2020 to June 2022) as soon as the Project was operationalised.

CHAPTER IV: MINISTRY OF HEAVY INDUSTRIES

Instrumentation Limited

4.1 Irrecoverable loss of ₹6.58 crore on account of non-recovery of advances prior to the retirement of employees

Instrumentation Limited, Palakkad (ILP) had given ₹7.58 crore to its 363 employees as advance to be recovered against the pay revision benefits. Out of ₹7.58 crore, ILP could recover only ₹1.00 crore from these employees on their retirement. ILP did not make recovery of balance advances from these employees which resulted in irrecoverable loss of ₹6.58 crore.

Instrumentation Limited (the Company) was set up in 1964 to meet the growing needs of the Core Industrial Sectors viz. Power, Steel, Oil Refinery etc for Control valves and Instrumentation. The Company's corporate office is located in Kota, Rajasthan and has manufacturing units at Kota[1] and Palakkad, Kerala. The Palakkad Unit (ILP) is manufacturing control valves, butterfly valves, power cylinders, actuators etc. for process industries.

A Memorandum of Settlement (MoS)[2] for revising pay and benefits of the employees of the Palakkad unit of the Company from 1 January 1992 was signed between the Company and employees/workers union in June 1999. Similarly MoS for the pay revision due from 1997 was signed in August 2009 which was implemented prospectively, hence arrears were not paid to employees. Further, pay revision for 2007 was implemented in October 2022 with effect from April 2021 onwards.

Meantime, the Company paid (1992 to 2015) ₹7.58 crore to its 363 employees as advances which were to be recovered from the arrears of pay revision, bonus/incentive or any lump sum amount payable in future to the employees. The term lump sum amount payable in future was not clearly defined in the orders issued for giving the advances. Out of ₹7.58 crore advances paid, an amount of ₹1.00 crore[3] was recovered from the arrear paid to 40 retired employees after 1 April 2021, due to implementation of pay revision 2007 w.e.f April 2021 leaving a balance of ₹6.58 crore **(Annexure X)** pending for recovery from 337 retired employees.

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1 ***IL Kota was a sick unit and referred to Board for Industrial and Financial Reconstruction (BIFR) in 1994. Union Cabinet approved (November 2016) the closure of the Kota unit and subsequently, the Kota Unit was closed on 18 April 2017.***

2 ***Based on the demands of Union of employees for implementation of Pay revision benefits, a settlement had arrived and signed between Union and Company.***

3 ***Out of the 40 employees who retired after 1 April 2021, recovery of entire advance amount of ₹0.70 crore was made from 26 employees and partial recovery of ₹0.30 crore was made from 14 employees.***

In this connection, Audit observed that even after it was known that the Company was declared (January 1994) a sick company by Bureau of Industrial and Financial Reconstruction (BIFR) due to its adverse financial conditions, the Company continued to give advances stipulating recovery from pay arrears or any future lump sum. The Company ignored the risk of non-recovery from accumulation of future payables/arrears of pay revision as the pay revision of 1997 was implemented in 2009 prospectively and outstanding advances could not be recovered while employees continued to retire. Further, the Company did not include conditions that it will recover advances either from salary or other retirement benefits of employees. This resulted into avoidable loss of ₹6.58 crore towards non-recovery of advances.

Management replied (January 2024) that no recovery was possible as no future payables accrued before retirement from those who retired up till 31.03.2021 and for employees who retired after 01.04.2021, the outstanding advances were recovered from the 2007 pay revision arrears. Further, the Company stated that due to retaining the retirement benefits of retired employees towards the recovery of the advances, 79 employees went to Hon'ble High court of Kerala and got orders favourable to them. The Company filed an appeal against the verdict, at Hon'ble division bench of High Court of Kerala on which verdict (February 2020) was in favour of employees. Hence the recovery of advances was not effected from the retirement benefits of the employees who were not paid the pay revision arrears but were given advances.

Ministry while endorsing the view of the management (July 2024), that no arrears of pay revision 1992 were given to the employees on account of adverse financial condition as the Company was already declared a sick company by BIFR and also agreed that there was no possibility of recovery of advances of ₹6.58 crore from retired employees.

Management reply may be viewed in light of the fact that advances were paid with the stipulation of recovery from arrears of pay revision/bonus//lumpsum amount payable in future despite the Company being referred to BIFR in 1994 and historical evidence of non-payment of arrears. This indicated that the Company made advances ignoring the risk of its non-recoverability. Reply of the management also confirmed that no recovery of advances was effected from the employees who were not paid the pay revision arrears.

Thus, non-inclusion of enabling conditions to recover the advances resulted in irrecoverable loss of ₹6.58 crore.

CHAPTER V: MINISTRY OF MICRO, SMALL AND MEDIUM ENTERPRISES

National Small Industries Corporation Limited

5.1 Raw Material Assistance Scheme

5.1.1 Introduction

National Small Industries Corporation (NSIC) Limited, a Mini Ratna Enterprise under the administrative control of the Ministry of Micro, Small and Medium Enterprises, was established on 4 February 1955 with the objective to aid, counsel, assist, finance, protect and promote the interest of micro, small and medium enterprises in India. One of the key activities of NSIC is to facilitate the supply of raw materials like iron and steel, aluminium, copper, etc. to the MSMEs. During 2003-04, NSIC started credit facility to MSMEs for procurement of raw materials. As of 31 March 2022, the total number of registered MSMEs (on Udyam Portal) were 80.08 lakh.

5.1.2 Raw Material Assistance Scheme

In order to assist MSMEs in procuring essential raw materials and other inputs, NSIC provides support under the Raw Material Assistance Scheme which covers the following:

(a) Raw Material Distribution

Under this arrangement, NSIC enters into Memorandum of Understanding (MoU) with manufacturers/suppliers of various industrial raw material(s). NSIC supplies raw materials at manufacturers' price to the MSMEs against advance payment as well as on credit basis. The supplies of various raw materials to MSMEs during the years 2017-18 to 2021-22 are shown in the table below:

Table 5.1: Raw materials supplied by NSIC to MSMEs

(₹ crore)

Material	2017-18	2018-19	2019-20	2020-21	2021-22
Iron and Steel	988.40	843.64	629.61	647.89	1,081.14
Aluminum	743.49	839.14	530.48	847.37	981.14
Other material	102.21	107.79	75.40	47.91	45.85
Total	**1,834.10**	**1,790.57**	**1,235.49**	**1,543.17**	**2,108.13**

(b) Raw Material Assistance

Under this component, NSIC provides credit support to MSMEs for purchasing raw materials and other inputs on short-term[1] credit against the security of bank guarantee. NSIC makes payments directly to the suppliers against the receipt of tax invoice/proforma invoice and material receipt note. This facility covers both the bulk manufacturers with

[1] ***The normal credit period was 90 days up to 14 June 2019 and 180 days from 15 June 2019.***

whom NSIC has MoU arrangements and non-bulk manufactures/suppliers with whom NSIC has no MoU arrangements. NSIC provided credit assistance amounting to ₹27,344.22 crore to the MSMEs during the period 2017-18 to 2021-22 as shown in the table below:

Table 5.2: Assistance provided to MSMEs during 2017-18 to 2021-22

(₹ crore)

Year	Credit support under RMA (Bulk Supply)	Credit support under RMA (Non-Bulk Supply)	Total credit provided during year	Number of MSMEs served during year
2017-18	612.45	5,157.24	5,769.69	2,878
2018-19	637.84	5,757.87	6,395.71	3,232
2019-20	382.63	4,678.65	5,061.28	2,843
2020-21	479.67	3,803.12	4,282.79	2,700
2021-22	835.50	4,999.27	5,834.77	2,597
Total	**2,948.09**	**24,396.15**	**27,344.24**	

(c) Godown operations

Under this component, NSIC functions as a service provider for the bulk manufacturers of raw materials and handles their godown operations. For this service, NSIC gets service/handling charge for the quantity of material handled from bulk manufacturers. NSIC handled 24,61,109 MT of different materials during the period 2017-18 to 2021-22 and earned an amount of ₹76.83 crore from godown operations.

5.1.3 Operational Performance of NSIC and Revenue earned from the Scheme

The operational performance of NSIC during the years 2017-18 to 2021-22 is depicted in the following table:

Table 5.3: Operational Performance of NSIC

(₹ crore)

Material	2017-18	2018-19	2019-20	2020-21	2021-22
Net Revenue from Operations[2]	488.42	483.06	467.18	427.18	420.45
Other Income	56.68	57.94	105.17	80.11	68.51
Total Expenses	394.22	477.58	440.03	367.61	343.54
Profit before Exceptional items and tax	150.88	63.42	132.32	139.68	145.42
Profit after tax	99.41	20.62	99.19	101.59	108.23

Raw Material Assistance Scheme is the primary business activity of NSIC and it has been contributing up to 90 *per cent* to the revenue of the company. Under the Scheme, NSIC earns revenues in four ways (a) interest from credit support, (b) Processing fees against

[2] ***Net Revenue from Operations = Total Revenue from Operations (including sale of products & services, interest from credit support, processing fees, commission and other operating income) minus Expenses on Purchase of products and Changes in inventory.***

credit facility and bulk supply, (c) Retained discounts, and (d) Service charges from Godown operations. Year-wise revenue earned under the Scheme during 2017-18 to 2021-22 is shown in the table below:

Table 5.4: Revenue earned by NSIC from Raw Material Assistance Scheme

(₹ crore)

Material	2017-18	2018-19	2019-20	2020-21	2021-22
Interest from financing	357.88	335.57	266.51	271.46	260.35
Processing fees	32.84	34.39	29.59	27.53	29.05
Retained discounts	11.56	14.54	6.54	10.75	9.60
Godown operations	15.71	14.37	15.96	15.25	15.54
Total	**417.99**	**398.87**	**318.60**	**324.99**	**314.54**

5.4 Audit Objectives

Audit was conducted to assess whether the objective of providing affordable credit facility to MSMEs was achieved, and adequate efforts were made by NSIC to ensure maximum coverage of eligible MSMEs under the Scheme.

5.5 Scope of audit

Audit of the Raw Material Assistance Scheme of NSIC for the period 2017-18 to 2021-22 was conducted from July 2022 to December 2022. Audit covered NSIC's Corporate office and selected branches. The selection of branches was based on stratified random sampling in respect of MSMEs served and assistance provided under the scheme. Out of total 52 branches[3] serving 4,316 MSMEs, 14 branches[4] serving 1,404 MSMEs (32 *per cent*) were selected for audit. Feedback from 96 beneficiary MSMEs was also obtained.

5.6 Audit findings

5.6.1 Performance of RMA scheme

NSIC provides credit support to MSMEs for purchasing raw materials and other inputs on short-term[5] credit against the security of bank guarantee. The total amount of such bank guarantees received by NSIC at any given point of time is termed as the bank guarantee portfolio.

During 512th meeting of the Board of Directors of NSIC held in May 2017, the performance of the Raw Material Assistance Scheme was evaluated, and a business plan was approved for credit support under the Scheme. In the business plan, it was projected to increase the bank guarantee (BG) portfolio under the Scheme by ₹300 crore each year and to increase the credit support by ₹500 crore each year from 2017-18 to 2021-22.

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3 ***As of 31.03.2022***

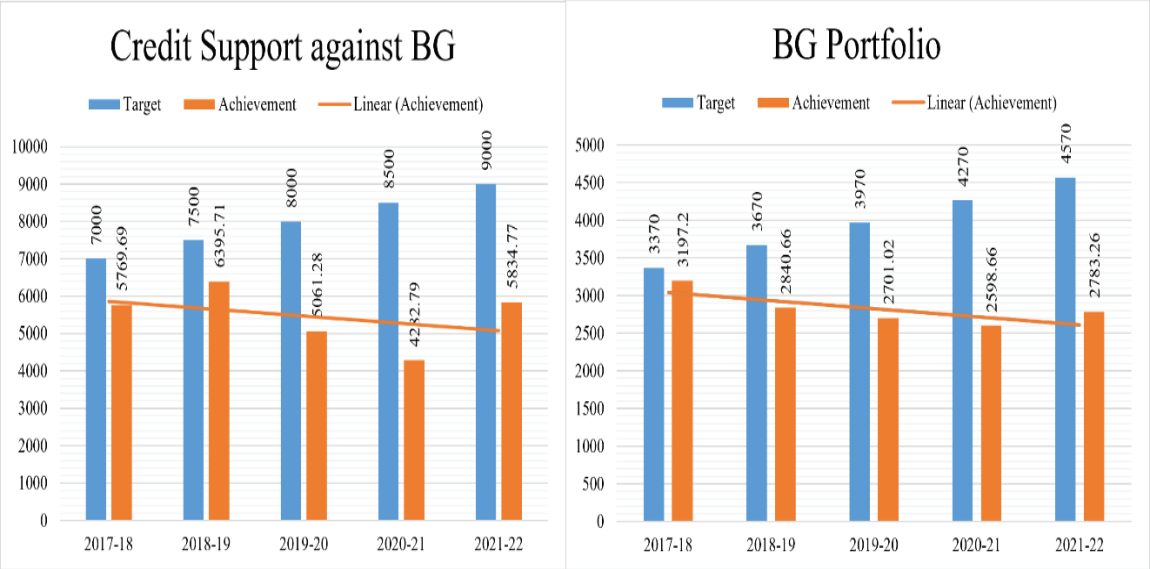
4 ***Balanagar, Bangalore, Belgaum, Cuttak/Bhubaneshwar, Dehradun, Faridabad, Hyderabad, Kolkata, Ludhiana, Noida, Naini, Patna, Pune and Technical Centre, Okhla***

5 ***The normal credit period was 90 days up to 14 June 2019 and 180 days from 15 June 2019.***

Scrutiny of records revealed that instead of a net increase, there was a net decline in the BG portfolio. Further, the credit support provided by NSIC also depicted a declining trend. The targets envisaged by the Board and achievement there against during 2017-18 to 2021-22 are shown in chart below:

Chart 5.1: Target and Achievement of Credit Support and Bank Guarantees (BG)

(₹ crore)



(Source: Targets given by Board, financial statements and reports of RMA package)

It can be seen from the chart above that NSIC was not able to meet the targets set by the Board throughout the period 2017-18 to 2021-22. Instead of an anticipated increase, there was a decreasing trend in both the BG portfolio achievement and the credit support provided under the scheme.

Analysis of the reasons for the declining BG portfolio revealed that interest rates under the Scheme were discouraging for the MSMEs. NSIC had been financing the Scheme through borrowings apart from its own funds and the average cost of borrowings of NSIC had decreased from 7.97 *per cent* per annum in April 2018 to 4.00 *per cent* per annum in March 2022. However, during the same period, the lending rates of NSIC to MSMEs had only reduced from 11 *per cent* per annum to 9 *per cent* per annum (for small and medium enterprises). Resultantly, there was an increase in the spread of interest from 3 *per cent* to 5 *per cent* during the period due to which the number of MSMEs availing benefit under the Scheme decreased from 2,878 in April 2018 to 2,221 in March 2022.

Further, the survey conducted among the beneficiaries of the Scheme revealed that many MSMEs had suggested a reduction in the interest rates under the Scheme.

The Management/Ministry in its reply (June 2023/March 2024) stated that:

- The Scheme fulfils the basic needs of MSME units by providing them with cheaper funds and timely availability of raw material at cheaper rates. However, the number of MSMEs and BGs added can vary from year to year, depending on a number of factors. The reluctance of banks to issue BGs in favour of NSIC has also played a role in the decline of the number of beneficiaries and net addition of BGs.

- The spread of interest rate remained high even after the reduction in interest rates in order to meet operational costs and other obligations.

- MSME units who are not getting any funds at cheaper rate outside are approaching NSIC for funding. Thus, the high interest rates under the Scheme have not discouraged MSMEs but helped in carrying out their businesses.

- The high interest rates under the RMA scheme have been reviewed and options for funds such as commercial papers, equity infusion by Ministry of MSME and interest subsidy/subvention from Ministry of MSME have been explored.

The reply of Management/Ministry needs to be viewed in light of the fact that the number of MSMEs availing benefits under the Scheme were declining. Moreover, NSIC's claim of offering cheaper funds is contradicted by its own justification of high interest rates due to operational costs. This inconsistency highlights the need for a clear policy stance on NSIC's intended role in MSME credit facilitation, and a re-evaluation and rationalisation of interest rates under the Scheme.

Recommendation No. 27: NSIC may consider rationalising the interest rates under the Scheme to enhance affordability by MSMEs and ensure long-term viability of the Scheme.

5.6.2 Coverage of MSMEs under the scheme

Audit observed that the coverage of MSMEs under the Scheme during the period 2018-19 to 2021-22 was mere 0.05 *per cent* (4,316 MSMEs[6]) of the total registered MSMEs on Udyam Portal (80.08 lakh as of 31 March 2022). Further, in the States where the MSMEs are concentrated, the coverage of the Scheme in the selected 14 branches ranged between 0.006 *per cent* (Maharashtra) and 0.097 *per cent* (Telangana) **(Annexure XI)**.

Analysis of data of Udyam portal also revealed that 95 *per cent* of registered MSMEs on the Udyam portal fell under the micro category. However, among 4,316 MSMEs served under the RMA scheme, only 20 per *cent* were micro enterprises and remaining 80 *per cent* were small and medium category enterprises. This indicated that there was still a significant market of micro enterprises which remained untapped by NSIC.

[6] ***The total number of MSMEs served under the Scheme was calculated by adding no. of MSME as of 01.04.2018 and factoring in the annual addition of MSMEs in subsequent years.***

Audit also observed that there was no system for online submission of applications for seeking assistance under RMA. In absence of online application platform, the MSMEs situated in States/ UTs where NSIC has no branches had to contact the branches situated in other States for seeking assistance under the Scheme. This made the application process difficult for remotely located MSMEs. In the feedback also, 5 out 96 beneficiaries suggested for an online platform for better communication.

The Management/Ministry stated (June 2023/March 2024) that:

- The Scheme is need-based and depends on the availability of BG limits of MSMEs.
- The micro enterprises often lack financial credibility to avail BGs from banks, thus making them unable to participate in the Scheme.

The reply needs to be seen in light of the fact that the Scheme has contributed up to 90 *per cent* of revenue of the Company and still covers very less number of MSMEs as NSIC supports only those MSMEs who are capable of furnishing BGs. As such, with the present design of the Scheme, serious concerns emerge regarding its long-term viability.

Recommendation No. 28: NSIC needs to identify the reasons for low coverage and prepare a plan to enhance coverage of the scheme. NSIC may also consider conducting a survey amongst MSMEs to assess their requirements.

5.6.3 Recovery of interest for delay on the part of banks

Clause 4.3 of the Financial Service Manual of NSIC stipulates that, in case an MSME is found to be a wilful defaulter, its BG must be invoked. Upon submission of the invocation claim to the Bank, the Raw Material Assistance (RMA) account[7] of the MSME must be frozen. The purpose of freezing the RMA account is to ensure that no further interest is charged on outstanding dues after the date of freezing and to prevent the outstanding from exceeding the BG value. Furthermore, if the bank delays in releasing the payment against the invoked BG beyond three working days, the interest for the delayed period is to be claimed from the BG issuing bank. The date of receipt of the invocation letter at the issuing bank must be reflected in the RMA software as the date of invocation for the purpose of claiming interest from the bank for the delayed period on the part of the bank. Provision in the Financial Service Manual directs Branches to claim interest from the BG issuing bank in case of delays.

Audit, however, observed that the BG format prescribed by NSIC for MSMEs/Banks does not contain any clause that mandates the BG issuing Bank for payment of interest for the delayed period. Therefore, NSIC was unable to ensure that Banks would pay interest for

[7] ***It is the credit account opened by NSIC with itself for providing credit to MSMEs under the scheme.***

any delay in releasing of the BG proceeds to NSIC in the absence of any binding clause in the BG agreement.

Test-check of records revealed that during the period April 2018 to March 2022, BGs of 812 MSMEs were invoked. However, out of these, the RMA accounts of only 306 MSMEs were frozen prior to the invocation of BGs, leaving out the remaining 506 MSMEs which was in contravention of provisions of Financial Service Manual. Further, in 306 MSME cases, where RMA accounts were frozen prior to invocation date, it was observed that in 169 cases[8] the difference between the freezing date (date on which interest charging was stopped) and the invocation date (date of receipt/acceptance of invocation letter in issuing Bank) ranged from 4 days to 860 days, with an average delay of 57 days. Consequently, in these cases, banks released invocation proceeds with delays, leading to non-recovery of estimated interest of ₹6.36 crore for the delayed period. As the BG agreement between NSIC and BG issuing banks lacked a binding clause to that effect, NSIC was unable to recover the interest from the banks.

The Management/Ministry stated (June 2023/March 2024) that:

- There are several reasons for the delay in receiving BG invocation proceeds from banks, including procedural delays, part payments made by the units, and reluctance of banks to pay interest for the delayed period. NSIC has the option to go to the ombudsman, but this is time-consuming, and the results are often not favorable.

- Incorporation of binding clause in the BG agreement that mandates the bank for payment of interest for the delayed period in BG agreement would adversely hamper NSIC's business as the banks could refuse to issue BG to the MSMEs.

The reply of Management/Ministry needs to be viewed in light of the fact that absence of a mechanism for recovery of interest from banks for delay in releasing the BG proceeds goes against the financial interests of the Company.

Recommendation No. 29: NSIC may devise a system so that the interest for the period from date of invocation of BG to the date of its realisation could be recovered.

5.7 Conclusion

National Small Industries Corporation (NSIC) extends credit support to MSMEs through its Raw Material Assistance (RMA) scheme. The RMA scheme is the primary business activity of NSIC, contributing to 90 *per cent* of its revenue during 2021-22. NSIC provides credit support to MSMEs under the Scheme only against Bank Guarantees (BG). In May 2017, the Board of Directors of NSIC passed a resolution to increase the credit support against BG and the BG portfolio. However, instead of witnessing a net increase, a net

[8] ***In remaining 137 cases difference between freezing date and invocation date was less than or equal to 3 days.***

decline was recorded. Decreasing trend was also observed in the number of MSMEs benefiting under the scheme which reduced from 2,878 at the beginning of 2018-19 to 2,221 by the end of 2021-22. Further, it was also observed that banks have started denying fresh or renewed BGs in favor of NSIC.

The benefit of reduced borrowing cost (interest) for NSIC was not effectively passed on to MSMEs. While NSIC's borrowing cost reduced from 7.97 *per cent* per annum (April 2018) to 4.00 *per cent* per annum (March 2022), the lending rates of NSIC under the Scheme had only reduced from 11 *per cent* to 9 *per cent*, which led to reduction in the number of MSMEs availing assistance under the scheme.

Thus, the current structure and execution of the Scheme does not adequately serve the needs of MSMEs. There is a need for NSIC to review and revamp the Scheme in light of MSMEs' requirements. NSIC needs to take necessary measures to make the Scheme attractive, easy to access and effective for MSMEs to avail the benefits of the Scheme.

CHAPTER VI: MINISTRY OF STEEL

Steel Authority of India Limited

6.1 Performance of Chandrapur Ferro Alloy Plant of SAIL

6.1.1 Introduction

Chandrapur Ferro Alloy Plant[1], a unit of Steel Authority of India Limited (SAIL), is engaged in production and supply of Silico Manganese and Ferro Manganese to the integrated steel plants of SAIL. Ferro-Alloys are used as De-Oxidizers and alloying elements for imparting desired properties to steel.

Chandrapur Ferro Alloy Plant had a production capacity to produce 1.9 lakh tonne per annum of Ferro Manganese or 1.3 lakh tonne per annum of Silico Manganese[2] with three Submerged Arc Furnaces, one Electric Arc Furnace of one Mega Volt Ampere capacity and two Manganese Ore Sinter Plants. The unit is headed by an Executive Director who reports to the Director incharge, SAIL/Bhilai Steel Plant.

Records relating to functioning of Chandrapur Ferro Alloy Plant were examined for the period from 2017-18 to 2021-22 and observations were updated till 2023-24.

The audit was conducted with an objective to assess whether (i) the plant was operated economically, efficiently and effectively as per the Annual Production Plan, rated capacity and requirement of SAIL steel plants and repair & maintenance of the plant was carried out timely, (ii) Fuel and raw materials were available at desired quantity, and (iii) Statutory provisions of safety and environmental issues were complied by the Plant.

6.1.2 Audit findings

6.1.2.1 Production Performance

A Lower production than the Annual Business Plan (ABP) and Installed capacity

Chandrapur Ferro Alloy Plant prepares Annual Business Plan for production of Silico Manganese as per the requirement of SAIL steel plants. Annual requirement of Silico Manganese for SAIL plants, installed capacity of Chandrapur Ferro Alloy Plant and target for production as per the ABP during 2017-18 to 2023-24 is given in the table6.1 below:

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1 ***Previously named as Maharashtra Elektrosmelt Limited was set up by the Government of Maharashtra in 1974. It was made a subsidiary of SAIL in 1986 and subsequently became unit of SAIL in July 2011.***

2 ***Two 33 Mega Volt Ampere Submerged Arc Furnace (SAF-I & II) installed at Chandrapur Ferro Alloy Plant had a rated capacity to produce one lakh tonne per annum of Ferro Manganese or 0.7 lakh tonne per annum of Silico Manganese. One 45 Mega Volt Ampere SAF-III was commissioned in August 2017 with capacity to produce 0.9 lakh tonne per annum of Ferro Manganese or 0.6 lakh tonne per annum of Silico Manganese.***

Table 6.1 Production Performance of Chandrapur Ferro Alloy Plant during 2017-24

Year	Total requirement of SAIL plants (tonne)	Installed capacity of plant (tonne)	Installed capacity to total requirement of SAIL plants (in *per cent*)	Annual Business Plan quantity (tonne)	ABP to installed capacity of plant (in *per cent*)	Actual Production (tonne)	Percentage of production with respect to ABP
1	2	3	4=(3/2*100)	5	6=(5/3*100)	7	8=(7/5*100)
2017-18	206664	110000	53	88700	81	56970	64
2018-19	237320	130000	55	100800	78	74743	74
2019-20	256206	130000	51	114400	88	60829	53
2020-21	232692	130000	56	98000	75	79378	81
2021-22	268123	130000	48	105000	81	85518	81
2022-23	275000	130000	47	105000	81	71458	68
2023-24	258000	130000	50	110000	85	91180	83

Source: Information furnished by Management.

Audit noted that though there was requirement of Silico Manganese by SAIL, target for production of same in the Annual Business Plan was set by the management below the production capacity of Chandrapur Ferro Alloy Plant which was between 75 *per cent* in 2020-21 and 88 *per cent* in 2019-20. Further, production of Silico Manganese was lower than the production target fixed in Annual Business Plan. The target was lower during 2020-24 in comparison to 2019-20 and even the reduced targets were not achieved by Chandrapur Ferro Alloy Plant.

Dip in production during 2019-20 and 2022-23 was due to shut down of Submerged Arc Furnace-II from June 2019 to December 2020 and short supply of coke during 2022-23. Capital repair of Submerged Arc Furnace -II was envisaged to be carried out in 50 days (April 2018 to May 2018) but it remained shut down for 18 months (June 2019 to December 2020). The furnace was shut down during June 2019 to May 2020 due to shortage of coke, in June 2020 and July 2020 for prefabrication work and during August 2020 to November 2020 for capital repair work. In addition to the above, the other causes of shortfall in production were running of Submerged Arc Furnace-III below its rated capacity, poor quality of Manganese ore and poor availability of Submerged Arc Furnace for operation. Due to shortfall in production, there was potential loss of contribution which are discussed in subsequent paragraphs.

Management/Ministry replied (April 2023/October 2023) that lower production during 2017-22 was on account of delay in commissioning of Submerged Arc Furnace –III due to bottleneck in Gas cleaning Plant operation & Tapping area, capital repair of Submerged Arc Furnace -II, short supply of coke from sister concern etc. There is an increasing trend of production volume except for a dip in 2019-20.

Management/Ministry reply may be seen in light of the fact that Submerged Arc Furnace - III was commissioned in August 2017 but could not perform at its optimum level due to design deficiencies. Capital repair of Submerged Arc Furnace -II was envisaged to be carried out in 50 days but it remained shut down for 18 months. The furnace was shut down for 12 months due to shortage of coke which was avoidable. Alternatives were not found to be explored (except 2020-21 in which coke was procured from RINL) for procurement of coke. Further, the production was always below the installed capacity as well as Annual Business Plan quantity.

Recommendation No. 30: The Company may put in efforts to address the various reasons adversely impacting production of Silico Manganese like design deficiencies of Submerged Arc Furnace III, timely completion of capital repairs and also explore alternatives for procurement of coke to increase the production of Silico Manganese in future.

B Lower production from Submerged Arc Furnace-III due to design deficiencies

Chandrapur Ferro Alloy Plant awarded (December 2011) the work for commissioning of 45 Mega Volt Ampere Submerged Arc Furnace-III to a Contractor with scheduled date of completion by October 2013. The furnace was, however, commissioned in August 2017. There was delay of 46.5 months in commissioning of the project due to various reasons like delay in design, engineering and civil works and erection of plant and equipment. As per delay analysis report of the Management, 31 months delay was on account of SAIL and 15.5 months due to the Contractor.

During operation of Submerged Arc Furnace, poisonous gases like Carbon Monoxide, Carbon dioxide etc. are generated and clearing (dust) of such gases takes place in the Gas Cleaning Plant for their use as fuel in Sinter plants, Lime Kilns etc.

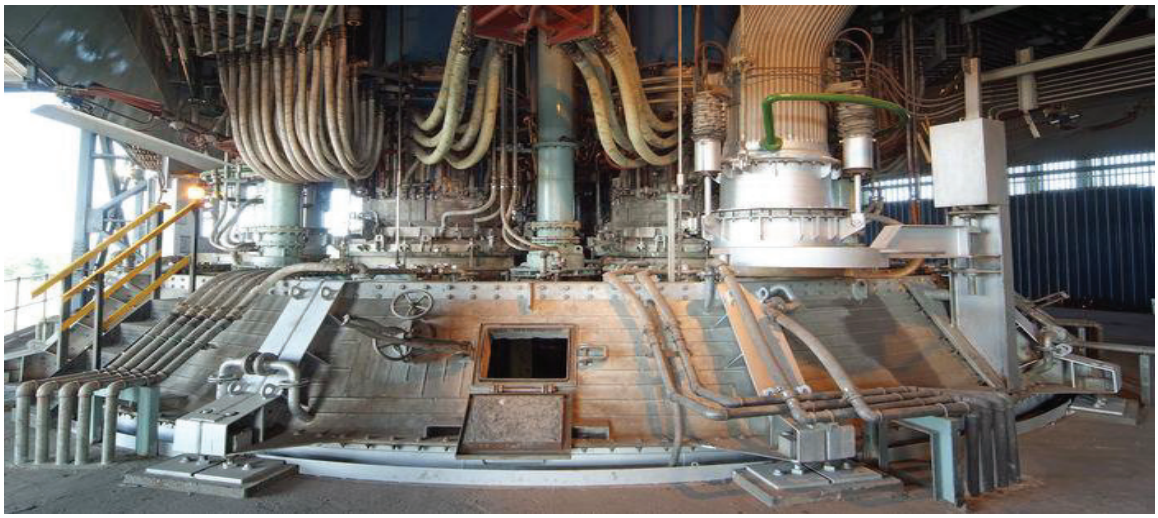

Figure 6.1: Submerged Arc Furnace III

When Submerged Arc Furnace-III was put under operation (August 2017), number of problems in the Gas Cleaning Plant[3] were noted (December 2017) by Management as detailed below:

- Load of the furnace could not be increased leading to its operation at a very low load and below the rated capacity due to design deficiencies in the Gas Cleaning Plant since beginning.

- Though the problems were attended (January 2018) by the vendor, major issues in the form of accumulation of slurry in the tanks, Induced draught fan impeller[4] cleaning and leakages in Induced draught fan glands[5] of Gas Cleaning Plant were observed (February 2018) which hindered the furnace operation.

- Later, there was pressure built up in Submerged Arc Furnace -III (August 2018) which disrupted the furnace operation.

- A fire incident occurred (November 2018) at 33 kilovolt indoor switchyard of Submerged Arc Furnace -III which led to stoppage of furnace operation.

Centre for Engineering & Technology/SAIL suggested (May 2019) measures like to monitor vibration and temperature parameters manually to avoid any unsafe situation, inclusion of periodic cleaning of emergency stack valve to tackle dust deposition over emergency stack value, to run the slurry pump with recirculation line to avoid deposition of sludge in slurry tank, to rectify the water flow meter fault using bypass or during shut down of GCP and to start all round spray to reduce the temperature in bottom thermocouples.

Audit observed that the Gas Cleaning Plant system designed by the Contractor which was also approved by Centre for Engineering & Technology was defective since beginning. The management, being aware of the design deficiencies, pursued for rectification of the equipment. Though, some defects were attended by the vendors, Submerged Arc Furnace-III could not run at its rated capacity, even after seven years of its commissioning. Finally, the Contractor proposed (August 2023) for replacement of the Gas Cleaning Plant.

Thus, due to lower production from Submerged Arc Furnace-III there was potential shortfall in production of 2.33 lakh tonne than the rated capacity (of Submerged Arc Furnace-III) and 1.79 lakh tonne in comparison to the Annual Business Plan target (of Submerged Arc Furnace-III) during the period from August 2017 to March 2024. Short

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[3] ***Separation of dust along with water from the furnace gases coming out of Submerged Arc Furnace takes place in Gas Cleaning Plant.***

[4] ***Induced draught fan impeller creates suction for gases of furnaces.***

[5] ***Induced draught fan glands are used to avoid leakages at blower casing.***

production in comparison to the Annual Business Plan quantity resulted in foregoing of potential contribution of ₹100.97 crore[6] during August 2017 to March 2024.

Management/Ministry replied (April 2023/October 2023) that entire loss in production was not on account of non-performance of Gas Cleaning Plant. The matter was being pursued on continuous basis for its resolution and there was improvement in Submerged Arc Furnace-III's performance. Further, contractor would explore feasibility of setting up a new unit of Gas Cleaning Plant.

Management/Ministry reply may be seen in the light of the fact that major reason for shortfall in production was problems encountered in the operation of Gas Cleaning Plant since December 2017 which led to operation of the furnace at lower capacity. Setting up a new Gas Cleaning plant by the contractor was still under proposal stage.

Recommendation No. 31: The Company may ensure that the problems encountered in the operation of Submerged Arc Furnace including those in the Gas Cleaning Plant are resolved at the earliest to achieve the envisaged production..

C Absence of norm for Capital repair of Submerged Arc Furnace

The production activities in Submerged Arc Furnace I, II and III started in February 1977, August 1981 and August 2017 respectively. Capital repair was required to maintain the health of the furnaces to achieve production as per their installed capacity. Capital repair involves replacement of different refractory, mechanical maintenance, utilities, electrical, instrumentation and civil works of Submerged Arc Furnace.

Audit noted that norms or guidelines were not set by Chandrapur Ferro Alloy Plant for taking up capital repair of the Submerged Arc Furnaces. As of March 2024, four each capital repair campaigns were taken up for Submerged Arc Furnace-I&II since their commissioning. Capital repair works of Submerged Arc Furnace-I was undertaken at intervals of 76 months to 147 months of its operation, while that of Submerged Arc Furnace-II was undertaken after a continuous run of the furnace ranging between 56 months and 181 months

In the absence of norms/ intervals set for carrying out the maintenance jobs, capital repair was not done periodically and rather maintenance works were executed as per requirement for carrying out specific jobs based on the condition of the equipment/ parts of the furnaces. This had adverse impact on the availability of furnaces and thereby, adversely affected the production.

Management/Ministry replied (April 2023/October 2023) that Submerged Arc Furnace-II was switched off (June 2017) to facilitate commissioning of Submerged Arc Furnace-III.

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[6] ***Yearly contribution as per the cost sheet multiplied by less production than the ABP quantity during the year.***

Submerged Arc Furnace-II was operated at reduced load owing to unhealthy condition of furnaces and finally switched off in June 2019.

Reply of Management/Ministry is silent on the audit observation pertaining to absence of any fixed norms/ intervals for carrying out capital repair of the Submerged Arc Furnaces.

Recommendation No. 32: The Company may fix norms for carrying out capital repair of Submerged Arc Furnaces to prevent/reduce the forced breakdowns and the consequential production losses.

D Short supply of coke by SAIL steel plants

The desired size of coke required at the furnace was 6-20 mm. This coke size helps to maintain the permeability of charge and charge resistivity in the production process of Ferro Alloys. Requirement of coke for Chandrapur Ferro Alloy Plant was assessed in the Annual Business Plan which was received from the steel plants of SAIL[7]. Any shortage in receipt of coke from the steel plants would adversely affect production thereby, affecting the revenue generation. Quantity required and receipt of coke by Chandrapur Ferro Alloy Plant during 2017-24, along with contribution foregone due to short receipt of coke is given in the table 6.2 below:

Table 6.2: Less contribution due to less production of Silico Manganese during 2017-24

Year	Requirement of coke as per ABP (tonne)	Quantity of coke received (tonne)	Percentage of received quantity to required quantity of coke	Shortfall in production of Silico Manganese (tonne)
2017-18	47,585	28,403	60	4,072
2018-19	66,480	44,726	67	4,667
2019-20	74,640	41,631	56	24,060
2020-21	62,407	60,815	97	152
2021-22	66,024	50,441	76	1,420
2022-23	64,049	49,139	77	3,185
2023-24	74,646	64,481	86	1,411
Total	**455,831**	**339,636**		**38,967**

Source: Information furnished by management.

It was seen that only 56 *per cent* to 97 *per cent* of required quantity of coke could be received from the steel plants during 2017-18 to 2023-24. In 2020-21 where the production target of Silico Manganese was reduced due to undertaking of capital repair in Submerged Arc Furnace-II thereby, reducing the coke requirement, Chandrapur Ferro Alloy Plant received a maximum 97 *per cent* of its required quantity. Out of the total receipt, 4,551 tonne of coke was procured (2020-21) from Rashtriya Ispat Nigam Limited. Further,

[7] ***Bhilai Steel Plant (BSP), Bokaro Steel Plant (BSL), Rourkela Steel Plant (RSP), IISCO Steel Plant, Burnpur (ISP) and Durgapur Steel Plant (DSP).***

Chandrapur Ferro Alloy Plant procured 21,232 tonne coke from NMDC, Nagarnar and 3,796 tonne from Metalitecoke Energy, Purulia during 2023-24.

Thus, shortage of coke at Chandrapur Ferro Alloy Plant during 2017-24 led to less production of 0.39 lakh tonne of Silico Manganese thereby, forgoing of potential contribution of ₹13.54 crore.

Management/Ministry replied (April 2023/October 2023) that maximum possible effort to procure coke from SAIL plants for fulfilling the annual production targets has been made. Efforts are also being made to examine availability of coke from source other than SAIL in order to maintain the stock of coke to enhance production. Ministry further stated that during 2023-24, Chandrapur Ferro Alloy Plant has started procuring coke from NMDC Steel Limited and is also in process of procuring coke on trial basis from private parties through open tender.

Audit observed that Chandrapur Ferro Alloy Plant had made attempt to procure coke from sources other than SAIL only in 2020-21 and 2023-24 despite being aware of the critical condition of availability of coke from SAIL plants. Acute shortage of coke could have been avoided had the action for procurement of coke from other sources taken earlier.

Recommendation No. 33: The Company may explore alternate sources for procurement of coke in order to have uninterrupted supply and production.

E Production of Sinter

Chandrapur Ferro Alloy Plant had two Sinter plants[8] to produce Sinter by using Manganese ore fines and Coke fines for use in the Submerged Arc Furnaces. The operation of Sinter Plant plays an important role in production of Silico Manganese. Besides utilising the fines generated from Manganese ore, it also decreases the consumption of manganese ore. The installed capacity of each Sinter Plant was to produce 50 tonne sinter per day.

Production target of sinter in the Annual Business Plan, Production of Sinter, consumption of Manganese ore and breakdown/shutdown hours in sinter plants during 2017-24 is given in the table 6.3 below:

[8] ***Capitalization date of Sinter plant I was 01.12.1991 and its useful life (25 years) was over on 30.11.2016, whereas Capitalization date for Sinter plant II was 01.01.1997 and its useful life was over on 31.12.2022***.

Table 6.3 Performance of Sinter Plant -I & II during 2017-24

Year	Annual Business Plan target (tonne)	Total production (Sinter Plant-I & II) (tonne)	Sinter Plant-I				Sinter Plant-II			
			Production (tonne)	Consumption of Manganese ore fines (tonne)	Breakdown/ Shutdown hours	Percentage of breakdown/shutdown hours w.r.t available hours	Production (tonne)	Consumption of Manganese ore fines (tonne)	Breakdown/ Shutdown hours	Percentage of breakdown/shutdown hours w.r.t available hours
2017-18	19500	14922	7731	7158	2422	28	7191	8401	2381	27
2018-19	25600	14845	9642	10966	1403	16	5204	5393	4836	55
2019-20	24000	7446	6713	7787	2263	26	732	936	6265	72
2020-21	16170	8529	5985	7302	2823	32	2544	2874	5822	66
2021-22	16420	6279	4532	5121	3098	35	1747	1974	6691	76
2022-23	8210 @	3238	3238	8049	*	*	0	0	*	*
2023-24	8210 @	297	297	420	*	*	0	0	*	*
Total	**118110**	**55556**	**38138**	**46803**	**12009**	**27**	**17418**	**19578**	**25995**	**59**

Source: Information furnished by the management.

****After 2021-22 management did not maintain breakdown/ shutdown hour data in view of meagre production.***

@ During 2022-24 there was no planned production as well as actual production in Sinter Plant II.

The Annual Business Plan was set below the rated production capacity of Sinter Plants i.e. 0.36 lakh tonne per year and the production of sinter from both the Sinter Plants put together was only between 4 *per cent* and 76 *per cent* of the Annual Business Plan target during 2017-24. The breakdown/shutdown hours in Sinter Plant-I increased from 28 *per cent* of available hours (2017-18) to 35 *per cent* of available hours (2021-22) and that in Sinter Plant II increased from 27 *per cent* (2017-18) to 76 *per cent* of available hours (2021-22). The shortfall in production of sinter was mainly on account of the obsolete condition and related high maintenance cost in Sinter Plant-I. Also Sinter Plant-II was utilised for crushing of oversized coke received from sister plants for use in Submerged Arc Furnaces. The shortfall in production of sinter led to non-utilisation of the Manganese ore fines and accumulation of 0.86 lakh tonne of Manganese ore fines valuing ₹22.17 crore.

Management/Ministry attributed (April 2023/October 2023) low production from Sinter Plant-I to the obsolete technology that could not sinter -1 mm fines, obsolete plant & equipment and poor health, limited resources, low availability of carbon monoxide gas in case of shutdown/ breakdowns of Submerged Arc Furnace -I/II. Since, coke crusher is integral part of process flow at Sinter Plant-II, simultaneous with crushing of coke, sintering of manganese ore fines could not take place. Priority was given for coke crushing as operation of furnaces was of foremost importance. A coke crusher at Raw Material Yard was under installation after which it would be possible to operate the Sinter Plant-II on

continuous basis. As an alternative, possibility of installing a Briquetting Plant was also being explored.

Audit observed that action was not taken for modernisation of Sinter Plant-I which had already served for 42 years. Due to non-installation of coke crusher for crushing of oversized coke for utilisation in furnaces, coke crusher at Sinter Plant-II had been utilised for crushing of coke-thereby, hampering production of Sinter. Coke crusher plant had been installed at the Raw Material Yard in March 2024. Project for construction of briquetting plant was under tendering stage.

Recommendation No. 34: The Company may modernise its Sinter Plants at regular intervals and utilise it for the purpose for which it was installed to ensure the required availability of Sinter in future.

F Generation of undersize Silico Manganese

Silico Manganese of 10-50 mm size is prime product for sale/dispatch to SAIL units. However, during production, undersized (0-10 mm) Silico Manganese are also generated which are categorised into 0-3 mm size and the remaining undersized (3-10 mm and 0-10 mm) for the purpose of sale and internal use in sinter production. Norm for generation of undersize material of 0-3 mm was four *per cent* and remaining undersize was six *per cent* of total production of Silico Manganese.

Audit noted that generation of 0-3 mm undersized material was between 13 *per cent* and 16 *per cent* and remaining undersized was between 9 *per cent* and 12 *per cent* of total production of Silico Manganese. The undersized Silico Manganese fetched lower prices in comparison to the rates of prime sized product. Thus, due to difference in the rates of prime sized and undersized products and generation of 0.75 lakh tonne undersized product more than the norms during 2017-24, Chandrapur Ferro Alloy Plant lost the opportunity to earn potential revenue amounting to ₹198.88 crore[9].

Management replied (April 2023) that as per practice, the production of Silico Manganese was declared (ABP) without considering the (0-3) mm undersized material used for production. During 2017-18 and 2019-20, increase in undersized generation was observed and as a corrective measure, the crusher jaws were replaced as required to reduce the undersized generation.

Ministry replied (October 2023) that over the period, Chandrapur Ferro Alloy Plant had changed the practice of metal casting (2015-16) as well as metal crushing (2010-11) due to manpower issues, safety aspects, environmental aspects etc., which had resulted into increase in undersize fraction in the crushed metal. All efforts were being made to reduce

[9] ***Potential loss of revenue calculated considering differential value of prime product and undersize products multiplied by production quantity of undersize product.***

the undersize fraction in crushed metal by close monitoring, change in jaw plates, maintaining the gap in the crushed, improving size of cast metal cakes etc.

Audit observed that Silico Manganese of 0-3 mm size was used in the production process of sinter but was not considered by Management, though its production was beyond the norm. Further, even after considerable lapse of time since change in metal casting process (2015-16) and the metal crushing process (2010-11) generation of undersize material was much beyond the norms and the corrective measures taken by Management had not been effective in controlling the excess generation of undersize materials beyond the norms.

Recommendation No. 35: The Company may analyse the reasons for excess generation of undersized Silico Manganese beyond the norms and take up effective steps to control the same in future.

6.1.2.2 Raw materials and Fuel related issues

Manganese ore and power are major inputs for production of ferro alloys contributing 60-70 *per cent* of cost of production. Chandrapur Ferro Alloy Plant purchased power from Maharashtra State Electricity Distribution Company Limited and Manganese ore from MOIL Limited. In this regard, Audit noted the following:

A Lesser manganese content in the ore

Chandrapur Ferro Alloy Plant procured 10.15 lakh tonne of Manganese ore during 2017-24, from which 3.56 lakh tonne of Manganese content was envisaged as per purchase order of MOIL, whereas only 3.45 lakh tonne of Manganese was received. There was variation in the Manganese content of ore declared by MOIL (25 *per cent* to 48 *per cent*) and that obtained in the test reports of Chandrapur Ferro Alloy Plant laboratory (22.9 *per cent* to 50.86 *per cent*). As per Clause11.1 of the Purchase Order during the period 2017-18 to 2019-20, the Chemical analysis report by third party appointed by seller was final and binding on seller and buyer. The payment for chemical specification was adjusted based on the report issued by this party.

From year 2020 onwards as per Clause 6(b) of General terms and conditions of contract, no third party was appointed by MOIL and Chemical analysis done at the MOIL was used for adjusting payment for chemical specification. Despite the issue of lower Manganese content been taken up with MOIL, extra expenditure continued to be incurred by Chandrapur Ferro Alloy Plant on account of difference in Manganese content during 2017-24. Lower Manganese content of 0.11 lakh tonne in the Manganese ore procured from MOIL had a cost impact of ₹ 36.10 crore on account of differential manganese content during the period 2017-24 (except in 2019-20)[10].

[10] ***Manganese content in the ore received during 2019-20 was as per the contract specifications.***

Management/Ministry replied (April 2023/October 2023) that Chandrapur Ferro Alloy Plant was taking up regularly with MOIL Limited wherever there was discrepancy in the chemical analysis of receipt raw manganese material with respect to the contractual and Delivery orders specifications.

The reply may be viewed in the light of the fact that there was difference in the Manganese content in the ore on the basis of which payments were made and the Manganese content as per chemical analysis done at Chandrapur Ferro Alloy Plant. Despite the matter being taken up with MOIL Limited extra expenditure of ₹36.10 crore was incurred by Chandrapur Ferro Alloy Plant on account of difference in Manganese content during 2017-24.

Recommendation No. 36: The Company may take steps to protect its financial interest to ensure that payments are made on the basis of the Manganese content in the ore that is actually received at its end as certified in the chemical analysis at its own laboratory.

B Short receipt of Manganese Ore

Chandrapur Ferro Alloy Plant procures Manganese Ore from MOIL Limited, Nagpur on rate contract on quarterly basis. Some quantity of Manganese ore was also procured from Sandur Manganese & Iron Ores Limited. In respect of contract with MOIL, the net weight ascertained by actual weighment of the wagons on the railway weighbridge at MOIL's end and shown in the railway receipts was to be binding on both buyer and the seller. While with Sandur, the weighment as recorded in seller's weighbridge was to be final. The norms for transit loss was not fixed during transportation of Manganese ore.

Chandrapur Ferro Alloy Plant received 10.14 lakh tonne of Manganese ore from Manganese Ore India Limited out of invoiced quantity of 10.24 lakh tonne during 2017-24. Thus, there was short receipt of 0.10 lakh tonne of Manganese ore valuing ₹12.39 crore. Further, Chandrapur Ferro Alloy Plant received 1.51 lakh tonne from Sandur out of invoiced quantity of 1.52 lakh tonne during the same period. Hence, there was short receipt of 0.01 lakh tonne of Manganese ore valuing ₹1.49 crore.

Management/Ministry replied (April 2023/October 2023) that variance in receipt of Manganese ore by Chandrapur Ferro Alloy Plant was due to difference in weighment at supplier's end and weighment of materials done at Chandrapur Ferro Alloy Plant. However, whenever significant difference in weights in rake load was observed, the matter was taken up by the Management to ensure proper loading of Manganese Ore as per the delivery order.

The reply may be viewed in the light of the fact that in the absence of any norm for transit loss of manganese ore, any abnormal losses in any year could not be identified. Further, as per the weighment terms, no counter claim could be made by Chandrapur Ferro Alloy Plant and Management only took up the matter with contractors to ensure proper loading of material.

Recommendation No. 37: The Company may take steps to protect its financial interest by fixing norms for transit losses and revising the agreements with suppliers to include penal provisions therein

C Excess consumption of coke in production of Silico Manganese

As per the norm for use of coke envisaged in the Feasibility Report of Submerged Arc Furnace, 0.38 tonne of coke was required to produce one tonne of Silico Manganese. Consumption of coke per tonne to produce Silico Manganese was, however, between 0.51 tonne (2019-20) and 0.64 tonne (2021-22) leading to excess consumption of 1.03 lakh tonne of coke valuing ₹230.24 crore during 2017-24. Consumption of coke gradually increased during last seven years (except in 2019-20 and 2022-23 when it came down slightly).

Management/Ministry replied (April 2023/October 2023) that out of mixed coke the desired size of 6 to 20 mm is screened and used for Silico Manganese production. Remaining oversize and under size fraction in mixed coke adds to the consumption of coke. Ministry added that all efforts would be taken for consistent operation of furnaces so as to reduce the coke consumption.

Reply of Management/Ministry may be viewed in the light of the fact that the oversize coke received from the steel plants are crushed to get the required size of coke (6-20 mm) in Sinter Plant-II for use in Submerged Arc Furnaces, while the undersized coke is returned to the Steel Plant for gainful utilisation. During 2017-24, 0.50 lakh tonne of undersize coke was returned to SAIL plants. Therefore, the contention of Management that inclusion of oversize and undersize coke in the mixed coke adds to the consumption of coke is not correct. Further, Ministry has assured to take all efforts for consistent operation of furnaces to reduce the coke consumption.

Recommendation No. 38: The Company may put in efforts to control the excess consumption of coke by identifying and addressing the reasons for such excess consumption.

D Additional expenditure on freight on transportation of undersize coke

Requirement of coke for furnaces at Chandrapur Ferro Alloy Plant was in the range of 6-20 mm size. Coke received from the SAIL steel plants varied in sizes and Chandrapur Ferro Alloy Plant had to screen the same at their site for segregation into oversize/ undersize fractions. The oversize (+20 mm) coke was crushed at the Crusher installed in Sinter Plant-II. The undersize fractions -6 mm were not usable at Chandrapur Ferro Alloy Plant and therefore undersized coke (-6mm) so segregated, along with the undersize unusable received quantity were returned back to the steel plants. As such, out of 3.40 lakh tonne of coke received during 2017-24, 0.50 lakh tonne (15 *per cent*) of unusable coke was returned back to the SAIL steel plants.

Thus, supply of undersize coke by the steel plants to Chandrapur Ferro Alloy Plant and return of the material to the steel plants resulted in avoidable expenditure of ₹ 24 crore[11] on transportation of material. Further, there was no norm for receipt of under size material.

Management/Ministry replied (April 2023/October 2023) that the requirement of coke is fulfilled by procuring the same mostly from Bhilai Steel Plant and other sister steel plants in case of non-fulfillment of supplies from Bhilai. Full load of rake material despatched from steel plants other than Bhilai Steel Plant sometimes could not be maintained and there was possibility of dead load and so dead freight was charged. Maximum possible effort was being made by Chandrapur Ferro Alloy Plant to procure coke as per the required size to reduce undersize from SAIL plants for fulfilling the annual production targets. Bokaro Steel Plant has started screening of coke before dispatch and there has been significant improvement. Ministry further stated that efforts were being made to examine availability of coke from source other than SAIL to maintain the stock of coke to enhance production.

Reply may be seen in the light of the fact that Chandrapur Ferro Alloy Plant had awarded (March 2022) job contract for coke screening and crushing only at Bhilai. There was no significant improvement observed in the quantity of undersize coke being returned. Therefore, due to receipt of undersize coke Chandrapur Ferro Alloy Plant/SAIL had to incur additional expenditure on freight.

Recommendation No. 39: The Company may fix the norm for receiving undersized coke and take up the matter with sister plants to reduce the expenditure incurred on transportation of such undersized coke.

E Extra expenditure on dead freight

Chandrapur Ferro Alloy Plant receives coke from the steel plants of SAIL through rail. The railway wagons/rakes have a declared carrying capacity for loading of materials (here coke) over which the freight is calculated. The receiving party has to pay freight to the Railways on the carrying capacity of the wagons/rakes. As such, freight is also paid on the under loaded quantity, if any, by the receiving party termed as dead freight.

Audit noted that during the seven years (2017-18 to 2023-24), as against the chargeable weight of 2.53 lakh tonne of coke to be received through rakes from the SAIL units, RINL and NMDC, Chandrapur Ferro Alloy Plant received 1.66 lakh tonne of coke due to under loading of rakes by 0.87 lakh tonne. Chandrapur Ferro Alloy Plant paid dead freight charges of ₹28.15 crore for under loading of rakes which ranged between 14 *per cent* and 46 *per cent* of the chargeable quantity during 2017-24. In respect of ISP, Burnpur, this percentage was as high as ranging between 31 *per cent* and 46 *per cent*.

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[11] ***Calculated considering cost of transportation of undersize coke sent from steel plants to Chandrapur Ferro Alloy Plant and return of undersize material from Chandrapur Ferro Alloy Plant to the steel plants of SAIL.***

Management/Ministry replied (April 2023/October 2023) that full load of rake material sometimes could not be maintained and there is possibility of dead load and so dead freight was charged. Further, coke had high volume/weight ratio, so even after filling to certain level, dead freight was inevitable. Occurrence of dead freight was communicated to concerned sister plant to take care of the same and to avoid the same in future.

The reply may be viewed in the light of the fact that the volume/weight ratio for transportation of materials would be considered by Railways while fixing the carrying capacity/chargeable weight of rakes/wagons for each category of material. Thus, the dead weight was not attributable to the high volume/weight ratio of coke. Due to underloading of rakes, Chandrapur Ferro Alloy Plant had to incur extra expenditure of ₹ 28.15 crore towards dead freight during 2017-24.

Recommendation No. 40: The Company may take up the matter with its sister plants to ensure proper loading of rakes as per their carrying capacity/ chargeable weight to control dead freight.

F Non-availment of subsidy on electricity

Chandrapur Ferro Alloy Plant procures major bulk of power mainly from Maharashtra State Electricity Board. Government of Maharashtra notified (March 2017) various concessions/subsidies related to fuel cost adjustment in the backward districts of Vidarbha and Marathwada which was effective from April 2016. Subsidy/ concessions were however, limited to ₹ 0.50 crore per month in case of consumers who generate and use electricity from their own Captive Power Plants or avail energy from third party through open access. If the consumer wanted to avail full amount of subsidy then captive power generation or purchase of power through open access was not permitted.

With a view to avail subsidies/concessions offered by the Government of Maharashtra and to comply with the inherent restrictions, power generation from the existing 4.2 Megawatt power plant at Chandrapur Ferro Alloy Plant was discontinued in June 2017 and entire power was procured from Maharashtra State Electricity Board.

Audit observed that during June 2017 to March 2022, Chandrapur Ferro Alloy Plant received average subsidy of ₹ 2.48 crore per month. Chandrapur Ferro Alloy Plant fulfilled the condition of generating and using the electricity from captive power plants but could not avail subsidy of ₹7 crore (₹ 0.50 crore per month) for the period from April 2016 to May 2017 since the management could not submit the requisite documents to the State Government for claiming the eligible amount of subsidy.

Management/Ministry replied (April 2023/October 2023) that as per Government of Maharashtra circular, subsidy was applicable after submission of Eligibility Certificate from the Chief Electrical Inspector, Mumbai. The Electrical Inspector Office at Nagpur had written (August 2017) to the Chief Electrical Inspector, Mumbai to issue Eligibility

Certificate which was not issued despite follow-ups and therefore, the subsidy could not be availed.

The replies may be viewed in light of the fact that Chandrapur Ferro Alloy Plant, submitted (July 2017) an application for issue of registration certificate to the Chief Electrical Inspector, Mumbai but the application was rejected due to non-submission of all the requisite documents. Thus, due to inability to submit the required documents, Chandrapur Ferro Alloy Plant was unable to get the subsidy for the period from April 2016 to May 2017 even after lapse of six years. The Management may escalate the matter at appropriate level to get the requisite eligibility certificate for getting subsidy of ₹ 7.00 crore.

Recommendation No. 41: The Company may closely pursue the issue of subsidy for the period April 2016 to May 2017 at appropriate level for getting the subsidy at the earliest.

6.1.2.3 Issues relating with Environment

A Accumulation of Gas Cleaning Plant sludge

During production of Ferro Alloys, around 0.40 lakh tonne (approx) of solid wastes in the form of Manganese Oxide slag/ High Manganese Oxide slag, Silico Manganese slag and Gas Cleaning Plant sludge are generated every year at Chandrapur Ferro Alloy Plant. As on 1 April 2022, 1.80 lakh tonne of solid waste was in stock which enhanced to 2.52 lakh tonne during March 2024. On an average, Gas Cleaning Plant sludge contained 24 *per cent* Manganese, 4.5 *per cent* Iron and 35 *per cent* Silica. During smelting process in Submerged Arc Furnace, some dust contents from raw materials at the surface of charge inside Submerged Arc Furnace gets carried away with the furnace gases. These dust contents, while passing through Gas Cleaning Plant, gets separated along with water as Gas Cleaning Plant sludge and other solid impurities from ore get collected in the form of slag. The Gas Cleaning Plant Sludge is collected and settled in the Effluent Pond at Chandrapur Ferro Alloy Plant.

Figure 2: GCP Sludge

Ministry of Environment and Forest categorised (June 2011) Gas Cleaning Plant sludge as hazardous and recommended for its safe recycling. Further, amendment to 'Consent to Operate' issued (April 2015) by Maharashtra Pollution Control Board had a condition for 100 *per cent* safe recycling of Gas Cleaning Plant Sludge by adopting the process of agglomeration.

Chandrapur Ferro Alloy Plant generates around 0.08 lakh tonne of Gas Cleaning Plant sludge per annum and 0.10 lakh tonne has been accumulated till June 2022. To comply with the requirements of the consent to operate and the Pollution control Board, Management took up setting up of a brick making machine and briquetting plant. In this regard, Audit noted the following:

a) At Chandrapur Ferro Alloy Plant, a Brick Making Machine was commissioned (February 2022) wherein Gas Cleaning Plant Sludge could have been used. However, due to failure of the mould, the brick making operation of the machine was stopped within a month and the sludge got accumulated. It was only in April 2024 that the Brick making machine could be functional again.

b) Solid waste material and Manganese ore fines generated during the production of ferro alloys can be used as input materials for the briquetting plant to produce briquettes which can be gainfully utilised in Submerged Arc Furnaces for production of ferro alloys. Chandrapur Ferro Alloy Plant approached (February 2019) SAIL/Research and Development Centre for Iron & Steel for suggestions/recommendations regarding briquetting process and CET (April 2019) to prepare tender documents for installation of Briquetting Plant. CET submitted (May 2019) the draft tender documents on Build Own Operate Transfer basis which was not approved by Competent Authority. Subsequently, it was decided (February 2021) to explore possibility to install Briquetting Plant with capital investment by SAIL with the estimated capital cost of ₹23.42 crore and completion period of 13 months from the date of stage-II approval. Stage-I approval was accorded (July 2022) and tender enquiry for installation of briquetting plant at Chandrapur Ferro Alloy Plant was floated (October 2022). The project for briquetting plant conceived five years back was yet to be completed (March 2024) and led to accumulation of solid waste materials which adversely impacted the environment.

Management/Ministry replied (April 2023/October 2023) that in view of the Government guidelines a Brick Making Machine was commissioned for utilisation of Gas Cleaning Plant sludge. On installation of Briquetting Plant, the Gas Cleaning Plant sludge would get utilised in production of briquettes. It further stated that tender for installation of briquetting plant at Chandrapur Ferro Alloy Plant was cancelled since the quoted price was much higher than price estimate. Chandrapur Ferro Alloy Plant had made pioneering effort towards recycling/ utilization of Gas Cleaning Plant sludge in ferro alloy industry. 0.66 lakh tonne of Granulated High Manganese Oxide Slag was kept for usage in proposed Briquetting Plant at Chandrapur Ferro Alloy Plant and Slag amounting to 0.50 lakh tonne was sold till August 2023.

Reply of the Management/Ministry may be viewed in light of the fact that the Brick Making Machine was non-functional since inception till March 2024 and the briquetting plant although conceptualised in February 2019 was still in tendering stage even after a lapse of over five years (March 2024). Due to non-functioning of brick making machine and delay

in installation of Briquetting Plant, recycling/reuse of slag could not be taken up at optimum level resulting in huge accumulation of slag. Further, the Management was also unable to dispose of the slag identified for sale during last seven years.

B Non-operation of Gas flaring system

During operation of Submerged Arc Furnace, poisonous gases like Carbon Monoxide, Carbon dioxide etc. are generated. These gases were to be utilised in Power Plant, Sinter plants and Lime kilns and the remaining gases were to be released into the atmosphere by flaring system.

Audit noted that as per the Consent to Operate[12] issued (February 2019) by Maharashtra Pollution Control Board which was valid till March 2021, 19000 Nm^3/hr Furnace gas was expected to be generated out of which 400 Nm^3/hr each was to be utilised at the two Sinter Plants and two Lime Kiln. Further, 8000 Nm^3/hr of Furnace gas was to be utilised by the 4.2 Megawatt Power plant. In the subsequent Consent to Operate valid till December 2023, the conditions stipulated were like earlier consent to operate except that no furnace gases were to be utilised in the Lime Kiln. As per the guidelines for discharge of gaseous emission provided under the Environment (Protection) Rules 1986, cold venting of gases shall never be resorted to and all the gaseous emission are to be flared.

Audit observed that 4.2 Megawatt power plant with capacity to utilise 8000 Nm^3/hr gas was under shut down since June 2017 and contract for construction of 4 MW Power Plant was terminated (May 2019). The gas flaring system installed in Submerged Arc Furnace - III was not in operation since 2018 due to various maintenance related problems. Flaring system was not installed in two other Submerged Arc Furnaces which was in violation of the environmental norms and also Consent to Operate. In the absence of an operational gas flaring system in any of the three Submerged Arc Furnaces, there is a risk of release of harmful gases into the atmosphere.

Management/Ministry replied (April 2023/October 2023) that Submerged Arc Furnace-I & II were installed much before the various environmental legislations existing in the state of Maharashtra today. Submerged Arc Furnace-III was provided with Gas Flaring System but due to some complex technical issues, the same was presently non-functional. Alternate arrangement has been made for flaring gas on trial basis at south side Gas Cleaning Plant of Submerged Arc Furnace-III.

Recommendation No. 42: The Company may ensure that adequate arrangements are put in place on high priority basis for flaring of gases released from all its Submerged Arc Furnaces to prevent deterioration in air quality or damage to the environment in future

[12] ***Granted under Section 26 of the Water (Prevention & Control of Pollution) Act, 1974, Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and authorisation under Rule 6 of the Hazardous & other Wastes (Management & Transboundary Movement) Rules 2016.***

C Violation of terms of Environment Clearance

Submerged Arc Furnace-I and II were commissioned in 1977 and 1981 respectively did not require environmental clearance during that period. However, after the Environment (Protection) Act, 1986 came into force, Chandrapur Ferro Alloy Plant was required to obtain Environmental Clearance for the expansion project (Submerged Arc Furnace-III) and Consent to Operate for the plant with subsequent renewals.

The Environment Clearance for the project was given (March 2014) by Ministry of Environment & Forest with a direction to Chandrapur Ferro Alloy Plant for compliance of various specific and general conditions mentioned below:

i. National Ambient Air Quality Standards issued (November 2009) by the Ministry of Environment and Forests needs to be adhered, Continuous monitoring facilities for the process stacks and sufficient air pollution control equipment should be provided to control emissions below 50 mg/Nm^3.

Figure 6.3 Raw Material yard

ii. Raw Material storage shall be covered.

Besides, the above, Maharashtra Pollution Control Board directed (March 2020) Chandrapur Ferro Alloy Plant that they were major contributor of air pollution in the critically polluted area and hence, suitable action plan needed to be prepared to attain the permissible limit for total particulate matter which should be reduced to 50 ppm and construct/repair internal transport road.

In this regard, Audit observed that neither the conditions with respect to the Environment Clearance nor the directions of the Maharashtra Pollution Control Board, were fulfilled by the Chandrapur Ferro Alloy Plant till March 2024.

Management/Ministry replied (April 2023/October 2023) that

(i) It has been decided to install continuous Ambient Air monitoring station in FY 2023-24. Monthly monitoring was being done through accredited agency.

(ii) Raw material storage for all the furnaces was covered. The raw material was kept in open in the raw material yard.

Reply of the Management/Ministry may be viewed in light of the following facts:

(i) Management has issued tender (July 2024) for installation of continuous Ambient Air Quality Monitoring Station,

(ii) Raw materials are kept in open storage yards before they are being transported to the furnaces for charging.

In the light of the continuing lapse on the part of the Company to fulfil the conditions with respect to the grant of Environment Clearance and the inability to comply with directions of the Pollution Control Board, the possibility of unfavourable consequences in future cannot be overlooked.

Recommendation No. 43: The Company may install the necessary equipment and fulfil the conditions stipulated relating to factors affecting environment for efficient and uninterrupted plant operations

6.1.3 Conclusion

Chandrapur Ferro Alloy Plant of SAIL is engaged in production and supply of Silico Manganese and Ferro Manganese to the steel plants of SAIL. Despite the requirement of Silico Manganese by SAIL, the production target as well as production of same was kept below the production capacity. The Plant incurred avoidable expenditure on account of lesser manganese content in the manganese ore, short receipt of manganese ore, excess consumption of coke and dead freight. Violation of terms of environment clearance was also noted.

There was potential shortfall in production of 1.79 lakh tonne of Silico Manganese than the Annual Business Plan quantity which resulted in forgoing potential contribution of ₹ 100.97 crore during August 2017 to March 2024. Shortage of coke at Chandrapur Ferro Alloy Plant led to less production of 0.39 lakh tonne of Silico Manganese and forgoing of potential contribution of ₹ 13.54 crore. Due to less manganese content in the Manganese ore received from MOIL, there was extra expenditure of ₹36.10 crore. The accumulation of Gas Cleaning Plant sludge and non-installation of Gas flaring system in Submerged Arc Furnaces -I & II, caused environmental hazards and the possibility of penal action in future due to continuing violation of environmental guidelines cannot be ruled out.

6.2 Unfruitful expenditure on cold repair of Coke Oven Battery

IISCO Steel Plant/SAIL incurred unfruitful expenditure of ₹ 18.58 crore on cold repair of Coke Oven Battery #8 which could not be commissioned and post repair was ultimately phased out.

IISCO Steel Plant (ISP) of Steel Authority of India Limited (SAIL) had four Coke Oven Batteries[13] (COBs). COB#10&11 were operational, and COB#9 was closed in March 2014. COB#8 was under continuous operation without any major repair. Signs of deterioration in

[13] ***COB#8, COB#9, COB#10 & COB#11 commissioned in 1987, 1991, 2010 and 2013 respectively***

COB#8 were noted in September 2009. Centre for Engineering & Technology/SAIL (CET) and ISP jointly studied the condition of COB#8 in May 2010 and recommended for hot repair[14] of the battery. Coke Making Expert Committee recommended (January 2012) for cold repair[15] instead of hot repair considering benefits envisaged. Management decided (February 2012) for cold repair of the battery to supply coke with half battery to Blast Furnace (BF)#2 and BF#5 along with coke produced from COB#10 & 11. The excess coke of other half of battery was to be supplied to sister plants to meet their requirement.

ISP incurred (December 2011 to September 2012) ₹28.95 crore[16] on cold repair of COB#8. Repair and preheating of COB#8 was completed in October 2013, but start-up of the battery was kept on hold due to limited usage of coke in BF#2 (which was closed in April 2015) and also due to reduced demand from other SAIL plants. Delay in the commissioning of the coke oven battery, resulted in the deterioration of the by-product plant. Subsequently, it was noted that while the COB#8 could be operated only with the proper working of its by-product plant, the by-product plant itself was in extremely unsatisfactory condition and required large scale repair or rebuilding.

The battery could not be commissioned after its cold repair and was subsequently phased out (August 2019) and disposed of in February 2021.

In this regard Audit noted the following:

- COB#8 was not commissioned despite repair and preheating job been carried out (October 2013). Management was aware that commissioning of COB#8 was technically not possible without dedicated by-product plant[17] (BPP). The condition of the plant was extremely unsatisfactory and was out of service. However, only partial repair was carried out in the BPP instead of carrying out large scale repair or rebuilding for safe operation.
- COB#8 was kept in a heated condition for more than 54 months (9 February 2015 to 6 September 2019) after its repair to cater to the requirement of BF#5. However, requirement of BF#5 till 2017-18 was met from COB#10&11.

Thus, repair of COB#8 was not useful because battery was not commissioned and operated even for a single day after its repair. Inadequate planning to assess the necessity and viability of repair of COB#8 with the by-product Plant led to unfruitful expenditure of ₹18.58 crore[18] towards cold repair of the battery.

The Management/Ministry replied (February/November 2024) that:

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14 ***Hot repair of a coke oven in a steel plant refers to the process of repairing coke ovens while they are still hot, without completely shutting them down and cooling them.***

15 ***Cold repair of a coke oven refers to a major repair process where the entire coke oven battery is cooled down to atmospheric temperature before undergoing major repair.***

16 ***27 contracts were awarded for repair of COB#8 in May 2012 for ₹10.79 crore and stores valuing ₹18.16 crore was procured.***

17 ***Main function of By-Product Plant is to clean the raw coke oven gas by removing crude coal tar, ammonia and naphthalene to make it usable as fuel for coke ovens and other units of plant.***

18 ***₹28.95 crore-₹ 10.37 crore (amount realised from sale of COB#8)= ₹ 18.58 crore***

i. During cold repair of COB#8 jobs were carried out in battery and by-product plant as per requirement depending upon prevalent health condition. The building structure and critical equipment of by-product Plant worsened during 2012-2018 due to inactive environment, which was unforeseen during planning phase.

ii. In line with Management's decision (March 2015) to close all uneconomical and obsolete units, BF#2 of ISP was phased out in April 2015 which could not be foreseen during planning of cold repair of COB#8. Firing of COB#8 was started to fulfill the coke shortage for BF#5. But production of BF#5 couldn't be ramped up to its rated capacity till 2018-19 due to various teething troubles. As hot metal production was lower than envisaged quantity overall coke requirement was lower and same was catered from COB#10 and COB#11.

iii. ISP was supplying BF coke to sister units almost every year till 2018-19 in view of excess coke availability even without commissioning of COB#8.

Reply of the Management/Ministry may be viewed in the light of the fact that:

i. A technical expert hired by SAIL had noted that only partial repair and replacement of equipment carried out in 2012-2015 did not improve the condition of the by-product Plant. The equipment was extremely worn out and was out of service.

ii. Though, SAIL Board decided closure of BF#2 in April 2015, but the status of operations of BF#2 viz. the difference in cost of production and Net Sales Realisation was known to the Management beforehand. The Net Sales Realisation of most of the steel products at IISCO Steel Plant was less than their cost of production during 2010-11 to 2014-15.

iii. Management was able to meet the requirement of coke from COB#10 & 11 and even supply coke to its sister plants implying there was no requirement of coke from COB#8 to run the plant.

Thus, due to inadequate planning and inability to assess the necessity and viability of repair of COB#8 with the by-product Plant led to unfruitful expenditure of ₹ 18.58 crore towards cold repair of the battery, which was subsequently disposed of without commissioning.

CHAPTER VII: MINISTRY OF ROAD TRANSPORT AND HIGHWAYS

National Highways Authority of India

7.1 Toll Operations in Gujarat and Maharashtra

7.1.1 Introduction

National Highways Authority of India (NHAI) was constituted by the Government of India (GoI) as per the National Highways Authority of India Act, 1988 under the administrative control of the Ministry of Road Transport and Highways (MoRTH/ Ministry) and it became operational in February 1995. NHAI is entrusted with the responsibility of development, maintenance and management of National Highways (NHs). The National Highways Act, 1956 was amended in 1997, to empower GoI to levy tolls (user fee) on the road users for using the NHs built from public funds, private funds, or a mix of both.

7.1.2 Organisational Setup of NHAI

NHAI is headed by a Chairman, and its Headquarters is in New Delhi. It implements NH projects through Regional Offices[1] (RO) spread across the country. The ROs are headed by Regional Officers who supervise Project Implementation Units (PIUs) attached to them. PIUs (28 PIUs under Western Region) are headed by Project Directors (PD) who monitor implementation of projects, and operation and maintenance of completed stretches.

7.1.3 Toll Collection in NHAI

On completion of construction, the projects are opened to public traffic. Tolls are levied on the road users for recovering the costs. The tolls are fixed according to the rates mentioned in the toll Rules. Toll-collection can be divided into two models:

i. NHAI collects tolls from projects completed in various models[2]. For collecting tolls, NHAI engages Toll Collection Agencies (TCA). These projects, from which NHAI collects tolls, are generally categorised as Public Funded Projects.

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[1] ***24 ROs across the country including three ROs at Gandhinagar, Mumbai and Nagpur in Western India.***

[2] ***Like Engineering, Procurement and Construction (EPC) and the Item Rate Contract models, also includes Build Operate and Transfer (Annuity), and Hybrid Annuity Mode (HAM) projects in which NHAI pays fixed annuities to the Concessionaire during the operation-period.***

ii. The Concessionaires (private funding partners) collects tolls. These include projects in Build Operate and Transfer -Toll[3] (BOT Toll) and the Toll Operate Transfer (TOT)[4] modes.

7.1.4 Scope of Audit and Sampling

Audit was conducted in the States of Gujarat and Maharashtra in 24 out of 74 toll plazas forming part of 13 out of 28 PIUs (Table 1) under the administrative control of RO Gandhinagar, RO Mumbai and RO Nagpur. Audit of toll operations of NHAI in Western India was conducted with respect to toll collections and availability of amenities on NHs.

Table 7.1: List of 24 tolls plazas selected for detailed audit

Regional Office	Name of Toll Plaza	PIU involved
Gandhinagar	Nadiad	Ahmedabad
	Mandava, Bhagwada & Mandal (Vyara) (3)	Surat
	Limdi & Bhatwada (2)	Godhra
	Undavariya/ Sirohi, Makhel & Khemana (3)	Palanpur
	Okhamadi & Vanana (2)	Rajkot
Mumbai	Kini	Kolhapur
	Hiwargaon Pavasa, Patas and Khed Shivapur (3)	Pune
	Charoti	Thane
	Pimplegaon	Nashik
Nagpur	Nandgaon & Karanja Gh (2)	Amravati
	Pargaon & Karodi (2)	Aurangabad
	Shirpur	Dhule
	Husnapur & Kelapur (2)	Yavatmal

The total toll collection from the 24 toll plazas during the audit period April 2020 to March 2023 was ₹5,290.78 crore[5].

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[3] ***In BOT Toll, the Concessionaire collects tolls during the operation-period. NHAI selects the bidder who offers to pay NHAI the highest premium or who offers to take the lowest grant (VGF) from NHAI.***

[4] ***TOT is a model where NHAI monetises a constructed road. It selects the bidder who offers to pay the highest upfront amount in consideration for NHAI handing over the toll-collection rights for the concession-period, during which the TOT Concessionaire maintains and operates the road.***

[5] ***Kini ₹271.93 crore, Charoti ₹475.05 crore, Pimpalgaon ₹356.68 crore, Hiwargaon Pavasa ₹113.24 crore, Patas ₹206.54 crore, Khed Shivapur ₹393.06 crore Nandgaon ₹205.61 crore, Karanja Gh ₹104.17 crore, Shirpur ₹298.95 crore, Karodi ₹26.50 crore, Pargaon ₹106.97 crore, Husnapur ₹55.17 crore, and Kelapur ₹160.57 crore, Limdi ₹40.96 crore, Mandava ₹312 crore, Bhagwada ₹547.30 crore, Undavariya/Sirohi ₹163.69 crore, Makhel ₹380.71 crore, Okhamadi-Kuchadi ₹53.03 crore, Khemna ₹241.30 crore, Bhatwada ₹366.63 crore, Mandal ₹350.98 crore, Vanana ₹27.59 crore, Nadiad ₹32.15 crore***

7.1.5 Audit Findings

The capital cost of construction of NHs, and their operations and maintenance expenses are recovered from the road users by levying toll by NHAI and Concessionaires. The toll is fixed, levied, revised and regulated according to the provisions of NH Fee Rules 2008 and its amendments. Audit findings are discussed in the subsequent paragraphs.

7.1.5.1 Levy of tolls in accordance with applicable Rules and directions

A Loss of revenue due to delay in commencement of toll collection ₹9.60 crore.

Rule 3(2) of NH Fee Rules 2008 states that collection of toll should commence within 45 days from the date of completion of project. NH Fee Rules, 2008 (amendment of 2014) provided that the rate of toll for use of standalone structure (like bridges, flyovers, etc.) as well as structure forming part of linear highway/ expressway having length of more than 60 meters shall be calculated by converting into an equivalent length of highway/ expressway by multiplying its length by 10. NHAI (September 2009) highlighted the need for advance planning to start levy of toll by sending proposal to Technical Division of NHAI at least six months prior to the anticipated completion of project. MoRTH Guidelines (July 2020) on processing of toll notification reiterated the same.

(a) NHAI entered (August 2017) into a Concession Agreement (CA) with Porbandar-Dwarka Expressway Private Limited (Concessionaire) for four-laning of Porbandar to Dwarka section of NH-8E in the State of Gujarat on Hybrid Annuity Mode (HAM). The Independent Engineer (IE)[6] communicated substantial completion of the project by March 2020. NHAI declared 18 April 2020 as the Provisional Commercial Operation Date (PCOD[7]) of the project. MoRTH published toll notification for the project on 26 August 2020, and NHAI commenced toll collection from 29 September 2020.

Audit observed delay on the part of PIU Rajkot in commencing toll collection within 45 days from the PCOD on 18 April 2020. Though toll-collection should have commenced by 2 June 2020, NHAI commenced it only on 29 September 2020, with a delay of 118 days resulting in potential revenue implication of ₹2.95 crore[8].

NHAI/Ministry replied (January 2025) that the PIU initiated (February 2020) toll notification process well before the PCOD. Ministry stated that Covid 19 Pandemic and lockdown were the compelling reasons for not commencing toll collection in June 2020. NHAI and MoRTH had paid force majeure claims due to Covid related traffic restrictions.

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6 ***IE is the Consulting firm appointed by NHAI for monitoring the project.***

7 ***PCOD is the date on which the IE issues provisional certificate of completion of the project. The IE can issue PCOD when a significant length (as specified in the agreement) of the project is completed. For matters relating to toll-collection, PCOD is significant as toll-collection can be started from the PCOD.***

8 ***118 days multiplied by ₹249,888 = ₹2,94,86,784 (based on daily remittance of toll by TCAs)***

There was no substantial loss due to delay, and after toll notification (26 August 2020) NHAI commenced toll-collection on 3 September 2020.

NHAI issued (May 2020) Policy Circular for providing various reliefs to contractors after the nation-wide lockdown from 26 March to 19 April 2020 was lifted. This Policy Circular specifically mentions about giving reliefs to TCAs upon resumption of toll collection with effect from 20 April 2020. Thus, there was no restriction on movement of traffic since 20 April 2020. Hence, NHAI should have started toll collection from 2 June 2020. Moreover, the PIU initiated toll notification process only in February 2020, whereas according to relevant NHAI Circulars, the PIU should have started it at least by 21 October 2019, i.e. six months prior to the project completion on 18 April 2020.

(b) Pimplegaon-Nasik-Gonde section of NH-3 under RO Mumbai is a Public Funded Project[9]. In this project, NHAI completed construction of 3.456 km[10] of flyovers by 15 August 2021. MoRTH published revised Toll Notification including the length of newly opened flyovers on 09 September 2021. Even after MoRTH publishing the revised Toll Notification, PIU Nashik and RO Mumbai delayed the formalities and started collecting the increased toll rates only from 1 November 2021. NHAI should have commenced the increased toll collection by 01 October 2021, which is the 45th day from the completion of the flyovers on 15 August 2021. Audit observed that the delay of 31 days from 1 to 31 October 2021 in commencing collection of the increased toll rates resulted in potential revenue implication of ₹2.89 crore[11] to NHAI.

NHAI replied (May 2024) that NH Fee Rules 2008 do not permit toll revision within six months of the annual toll revision which is carried out on 1 April of each year. The period from 1 to 31 October 2021 was used to convince the stakeholders to accept the revised tolls and NHAI commenced toll collection thereafter. MoRTH did not offer any further remarks.

NHAI's reply confirms the 31 days' delay in revision of toll rates, which led to loss of toll-revenue to NHAI at Pimplegaon Toll Plaza.

(c) For calculating toll rates of Borkhedi-Wednar-Deodhari-Kelapur section of NH-44, NHAI did not include the 10 times equivalent length of two structures[12] from May 2016[13] to 20 February 2023. The equivalent length of 10 times of these structures were added to the toll calculation only when the TOT Concessionaire took over toll-collection in February

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[9] ***Public Funded Projects are those from which NHAI collects tolls. These are constructed by NHAI in various modes of contracts like EPC, HAM and BOT (Annuity).***
3.456 km flyover comprises 0.2772 km for Chinchkhed Flyover, 0.2016km for Gadakh Corner Flyover, 0.2016km for Saikheda Junction Flyover and 2.776 km for Main Elevated Corridor (MEC). For calculation of tolls rates, its equivalent length is 34.56 kms (3.456 km x 10 times).

[11] ***₹2.89 crore = 31 days x ₹931343 per day (₹931343 is the increase in remittance by TCA due to addition of flyovers into the toll calculation).***

[12] ***Flyovers of length 63.04 meters at km 132.670 on either sides and at km 139.465 on only the RHS.***

[13] ***Data provided by PIU Yavatmal only from May 2016, though the Rule of equivalent length of 10 times became applicable from January 2014***

2023. NHAI did not apply the 10 times equivalent length of these structures in toll rates resulted in loss of toll revenue at Kelapur Toll Plaza to the tune of ₹3.76 crore[14].

NHAI/ Ministry accepted (May 2024/ January 2025) that structures pointed out by Audit were not initially considered in calculation of toll rates. For avoiding such deficiencies in future, NHAI issued instruction in May 2024.

The replies confirm the delay in toll-revision which led to loss of revenue to NHAI at Kelapur Toll Plaza.

Therefore, delay in commencement of toll collection resulted in loss of revenue to the tune of ₹9.60 crore[15] to NHAI in three projects.

Recommendation No. 44: MoRTH/ NHAI may ensure that toll collection commences within 45 days from date of completion of project.

B High number of exemptions and irregular concessions at Toll Plazas

Rule 11 of the NH Fee Rules, 2008 provides for exemption from payment of tolls by certain categories of vehicles and users which includes vehicles used for Government purposes Complete list of exemption as per Rule 11 is given in **Annexure XII.** All other vehicles have to pay toll while crossing toll plazas.

Rule 9 (3) of NH Fee Rules 2008 allows concessional toll rates for locals residing within 20 kms of the Toll Plaza, through monthly pass upon payment of concessional tolls. The concessional rates applicable for locals in each Toll Plaza would be specified in respective toll rates published by NHAI. Any discounted tolls or concession allowed beyond the provisions of NH Fee Rules 2008 is irregular. The only allowable modes of toll-collection are FASTag[16] and cash, and any other mode of toll-collection is also irregular.

(i) High number of exemptions in Toll Plazas

NHAI collects tolls from Public Funded Toll Plazas using TCAs. A review of toll data of seven Public Funded Toll Plazas in RO Gandhinagar[17] revealed (Table 2) that exemptions was in the range of 6.88 to 46.82 *per cent*. Though the allowable categories of exempted

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14 ***The actual toll collection by NHAI from 1 October 2016 to 20 February 2023 was ₹120.35 crore. The toll revenue loss of ₹3.76 crore was worked in proportion to the equivalent length of the structure that NHAI did not include for calculating toll rates.***
Audit has considered the effective date of annual toll revision vis-a-vis 1 April or 1 October for quantification of loss of revenue on a conservative basis based on the submission of NHAI.
From February 2021, MoRTH made FASTag as the default mode of toll-collection. The only other mode of toll-collection allowable since February 2021 is through cash which is at double the normal toll rate.

17 ***Relevant data for review of the toll plazas under Mumbai and Nagpur was not made available to Audit.***

vehicles as per NH Fee Rules is very limited, the high rate of exemptions indicated that NHAI was not monitoring the same.

Table 7.2 – Exemption in Public Funded Toll Plazas under RO Gandhinagar

Sl. No.	Name of the Toll Plaza	Period of data	Number of Vehicles (A)	Number of Vehicles exempted (B)	Percentage of Exemptions (C=B/A*100)
1	Limdi	April 2020 to March 2023	53,64,393	25,11,566	46.82
2	Makhel	Aug 2022 to March 2023	23,96,110	1,64,947	6.88
3	Khemana	Sep 2020 to March 2023	1,46,88,343	29,47,281	20.07
4	Undvariya		1,45,17,185	11,88,958	8.19
5	Okhamadhi		26,11,701	2,07,630	7.95
6	Mandva	April 2020 to March 2023	5,31,56,640	55,72,149	10.48
7	Bhagwada	April 2020 to March 2023	Data not furnished[18]		

Source: Toll Management System data

Analysis of the toll data from October 2022 to March 2023 revealed that the exemptions granted using Fastag was less than two *per cent* and the remaining 98 *per cent* was granted manually. Of these 98 *per cent*, the exemption granted to local vehicles ranged between 31 to 83 *per cent*, though NH Fee Rules require them to obtain monthly pass at a concessional rates (**Annexure XIII**). In Khemana Toll Plaza, the exemptions in the name of fire brigade was 30,495 vehicles on an average per month (September 2020 to September 2021) with the number being 96,670 in the month of November 2020.

Ministry replied (January 2025) that NHAI issued (May 2024) an advisory to all ROs/ PIUs to monitor the exemptions/ violations at toll plazas on monthly basis for strengthening the monitoring mechanism of issues related to higher number of exempted vehicles.

Abnormally high exemptions adversely impacts the toll revenue of NHAI in future by way of reduction in amounts quoted in tenders invited by NHAI for tolls collection contracts of Public Funded Toll Plazas and monitoring mechanism may need to be strictly followed.

(ii) Irregular concessions extended in toll plazas and irregular toll-collection using smart cards

Audit observed the following issues in two toll plazas under Mumbai and Nagpur Regions:

[18] ***It was under BOT mode till May 2022 and became public funded toll plaza since May 2022. PIU-Surat did not furnish toll data.***

- In the six-laning of Pimplegaon-Nashik-Gonde Section of NH 3 project, the BOT Toll Concessionaire had started toll-collection in October 2012 from Pimplegaon Toll Plaza. The local people of Niphad locality resisted toll-collection, and the Concessionaire had allowed discounted toll rates to locals from October 2012. Upon completion of construction of certain structures in March 2014, the rate of tolls increased[19]. The locals again resisted the revised toll rates, alleging the rate of tolls to be very high. In a meeting convened (23 May 2014) by the District Collector of Nashik, it was directed to continue the existing (since October 2012) concessional toll rates given to local people. NHAI terminated the BOT Toll Concession Agreement and took over toll collection since April 2016, which is still continuing (August 2025).

  Audit observed that the discounted rates allowed were beyond the concessional rates provided in the NH Fee Rules 2008. A test check of toll collections of Pimplegaon Toll Plaza for the month of March 2023 revealed that these concessions were to the tune of ₹1.17 crore.

  NHAI/MoRTH replied (January 2025) that NHAI was constrained to allow the concessions in Pimplegaon Toll Plaza due to local protests and stated that any attempt to collect normal toll rates as per the provisions of the NH Fee Rules would lead to law-and-order situations. The required support from State Government for facing such situations was not forthcoming, nor NHAI's attempts to get reimbursement from Government of Maharashtra was successful despite NHAI having State Support Agreement with the State of Maharashtra.

- Talegaon-Amravati Section of NH-6 is a BOT Toll project, from which IRB Talegaon Amravati Tollway Private Limited (Concessionaire) is collecting tolls[20]. Considering agitations of local people, MoRTH issued (January 2021) directions to NHAI for granting 25 *per cent* concessional rates of tolls to residents of Warud and Morshi area for crossing Nandgaon Toll Plaza. The Concessionaire allowed this based on NHAI's directions (January 2021) and claimed the balance 75 *per cent* toll rates from NHAI. The total reimbursement claims for the period from January 2021 to March 2023 was ₹2.55 crore. It was also observed that the Concessionaire issued smart cards to the residents of Warud-Morshi area for availing of the concessional toll rates.

Audit observed that NHAI gave irregular concession beyond the NH Fee Rules 2008. Also the usage of smart cards instead of Fastag was violation of MoRTH guidelines on

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[19] ***The Concessionaire started toll collection for the project from Pimplegaon Toll Plaza in October 2012 upon NHAI issuing PCOD-I. Upon issuing PCOD-II on completion of Main Elevated Corridor (MEC) of 5.7 km length costing ₹450 crore in March 2014, the toll rates at the Pimplegaon Toll Plaza increased.***

[20] ***The Concession Agreement of November 2009 and PCOD achieved in April 2013.***

mandatory use of Fastag for toll collection from Feb 2021. Except in the above mentioned two plazas, irregular concession and toll collection cases were not noticed in other cases.

NHAI (May 2024) replied that the Concessionaire was instructed to integrate the Smart Card into FASTag with respect to Nandgaon Toll Plaza which the Concessionaire achieved and no new smart card was issued from December 2022. Ministry had no comments to offer.

Concessions given to residents near the Nandgaon Toll Plaza tantamounted to MoRTH giving directions against the provisions of its own NH Fee Rules. While the situation explained in the response are taken note by Audit, it is important to explore a framework to deal with these situations in future to ensure compliance of provision of NH Fee Rules.

Recommendation No 45: **NHAI/MoRTH may establish a framework to address the compelling situations for ensuring that concessions granted are consistent with the provisions of the NH Fee Rules.**

C Non-reduction of toll-rates to 40 per cent after end of concession period

Rule 6 (6) of the NH Fee Rules, 2008 provided that tolls at the rates prescribed in the Rule would be collected in perpetuity. MoRTH amended the provision in January 2011. With respect to projects from which Concessionaire was collecting toll (like the BOT Toll and TOT projects), and after the end of concession period, the executing authority (like NHAI) would take over the project and start collecting toll @ 40 *per cent* of the toll rate applicable on the date of transfer. In the case of public funded projects, the amendment provided that the toll rates would be reduced to 40 *per cent* after cost of project was recovered. MoRTH again amended (6 October 2023) Rule 6 (6) of the NH Fee Rules, 2008 and reverted to the original provision of collecting toll at the rates prescribed in perpetuity.

The Rule requiring toll collection @ 40 *per cent* was effective from January 2011 to October 2023. Audit reviewed its compliance during the audit period from April 2020 to March 2023 and observed that toll rates were not reduced to 40 *per cent* after taking over toll collection upon expiry of the concession period by NHAI. This resulted in undue financial burden to road users and non-compliance of the provisions of the NH Fee Rules, 2008.

(i) Non-reduction of toll rates to 40 per cent led to undue burden on road users- ₹180.44 crore

NHAI entered (30 April 2008) into a CA with IRB Surat Dahisar Tollway Private Limited (Concessionaire) for six-laning of Surat-Dahisar section of NH-8 in the States of Gujarat and Maharashtra on BOT Toll model. The concession period expired on 25 May 2022 and NHAI took over toll collections. NHAI requested (14 March 2022) MoRTH for allowing it to collect toll at 100 *per cent* rates. MoRTH, however, clarified (April 2022) that only 40

per cent toll rate should be levied. On a review of NHAI's toll collections in Bhagwada and Charoti Toll Plazas in the project, Audit observed that though NHAI should have reduced toll rates to 40 *per cent* after the concession period ended on 25 May 2022, NHAI started toll collection from 26 May 2022 at the full rates. Non-reduction to 40 *per cent* of the rates resulted in excess toll collection to the tune of ₹91.93 crore and ₹88.50 crore (**Annexure XIV)** in Bhagwada and Charoti Toll Plazas respectively[21] for the period from 26 May 2022 to 31 March 2023.

Ministry replied (January 2025) that the provision for perpetual toll collection was started from October 2023 and therefore there was no undue burden on the road user.

Ministry's reply may be seen in light of the fact that audit observation pertained to the period from May 2022 to March 2023 during which NHAI should have collected toll @ 40 *per cent*. The amended provision as mentioned in the Ministry's reply was applicable only from 06 October 2023.

Recommendation No. 46: NHAI and MoRTH may ensure that toll is collected only according to the applicable rates in vogue as per the provisions of the NH Fee Rules 2008.

(ii) Non-existence of project-wise accounting to watch recovery of capital cost of public funded projects

Rule 6 (6) of the NH Fee Rules, 2008, as applicable from January 2011 to October 2023, provided for the toll rates of public funded projects to be 40 *per cent* of toll rates after recovery of capital cost of the project. The recovery of capital cost should be monitored through Accounting and Financial Management System (AFMS- the accounting system of NHAI). However, due to non-existence of project wise accounting in NHAI, recovery of capital cost of public funded project could not be monitored.

Ministry replied (January 2025) that project-wise accounting is yet to be implemented in NHAI and the matter was being examined in consultation with the Expert Advisory Committee of the Institute of Chartered Accountants of India (ICAI).

The fact remains that project-wise accounting was absent in NHAI. This restricted NHAI from watching the recovery of capital cost of public funded projects for enabling reduction of toll rates to 40 *per cent.* Though the reduction of toll rates to 40 *per cent* is not applicable from October 2023, the absence of project-wise accounting was depriving NHAI of other benefits of project accounting. These include better decision-making regarding recovery of capital costs invested in projects and for enabling planning of projects. Further, the requirement of examination by the ICAI is not understandable for implementing a change

[21] ***It is pertinent to mention that the stretch has two other toll plazas namely Boriach (Km 297.300) and Khaniwade (Km 467.220)***

in NHAI's accounting system by mapping project to the GL Code (account code in AFMS) of toll revenue.

The situation did not change despite Ministry assuring (April 2022) to streamline project-wise accounting on a similar paragraph (No.4.3.3) highlighted in the Performance Audit Report on 'Implementation of Phase-I of Bharatmala Pariyojana' (CAG Report No.19 of 2023).

D Compliance of provisions relating to overloading and double tolls

Rule 10 of NH Fee Rules, 2008 stipulated that vehicle loaded in excess of the permissible load shall be liable to pay toll at rate applicable to the next higher category of vehicle. This Rule was amended (December 2013) and required the driver/ owner of the overloaded vehicle liable to pay toll equal to 10 times of the applicable toll. If overloaded, it must unload excess material to meet the permitted limit before proceeding further on the NH.

NHAI directed (May 2014) that the amended Rule was applicable to all the CAs irrespective of their date of execution. NHAI Policy Circulars (2015/ 2017) stated that the penalty amount being collected from overloaded vehicles may be regulated as per provisions of respective CA; i.e. if the CA provides for collecting next higher category rate for an overloaded vehicle, the difference of toll (10 times of applicable toll of vehicle category minus rate of next higher vehicle category) shall be remitted to NHAI and where the amended toll Rule was part of CA, such amount may be retained by the Concessionaires. This Rule was further amended (September 2018) which prescribed the toll for the overloaded vehicles according to the percentage of overloading[22].

MoRTH made it compulsory (February 2021) for all NH users to pay toll through FASTag. MoRTH also required that vehicle users not having a valid/ functional FASTag to pay toll at double the normal rate in cash. MoRTH directed NHAI to remit 50 *per cent* of the toll collected in cash to the Consolidated Fund of India (CFI). The TCAs or the Concessionaires could retain only their share of normal toll rate and penal charge (double toll) collected was to be deposited into CFI through NHAI.

(i) Non-collection of applicable higher toll for overloaded vehicles and non-offloading of excess load before allowing vehicles to proceed further on NH.

To enforce the provisions relating to overloading, a Static Weighbridge (SWB) was required after the toll plaza in each traffic direction, with a designated parking area for overloaded vehicles. A vehicle detected as overloaded by the Weigh in Motion system (WIM) when it passes through the toll lane, is directed to the designated area. The vehicle is then reweighed on the SWB to confirm the excess load.

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[22] ***Penal rates were 2, 4, 6, 8 and 10 times normal toll rate, if the loading exceeded the maximum permissible gross vehicular weight respectively by 0-20 per cent, 20-40 per cent, 40-60 per cent, 60-80 per cent, beyond 80 per cent respectively.***

Audit reviewed the compliance of the provisions relating to overloading and observed the following:

- The provision of NH Fee Rules requiring offloading of excess weight before allowing the vehicles to proceed further on the NH was not complied with in any of the Toll Plazas selected for audit.

- Gross Vehicle Weight (GVW) is the total weight of a vehicle when it is fully loaded. It is the maximum weight a vehicle is allowed to carry. Audit observed that Toll Management System (TMS, used for facilitating toll collection) did not contain the data on GVW of vehicles by its make and model.

- Report of WIM was not retrievable from TMS available at Tolls indicating that there was no integration of WIM/ SWB data with TMS.

- There was no penalty clause for delay in installation and non-integration of the Weigh Bridges with TMS in the Agreements entered into with the System Integrators which were empanelled by Indian Highway Management Company Limited (IHMCL).

Audit also observed that despite the system for weighment being installed in almost all the toll plazas[23], it was not operational in two out of nine BOT Toll Plazas.

In two out of nine BOT Toll projects reviewed, the overload fees collected by the Concessionaires were not in accordance with the applicable rates. Further, the Concessionaires did not remit to NHAI the portion of overloading charges payable under the CA. Audit could not quantify the financial implication of this lapse, as the Gross Vehicle Weight (GVW) data was not integrated with the Toll Management System (TMS). Of the nine BOT toll plazas examined, four pertained to RO–Gandhinagar. In two of these plazas, overload fee was not collected, while in the remaining two, the fee was collected in line with the provisions of the CA but not in accordance with the applicable rules of 2013, which came into effect subsequent to the signing of the CAs (2009 and 2011).

NHAI/Ministry replied (January 2025) that IHMCL had started integration of Weighing Machines with the TMS. The Ministry also stated that a proposal under the ambit of NH Fee Rules, Central Motor Vehicles Act and Central Motor Vehicles Rules was being examined for enabling collection of overloading charges from the Toll lanes through FASTag instead of taking the vehicles to SWB for weighing the vehicle. Presently, the penalties for overloading of vehicles were calculated according to Rule 10 of the NH Fee Rules, 2008.

In the reply, the Ministry did not mention about the non-compliance of the Rule relating to offloading of excess load before allowing vehicle to proceed further on the NH. Further,

[23] ***except Khemna, Undvariya and Makhel in PIU Palanpur and Kini Toll Plaza in PIU Kholapur.***

Ministry did not reply on the non-operational weighing machines in public funded Toll Plazas.

Recommendation No. 47: NHAI may ensure compliance of NH Fee Rules 2008 relating to collection of toll from overloaded vehicles and offloading of excess load before allowing vehicle to proceed further on NH.

(ii) Non collection of double toll from Concessionaire and remit to Consolidated Fund of India - ₹39.04 crore

With a view to implement MoRTH directions, NHAI issued (February- July/ September 2021) various directions to PIUs/ ROs to ensure that the double toll was collected and remitted[24] immediately to the CFI. Non-compliance of these directions were to be treated as financial irregularity. NHAI observed (July 2021) that despite clear directions to all PDs and ROs for collecting, remitting double tolls and sharing the defaulter details, they were not being complied with. NHAI also directed (September 2021) to collect interest @ 5 *per cent* above bank rate for delayed remittance made by Concessionaires.

Audit observed that there were delays in recovering the double toll from BOT Toll Concessionaires in seven PIUs covering nine Toll Plazas across Western India, with total dues of ₹39.04 crore in March 2023 **(Annexure XV)**. No observation was notice in the remaining 15 selected toll plazas.

Ministry (January 2025) stated that though some Concessionaires were reluctant to remit the double toll on the presumption that it was part of toll-collection which they were entitled to retain, NHAI had categorically notified the Concessionaires for remitting the double toll failing which punitive action according to the provisions of the CA were proposed. Few BOT Concessionaires[25] have already approached Arbitration Tribunal (AT), and NHAI was following up the matter with the AT.

Despite NHAI giving strict directions to the PD and the ROs in 2021 and the assurance of firm action to be taken by NHAI against defaulting Concessionaires, the fact continues to remain that NHAI is unable to implement MoRTH directions on remittance of double toll into the CFI. The delay in recovering the double toll dues from Concessionaires increases the risk for NHAI if the concession period ends before the dues are recovered increasing the possibility of non-recovery.

Recommendation No. 48: NHAI may take action against defaulting Concessionaires as per the provisions of the Concession Agreements to recover double toll dues and promptly remit them to the CFI.

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[24] ***The double tolls collected were to be remitted to NHAI HQ on weekly basis for onward remittance to the Consolidated Fund of India; in case of short-term toll collection contracts (up to three months), the double toll was to be remitted to NHAI HQ on daily basis.***

[25] ***Khed Shivapur Toll Plaza and Patas Toll Plaza under RO Mumbai***

7.1.5.2 Implementation of toll-related provisions

A Not conducting or delay in conducting traffic survey leading to undue benefit to BOT Concessionaire by way of extension of concession period

The BOT Toll CA provides for modification of concession period based on the variation or fluctuation in traffic growth. Clause 29 of the CA specifies a Target Date (a future date, say 10 years from the date of the CA) and the estimated traffic on that date (target traffic). The actual traffic on the Target Date would be determined and then compared with the target traffic. The method for variation of the concession period, which is based on the percentage of variation between the target traffic and the actual traffic is also specified in Clause 29 of the CA.

The actual traffic on the Target Date is determined by arriving at the average vehicle count, obtained through traffic sampling for a continuous period of seven days on one year before the Target Date, on the Target Date, and one year after the Target Date. The procedure for traffic sampling is mentioned in the CA. NHAI could also inspect the records of the Concessionaire for checking the accuracy of the traffic sampling.

Audit reviewed five out of nine BOT Toll projects and observed the following:

- **In Surat-Dahisar section of NH-8 project,** the target date as per the CA (April 2008) was 1 January 2017 and the target traffic was 82,043 Passenger Car Unit (PCU). The traffic survey was not conducted according to the provisions of the CA. Further, the concession period, which was supposed to end on 19 February 2021, got extended up to 25 May 2022 through a settlement agreement.

  NHAI/MoRTH replied (January 2025) that detailed traffic survey was conducted on regular basis through IE whenever PIU/Authority considered deemed fit and necessitated. Various disputes of the project were settled through Conciliation Committee of Independent Experts (CCIE[26]) mechanism and supplementary agreement entered into.

  Reply may be viewed in light of the fact that NHAI is not a decision making authority when it comes to choice of conduct of traffic sampling, as it had to be conducted according to the terms and conditions of the CA[27].

  In Talegaon-Amravati Section of NH-6 project, the target date as per the CA (November 2009) was 01 April 2020 and target traffic was 41,052 PCUs. Audit observed that as against the traffic sampling to be conducted in April 2019, April

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[26] ***NHAI established (September 2019) CCIE for speedy and amicable resolution of contractual disputes. After conciliation process, the parties would arrive at a settlement agreement. Those disputes which are not resolved through CCIE mechanism be referred to Arbitration.***

[27] ***Traffic Survey had to be conducted as per Clause 22.3 read along with Schedule-O of CA which was not conducted by NHAI through IE.***

2020 and April 2021, NHAI got conducted traffic sampling in August 2019, in September/ November 2020, and in June 2021. The stated reason for not conducting traffic sampling in April of 2019 was that IE was engaged only in June 2019. Audit, however, noticed that as NHAI had provided extension to the then existing IE till new IE was appointed in June 2019, the stated absence of IE was not a valid reason for delay in traffic survey. Though the survey in April 2020 was not possible due to Covid pandemic, the reasons for conducting traffic sampling in June 2021, as against in April 2021, was not clear.

Audit observed that though the decision relating to modification of concession period should have been completed by April 2021, NHAI could not (June 2024) finalise this.

- **In Pune-Solapur section of NH-9 project,** the target date as per the CA of May 2009 was 1 January 2019 and target traffic was 32,000 PCUs. Audit observed that traffic sampling was not undertaken on the dates mentioned in the CA. The Concessionaire reported to NHAI of having conducted traffic sampling under the supervision of IE from 20 to 26 January 2017, from 15 to 21 June 2018 and from 3 to 9 July 2019.

  Audit observed that traffic sampling was conducted not on the required dates and the third party video based sampling method[28] was different from that required as per the CA. In this project, the Concessionaire claimed extension of 832 days to the concession period. Further the Concessionaire raised disputes, and the matter is before an Arbitration Tribunal (AT).

  Ministry replied (January 2025) that the Concessionaire invoked arbitration as the claims raised by the Concessionaire was not agreed to citing incomplete and incorrect data, and NHAI was the defending the arbitration.

- **In the Madhya Pradesh and Maharashtra Border- Dhule Section project,** the target date as per CA of June 2009 was 1 October 2020 and the target traffic was 37,000 PCUs. In this case, instead of getting traffic survey conducted by the IE, NHAI allowed the Concessionaire to get it conducted through some agency using only videographic method which was in deviation from the traffic sampling methods mentioned in the CA.

  Audit observed that the deviations in the methods of sampling and engaging agency other than IE, compromises the outcome of the sampling. The Concessionaire sought an extension of 1,315 days. The IE conducted a traffic survey[29] in June 2023 and proposed an extension of 340 days, based on NHAI's directions (20 January 2023) to calculate realistic traffic statistics for 2020 and 2021, in view of Covid-19

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28 ***Video recording at the toll plaza site and counting the vehicle from video in the consultant office.***

29 ***traffic sampling was conducted through a third party agency***

relaxations. NHAI did not finalise (May 2024) the modification to concession period.

- **In Pune-Satara Section of NH-4 project,** the target date as per CA of March 2010 was 31 March 2019 and target traffic was 60,848 PCUs. Only partial traffic survey was conducted (March 2019) as the traffic sampling in March 2018 was not conducted. Due to non-compliance of the traffic sampling provisions of the CA, NHAI was unable to modify the concession period and attracted avoidable litigations. In the Arbitration initiated, the Concessionaire demanded extending concession period based on its own calculations. NHAI could have avoided the arbitration, if it had ensured compliance with the contractual provisions in timely manner.

Audit observed that in all five BOT Toll projects, traffic sampling was not carried out as per the provisions of the CA. Further, the concession periods could not be modified in a timely manner. The reasons for NHAI's non-compliance with the traffic sampling provisions were not made available to Audit. Such deviations adversely affect the financial interests of NHAI, typically resulting in extensions of concession periods and undue benefits to the Concessionaire.

Though Ministry (January 2025) provided reply regarding two of the five BOT Toll projects, stating that traffic survey was being conducted on regular basis and NHAI was defending its case before the AT, the fact remains that in none of the five BOT Toll projects, NHAI was able to comply with the CA provisions on traffic sampling for modification of concession period.

Recommendation no 49: NHAI may ensure that traffic surveys are conducted on the dates specified by following the traffic survey methods mentioned in the Concession Agreements

B Loss of toll revenue to NHAI in Khed-Sinnar Project ₹9.68 crore

NHAI entered into CA (May 2013) with Khed Sinnar Expressway Limited (Concessionaire) for four-laning of Khed-Sinnar section on NH-50 on BOT Toll mode. NHAI terminated the project by entering into (April 2022) a Settlement Agreement (SA). Clause 2.1 of the SA required NHAI to release first tranche of the settlement amount within 30 days from the effective date (06 April 2022). NHAI was entitled to take over the toll collection from the Concessionaire upon making the settlement payment. NHAI delayed the settlement payment by 32 days[30], which consequently delayed NHAI's commencement of toll collection. During this period the Concessionaire continued to collect toll till 8 June

[30] ***NHAI paid dues on 7 June 2022, instead of paying on 6 May 2022 as per applicable clause of SA.***

2022. Thus, delay in making settlement payment resulted in toll revenue loss of ₹9.68 crore[31] to NHAI.

NHAI took over toll collection and engaged a TCA[32] from 09 June 2022. The agency, however, was debarred[33] on 30 June 2022 for defaults in toll remittances. Based on the request of MEP Infrastructure Developers Limited, the parent company of the TCA, the RO Mumbai appropriated (October 2022) the pending dues from performance bank guarantees (BG), leaving a short-recovery of ₹2.69 crore. Incidentally, an amount of ₹3.69 crore was refunded (July 2022) to the same TCA towards refund of BG in RO-Gandhinagar, which reflected lack of control mechanism in recovering dues of NHAI.

NHAI/ Ministry (May 2024/January 2025) stated that NHAI (CO- Division) issued directions for recovering outstanding dues from available BGs of TCAs at various locations. The TCAs disputed this and the matter was referred to for settlement through conciliation, which is in progress.

In the reply, Ministry provided an update of the developments in the matter. The fact, however, remains that NHAI had allowed the due from TCA to accrue beyond available securities and NHAI is yet to recover the dues. Reply was silent about the loss due to delay in settlement payment.

C Deficient monitoring of projects due to non-collection of periodic reports/statements

The CA/ contract with TCA contains provisions to safeguard the interests of NHAI. These include, *inter alia*, the Concessionaire/ TCA requiring to submit monthly toll statement, annual audited financial statements, quarterly unaudited financial statements, escrow bank statements, etc. to NHAI. Audit observed that PIUs were not able to collect all these documents as required and monitor the operations of the Concessionaires/ TCAs **(Annexure XVI)**.

Ministry (January 2025) stated that the Concessionaires were not submitting the periodic reports/ statements as per the provisions of the CA. The monitoring mechanism had been strengthened, and Concurrent Auditors were deployed in each PIU for regular monitoring of the periodical statements submitted by Concessionaires.

The reply may be seen in light of the fact that primary responsibility of monitoring the Concessionaires and TCAs is with the PIUs and even the concurrent auditors work would be limited in the scenario of lack of submission of periodic reports/statements.

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[31] ***₹30,25,080 per day multiplied by 32 days' delay***

[32] ***Bhalaji Toll Road Private Limited (BTRPL)***

[33] ***for a period of one year due to non-payment of agreed remittance.***

7.1.5.3 Internal control weaknesses in toll operations

The system used by NHAI for facilitating toll collection and for capturing toll data is called Toll Management System (TMS). There are System Integrators empanelled by IHMCL (a sister concern of NHAI) for managing TMS. Each toll collection transaction, through FASTag or through cash mode is recorded in the TMS.

NHAI uses a cloud-based Project Management System, *viz*. NHAI Data Lake for real time monitoring of projects and toll collection. For easy monitoring of toll collections, NHAI started (April 2021) cloud-based data analytics dashboard called Toll Monitoring & Control Centre (TMCC). There are various contractual provisions which enable NHAI in monitoring toll operations (as detailed in para 7.1.5.2 above).

Audit noticed internal control weakness in monitoring toll operations as detailed in following paragraphs.

A Ineffective monitoring of toll operations through TMCC

TMCC dashboard is integrated with the TMS used for enabling toll operations. TMCC allows real-time monitoring of toll collections using Business Intelligence (BI) tools. During audit, data on TMCC was sought from the three ROs. From a review of the information provided by RO-Gandhinagar[34] and the periodic toll related reports submitted by Concessionaires and TCA to NHAI, Audit observed that the Concessionaires and TCA reported lesser **(Annexure XVII)** vehicle count and toll revenue than the actuals recorded in TMCC.

NHAI should have compared the toll related reports sent by Concessionaires and TCA to NHAI with the information in TMCC dashboard, without which the monitoring of toll operations became weak.

Ministry replied (January 2025) that the ROs issued advisory to all the PDs for effective monitoring of toll operations through TMCC in future.

From the reply, it was not clear as to which of the three ROs had directed the PDs, especially when TMCC information was not provided by RO Mumbai and RO Nagpur**.**

B Toll related information in Monthly Reports inconsistent with TMS data

There are various IHMCL empanelled System Integrators (SI) which provide support for toll operations in NHAI. The common feature of various TMS is that it records the details of the vehicles crossing the toll plaza. The TMS used by different SIs were having varying features with respect to recording of the toll collection. While some TMS provide records of only the amount collected in cash and not the amount collected through FASTag, in

[34] ***Data of RO- Nagpur and RO- Mumbai was not provided***

others, both cash and FASTag collection were recorded. The agreements entered by Indian Highways Management Company Limited with SI for implementation of TMS provided for data backup and restoration to ensure data safety and to avoid data loss.

If the TMS provides only cash collection information, then the FASTag total toll collection can be obtained from the acquirer bank statement into which FASTag toll collection gets credited. The Concessionaire or the TCA submits monthly toll statement and number of vehicles to NHAI.

Audit compared the monthly toll statements with the TMS (Cash transaction) and the Acquirer bank data (FASTag transactions) and found that out of 24 toll plazas, NHAI could provide data (TMS, Acquirer Bank and Monthly Fee Statement) only of eight toll plazas for the entire period from April 2020 to March 2023 and in other toll plazas only partial data for the period of review was received. Audit observed that 16 toll plazas[35] had under reported traffic in the range of 0.14-68.93 *per cent*. Major under-reporting in the range from 1.27-4.58 *per cent* of revenue was observed in five toll plazas[36]. The potential implication/risk of underreporting are as follows:

- In the case of PPP projects, it may enable Concessionaires to raise unjustified claims for extension of the concession period on the grounds of traffic being lower than projected.

- In the case of publicly funded projects, underreported toll collections could result in depressed revenue projections, thereby, lowering the value of offers in future bids.

Ministry (January 2025) noted the Audit observation for future compliance.

C Non-standardisation of TMS posing challenges to NHAI in toll operations

NHAI engages multiple System Integrators (SI) empanelled by IHMCL for supporting of toll operations. The TMS used by different SIs were having varying features. Audit observed that the non-standardisation of TMS was posing various challenges to NHAI including lack of mechanism for migration of data from one SI to another. The absence of data migration by SI curtails the ability of NHAI to use toll related data for decision-making purposes.

Further, the agreement with SI did not provide a clause for ownership of toll data, though the toll data did belong to NHAI. The data remained with the SI and was not transferred to NHAI after expiry of the contract. e.g. in Mandal Toll Plaza, SI was changed in June 2021

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35 ***BOT model Toll Plaza -Bhatwada, Nadiad, Mandal, Nandgaon, Karanja Cha, Pargaon, Shirpur, Khed Shivapur TOT model Toll Plaza-Khemna, Undavariya, Vanana Public Funded Toll Plaza-Mandva, Makhel, Limdi, Okhamadi, Kini***

36 ***Mandva, Vanana and Khemna under RO- Gandhinagar. Shirpur in RO Mumbai. Karanja CHA in RO Nagpur***

and data format of the SIs were different. In case of change of SI, there was no provision to migrate the legacy data to the incoming SI. Further, every SI had their systems and versions in their own way and there was no integration visible in the software used in the NH toll plazas.

Ministry (January 2025) stated that NHAI had taken comprehensive steps to implement a robust framework for data ownership, migration, standardisation to ensure the integrity, security and accessibility of toll data.

The reply is a general statement and nothing specific was mentioned about the actions taken on the observation raised, which was about non-standardisation of TMS and absence of data migration.

Recommendation No. 50: NHAI, along with its sister concern IHMCL, may standardise the Toll Management System to ensure uniformity across various System Integrators. Further, the custody and control of toll data should rest with NHAI to safeguard its financial interests and maintain data integrity.

D Feedback by road users on the facilities and amenities

NHs should meet the quality parameters mentioned in various IRC Guidelines. From a road-user point of view, the apparent quality aspects are smooth ride and basic amenities on NHs. All toll roads are required to have basic amenities like toilets, water ATM, packaged food and hot and cold beverages linked to toll plaza buildings[37].

MoRTH directed (August 2016) NHAI to provide toilets under Swachh Bharat Mission at Toll Plazas. These toilets should be properly maintained and be available round the clock. NHAI decided (November 2017) to provide 'Highway Nest Mini' on both sides of Toll Plazas for the road users, with facilities like toilets, water ATM, packaged food, and hot and cold beverages. 'Highway Nest Mini' were to be opened at all Toll Plazas by March 2018.

To get an insight on the assessment of the NHs by the road users, joint-surveys[38] of 556 road users were conducted in the selected projects[39]. The road users were requested to provide feedback by answering a questionnaire. The road users shared their experience of

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37 ***IRC SP 84 of 2009/ 2014/ 2019, IRC SP 87:2019, and IRC 82 of 2010/ 2013/ 2015 (which are IRC on four-laning and six-laning respectively), which provide in detail the maintenance requirements for ensuring smooth riding quality, for providing toilet and other facilities at toll plaza buildings, for providing Highway plantation which are to be maintained as per IRC SP 21:2009. IRC 35 of 2015 provides for the road markings.***

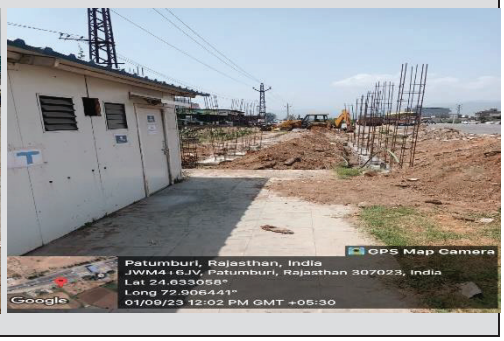
38 ***The joint survey of road users was conducted by Audit Team along with the NHAI Officials, the Contractor or the Concessionaire which maintains the NH, representatives of the IE or Authority Engineer of the project. The questionnaire was given to road users who were willing to participate in the survey. The completed survey forms were signed by the Officials/ representatives who witnessed the survey. The results of the survey were tabulated and was used to derive inferences.***

39 ***25 road user survey for each toll plaza (total of 275 surveys) in RO- Gandhinagar. 141 surveys were conducted in RO- Mumbai and 140 survey in RO- Nagpur respectively.***

NHs on parameters like ride quality, maintenance and upkeep of highways, waiting time at toll plazas, online grievance mechanism, cleanliness of facilities like toilets.

The responses indicated that the overall rating of 'Excellent' was 43.71 *per cent*, 'Good' was 32.25 *per cent*, 'Poor' was 5.49 *per cent*, 'Satisfactory' was 14.63 *per cent*, and 'Very Poor' was 3.92 *per cent*. The parameter-wise feedback is given in **Annexure-XVIII**

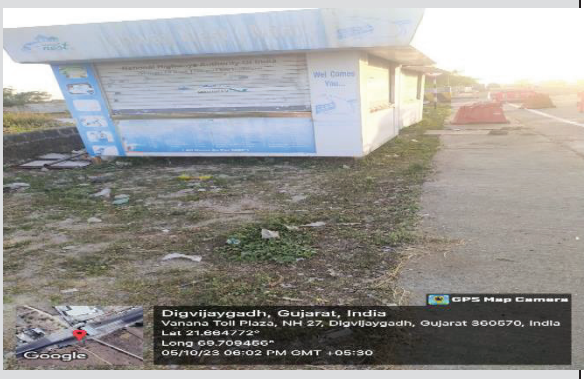
Audit noticed that four toll plazas sampled in Gujarat was not in a condition to be utilised by road users as they did not have provision for accessing toilet facility[40].

Khemana – LHS	**Undavariya – RHS**
	

It was also observed that maintenance and upkeep of toilets under public funded toll plazas needed more attention. Audit also observed that under RO-Gandhinagar, Highway Nest Mini was not available/ operational in nine toll plazas **(Annexure XVIII)**.

Undavariya- LHS	**Undavariya- RHS**
	
Bhatwada- RHS	**Vanana – RHS**

[40] ***Okhamadi (Left Hand Side) and Vanana (Right Hand Side) in Palanpur. Toilet was found in dilapidated condition at Khemana and Undavariya Toll Plaza and the one in which was built was under maintenance for more than six months in Khemana Toll Plaza in the state of Gujarat.***



Audit also observed that NHAI commenced toll collection since 2011 from a temporary toll Toll Plaza at Kelapur in the Borkhedi-Wednar-Deodhari-Kelapur project under RO Nagpur. In 2022, NHAI handed over the toll operations to TOT Concessionaire and declared Appointed Date in October 2022. Clause 11 of Schedule B of the Concession Agreement provided for the construction of toll plaza and associated facilities within 12 months from the Appointed Date, which the Concessionaire did not do.

MoRTH replied (January 2025) that the Audit Observation was noted and since the project was handed over to TOT Concessionaire, further factual position would be submitted to Audit shortly.

The reply is of interim nature and did not mention anything on the contractual liability of the TOT Concessionaire by October 2023 (one year from the Appointed Date in October 2022).

Ministry also stated (January 2025) that NHAI would take actions for increasing awareness of online grievance redressal mechanism for the benefit of road users.

Recommendation No. 51: Ministry/NHAI may establish a structured mechanism for collecting feedback from road users, systematically assess the inputs received, and initiate appropriate remedial measures to improve the quality of services.

7.1.6 Conclusion

NHAI could not effectively implement the directives of MoRTH and Policy Circulars of NHAI for timely commencement of toll collection resulted in loss of revenue to NHAI by ₹9.60 crore. The relevant provisions of NH Fee Rules, 2008 requiring reduction of toll to 40 *per cent* while NHAI taking over toll collections after expiry of concession period were not complied with resulting in undue financial burden of ₹180.44 crore to road users. Abnormally high manual exemptions were found to be granted in certain public funded toll plazas. NHAI was continuing to grant irregular concessions to local people in two Toll Plazas that were audited. The provisions relating to recovering charges from overloaded vehicles were not seen to be complied with in public funded toll plazas and the provision

of offloading the excess load before allowing the vehicle to proceed further were not at all complied with. Delays in collecting double toll from Concessionaires and remitting it to the Central Government was observed.

Delay in making settlement payments to a Concessionaire resulted in loss of toll revenue ₹9.68 crore to NHAI. Non-compliance with the provisions of BOT contracts on traffic survey for determination of the modification of the concession periods was seen in all the five BOT projects audited.

NHAI needs to improve its internal controls in toll operations by ensuring usage of TMCC dashboard, cross checking the toll collection reports of Concessionaires and TCAs with corresponding information in TMS and Acquirer bank. NHAI needs to standardise the TMS used by various System Integrators so that data-migration challenges etc. are avoided. Road users have expressed concern on waiting time of toll plaza, and inadequate facilities on NHs.

7.2 Excess burden on road users and undue favour to toll operators.

NHAI used higher linking factor of 1.641 for calculating user fee to be charged by the toll operators from road users instead of revised linking factor of 1.561 published by Office of the Economic Advisor (OEA), Ministry of Commerce and Industry. This resulted in excess burden on road users and undue favour to toll operators by ₹ 19.66 crore.

National Highways Authority of India (NHAI) levies fees on road user for use of any section of national highway including permanent bridge, bypass or tunnel in accordance with Rule 3 of the National Highways Fee (Determination of Rates and Collection) Rules, 2008. Rule 5 of the National Highways Fee (Determination of Rates and Collection) Rules, 2008 further allows NHAI to annually revise the rate with effect from first of April each year to reflect the annual increase in Wholesale Price Index (WPI). NHAI generally empanels contractor through tender for collection of user fee at designated toll plaza.

Office of the Economic Advisor (OEA), Department of Industrial Policy and Promotion, Ministry of Commerce and Industry publishes the Wholesale Price Index (WPI). The base of the index is periodically revised, and the latest series was published by OEA on 12 May 2017 (effective from April 2017) with the base year 2011-12. Prior to this publication of WPI, the base year of 2004-05 was applicable. NHAI has been using WPI-All commodities of 2004-05 series for user fee revision and price variation formula till March 2017. To maintain continuity in the time series data during switching from 2004-05 to 2011-12 series, OEA issued (May 2017) a linking factor[41] of 1.561 for WPI-all commodities.

Project Implementation Unit (PIU), Hazaribagh of NHAI has appointed (December 2021) contractors (toll collecting agencies) for user fee collection at following locations (i)

[41] ***To maintain continuity in the time series data on wholesale price index, linking factors have been provided so that the new series, may be compared with the earlier one.***

Rasoiya Dhamna user fee/toll plaza located at KM 279.425 for Barachatti-Gorhar section from KM 240.000 to KM 320.000 of NH-2 and (ii) Nagwan Toll (Hazaribagh) located at KM 30.400 for Barhi-Hazaribagh section from KM 0.00 to KM 40.500 of NH-33 in the State of Jharkhand.

NHAI was also required to include new linking factor in its calculation for user fee to maintain consistency. Accordingly, NHAI, issued (20 March 2018) a policy no.18.30 for use of revised linking factor due to change of base year of WPI from 2004-05 to 2011-12. Ministry of Road Transport & Highways (MoRTH) circulated (04 June 2018) linking factor of 1.641 for WPI-All Commodities. Subsequently (03 August 2018), MoRTH reduced it to 1.561 and this revision specified that linking factor published by OEA (May 2017) for changing of WPI series shall be applicable for all contracts.

Audit observed that PIU, Hazaribagh while revising user fee at its two toll-plaza ignored MoRTH office memorandum dated 3 August 2018 and applied a higher linking factor of 1.641 derived by NHAI instead of 1.561 published by OEA. This resulted in computation of excess toll rate by ₹ 5 to ₹ 25 per vehicle per trip as mentioned in **Annexure XIX.**

The adoption of higher linking factor put excess burden on the road users to the tune of ₹19.66 crore[42] and gave undue favour to the toll operators during the period 2021-22 and 2024-25 **(Annexure XIX).**

Management replied (January 2025) that

i) OEA had fixed the linking factor for all commodities as 1.561 and had permitted users to choose any method as may be considered appropriate by them.

ii) A Committee was formed by NHAI to review WPI which observed that the OEA had provided linking factor only at all commodity level and major group levels, not at further disaggregate level. Therefore, the Committee had determined the WPI for FY 2016-17 with base price of 2004-05 vs. 2011-12 as linking factor 1.641.

iii) OM dated 03 August 2018 of MoRTH basically relates to linking factor for change of WPI series for the Contracts. For User Fee Revision, NHAI Policy circular dated 20 March 2018 is applicable which was endorsed by MoRTH vide OM dated 4 June 2018.

Ministry stated (August 2025) that NHAI had reviewed the entire issue and was considering the linking factor of 1.561 as published in the website of the OEA, Ministry of Commerce and Industry, to be adopted in NHAI also for user fee revision as well as for all contracts of NHAI.

Reply of the Management/Ministry may be viewed in the light of the fact that:

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[42] *₹14.52 crore from Rasoiya Dhamna Fee Plaza + ₹ 5.14 crore from Hazaribagh Fee Plaza*

(i) OEA calculated WPI of 2011-12 by using geometric mean method in place of arithmetic mean method used earlier. OEA permitted the user to use either of two methods. In case the user preferred to use old arithmetical conversion method it declared linking factor of 1.561 based on five-year data to maintain continuity. However, NHAI determined a higher linking factor of 1.641 by using simple average of only one year data on monthly WPI from April 2016 to March 2017. As noted by MoRTH, in the past NHAI had been applying the 'linking factor' for user fee revision as communicated by the OEA without any discretion.

(ii) The Committee itself had calculated the linking factor at the all commodity level only and not at further disaggregate level.

(iii)MoRTH OM dated 03 August 2018 stated that the escalation as well as user fee revision was being calculated based on WPI issued by OEA. Therefore, the same linking factor for changing of WPI series i.e. from base year 2004-05 to 2011-12 would be applicable for all contracts.

Thus, application of higher linking factor for calculating user fee resulted in fixation of higher toll rates which led to excess burden on road users by ₹19.66 crore and undue favour to toll operators.

7.3 Irregular payment of bonus for early completion.

NHAI issued Provisional Certificate of Completion (PCC) for the stretch and declared it fit for commercial operation and tolling was commenced without ensuring completion of works in compliance to observations as highlighted by the Safety Consultant in its Safety Audit Report resulting in irregular payment of bonus of ₹8.13 crore to the Concessionaire.

National Highways Authority of India (NHAI) entered (May 2018) into a Concession Agreement (CA) with a Concessionaire for six laning of NH 140 from Chittor to Mallavaram over a length of 61.128 kilometers (km) in the State of Andhra Pradesh on Hybrid Annuity Mode at a project cost of ₹1,730.07 crore. The construction period was 910 days from Appointed Date (4 January 2019) with Scheduled Date of Completion (COD)[43] as 1 July 2021, which was extended (July 2020) up to 29 September 2021 due to Covid-19. As per Clause 23.5 of the CA, in the event that the Concessionaire achieves COD on or more than 30 days prior to Scheduled COD, the Authority shall pay to Concessionaire a bonus[44]. NHAI, as per CA, engaged 'Independent Engineer (IE)' (February2019) towards

[43] ***As per Clause 15.1.1 of the CA, the Project shall be deemed to be complete when the Completion Certificate or the Provisional Certificate, as the case may be, is issued under the provisions of Article 14 and accordingly, the COD of the Project shall be the date on which such Completion Certificate or the Provisional Certificate is issued.***

[44] ***Bonus equal to 0.5 per cent of 60 per cent of BPC for the first 30 days by which COD shall precede the Scheduled COD and thereafter, bonus shall be calculated on pro-rata basis for each day preceding the said 30 days period.***

consultancy services for supervision of the work and a 'Safety Consultant' (November 2020), for carrying out safety audit of the Project.

The Concessionaire intimated (March 2021) the IE that the construction works were complete and requested for issue of Provisional Certificate of Completion (PCC). Safety Consultant conducted (31 March 2021/ 1 April 2021) Safety Audit and submitted (15 April 2021) Pre-opening Stage Draft Audit Report to NHAI. The IE issued (June 2021) PCC, for a length of 49.864 km[45] and declared the stretch as fit for commercial operation with effect from 10 May 2021 and the tolling operation commenced from 26 June 2021. Considering that PCC was issued (10 May 2021) before 52 days from scheduled COD (1 July 2021), Concessionaire was paid (September 2022) bonus for early completion of the completed stretch as on PCC date (55.238 km[46]) amounting to ₹8.13 crore.

In this regard, Audit scrutiny revealed that –

(i) As per the guidelines issued (January 2016) by MoRTH on 'Road Safety Audits/ Supplementary Road Safety Audits on National Highways/ Expressways', a Draft Safety Audit Report should be submitted to the Road Authorities by the Safety Auditor. Subsequently, the Safety Auditor shall furnish 'audit observations on client responses' as a Supplementary Audit Report. The Road Authority should formally declare commencement of operations after ensuring that the concerns identified in Safety Audit Report are suitably addressed. Further, as per Clause 4.4 of Terms of Reference (ToR) for Appointment of Safety Consultant, the Safety Consultant shall conduct an Audit Completion Meeting with recorded minutes for acceptance/ compliance by NHAI/ Concessionaire to Draft Road Safety Audit Report and thereafter, shall furnish the Final Safety Audit Report.

However, NHAI/ IE did not follow the above procedure prior to issuing (June 2021) the PCC. Also, as no comments/ observations were received on the Draft Pre-Opening Stage Audit Report, the Safety Consultant submitted (20 May 2021) the Final Pre-Opening Stage Audit Report, which was forwarded by IE to the Concessionaire for compliance only on 1 September 2021, i.e., after three (3) months of issuance (June 2021) of PCC. Subsequently, as well, the clearance of the Safety Consultant was not sought.

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[45] ***Land made available to Concessionaire as on 182 days (i.e., by 5 July 2019) from Appointed Date (4 January 2019) was 52.987 km and up to 31 May 2021 was 58.143 km. Out of 58.143 km, a length of 56.304 km was reported as completed by Concessionaire. However, due to land acquisition issues, only 5.46 km out of 7.00 km stretch under Kasipentla Bypass and 0.98 km out of 1.30 km under P Kothakota Realignment could be completed. As entire length of Kasipentla Bypass and P Kothakota Realignment could not be made available for traffic users, the length for tolling and commercial operation was restricted to 49.864 km (56.304 km minus (5.46 km plus 0.98 km)).***

[46] ***Completed stretch at PCC date = 61.128 km x 90.365 per cent physical progress = 55.238 km.***

(ii) As per Clause 4.5 of Schedule L of the CA, the Concessionaire and the IE shall, within 15 days of receiving the Safety Report, send their comments to the Authority, and no later than 15 days of receiving such comments, the Authority shall review the same and direct the Concessionaire to carry out any or all of the recommendations contained in Safety Report with such modifications as the Authority may specify.

In this regard, the Draft Safety Report highlighted (15 April 2021) 21 issues (i.e., 6 Highly Essential, 14 Essential and 1 Highly Desirable) such as missing traffic signs, hazard markers, road markings and studs, incomplete structures, unfinished/ pending service roads, pedestrian crossings and blinkers, median plantation for glare reduction, street lighting, etc. However, the Concessionaire did not furnish (24 April 2021) specific compliance in respect of 9 issues, which included 3 Highly Essential and 6 Essential issues.

Further, as per Monthly Progress Reports (June/ July/ August 2021) submitted by the IE, certain works like construction work at major and minor junctions, operation of one-side carriageway, non-provision of service roads at encumbrance free land, provision of crash barriers, streetlights, glare problem, provision of bus bays, etc. were incomplete and were still under execution even after the date of issuance of PCC in June 2021.

As evident from above, NHAI did not verify the correctness of compliance reported by Concessionaire and IE, and approved the issuance of PCC.

Thus, NHAI, in violation of the Ministry's guidelines (January 2016) as well as CA provisions, approved issuance of PCC without ensuring compliance to the concerns raised in the Safety Audit Report. This resulted in extending undue benefit to the Concessionaire by granting bonus for early completion amounting to ₹8.13 crore.

Management (February 2024) and Ministry (May 2024) replied that, with regard to the issues highlighted in Draft Safety Audit Report, the IE carried out site inspection and observed that Concessionaire's compliance (24 April 2021) was comprehensive and almost all the issues were addressed except few, which were beyond the scope of CA and Concessionaire, due to non-availability of land. Further, IE, while recommending PCC date (10 May 2021), had mentioned that the recommendations made by Safety Consultant had been attended by the Concessionaire and only after due diligence by IE, the stretch was declared fit for commercial operations.

The replies of the Management and the Ministry may be viewed in light of the following:

(a) The stated compliance by Concessionaire on 24 April 2021 to the Safety Audit Report was not correct, as some of the works had been carried out by the Concessionaire even during May/ June/ July 2021 as per the Monthly Progress Reports submitted to

the IE. Also, Article 42 (Definitions) of CA indicates specific items, which can be included in Punch List of pending works to be appended to PCC. However, IE proposed (21 May 2021) for issue of PCC by including pending works/ shortcomings identified in Safety Audit Report under 'Punch List', even though these items were not to be included in Punch List as per CA.

(b) Also, while forwarding Draft Report, the IE had requested (20 April 2021) the Concessionaire to implement the observations and suggestions pointed out in Safety Audit at Pre Opening Stage and report compliance, so that the Final Safety Audit Report could be submitted by the Safety Consultant before the project was placed for commercial operation. The IE, however, without communicating the compliance provided (24 April 2021) by the Concessionaire to the Safety Consultant and without ensuring clearance from the Safety Consultant, issued (June 2021) the PCC and declared the stretch as fit for commercial operation.

Ministry and NHAI, however, did not provide any specific response for not obtaining the Final Safety Audit Report from the Safety Auditor as per the procedure prescribed in the Ministry Guidelines (January 2016) as well as in the ToR for appointment of the Safety Auditor, before declaring the stretch as fit for commercial operation.

Thus, PCC was issued irregularly without ensuring completion of works and also without ensuring compliance to observations of the Safety Consultant, which was also not in line with the CA and the Ministry guidelines (January 2016) issued in this regard. This has resulted in irregular payment of ₹8.13 crore towards bonus for early completion and extending undue benefit to Concessionaire.

CHAPTER VIII: RECOVERIES AND CORRECTIONS/RECTIFICATIONS BY CPSEs AT THE INSTANCE OF AUDIT

8.1 Recoveries at the instance of Audit

In 13 cases pertaining to seven CPSEs, the Management had recovered an amount of ₹205.49 crore at the instance of Audit during March 2023 to March 2024 as detailed in **Annexure XX**.

8.2 Corrections/rectifications at the instance of Audit

During test check, cases relating to violation of rules/regulations and deficiencies in the system were observed and brought to the notice of Management. Details of nine cases where corrective action was taken or changes were made by the Management at the instance of Audit during the year 2023-24 is given in **Annexure XXI**

CHAPTER IX

9.1 Follow-up on Audit Reports (Commercial)

Audit Reports of the CAG represent the culmination of the process of scrutiny of accounts and records maintained in various offices and departments of PSUs. It is, therefore, necessary that appropriate and timely response is elicited from the executive on the audit findings included in the Audit Reports.

The Lok Sabha Secretariat requested (July 1985) all the Ministries to furnish notes (duly vetted by Audit) indicating remedial/corrective action taken by them on various paragraphs/appraisals contained in the Audit Reports (Commercial) of the CAG as laid on the table of both the Houses of Parliament. Such notes were required to be submitted even in respect of paragraphs/appraisals which were not selected by the Committee on Public Sector Undertakings (COPU) for detailed examination. The COPU in its Second Report (1998-99-Twelfth Lok Sabha), while reiterating the above instructions, recommended:

- Setting up of a monitoring cell in each Ministry for monitoring the submission of Action Taken Notes (ATNs) in respect of Audit Reports (Commercial) on individual Public Sector Undertakings (PSUs);

- Setting up of a monitoring cell in Department of Public Enterprises (DPE) for monitoring the submission of ATNs in respect of Reports containing paras relating to a number of PSUs under different Ministries; and

- Submission to the Committee, within six months from the date of presentation of the relevant Audit Reports, the follow up ATNs duly vetted by Audit in respect of all Reports of the CAG presented to Parliament.

While reviewing the follow up by the Government on the above recommendations, the COPU in its First Report (1999-2000-Thirteenth Lok Sabha) reiterated its earlier recommendations that the DPE should set up a separate monitoring cell in the DPE itself to monitor the follow-up action taken by various Ministries/Departments on the observations contained in the Audit Reports (Commercial) on individual undertakings. Accordingly, a monitoring cell is functioning in the DPE since August 2000 to monitor the follow up on submission of ATNs by the concerned administrative Ministries/Departments. Monitoring cells have also been set up within the concerned Ministries for submission of ATNs on various Reports (Commercial) of the CAG.

A review in Audit revealed that despite reminders, the remedial/corrective ATNs on five compliance audit paragraphs contained in the last five years' Audit Reports (Commercial) and two Performance Audit Reports relating to the PSUs under the administrative control of various Ministries, as detailed in **Annexure XXII**, were not received by Audit for vetting.

Recommendation No. 52: Department of Public Enterprises should follow up with the Ministries/ Departments for submission of Action Taken Notes (ATNs) in timely manner, so that the C&AG Audit Reports/Paragraphs (Commercial), along with ATNs duly vetted by Audit can be forwarded to the Committee on Public Undertaking within stipulated period of six months from the date of laying of the respective CAG Reports (Commercial)**.**

New Delhi
Dated: 22 January 2026

(Anand Mohan Bajaj)
Deputy Comptroller and Auditor General
(Commercial & RC) and Chairman, Audit Board

Countersigned

New Delhi
Dated: 27 January 2026

(K. Sanjay Murthy)
Comptroller and Auditor General of India

Annexures

Annexure -I

(*Referred to in Preface*)

Economic and Service Ministries/Departments under Commercial Wing

Sl. No.	Name of the Ministry
1	Civil Aviation
2	Coal
3	Commerce & Industries
4	Corporate Affairs
5	Heavy Industries
6	Housing & Urban Affairs
7	Micro, Small and Medium Enterprises
8	Mines
9	Petroleum & Natural Gas
10	Ports, Shipping and Waterways
11	Power
12	Road Transport & Highways
13	Steel
14	Textiles
15	Tourism
	Departments under Ministry of Chemicals and Fertilizers
1	Department of Chemicals & Petrochemicals
	Departments under Ministry of Finance
2	Department of Financial Services
3	Department of Investment and Public Asset Management
4	Department of Public Enterprises

Annexure-II

[Referred to in Para 1.3.6.1 (C)]

Modifications in initial Contracts (Packages) for project work

Old Planned Packages -24

New Addition -14 After Split/merge/delete =11 No changes =11 Total awarded = 36

Sl. No.	Contract	Modification	Modified Contract
1.	TA 1 Steam Generator & auxiliaries, Balance of equipment	As BHEL was the successful bidder for both TA 1-SG and TA 1-TG, both packages were merged and called as package TA 1- SG & TG TB 2-DG Station was also merged with TA 1- TG.	1) TA 1 Steam Generator & Turbine Generator
2.	TA 1-TG Turbine Generator & auxiliaries, Balance of equipment		
3.	TA 2 Coal Handling System	Shore unloaders was deleted from the scope of supply in TA 2 and later given as a separate contract	1) TA 2 Coal Handling System. 2) Shore unloader
4.	TA 10 - Dense Ash Slurry package	Package kept in abeyance and later deleted.	**Deleted**
5.	TB 1 - Mechanical Workshop	Split into TB 1A, TB 1B, TB 1C. Tendering process not initiated for TB 1B & TB 1C.	Later TB 1 was **deleted**. However, a contract for construction of Common Workshop was executed.
6.	TB 2- DG station	Package was merged (April 2008) with Package TA1-TG	Merged with TA 1 – SGTG
7.	TB 3 -Construction Facilities (Power and Water)	Package was split (March 2008) into two packages (TB 3A – Construction Water Facilities and TB 3B – Construction Power Facilities)	1) TB 3A- Construction Water facilities. 2) TB 3B- Construction Power facilities
8.	TB 4 - Electrical Repair Shop	Package was split (May 2009) into two packages (TB 4A – Switch Gear and cables for workshops and TB 4B – Electrical Testing, Lab Equipment)	Later TB 4 was **deleted**. However, a contract for construction of Common Workshop was executed.
9.	TC 1 - Ash Dyke	Package was kept in abeyance and subsequently deleted.	**Deleted**
10.	TC 2 - Circulating water (inlet/outlet channels)	Package was split (May 2010) into two packages (TC2A –	1) TC 2A- Circulating Water

		Cooling water make up system and Outfall system and TC2B – Sea water RCC intake channel)	make up system and outfall system 2) TC 2B-Sea water RCC intake channel and outfall pump line
11.	TC 3 - General Civil Works	Package was split (March 2010) into TC3A General Civil Works-Phase 1 TC3A (WBM Roads and RCC box culverts) and TC 3B (Storm water pumping system)	1) TC 3A- General Civil Works- Phase (WBM Roads, RCC box culverts) 2) TC 3B -Storm Water Pumping Arrangement
12.	TC 4 - General Civil works -Phase II (RCC/Bituminous Roads, lining of drains, plant sewage system)	Package was split into (July 2011) TC4A1 - General Civil works Phase II (Roads and Drains) and TC4B - Horticulture and Forestation	1) TC 4A1-General Civil Works- Phase II (Roads & Drains) 2) TC 4B-Horticulture and Forestation
13.	TD 2 - Interplant piping and cable racks	Package was kept in abeyance and subsequently deleted.	**Deleted**

Annexure III

[Referred to in Para 1.3.6.1 (C)]

Time taken in finalisation of Concept notes and completion of various activities such as technical specifications, issue of EOI/NIT and techno commercial evaluation

Sl. No.	Name of the Contract	Final Concept Note	Time taken in finalisation of Concept Notes (in Months)	TS/ EOI/NIT/ Techno Commercial recommendation	Time taken in TS/EOI/NIT/ Techno Commercial recommendation (in Months)
1	TA 1-Steam Generator and Turbine Generator	11/09/2007	4	01/10/2008	13
2	TA 2- Coal Handling Plant	06/12/2007	7	26/05/2009	18
3	TA 3- Ash Handling system	21/02/2008	10	19/02/2010	24
4	TA 4-Circulating Water system	28/09/2007	5	24/07/2009	22
5	TA 5-Water Treatment plant, Sea Water RO Desalination, DM Water plant, Effluent Treatment Plant	17/12/2007	8	06/01/2010	25
6	TA 6- Bi-Flue RCC Chimney	11/09/2007	4	23/10/2009	26
7	TA 7- Natural Draft Cooling towers	28/09/2007	5	09/12/2009	27
8	TA 8- Switch Gear system (220/400Kv Substation &Switchyard)	10/08/2007	3	11/11/2009	27
9	TA 9-Power Transformers	10/08/2007	3	26/06/2009	23
10	TB 3A -Construction Water Facilities	05/11/2007	5	18/03/2009	17
11	TB 3B- Construction Power Facilities	05/11/2007	5	08/07/2009	20
12	TB 5- Interplant Communication and Plant Surveillance	18/10/2007	5	04/08/2011	46
13	TB 6- Hydrogen Generation Plant	18/10/2007	5	21/02/2011	41
14	TC 2A-Circulating Water make up system and outfall system	16/08/2008	15	17/10/2011	39
15	TC 2B- Sea water RCC intake channel and outfall pump line	16/08/2008	15	07/11/2011	39
16	TC 3 A- General Civil Works- Phase I (WBM Roads, RCC box culverts)	18/09/2007	4	10/05/2011	44
17	TC 3B- Storm Water Pumping Arrangement	18/09/2007	4	29/09/2011	49
18	TC 4A1- General Civil Works- Phase II (Roads & Drains)	18/08/2012	64	23/10/2015	39
19	TC 4B- Horticulture and Forestation	21/10/2011	53	01/05/2015	43
20	TD 1- Fire Protection system	06/05/2008	11	17/08/2011	40
21	TD 3- General Illumination	18/10/2007	5	22/02/2010	29

Annexure IV

[Referred to in Para 1.3.6.1 (C)]

Delay in issue of Letter of Award

Sl. No.	Name of the contract	Letter of Award		
		Scheduled date of issue[1]	Actual date of issue	Delay in issue (in months)
1.	TA 1 - Steam Generator and Turbine Generator	31 March 2008	28 January 2009	9
2.	TA 2 - Coal Handling Plant	30 September 2008	31 July 2009	9
3.	TA 3 - Ash Handling System		8 April 2010	18
4.	TA 4 - Circulating Water System		31 October 2009	12
5.	TA 5 - Water Treatment Plant, Sea Water RO Desalination, De-Mineralisation Water plant, and Effluent Treatment Plant		23 July 2010	21
6.	TA 6 - Bi-Flue RCC Chimney		29 January 2010	15
7.	TA 7 - Natural Draft Cooling Towers		12 March 2010	17
8.	TA 8 - Switch Gear system (220/400 KV Substation & Switchyard)		29 January 2010	15
9.	TA 9 - Power Transformers		26 September 2009	11
10.	TB 3A - Construction Water Facilities		27 May 2010	19
11.	TB 3B - Construction Power Facilities		10 September 2009	11
12.	TB 5 - Interplant Communication and Plant Surveillance		27 September 2011	35
13.	TB 6 - Hydrogen Generation Plant		11 August 2011	34
14.	TC 2A - Circulating Water Make Up System and Outfall System		17 March 2012	41
15.	TC 2B - Sea Water RCC Intake Channel and Outfall Pump Line		17 March 2012	41
16.	TC 3A - General Civil Works - Phase I (WBM Roads, RCC box culverts)		6 June 2011	32
17.	TC 3B - Storm Water Pumping Arrangement		7 December 2011	38
18.	TC 4A 1 - General Civil Works - Phase II (Roads & Drains)		17 March 2016	89
19.	TC 4B - Horticulture and Forestation		22 September 2015	83
20.	TD 1 - Fire Protection System		19 March 2012	41
21.	TD 3 - General Illumination		23 April 2010	19

Note: Unit-1 (U-1) and Unit-2 (U-2)

[1] *12 Month for TA 1 and 18 Months for all other. LoA with MECON – 31 March 2007*

Annexure –V

[Referred to in Para 1.3.6.2 (C)(b)]

Monthly Scheduled Quantity and actual receipt of coal from Mahanadi Coalfields Limited for the year 2017-18 to 2021-22

Month	Monthly Scheduled Quantity (MT)	Allotment against Scheduled Monthly Quantity		Coal lifted by NTPL against actual allotment		Shortfall in coal lifting against Monthly Scheduled Quantity
		(in MT)	(in Per Cent)	(in MT)	(in Per Cent)	(in Per Cent)
A	B	C	D (C/B*100)	E	F (E/C*100)	G (B-E)/B
Apr-17	213793.7	170982	79.98	144151	84.31	32.57
May-17	213793.7	193284	90.41	133176	68.90	37.71
Jun-17	213793.7	126378	59.11	59376	46.98	72.23
Jul-17	188138.4	137529	73.10	113855	82.79	39.48
Aug-17	188138.4	178726	95.00	151709	84.88	19.36
Sep-17	188138.4	230386	122.46	167795.6	72.83	10.81
Oct-17	213793.7	236988	110.85	228418.7	96.38	-
Nov-17	213793.7	304893	142.61	275050.7	90.21	-
Dec-17	213793.7	303459	141.94	277419.2	91.42	-
Jan-18	239448.9	338986	141.57	331548.3	97.81	-
Feb-18	239448.9	327830	136.91	310519.3	94.72	-
Mar-18	239448.9	327829	136.91	347370.3	105.96	-
Apr-18	213793.7	203099	95.00	215981.3	106.34	-
May-18	213793.7	306288	143.26	228965.7	74.76	-
Jun-18	213793.7	278010	130.04	290490.2	104.49	-
Jul-18	188138.4	279086	148.34	246664.6	88.38	-
Aug-18	188138.4	279086	148.34	266808.9	95.60	-
Sep-18	188138.4	202667	107.72	222701.9	109.89	-
Oct-18	213793.7	303458	141.94	238559	78.61	-
Nov-18	213793.7	303970	142.18	234963.4	77.30	-
Dec-18	213793.7	201420	94.21	245437.8	121.85	-
Jan-19	239448.9	227790	95.13	170954.1	75.05	28.61
Feb-19	239448.9	59472	24.84	69203.23	116.36	71.10
Mar-19	239448.9	0	-	0	0	No allotment
Apr-19	213793.7	167265	78.24	151297.8	90.45	29.23
May-19	213793.7	193284	90.41	171982.1	88.98	19.56
Jun-19	213793.7	193284	90.41	188977.8	97.77	11.61
Jul-19	188138.4	170982	90.88	143493.5	83.92	23.73
Aug-19	188138.4	170982	90.88	153068	89.52	18.64
Sep-19	188138.4	170982	90.88	116360.8	68.05	38.15
Oct-19	213793.7	193284	90.41	114322.2	59.15	46.53
Nov-19	213793.7	159831	74.76	117998.1	73.83	44.81

Dec-19	213793.7	159831	74.76	170862.8	106.90	20.08
Jan-20	239448.9	215586	90.03	190591.4	88.41	20.40
Feb-20	239448.9	215586	90.03	180616.9	83.78	24.57
Mar-20	239448.9	215586	90.03	154907.3	71.85	35.31
Apr-20	213793.7	193284	90.41	315855.5	163.42	-
May-20	213793.7	81774	38.25	87078.4	106.49	59.27
Jun-20	213793.7	208152	97.36	142010.1	68.22	33.58
Jul-20	188138.4	189567	100.76	236514.7	124.77	-
Aug-20	188138.4	189567	100.76	197762.5	104.32	-
Sep-20	188138.4	189567	100.76	188352.9	99.36	-
Oct-20	213793.7	215586	100.84	210355.8	97.57	1.61
Nov-20	213793.7	211869	99.10	206531.5	97.48	3.40
Dec-20	213793.7	0	-	0	0	No allotment
Jan-21	239448.9	237888	99.35	235331.8	98.93	1.72
Feb-21	239448.9	330813	138.16	201856.6	61.02	15.70
Mar-21	239448.9	330813	138.16	247161.2	74.71	-
Apr-21	213793.7	301077	140.83	271803.3	90.28	-
May-21	213793.7	237888	111.27	180780.7	75.99	15.44
Jun-21	213793.7	215586	100.84	174929.9	81.14	18.18
Jul-21	188138.4	178416	94.83	195950.2	109.83	-
Aug-21	188138.4	178416	94.83	159015.3	89.13	15.48
Sep-21	188138.4	178416	94.83	0	0	100.00
Total	**11467893**	**11416778**	**99.55**	**10076888**	**88.26**	**12.13**

Annexure -VI

(*Referred to in Para 2.1*)

Detail break-up of the cost incurred on Polyol Project (Kochi Refinery)

Particulars	Amount (₹ in crore)
220 KV OH to Underground Cable Works	69.20
Land for AWSS	2.46
Licensor	163.67
Other Expenditure	1.04
Other Overheads	8.77
PMC (Incl. Appointment of consultant, DPR & studies)	120.41
PMC for AWSS	3.36
Site Contracts	86.38
Total Provisional Expenditure as on 31.05.2024	**455.29**
Less expenditure that can be utilised for future use	**(155.14)**
Total infructuous expenditure	**300.15**

Annexure VII

(Referred to in Para 2.4.1)

Sl. No.	Item Description
1.	Drill pipes of all sizes & grades
2.	Heavy weight drill pipes of all sizes & grades
3.	Casing pipes of all grades & sizes
4.	Drill collars of all sizes
5.	Production tubings of all sizes
6.	Well head of all pressure rating & sizes (including H2S)
7.	X·Mas tree of all pressure rating & sizes (including H2S)
8.	Line pipes of all sizes
9.	Chrome Free Deffloculent
10.	KCL
11.	CMC
12.	Oil Well cement
13.	Bentonite
14.	Barytes
15.	Lubricants and Greases
16.	XC Polymers
17.	PAC(LV&RG)
18.	PHPA
19.	NIF
20.	Gas Lift Valves & Mandrels
21.	Kits and Liveries
22.	Fire related items
23.	Items related to Reservoir Field Services
24.	All India material transportation contract
25.	EPCG consultancy contract
26.	Air Consolidation Services
27.	- Deleted – (MM/28/2017 dated 13.11.2017)
(MM/14/2016 dated 14.06.2016)	
28	Liner Hanger
29	Conventional drill bits
30	Drilling hoses of all rating and sizes

31	Floating equipments
32	Kelly all types
33	Resinated lignite
34	CLS
35	Chrome Lignite
36	Spotting fluid
37	EP Lube
38	Sulphonated asphalt
39	Drilling detergent
40	Pre Gelatinised Starch (PGS)
41	Micronished Calcium Carbonate (MCC)
42	Limestone powder
43	Clay Hydration Suppressant/ Polyamine (Added vide MM/16/2016 – 4.8.2016)

Annexure VIII
[Referred to in 2.4.2.3 (B)]
Specifications of casing pipe under second phase

Sl. No.	Specification	Work center	Original requirement (in meter)	Revised requirement (in meter)
1	Casing 13-3/8", J-55, 68 PPF	N&H ASSET	32,000	32,000
2		JORHAT ASSET	2,244	2,244
3	13-3/8", L-80,68PPF	B&S ASSET	27,300	22,850
4	13-3/8',P-110,68PPF	WOB MUMBAI	35,873	29,478
5		DS TRIPURA ASSET	2,993	2,993
6		CAUVERY BASIN	5,900	5,900
7		KG BASIN	25,000	8,000
8	13-3/8", Q-125,72PPF	KG BASIN	14,000	9,500
9	9-5/8",J-55,40PPF	MEHSANA ASSET	26,500	26,500
10		CAMBAY ASSET	7,110	7,110
11		CBM ASSET	3,600	3,600
12	9-5/8",L-80,47PPF	ANKLESHWAR ASSET	12,600	12,600
13		N&H ASSET	53,000	53,000
14		A&AA BASIN	7,109	7,109
15		JORHAT ASSET	8,891	8,891
16	9-5/8",P-110,47PPF	CAUVERY BASIN	10,400	10,400
17	7",L-80,29PPF	MEHSANA ASSET	32,700	32,700
18		CAMBAY ASSET	4,992	4,992
19		ANKLESHWAR ASSET	18,000	18,000
20		MH ASSET	20,025	2,450
21		N&H ASSET	12,500	12,500
22	7",P-110,29PPF	ASSAM ASSET	2,487	2,487
23		CAUVERY BASIN	10,073	10,073
24	5-1/2",L-80,20PPF	FB, AHMEDABAD	4,000	4,000
25		CAMBAY ASSET	28,463	28,463
26		A&AA BASIN	14,769	12,234
	Total		**4,22,529**	**3,70,074**

Annexure IX
[Referred to in Para 2.4.2.3(B)]
Statement depicting procurement of Casing pipes in higher rates due to dropping of requirement

Sl.No	Work center	Specification	Requirement sent in 2022-23 (A)	Requirement considered in 2022-23 (B)	Rates in 2022-23 (C)	Balance requirement (D) = A-B	Rates in 2023-24 (E)	Amount (F) = (E-C)*D
1	WOB, Mumbai	13-3/8", 68PPF, P-110	35,873	16,017	16,800	19,856	18,781	3,93,34,736
2		9-5/8",47PPF,P-110	59,007	33,179	8,921	25,828	11,560	68,160,092
3	Cambay Asset	7", 29PPF,L-80	13,453	4,500	5,134	8,953	6,918	1,59,72,152
							Total	**12,34,66,980**

Annexure X

(Referred to in Para 4.1)

Statement showing the total advances released, recovery of the advances and outstanding advances from the retired employees of Instrumentation Limited, Palakkad Unit

No.	Particulars	Total number of employees	Total outstanding advance Amount	Amount recovered	Amount to be recovered as on date (March 2024)
A	Employees who retired before 1 April 2021	323	6,43,34,486.86	**Nil**	6,43,34,486.86
B	Employees who retired after 1 April 2021(from whom partial recovery effected)	14	45,26,952.37	30,32,204.41	14,94,747.96
C	**Total (A +B)**	**337**	**6,88,61,439.23**	**30,32,204.41**	**6,58,29,234.82**
D	Employees who retired after 1 April 2021(from whom full recovery was effected)	26	70,22,634.66	70,22,634.66	**Nil**
E	**Grand total (C + D)**	**363**	**7,58,84,073.89**	**1,00,54,839.07**	**6,58,29,234.82**

Annexure XI

(Referred to in Para 5.6.2)

State-wise coverage of MSMEs under the Scheme in selected NSIC branches

State/UT	Total Udyam Registration in the State as of 31.03.2022	Branch of NSIC selected for Audit	MSMEs served by the Branch upto 31.03.2022	Percentage coverage (%)
Maharashtra	16,26,161	Pune	92	0.006
Uttar Pradesh	6,32,048	Noida & Naini	168	0.027
Delhi	2,24,643	Technical Centre, Okhla	31	0.014
West Bengal	2,34,204	Kolkata	159	0.068
Telengana	2,59,853	Hyderabad & Balanagar	251	0.097
Punjab	2,83,352	Ludhiana	169	0.060
Odisha	1,55,514	Bhubaneshwar	76	0.049
Haryana	2,82,829	Faridabad	64	0.023
Uttarakhand	72,371	Dehradun	31	0.043
Bihar	3,11,388	Patna	39	0.013
Karnataka	4,67,701	Bangalore & Belgaum	324	0.069

Annexure XII

[Referred to in para 7.1.5.1(B)]

List of vehicles exempted from Payment of toll as per Rule 11 of NH Fee Rules 2008

No toll shall be levied and collected from a mechanical vehicle: -

A. Transporting and accompanying

(i) President of India,

(ii) The Vice-president of India,

(iii) The Prime Minister of India,

(iv) The Governor of a State,

(v) The Chief Justice of India,

(vi) The Speaker of the House of the People,

(vii) The cabinet Minister of the union,

(viii) The Chief Minister of a State,

(ix) The Judge of the Supreme Court,

(x) The Minister of State of the Union,

(xi) The lieutenant Governor of a Union Territory,

(xii) The chief of staff holding the rank of full General or equivalent rank,

(xiii) The chairman of the legislative Council of a State,

(xiv) The Speaker of the legislative assembly of a State,

(xv) The chief Justice of a High Court,

(xvi) The Judge of a High Court,

(xvii) The Member of Parliament,

(xviii) The army commander or Vice-chief of Army staff and equivalent in other services,

(xix) The Chief Secretary to a State Government within concerned state,

(xx) The secretary to the Government of India,

(xxi) The secretary, Council of State,

(xxii) The secretary, House of People,

(xxiii) The foreigner dignitary on State Visit,

(xxiv) The Member of legislative Assembly of a State and the Member of Legislative Council of a State within their respective states, if he or she produces his or her identity card issued by the concerned Legislature of the state

B. Use for Official Purpose by

(i) The ministry of Defence including of those which are eligible for exemption in accordance with the provisions of the Indian Toll (Army and Air Force), 1901 and rules made thereunder as extended to Navy also.

(ii) The Central and State armed forces in uniform including paramilitary forces and police,

(iii) An executive Magistrate,

(iv) A fire-fighting Department or organisation,

(v) The National Highways Authority of India or any other Government organisation using such vehicle for inspection, survey, construction or operation of national highways and maintenance thereof

C. Used as ambulance

D. Used as funeral van.

E. Specially designed and constructed for use of a person suffering from some physical defect or disability.

Annexure XIII

[Referred in para 7.1.5.1(B)(i)]

Exemptions in Public funded Toll Plazas under RO Gandhinagar

Toll Plaza	Month-Year	No. of vehicles	No. of exemptions			Percentage of exemptions		Local exemption	
			Manual	ETC	Total	Manual	ETC	Nos	Percentage of Total
A	B	C	D	E	F	G	H	I	J
					(D+E)	*(D/F)*100*	*(E/F)*100*		*(I/F)*100*
Limdi	Oct-22	164262	84500	68	84568	99.92	0.08	Not specified	Not possible to be worked out in the absence of data
	Nov-22	169872	86476	52	86528	99.94	0.06		
	Dec-22	167710	81401	42	81443	99.95	0.05		
	Jan-23	173914	85808	58	85866	99.93	0.07		
	Feb-23	162051	79919	60	79979	99.92	0.08		
	Mar-23	185204	97582	85	97667	99.91	0.09		
Makhel	Oct-22	296016	22817	119	22936	99.48	0.52	15430	67.27
	Nov-22	315711	19573	145	19718	99.26	0.74	11714	59.41
	Dec-22	320783	19755	145	19900	99.27	0.73	12898	64.81
	Jan-23	330199	24952	134	25086	99.47	0.53	18792	74.91
	Feb-23	306042	20925	80	21005	99.62	0.38	14474	68.91
	Mar-23	321126	24009	99	24108	99.59	0.41	16312	67.66
Khemana	Oct-22	485788	79738	265	80003	99.67	0.33	64181	80.22
	Nov-22	470916	75904	210	76114	99.72	0.28	61879	81.30
	Dec-22	486607	77025	272	77297	99.65	0.35	62883	81.35
	Jan-23	475611	74587	291	74878	99.61	0.39	61850	82.60
	Feb-23	465060	64988	280	65268	99.57	0.43	52548	80.51
	Mar-23	479508	70049	320	70369	99.55	0.45	55262	78.53
Undvariya	Oct-22	477632	25972	454	26426	98.28	1.72	8236	31.17
	Nov-22	464273	21714	355	22069	98.39	1.61	14946	67.72
	Dec-22	489201	24500	372	24872	98.50	1.50	16541	66.50
	Jan-23	468888	25647	440	26087	98.31	1.69	17612	67.51
	Feb-23	463447	26824	305	27129	98.88	1.12	18814	69.35
	Mar-23	468707	23076	322	23398	98.62	1.38	15340	65.56
Okhamadhi	Oct-22	150248	16309	55	16364	99.66	0.34	Not specified	Not possible to be worked out in the absence of data
	Nov-22	130845	13774	72	13846	99.48	0.52		
	Dec-22	135981	14289	70	14359	99.51	0.49		
	Jan-23	132541	12131	77	12208	99.37	0.63		
	Feb-23	114114	11691	105	11796	99.11	0.89		
	Mar-23	146640	15910	52	15962	99.67	0.33		
Mandva	Oct-22	1575326	128610	337	128947	99.74	0.26	Not specified	Not possible to be worked out in the absence of data
	Nov-22	1668286	152583	233	152816	99.85	0.15		
	Dec-22	1764161	182156	259	182415	99.86	0.14		
	Jan-23	1780754	188815	392	189207	99.79	0.21		
	Feb-23	1660660	191395	347	191742	99.82	0.18		
	Mar-23	1646407	178654	353	179007	99.80	0.20		

Annexure XIV

[Referred in para 7.1.5.1(C)(i)]

Excess collection of toll in Bhagwada and Charoti Toll Plazas

Sl. No.	Name of TCA	Period		No. of days	TCA remittance to NHAI from 26 May 2022 to 31 March 2023. (₹)	Proportionate reduction in toll rates not effected* (*per cent*)	Toll burden on road user (₹)
		From	To				
Bhagwada Toll plaza							
1	M/s Bhalaji Toll Road Pvt. Ltd.	26/05/2022	20/07/2022	55	310,254,000	-52.42	-162,634,204.87
2	M/s Sahakar Global Ltd.	20/07/2022	20/10/2022	92	488,808,000	-52.42	-256,231,669.59
3	M/s Sahakar Global Ltd.	21/10/2022	28/12/2022	68	383,179,932	-52.42	-200,861,757.03
4	M/s Riddhi Siddhi Associates	28/12/2022	28/03/2023	90	552,329,910	-52.42	-289,529,661.96
5	M/s Riddhi Siddhi Associates	28/03/2023	31/03/2023	3	19,121,997	-52.42	-10,023,692.77
	Total			308	**1,753,693,839**		**-919,280,986.22**
Charoti Toll plaza							
1	M/s Bhalaji Toll Road Private Limited	26/05/2022	16/07/2022	51	255,204,000	-56.44	-144,037,137.60
2	M/s Kalyan Toll Infrastructure Limited	16/07/2022	19/10/2022	95	448,780,000	-56.44	-253,291,432.00
3	M/s Sahakar Global Limted	19/10/2022	05/01/2023	78	395,928,000	-56.44	-223,461,763.20
4	M/s Sahakar Global Limted	05/01/2023	31/03/2023	85	468,264,915	-56.44	-264,288,718.03
	Total			309	**1,568,176,915**		**-885,079,050.83**
					Grand Total		**-1,804,360,037**

***The Concessionaire was collecting tolls as per the rates mentioned in the Toll Rules of 1997. After NHAI taking over the toll-collection in 2022, the rates should have been revised according to Toll Rules of 2008 and on that rate, 60 per cent reduction should have been provided for. The proportionate reduction of 60 *per cent* as per Toll Rules of 2008 is worked out on the actual toll collection.**

Annexure XV

[Referred in para 7.1.5.1(D)(ii)]

Double toll dues

Sl. No.	Name of Toll Plaza (PIU)	Name of project	Name of Concessionaire	Period		Double Toll dues (₹ crore)	Remarks
				From	To		
1	Hiwargaon Pavasa (Pune)	Four Laning of Khed Sinnar section of NH-50	M/s Khed Sinnar Expressways Limited	16/02/2021	08/06/2022	0.00	PIU failed to levy and recover interest for delayed remittance; the toll plaza became Public funded from 09 June 2022 onwards.
2	Patas (Pune)	Four Lane of Pune – Solapur section of NH-65	M/s Pune Solapur Expressway Private Limited	16/02/2021	31/03/2023	8.90	Double toll and interest pending
3	Khedshivapur (Pune)	Six Lane of Pune – Satara section of NH-4	M/s PS Toll Road Private Limited.	16/02/2021	31/03/2023	11.77	Double toll and interest pending
4	Nandgaon Peth (Amaravati)	4/6 lane of Talegaon - Amravati section (including Amravati bypass) of NH-6	M/s IRB Talegaon - Amravati Tollway Private Limited	16/02/2021	31/03/2023	3.93	Double toll and interest pending
5	Karanja Gh. (Amaravati)	4/6 lane of Kondhali - Talegaon section (including Amravati bypass) of NH-6	M/s Oriental Pathways (Nagpur) Private Limited	16/02/2021	31/03/2023	0.00	PIU did not levy and recover interest on the delayed remittance
6	Pargaon (Aurangabad)	4 lane of Yedshi section of NH-52 (old NH-211)	M/s. IRB Infrastructure Développer Ltd.,	16/02/2021	31/03/2023	0.92	Double toll and interest pending
7	Bhatwada (Godhara)	Four laning of Godhra - Gujarat/ Madhya Pradesh Border Section of NH-47 from Km.129+300 in the state of Gujarat	M/s. Godhra Expressways Private Limited/BSCPL.	16/02/2021	31/03/2023	0	PIU did not levy and recover interest for delayed remittance for the period from February 2021 to July 2022, for the period from August 2022 to March 2023

8	Mandal (Surat)	Four lanning of Gujarat/ Maharashtra Border – Surat – Hazira Port Section of NH-53 in the State of Gujarat under NHDP Phase III	M/s. Surat Hazira NH-6 Tollway Pvt. Ltd. (formerly Known as M/s. Soma Isolux Surat Hazira Tollway Pvt. Ltd.)	16/02/2021	31/03/2023	0	PIU did not levy and recover interest for delayed remittance for the period from February 2021 to March 2023
9	Nadiad (Ahmedabad)	Ahmedabad to Vadodara section of NH 8 (chainage kms 6.400 to 108.700, length 102.300 kms)	IRB Ahmedabad Vadodara Super Express Tollway Pvt. Ltd.	16/02/2021	31/03/2023	13.52	PIU did not levy and recover interest for delayed remittance for the period from February 2021 to August 2023.
Total of short remittance						**39.04**	

Annexure XVI
[Referred in para 7.1.5.2(C)]
Deficient monitoring of projects due to non-collection of periodic reports/ statements

Sl. No.	Toll Plaza, PIU (Type of toll)	Information called for	Remarks
1	Charoti, Thane (BOT/ Public Funded)	All information- Schedule M, Schedule V (since it become public funded in Oct 2022), TMS data, Acquirer bank statements, Escrow bank statements, Annual Audited Financial Statements, Unaudited quarterly financial statements.	Only Schedule V from October 2022 to March 2023 has been provided.
2	Hiwargaon Pawasa, Pune (Public Funded)	Escrow bank statements	Escrow bank statements from June 2021 to March 2023 is awaited
3	Khed Shivapur, Pune (BOT)	Escrow bank statements, and Unaudited quarterly statements of concessionaire	All awaited
4	Patas, Pune (BOT)	All information- Schedule V (since it become public funded in Oct 2022), Escrow bank statements,	Schedule V (since it become public funded in Oct 2022), Escrow bank statements is still awaited
5	Karodi Aurangabad, (Public Funded)	Schedule V (Dec 2021 to March 2023) and report on unusual occurrences	Schedule V for the months Dec 2021 to Feb 2022 & Oct 2022 is not complete, and schedule V for the months March 2022 to June 2022 and report on unusual occurrences is yet to be received.
6	Husnapur, Yavatmal (HAM)	Report on unusual occurrences	Awaited.
7	Kelapur, Yavatmal (Invit)	Annual Audited Financial Statements, Unaudited quarterly financial statements, Escrow bank statements and report on unusual occurrences	All awaited.

Annexure XVII
[Referred to in para 7.1.5.3(A)]
Data Comparison of TMCC with Monthly Toll Statements

Source		TMCC		Schedule M/V/G/MPR					
Toll Plaza (A)	Month / Year (B)	Total Vehicle count (Cash+ ETC) (C)	Total User Fee revenue (D)	Total Vehicle count (Cash+ ETC) (E)	Total User Fee revenue (F)	Difference in vehicle count (G=C-E)	% Difference in vehicle count (H=G/E*100)	Difference in User Fee collection (I=D-F)	% Difference in User Fee collection (J=I/F*100)
Bhatwada	Nov-22	336944	122779760	335203	122947595	1741	0.52	-167835	-0.14
	Dec-22	349393	126683925	349144	127455785	249	0.07	-771860	-0.61
	Jan-23	348616	126573360	346944	126788070	1672	0.48	-214710	-0.17
	Feb-23	325228	121746880	323742	121949105	1486	0.46	-202225	-0.17
	Mar-23	360610	132476030	358144	132300940	2466	0.69	175090	0.13
Limdi	Nov-22	84379	14898490	95026	14882875	-10647	-11.20	15615	0.10
	Dec-22	86335	15672400	85459	15723185	876	1.03	-50785	-0.32
	Jan-23	89063	16076125	87762	16075615	1301	1.48	510	0.00
	Feb-23	84195	15469520	83220	15451400	975	1.17	18120	0.12
	Mar-23	91472	16263920	90312	16212545	1160	1.28	51375	0.32
Mandal	Nov-22	334993	125289230	329785	125229300	5208	1.58	59930	0.05
	Dec-22	357236	137109710	353672	137715165	3564	1.01	-605455	-0.44
	Jan-23	351237	132697615	346321	132722670	4916	1.42	-25055	-0.02
	Feb-23	328073	122146650	323556	122087360	4517	1.40	59290	0.05
	Mar-23	345897	129649605	340598	129500640	5299	1.56	148965	0.12
Mandva	Nov-22	1447341	107125485	1222263	107081530	225078	18.41	43955	0.04
	Dec-22	1508086	113566905	1276038	114090900	232048	18.19	-523995	-0.46
	Jan-23	1522329	112373975	1281794	112574285	240535	18.77	-200310	-0.18
	Feb-23	1406916	105238535	1177463	105466595	229453	19.49	-228060	-0.22
	Mar-23	1404736	108257750	1172015	108271135	232721	19.86	-13385	-0.01
Okhamadi	Nov-22	116005	13425095	115756	14031340	249	0.22	-606245	-4.32
	Dec-22	120074	14251495	120284	14802950	-210	-0.17	-551455	-3.73
	Jan-23	119204	14998355	117648	15500010	1556	1.32	-501655	-3.24
	Feb-23	101164	12301905	100883	12700705	281	0.28	-398800	-3.14
	Mar-23	128851	15296910	128772	16119095	79	0.06	-822185	-5.10
Vanana	Nov-22	143480	13297495	87730	12889000	55750	63.55	408495	3.17
	Dec-22	155248	14783330	94710	14428000	60538	63.92	355330	2.46
	Jan-23	151269	13576850	91186	13180000	60083	65.89	396850	3.01
	Feb-23	134011	11231875	78519	10860000	55492	70.67	371875	3.42
	Mar-23	138357	11565980	80307	11135000	58050	72.29	430980	3.87
Makhel	Nov-22	275266	152260050	275041	152516725	225	0.08	-256675	-0.17
	Dec-22	283748	158120565	284738	159050650	-990	-0.35	-930085	-0.58
	Jan-23	285263	156961875	284983	157246350	280	0.10	-284475	-0.18
	Feb-23	271736	150738260	271551	151127405	185	0.07	-389145	-0.26
	Mar-23	286576	157067515	285732	156905165	844	0.30	162350	0.10
Khemana	Nov-22	389711	80573315	377006	80543225	12705	3.37	30090	0.04
	Dec-22	403857	83549125	391881	83925840	11976	3.06	-376715	-0.45

	Jan-23	396012	82700275	382195	82721070	13817	3.62	-20795	-0.03
	Feb-23	395122	80800480	374866	80847445	20256	5.40	-46965	-0.06
	Mar-23	405621	84086265	383926	83838650	21695	5.65	247615	0.30
Undavariya	Nov-22	432174	55577940	423644	55559730	8530	2.01	18210	0.03
	Dec-22	450236	57695300	443635	57946775	6601	1.49	-251475	-0.43
	Jan-23	434161	56713000	425301	56734160	8860	2.08	-21160	-0.04
	Feb-23	423867	55261810	415347	55280635	8520	2.05	-18825	-0.03
	Mar-23	432645	57450930	422711	57308890	9934	2.35	142040	0.25
Nadiad	Nov-22	104143	11496925	103862	11532000	281	0.27	-35075	-0.30
	Dec-22	116444	12367505	116859	12522000	-415	-0.36	-154495	-1.23
	Jan-23	129342	12741080	129220	13019000	122	0.09	-277920	-2.13
	Feb-23	112642	11470055	112536	11663000	106	0.09	-192945	-1.65
	Mar-23	107271	11416245	106934	11555000	337	0.32	-138755	-1.20

Note 1: Non-tollable vehicles not considered in the vehicle count
Note 2: Exempted and violated vehicle count not considered in the vehicle count
Data was not received from RO Mumbai and Nagpur

Annexure XVIII

[Referred to in para 7.1.5.3(D)]

Dissatisfaction expressed by road users on the facilities and amenities

Status of construction and operation of Highway Nest Mini (RO-Gandhinagar)

Sl. No.	Name of Toll Plaza	Name of the PIU	Whether Highway Nest Mini was constructed on both sides of Toll Plaza
1	Nadiad	Ahmedabad	Highway Nest Mini was not available in LHS/RHS side of highway.
2	Okhamadi	Rajkot	
3	Limdi	Godhra	
4	Mandva	Surat	
5	Undavariya	Palanpur	Highway Nest Mini was available on both side of highway but not operational
6	Khemana		
7	Vanana	Rajkot	
8	Bhatwada	Godhra	
9	Makhel	Palanpur	Highway Nest Mini was available on one side of highway and operational
10	Mandal	Surat	Highway Nest Mini was available on both side of highway and operational
11	Bhagwada		

Annexure XIX
(Referred to in para 7.2)

Vehicle category wise excess toll rate per trip

(all figures in ₹)

Vehicle category	Rasoiya Dhamna Fee Plaza				Nagwan (Hazaribagh) Fee Plaza			
	2021-22	2022-23	2023-24	2024-25	2021-22	2022-23	2023-24	2024-25
Car	0	0	5	5	0	0	5	0
Light Commercial Vehicle	5	5	5	5	0	0	0	5
Bus/Truck (2 axle)	10	10	10	10	5	5	10	5
Truck (3 axle)	10	10	15	15	5	10	5	5
***Multi-Axle Vehicle* (MAV)**	15	15	20	20	5	10	10	10
Oversized Vehicle (OSV)	15	20	25	25	10	10	10	15

Name of fee Plaza :- Rasoiya Dhamna Fee Plaza

Vehicle category	Number of vehicles passed from toll plaza during the year 2021-22	Excess toll collected per vehicle during the year 2021-22	Excess toll collected during the year 2021-22	Number of vehicles passed from toll plaza during the year 2022-23	Excess toll collected per vehicle during the year 2022-23	Excess toll collected during the year 2022-23
(1)	(2)	(3)	(4)=(2) x (3)	(5)	(6)	(7)=(5) x (6)
CAR	378474	0	0	1057337	0	0
LCV	34683	5	173415	107306	5	536530
Bus/Truck (2 axle)	157597	10	1575970	501024	10	5010240
Truck (3 axle)	130277	10	1302770	371453	10	3714530
MAV	553387	15	8300805	1593745	15	23906175
OSV	272	15	4080	1092	20	21840

Number of vehicles passed from toll plaza during the year 2023-24	Excess toll collected per vehicle during the year 2023-24	Excess toll collected during the year 2023-24	Number of vehicles passed from toll plaza during the year 2024-25	Excess toll collected per vehicle during the year 2024-25	Excess toll collected during the year 2024-25	Total excess collection
(8)	(9)	(10)=(8)x(9)	(11)	(12)	(13)=(11)x(12)	(14)=(4) +(7)+(10)+(13)
970321	5	4851605	1223982	5	6119910	10971515
110194	5	550970	128867	5	644335	1905250
512319	10	5123190	559420	10	5594200	17303600
372381	15	5585715	346822	15	5202330	15805345
1619841	20	32396820	1727537	20	34550740	99154540
1382	25	34550	876	25	21900	82370
					Excess toll collected in Rasoiya Dhamna Fee Plaza (I)	**145222620**

Name of fee Plaza:- Hazaribagh Fee Plaza

Vehicle category	Number of vehicles passed from toll plaza during the year 2021-22	Excess toll collected per vehicle during the year 2021-22	Excess toll collected during the year 2021-22	Number of vehicles passed from toll plaza during the year 2022-23	Excess toll collected per vehicle during the year 2022-23	Excess toll collected during the year 2022-23
(1)	(2)	(3)	(4)=(2) x (3)	(5)	(6)	(7)=(5) x (6)
CAR	687642	0	0	924028	0	0
LCV	44971	0	0	79753	0	0
Bus/Truck (2 axle)	169211	5	846055	271219	5	1356095
Truck (3 axle)	108196	5	540980	122746	10	1227460
MAV	648135	5	3240675	772267	10	7722670
OSV	360	10	3600	546	10	5460

Number of vehicles passed from toll plaza during the year 2023-24	Excess toll collected per vehicle during the year 2023-24	Excess toll collected during the year 2023-24	Number of vehicles passed from toll plaza during the year 2024-25	Excess toll collected per vehicle during the year 2024-25	Excess toll collected during the year 2024-25	Total excess collection
(8)	(9)	(10)=(8)x(9)	(11)	(12)	(13)=(11)x(12)	(14)=(4) +(7)+(10)+(13)
1919755	5	9598775	1399791	0	0	9598775
135808	0	0	117837	5	589185	589185
361003	10	3610030	338020	5	1690100	7502280
149128	5	745640	144718	5	723590	3237670
933007	10	9330070	1017610	10	10176100	30469515
774	10	7740	590	15	8850	25650
Excess toll collected in Hazaribagh Fee Plaza (II)						**51423075**
Grand Total (I +II)						**196645695**

Note: The excess collection was worked out by Audit from the vehicle data furnished by Project Implementation Unit, Hazaribagh. Only single journey has been considered in the above calculation. Data related to multiple journeys/ monthly passes etc. was not available.

Annexure -XX

(*Referred to in Para 8.1*)

Recoveries at the instance of Audit

(₹ in lakh)

Name of the Ministry/ Department	Name of the CPSE	Audit Observation in brief	Amount recovered by the Management in FY 2022-23
Coal	Eastern Coalfields Limited	Failure to recover penalty against underperformed dumpers during Performance Guarantee period	85.80
Finance	National Credit Guarantee Trustee Company Limited	Settlement of claims in excess of the eligible principal amount led to excess financial outgo of ₹42.98 crore	2047.00
Heavy Industries	Instrumentation Limited Palakkad	Instrumentation Limited, Palakkad (ILP) had given ₹7.58 crore to its 363 employees who retired later as recoverable advances against the pay revision benefits. Out of ₹7.58 crore, ILP could recover only ₹0.96 crore from these employees so far from the arrears payable to these employees. Hence, failure of ILP in recovery of advances from these employees while in service has resulted in irrecoverable loss of ₹6.58 crore. (1992 to 2015)	96.00
Power	THDC	Undue benefit of ₹53.51 lakh due to non-recovery of insurance charges from the contractors	34.00
Road Transport & Highways	National Highways Authority of India	NHAI failed to recover FASTag penalty collected from the violators of MoRTH's guidelines (15 May 2020) for FASTag from the user fee collecting agencies resulting in non-remittance of FASTag penalty to the Consolidated Fund of India. (February 2021 to March 2024).	1299.00
Road Transport & Highways	National Highways Authority of India	The Project Implementation Unit, Sangareddy had incorrectly adopted the Consumer Price Index applicable to Godavarikhani/ Macherial which were 264/ 274 kms away from the stretch, viz., Mangloor to Telangana/	2792.00

		Marashtra Border, instead of adopting the Consumer Price Index applicable for Hyderabad which was 167 kms away and nearest centre to the Stretch. Due to incorrect adoption of Consumer Price Index, the Bid Project Cost was incorrectly arrived at, consequently resulting in excess payment towards milestone payments/ annuities.	
Road Transport & Highways	National Highways Authority of India	The Building and Other Construction Workers' Welfare Cess Act, 1966 provides for levy and collection of Cess at such rate not exceeding two per cent but not less than one per cent of the cost of construction incurred by the employer. At NHAI, the responsibility to ensure collection of Cess and its deposit with the concerned authorities was vested with Project Directors at the Project Implementation Units. Audit observed that there was short recovery of Cess in PIU Vizianagram wherein NHAI had deducted Cess only on the milestone payments made excluding GST portion.	36.00
Road Transport & Highways	PIU-Darbhanga, NHAI	Undue relaxation in the recovery of ₹ 783 crore collected by SMS AABS India Tollways from vehicles not fitted with FASTags or without functional FASTags	782.87
Road Transport & Highways	PIU-Munger, NHAI	Excess payment of ₹ 57.48 lakh to concessionaires against the provisions of the Building and Other Construction Workers Welfare Cess Rules, 1996.	61.00
Road Transport & Highways	PIU-Munger, NHAI	Non-recovery of ₹ 39.07 lakh from Concessionaires related to remuneration of Safety Consultant	47.42
Steel	Steel Authority of India Limited	Undue benefit by charging lower price than approved price	10.44
Steel	Steel Authority of India Limited	Issue of Credit Note on Quality Complaint closure material	7.10
Textile	India United Textile Mill Limited	Loss on account of extending undue benefits in fabric trading business to the group companies of strategic partner	13249.95
		Total	**20548.58**
		Say	**₹205.49 crore**

Annexure -XXI

(*Referred to in Para 8.2*)

Corrections/ rectifications at the instance of Audit

Sl. No.	Name of the Ministry	Name of the PSU	Audit observation in brief	Action taken by the Management
1	Ministry of Road Transport and Highways	National Highway Authority of India	As per Article 15.1.1, Provisional Completion Certificate (PCC) issued (10 May 2021) is deemed to be Commercial Operation Date (COD) and as per Article 23.6.1, last 10 *per cent* of the Bid Project Cost shall be adjusted for the Price Index Multiple as applicable on the reference date preceding the date of PCC (10 May 2021). However, the Regional Office, Vijayawada in the case of six laning of Chittoor to Mallavaram Stretch approved the Price Index Multiple for last 10 *per cent* Bid Project Cost by considering the indices as of April 2023 which was two years from the date of issue of PCC and commencement of annuity payments. This was in violation of terms of Concession Agreement and has resulted in excess determination of project completion cost by ₹30.96 crore and undue financial benefit to the Concessionaire.	The Balance Completion Cost has been computed considering last 10 *per cent* of the Bid Project Cost adjusted for the Price Index Multiple applicable on the reference date proceeding the date of PCC (10 May 2021) and the Completion Cost has been arrived at ₹1,823.92 crore, as against previous computation of ₹1,852.65 crore. The excess payments made till date due to the incorrect calculation of Project Completion Cost were stated to be adjusted in the fifth Annuity Payment being made.
2	Ministry of Road Transport and Highways	National Highway Authority of India	The Policy Circular of NHAI dated 20 March 2018 provided for the linking factor due to change in base year of Wholesale Price Index (WPI) from 2004-05 to 2011-12 and provided that the WPI of 2004-05 series as released by the Office of the Economic Advisor, Government of India will be used without applying linking factor till March 2017. Linking factor for conversion of WPI indices from new series (2011-12) to old series (2004-05) will be used from April 2017. Contrary to the above, Audit noticed that in case of one project under Regional Office, Vijayawada, viz., six laning of Ranasthalam to Anandapuram Section, the WPI for the month of February 2017 has been taken based on 2011-12 data instead of adopting 2004-05 series indices. This resulted in incorrect computation of Project Completion Cost.	During the seventh Annuity payment to the Concessionaire, the payments had been reconciled by reducing the Completion cost to ₹1,252.20 crore as against the earlier completion cost of ₹1,256.89 crore and excess payments made were adjusted.

3	Dept Of Financial Services	National Insurance Company Limited	Delhi Regional Office-I of National Insurance Company Limited did not reconcile the input service invoices with the Goods and Services Tax (GST) Portal. Consequently, it could not avail the eligible GST Input Tax Credit and incurred a loss of ₹97.44 crore during 2017-18 to 2020-21	Company has updated/modified its system to capture the required details so as to avail the maximum input tax credit. However, efficacy of the same would be watched through the availment of Input Tax Credit for the FY 2022-23
4	Dept Of Financial Services	IFCI Venture Capital Funds	IFCI Venture Capital Funds Limited sanctioned two loans to Ashapura Intimates Fashion Limited (₹10 crore) and Arcotech Limited (₹15 crore) in August 2018 and May 2016 respectively. The Company deviated from the terms of its Lending Policy and Loan Agreement while sanctioning/ disbursing the two loans and failed to take timely action in compliance with the Share Pledge Agreements for sale of pledged shares of the borrowers to recover the outstanding dues. This led to non-recovery of outstanding dues of ₹ 27.34 crore from the two borrowers.	General Lending Policy of the Company has been updated and "Loan against Shares" has been removed from the list of Financial products.
5	Dept Of Financial Services	Oriental Insurance Company Limited	The RI placement in violation of the applicable RI Programme has resulted into a loss of ₹5.55 crore (M/s One-97 Communications Pvt. Ltd. ₹ 2.50 crore and M/s IPCA Labs Ltd. ₹3.05 crore) as well as violation of the IRDAI Regulations	Based on the Direction of the Ministry dated 20.10.2023, General Manager of OICL (Miscellaneous Department) vide Note dated 26.10.2023 has issued internal guidelines on factors to be considered for arriving at PML in cricket event Insurance. The note also include that deviation, if any, is brought to the notice of the Board of the Company.
6	Dept Of Financial Services	IFCI Factors	Factoring and loan services by IFCI Factors Ltd.	The Credit Policy has been strengthened by including checks at para 17.1 of the credit policy for 2019-20. Checks are Physical verification of escrow management letter/NOA mandatory at the time of first disbursement, new debtor addition and in case of change in signatory at debtor and domain ID checks when there is mail verification from the debtor. The company accepted the audit point and has discontinued the practice of taking material receipt at a later stage, post funding. The Company has discontinued offering silent basis factoring and does not purchase bill factoring facility unless it is

				backed by BG or an acceptable collateral. The company accepted the audit point and is now reporting all accounts in default (SMA or NPA) are reported to the CIBIL CRILC and RBI, as applicable. The company accepted the audit point of waiving off the tangible collateral and as a learning from this case, IFL has stopped unsecured lending.
7	Dept Of Financial Services	Oriental Insurance Company Limited	Improper classification of 'Goods Carrying Vehicles' as 'Miscellaneous Vehicles' at the time of underwriting/ issue of motor insurance policy has resulted in collection of motor insurance premium at lower rates, leading to short charging of motor insurance premium by ₹14.05 crore (₹5.03 crore in The New India Assurance Company Limited and ₹9.02 crore in The Oriental Insurance Company Limited).	Company vide its circular dated 07.06.2022 inter alia directed all Regional Office/ Divisional Office and Branch Office etc. that 'Primary Use' of the vehicle/equipment and 'Body Type' are to be considered as paramount for the purpose of rating under the Tariff for Miscellaneous & Special Types of Vehicle (Class-D) irrespective of its registration status as LMV or GCCV. Company has issued the advisory to all operating offices vide its circular dated 29.11.2021 highlighting the loss of revenue while underwriting commercial vehicle of Misc D category vehicle. Further the guidelines for underwriting of Commercial vehicle under tariff for Class -D vehicle were also issued to operating offices vide circular dated 07.06.2022
8	Ministry of Petroleum and Natural Gas	Bharat Petroleum Corporation Limited	Petroleum and Explosives Safety Organisation issues licence to the LPG Bottling plants and distributors for handling LPG. The Bottling plants and distributors cannot keep LPG beyond the quantity authorised to them vide the license. However, Audit observed that 10 selected bottling plants of BPCL and the distributors of their these locations were keeping excess LPG than authorised.	BPCL has introduced system checks in bottling plants effective 11 September 2023 so as to ensure that the filled stock does not exceed the licensed capacity anytime and in distributors godowns from 23 December 2023 where goods receipt in BPCL's LPGNEXT system would be subject to the PESO Licensed Storage capacity.
9	Ministry of	Hindustan	The issue regarding residual value and provision for digging out/site	The issue was first raised by Govt. Audit during

	Petroleum and Natural Gas	Petroleum Corporation Limited	restoration expenses of CGD business pipelines laid underground within the city of the pipelines, may be discussed at Industry level and appropriate treatment may be carried out in the books of accounts for the FY 2023-24	accounts audit of HPCL for the year 2021-22. On the similar issue raised by CAG Audit during 2021-22 in another CPSE which was referred to ICAI for opinion. The same was reviewed by Expert Advisory Committee of ICAI and opined that accounting policy to keep a standard residual value of 5% without considering all the facts and circumstances is not appropriate. The Company should determine the residual value of its various pipelines considering its facts and circumstances at the beginning of their useful life, which should be reviewed at each financial year-end. Further, the estimated costs of disposal should also be considered as per the definition of residual value given in Ind AS 16. In case, the pipeline will not be extracted and will just be abandoned, the residual value should be considered as NIL as nothing can be sold as scrap or otherwise. Hence, this year HPCL revised the residual value of certain pipelines, including CGD business pipelines from 5% to Zero with Industry consensus along with other CPSEs.

Annexure -XXII

(Referred to in Para 9.1)

Statement showing the details of Audit Reports (Commercial) for last five years for which first Action Taken Notes were pending

Sl. No.	No. & Year of Report	Name of Report	Para No.
	Ministry of Petroleum and Natural Gas		
1	13 of 2022	Performance Audit	Entire Report
2	2 of 2024	Compliance Audit	Chapter I
3	12 of 2024	Compliance Audit	2.1
	Ministry of Heavy Industries		
4	15 of 2023	Compliance Audit	Chapter II
5	12 of 2024	Compliance Audit	5.1
	Ministry of Finance/ Department of Investment and Public Asset Management		
6	12 of 2024	Compliance Audit	4.7
	Ministry of Steel		
7	10 of 2025	Performance Audit	Entire Report

https://cag.gov.in/en/page-39-of-25