



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

Report of the Comptroller and Auditor General of India for the period ended March 2023

**Union Government (Commercial)
Report No. 18 of 2025
(Compliance Audit Observations)**

**Report of the
Comptroller and Auditor General of India**

for the year ended 31 March 2023

**Union Government (Commercial)
No. 18 of 2025
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CONTENTS

CHAPTER/ PARAGRAPH	SUBJECT	CPSE	PAGE NO.
	PREFACE		v
	EXECUTIVE SUMMARY		vii to xvii
ENERGY CLUSTER			
Chapter I	MINISTRY OF COAL		
1.1	Review of Construction of New Coal Washeries	Bharat Coking Coal Limited	1
1.2	Follow up of Report No. 12 of 2019 on “Assessment of Environmental Impact due to Mining Activities and its Mitigation”	Coal India Limited and its Subsidiaries	22
1.3	Violation of Forest Regulations resulting in avoidable expenditure of ₹8.70 crore	Central Coalfields Limited	38
Chapter II	MINISTRY OF PETROLEUM AND NATURAL GAS		
2.1	Idling of Time Charter Vessels and resultant infructuous expenditure of ₹470.56 crore	Bharat Petroleum Corporation Limited	43
2.2	Creation of Strategic Petroleum Reserves in India	Indian Strategic Petroleum Reserves Limited	45
2.3	Failure of ONGC in timely construction of office building at MBA Basin, Kolkata resulting in an additional financial burden of ₹39.47crore	Oil and Natural Gas Corporation Limited	65
INDUSTRY CLUSTER			
Chapter III	MINISTRY OF FINANCE (Department of Financial Services)		
3.1	Comprehensive Online Real-time System	United India Insurance Company Limited	71
Chapter IV	MINISTRY OF HEAVY INDUSTRIES		
4.1	Execution of Solar Power Projects by BHEL	Bharat Heavy Electricals Limited	93
Chapter V	MINISTRY OF STEEL		
5.1	Extra expenditure of ₹12.88 crore	Steel Authority of India Limited	137
5.2	Avoidable expenditure of ₹9.21 crore	Steel Authority of India Limited	141

CHAPTER/ PARAGRAPH	SUBJECT	CPSE	PAGE NO.
INFRASTRUCTURE CLUSTER			
Chapter VI	MINISTRY OF CIVIL AVIATION		
6.1	Non execution of lease agreement and lack of follow up to collect dues resulted in loss of ₹11.40 crore	Airports Authority of India	145
Chapter VII	MINISTRY OF PORTS, SHIPPING AND WATERWAYS		
7.1	Operation and Maintenance of dredgers of Dredging Corporation of India Limited	Dredging Corporation of India Limited	147
7.2	Lack of due diligence resulted in loss of revenue	Dredging Corporation of India Limited	193
Chapter VIII	MINISTRY OF ROAD TRANSPORT AND HIGHWAYS		
8.1	Implementation of One Time Fund Infusion Scheme	National Highways Authority of India	197
8.2	Undue benefit to Concessionaire amounting to ₹41.65 crore	National Highways Authority of India	235
8.3	Undue favours to Contractor through mutual foreclosure rendering NHAI unable to impose damages of ₹19.42 crore	National Highways Authority of India	240
8.4	Avoidable investment burden of ₹17.52 crore due to acquisition of additional land	National Highways Authority of India	243
Chapter IX	RECOVERIES AND CORRECTIONS/ RECTIFICATIONS BY CPSEs AT THE INSTANCE OF AUDIT		
9.1	Recoveries at the instance of Audit	Oil and Natural Gas Corporation Limited, Indian Oil Corporation Limited, Damodar Valley Corporation, THDC Limited, NTPC Tamil Nadu Energy Company Limited, National Highways Authority of India, Steel Authority of India Limited,	247

CHAPTER/ PARAGRAPH	SUBJECT	CPSE	PAGE NO.
9.2	Corrections/ rectifications at the instance of Audit	Bangalore Metro Rail Corporation Limited	247
Chapter X	FOLLOW-UP ON AUDIT REPORTS (COMMERCIAL)		249
	Annexures		251

PREFACE

1. This report deals with the results of audit of Government Companies, Government controlled other Companies and Statutory Corporations for the year ended March 2023.
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 2023 contains 10 individual audit observations and seven compliance audit paragraphs relating to 12 CPSEs under control of eight Ministries/Departments. These Ministries/Departments have been further grouped in the Audit Report under three Clusters namely, Energy, Industry and Infrastructure. There are six audit observations under Energy Cluster, four under Industry Cluster and seven under Infrastructure Cluster. The instances mentioned in this Report are those which came to notice in the course of test audit for the period 2022-23 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 2022-23 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

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 10 individual audit observations and seven compliance audit paragraphs relating to 12 Central Public Sector Enterprises (CPSEs) under eight Ministries/Departments. These Ministries/ Departments have been further grouped in the Audit Report under three clusters namely, Energy, Industry and Infrastructure. There are six audit observations under Energy Cluster, four under Industry Cluster and seven 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. 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
Energy Cluster		
1.	Coal (Bharat Coking Coal Limited, Coal India Limited and its Subsidiaries and Central Coalfields Limited)	3
2.	Petroleum and Natural Gas (Bharat Petroleum Corporation Limited, Indian Strategic Petroleum Reserves Limited and Oil and Natural Gas Corporation Limited)	3
Industry Cluster		
3.	Finance - Department of Financial Services (United India Insurance Company Limited)	1

Sl. No.	Ministry/ Department (CPSEs involved)	Number of paragraphs
4.	Heavy Industries (Bharat Heavy Electricals Limited)	1
5.	Steel (Steel Authority of India Limited)	2
Infrastructure Cluster		
6.	Civil Aviation (Airports Authority of India)	1
7.	Ports, Shipping and Waterways	2
8.	Road Transport and Highways (National Highways Authority of India)	4
Total		17

4. Total financial implication of individual audit observations is ₹5,048.20 crore.
5. 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 ₹1,219.60 crore in eight Audit paragraphs¹.
 - Non-safeguarding of financial interest of organisations involving ₹1,333.33 crore in 10 Audit paragraphs².
 - Defective/deficient planning involving ₹1,771.26 crore in four Audit paragraphs³.
 - Inadequate/deficient monitoring involving ₹724.01 crore in five Audit paragraphs⁴.

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

¹ Para no. 1.1, 1.2, 1.3, 3.1, 4.1, 5.1, 7.1 and 8.1

² Para no. 2.2, 3.1, 4.1, 5.2, 7.1, 7.2, 8.1, 8.2, 8.3 and 8.4

³ Para no. 1.1, 2.1, 4.1 and 7.1

⁴ Para no. 1.1, 2.2, 2.3, 6.1 and 8.1

6. 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 ₹37.45 crore at the instance of Audit, made during 2022-23, and (b) corrections/rectifications carried out by one CPSE at the instance of Audit.

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

Bharat Coking Coal Limited (BCCL) failed to adhere to prescribed time schedule at various stages for construction of the washeries. The delay in completion of washery, resulted in payment of compensation charges ₹22.24 crore to the contractors for Patherdih-I, Dahibari and Madhuband washeries. Audit also noticed deficiencies in awarding of contract for construction of Bogie Open Bottom Rapid (BOBR) track hopper system at Patherdih-I washery, that not only led to under-utilisation of the washery capacity but also deprived BCCL from earning additional revenue of ₹371.33 crore. Audit noticed the instances of violation of conditions specified in environment clearance, non-disposal of washery rejects as specified by the Ministry of Environment, Forest and Climate Change. Further, even after commencement of operation of Dahibari washery, BCCL failed to supply committed quantity of raw coal, which led to avoidable payment of commitment charges of ₹36.18 crore and also resulted in loss of opportunity to earn additional revenue of ₹113.32 crore.

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

- *Company should take necessary steps to expedite the completion of construction of the incomplete washeries on priority to avoid further delays and also identify and disseminate the lessons learnt for more efficient contract management for future.*
- *BCCL should expedite the disposal of rejects in compliance of EC norms so as to curb the contamination of Environment further. Further, clause for penal provision should be incorporated in the future MoUs with the contractors, to ensure lifting of rejects as per the agreed terms.*
- *Steps should be taken for optimum capacity utilisation of newly constructed washeries by ensuring supply of adequate quantity and quality of raw coal.*

(Para 1.1)

The Performance Audit on “Assessment of Environmental Impact due to Mining Activities and its Mitigation in Coal India Limited (CIL) and its Subsidiaries” was undertaken and printed vide Report No. 12 of 2019. In Action Taken Notes on the Report, Ministry of Coal, stated that remedial action had been taken/ were under implementation on the issues raised in the Report. The audit was carried out to examine the action taken by the Ministry/ Management on the issues highlighted in the Report. Audit noticed that certain issues, highlighted in the Report, remained partially complied or yet to be complied with. These relate to efforts required to combat air pollution, water pollution, as well as concerning

rehabilitation and resettlement for mine fire and monitoring of environmental activities. The capital works relating to air and water pollution control measures such as construction of two coal handling plant in Mahanadi Coalfields Limited and sewage treatment plant in eight mines of four subsidiaries were still under progress. Even after lapse of more than 10 years since Jharia Mine Plan was approved, the latest study by National Remote Sensing Centre, Hyderabad (August 2021) indicated that the surface fire area existed in 1.80 sq. km, spreading over 27 sites. In respect of Raniganj Master Plan, the shifting of affected non Eastern Coalfields Limited families is yet to be carried out. The present installed capacity of solar projects in CIL and its seven subsidiaries was only 4.08 *per cent* of envisaged capacity of 3,000 MW of solar projects. There is a need to speed up the remedial measures to address environmental issues caused through mining activities of CIL and its seven coal producing subsidiaries by improving the oversight mechanism by the CIL and the Ministry.

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

- ***CIL should execute the solar power projects on fast track for generation of 3,000 MW solar power, as committed to the Government, to become Net Zero Energy Company as well as gain the environmental benefits.***
- ***CIL need to expedite the corrective action for compliances of the parameters as per the CIL guidelines for mitigating air pollution.***
- ***Northern Coalfields Limited should get the mercury level analysed in the blood samples of its employees periodically and generate a data bank in compliance to the recommendations of Central Pollution Control Board.***
- ***Remedial actions for mitigation and arresting the adverse impact on the environment due to subsidence and fire at Jharia Coalfields may be expedited.***

(Para 1.2)

As per Forest (Conservation) Act, 1980, the company, was required to obtain, prior approval of the Central Government for diversion of forest land for non-forest purpose with adequate mitigating measures. However, without obtaining necessary permission, CCL decided (July 2019) to commence transportation of coal on forest land through village road i.e. from Honhe village to Shivpur siding. Forest Department of Jharkhand (October 2022) raised a demand for regularization of encroachment and ex-post facto approval for use of forest land for construction of road and asked CCL to pay ₹11.18 crore out of which ₹8.70 crore was penalty for violation of forest regulation.

(Para 1.3)

Bharat Petroleum Corporation Limited (BPCL) hired Time Chartered Vessels more than company's actual requirement for the coastal movement of LPG and Petroleum products without assessing the available storage and other infrastructure facilities. Deficient planning in not assessing the need for the creation of Storage and Infrastructure facilities coupled with deficient Supply and Logistics planning resulted in underutilisation of Time

Chartered Vessels hired by BPCL and infructuous expenditure of ₹470.56 crore during the period from 2019-20 to 2022-23.

(Para 2.1)

Given the dependency of crude oil on import, Country needs to prepare for emergency oil shortage situations. Progress in this direction has been slow as Government/ Indian Strategic Petroleum Reserves Limited (ISPRL) has created only 5.33 Million Metric Tonne (MMT) capacity of storage which can provide for 7.88 days import cover (March 2024) against the 19 days import cover as envisaged in Phase-I. The current filled reserves of 2.91 MMT of strategic crude oil kept with ISPRL/Government can provide import cover only for 4.56 days. Significant delays and consequent cost overruns were witnessed in construction and creation of Strategic Oil reserves. Utilisation of caverns have also been sub-optimal. The commercialisation of crude oil operations (sale/ purchase of crude oil) to make ISPRL self-sustainable for operation & maintenance activities has not been started despite Cabinet approval in 2021. In Operation and Maintenance (O&M), deficiencies such as high O&M costs, avoidable payment of electricity demand charges, non-availing of timely refund of tax were noticed.

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

- *ISPRL/MoPNG need to reassess the volume of strategic petroleum reserves, considering current consumption requirements and the progress made so far.*
- *ISPRL/ MoPNG need to ensure that the caverns are utilised fully to provide the cover against the oil shortage event as and when it arises. Decision on the empty space at Mangalore should be taken on priority as it is of strategic importance.*
- *Modalities of commercialisation for sale/ purchase of crude oil may be finalised at the earliest as directed in the CCEA note.*

(Para 2.2)

The office building for ONGC's MBA Basin Kolkata could not be constructed for more than 17 years despite acquiring the land at a cost of ₹9.80 crore in October 2006. The construction of the building was delayed on account of procedural delays in approvals, finalisation of design and re-tendering. An expenditure of ₹9.81 crore incurred on design, vetting, statutory approvals etc. was rendered unfruitful, alongside continued incurrence of rent for hired premises amounting to ₹29.66 crore during the delayed construction period (December 2016- October 2024).

(Para 2.3)

Comprehensive Online Real-time Insurance system of United India Insurance Company Limited is in use since April 2017. However, various control lapses and weaknesses in the

system were noticed in audit. Some of the directions issued by Insurance Regulatory and Development Authority of India were not adequately mapped in the system to ensure compliance to the same. Critical information such as gross vehicle weight, pollution control certificate compliance, chassis number, vessel registration number etc. were not correctly captured in the system in many cases. The input/validation controls for accepting/capturing vehicle type, business class code, seating capacity, identification of subject matter of insurance, policy deductibles, accepting valid CNR number, petition date, and to restrict claim payments as per the limits etc. also needed to be strengthened. Similarly, maintenance of master database files for surveyors, customers and intermediaries also needed to be made more robust to capture vital details like license number, PAN and customer type. There were delays in timely adherence to the IRDAI security guidelines, conducting comprehensive information and cyber security assurance audit, and framing of security related policies. The logical access controls also needed to be strengthened in various aspects including deactivation of user credentials of retired employees.

(Para 3.1)

Audit of the functioning of the Solar Business of BHEL, considering a sample of 15 solar projects selected for review out of 31 solar projects, which were due for completion as well as completed during 2017-18 to 2021-22, revealed that the average capacity addition contributed by BHEL has been minimal at only 1.28 *per cent* during 2017-18 to 2021-22. Further, the technology used in the manufacturing facilities operated by the Company has become outdated resulting in poor utilisation of its manufacturing facilities. The existing manufacturing facilities for 85 MW Cell and 200 MW Module have minimal utilisation due to limited raw material availability and 200 MW Module Line cannot be further upgraded. Also, due to incorrect cost estimation and time over run, the Company incurred loss of ₹1,145.30 crore constituting 41 *per cent* of total contract value. Furthermore, the Company did not adhere to approved schedules of the Projects leading to delay in 14 out of 15 projects and attracted delay penalties of ₹119.61 crore. Besides above, the Company incurred additional expenditure of ₹15.14 crore on providing O&M services at site as value receivable from customers was less than the amount payable to outsourced contractors by BHEL coupled with delay in start of O&M contract with customers. Further, the Company could not provide the minimum guaranteed electricity generation as per the contractual terms in majority of the O&M years incurring penalty of ₹49.04 crore.

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

- ***The Company may explore possibilities of creating new/ upgrading existing manufacturing facilities with suitable up to date technology as per market demand/ conditions, after considering the costs and benefits, to ensure optimum utilization of in-house manufacturing capacities.***
- ***The Company may review the cost estimation system periodically by adopting current market rates to participate in the bids and accordingly consider quoting in cases which are viable and where at least the variable cost to be incurred is recovered.***

- *The Company may review the O&M cost estimation procedure adopted by it to ensure that the costs reflect the actual recoveries from the customers on this account.*
- *The Company needs to strictly monitor entire process of execution, from submission of Drawings to commissioning of Plant, as deviation at any stage of execution impacts timely commissioning of Plant. Proper care also needs to be taken during maintenance period to enable generation of assured quantum of energy and avoid penalties.*
- *The Company may analyse its current experience of execution of orders and its market presence for deciding on investment for future expansions in Solar Business.*
- *The Company needs to strengthen its monitoring mechanism in view of the delays with consequent cost and time overruns noticed in almost all projects to ensure that the project execution is done as per planned schedule to avoid losses.*

(Para 4.1)

Steel Authority of India Limited (SAIL) entered (June 2017) into a Contract of Affreightment with a ship owning Company for shipment of 1.35 million tonnes limestone. SAIL did not exercise the options for shipment holiday and delivery extension as per the contract in time for which it had to incur additional freight of ₹8.52 crore towards higher freight in shipments after July 2018. Inability of SAIL in settlement of claim within the prescribed time schedule has resulted in extra expenditure of ₹4.36 crore towards interest and arbitration/legal expenses.

(Para 5.1)

Durgapur Steel Plant of Steel Authority of India Limited (SAIL) procures refractory for lining of its Converter sets on heat basis and pays bonus to the suppliers for heats achieved above the minimum guaranteed heat. Lack of proper fixing of the minimum guaranteed heats of the converter lining resulted in avoidable expenditure on account of higher payment of bonus of approximately ₹9.21 crore for the differential minimum guaranteed heats during the period April 2021 to November 2022.

(Para 5.2)

Airports Authority of India allotted (20 December 1994) a land to the Transport Department, Government of West Bengal on lease basis for a period of 10 years on payment of advance annual lease rent. Authority did not execute any lease agreement as per terms with the lessee. Authority raised first bill in July 2002, however, same was not paid by Government of West Bengal. Authority started (August 2016) persuasion for recovery of the lease rent and directed (December 2017) to vacate the land. Land was ultimately vacated by Government of West Bengal on 1 August 2022 without paying outstanding lease rent of ₹11.40 crore. Thus, non-execution of lease agreement and lack of timely follow up to recover the outstanding lease rent resulted in loss of ₹11.40 crore.

In this regard, Audit recommended that Airport Authority of India may fix responsibility for non-execution of lease agreement with the Transport Department, Government of West Bengal and also may take up the matter with the Transport Department for early release of outstanding dues.

(Para 6.1)

Audit of operation and maintenance of the dredgers by Dredging Corporation of India Limited (DCIL) for the period from 2019-20 to 2021-22 revealed that despite recommendation vide Para No. 14.1 of Audit Report No. 9 of 2017, lacunae persisted in planning and delayed/ non-deployment of dredgers coupled with non-deployment of dredgers with suitable capacity and idling of dredger for want of bunkering with consequential loss of ₹87.62 crore. Further, DCIL suffered losses due to non-achievement of assured depths and required quantities as per contracts (₹2.75 crore), and due to incorrect cost and time estimation (₹240.39 crore). Also, DCIL did not execute dredging works within contractual timelines and stipulations resulting in levy of penalties and liquidated damages of ₹9.51 crore by customers. Furthermore, DCIL did not ensure inclusion of appropriate contractual provisions to safeguard its financial interests in terms of interest on delayed payments and tolerance for designed depths/ quantities, resulting in loss of ₹31.64 crore. Audit also noticed that floating of tenders and evaluation and execution of dry dock repairs took considerable time resulting in idling of dredgers, additional costs towards mobilisation and de-mobilisation, etc. DCIL suffered revenue loss of ₹45.54 crore in five such cases of dry dock repairs. Dry docking of dredgers without assessing possibility of improvement in performance of dredgers resulted in wasteful expenditure of ₹63.96 crore with additional loss in terms of cash losses on operation amounting to ₹116.84 crore.

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

- ***The cost and time estimates for quoting the dredging rates may be determined on the basis of past performance of dredgers deployed in similar dredging conditions realistically and duly considering mobilisation and demobilisation charges, if applicable.***
- ***DCIL may ensure issue of prompt directions for engagement of dredgers as well as timely arrangement of bunkering, logistics, etc. to avoid idling of dredgers with consequential avoidable expenditure.***
- ***DCIL may continuously monitor and review the progress of dredging works so as to ensure achievement of contractual quantities/ design depths within the agreed timelines to avoid loss of revenue.***

- *DCIL may execute dredging works within contractual schedules and as per contractual terms to avoid levy and recovery of penalties and liquidated damages by the customers.*
- *DCIL may assess the performance of the dredgers, the possibility of improvement of dredger performance, further expenditure to be incurred and revenue to be earned before going ahead for dry docking of any dredgers.*

(Para 7.1)

Dredging Corporation of India Limited (DCIL), while appointing the Conciliator to settle the dispute with Cochin Port Authority (CoPA) for the amount withheld by CoPA amounting to ₹29.08 crore i.e., from the bills (₹23.49 crore) and the Security Deposit (₹5.59 crore), did not exercise due diligence while determining the scope for Conciliation by indicating that the disputed amount is only ₹23.49 crore towards non-achievement of desired depths and that ₹5.59 crore towards Security Deposit was not under dispute. Further, even after the award of Conciliation also, DCIL did not convey its protest/disagreement to the inclusion of Security Deposit in the Conciliator Award. This has resulted in loss of revenue to DCIL to the extent of ₹5.59 crore.

(Para 7.2)

To revive languishing BOT road projects, the Cabinet Committee on Economic Affairs (CCEA) approved (13 May 2015) One Time Fund Infusion Scheme (OTFIS). This scheme authorized NHAI to provide funds on loan basis to projects that were languishing as on 01 November 2014 and had achieved 50 *per cent* physical completion. NHAI Board approved the scheme in 11 projects, however, the funds were disbursed in eight projects only amounting to ₹1,730.65 crore during the period from December 2016 to October 2021. Implementation of the scheme was analysed in Audit and major audit observations revealed that NHAI did not develop third-party evaluation mechanism for determining the eligibility of projects under the scheme and OTFIS of ₹936.90 crore was approved and disbursed in four projects with less than 50 *per cent* physical progress as on 1 November 2014, in violation of the scheme criteria. There was short charging of interest to the tune of ₹179.46 crore on delayed repayment of OTFIS due to charging of interest at bank rate plus two *per cent* instead of bank rate plus five *per cent* for delayed period as stipulated in the concession agreement. Provisional Completion Certificate was issued irregularly below 90 *per cent* completion in case of Krishnanagar-Baharampore project resulting in premature release of annuity payment of ₹535.18 crore to the concessionaire. There was excess sanction of OTFIS of ₹139 crore in Panvel-Indapur project due to non-consideration of undisbursed debt in the project. In case of Jaipur-Gurgaon and Krishnanagar-Baharampore projects, funds of ₹246.63 crore were disbursed without assessment of work done at site by the Review Committee. Despite disbursement of OTFIS in eight projects, none of the project could be fully completed thereby defeating the objective of OTFIS i.e., quick completion of languishing projects by moderate funding. Further, due to delay in

completion of project within prescribed timeline there was forgoing of revenue of ₹740.63 crore (i.e. forgoing of toll revenue of ₹577.95 crore and forgoing of premium/negative grant of ₹162.68 crore). The amount of ₹2,613.81 crore (including ₹977.48 crore towards OTFIS principal and ₹1,636.33 crore towards other contractual obligations) was also pending for recovery.

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

- ***A robust third-party mechanism may be developed for determining the eligibility of projects for extension of benefits under any scheme of NHAI in future.***
- ***NHAI/MoRTH should ensure the adherence to the criteria approved by CCEA in true spirit and fix responsibility on erring officials of NHAI for approving OTFIS fund to four ineligible projects.***
- ***NHAI should adhere to the terms and conditions of the concession agreement in letter and spirit and fix responsibility for violation of provisions of concession agreement in approving PCC and releasing annuities prematurely.***
- ***NHAI should assess the funds requirement for completion of work with due diligence to avoid excess sanction of funds to the concessionaires.***
- ***To safeguard the Government interest, NHAI should devise a suitable mechanism, viz., reasonable amount of bank guarantee, etc., for timely recovery of funds disbursed under the scheme and other contractual dues to cover the risk of non-repayment of funds disbursed under the scheme by concessionaires***

(Para 8.1)

NHAI proposed to widen the existing two-lane Bodhre to Dhule Section to four-lane on Hybrid Annuity Mode (HAM). The Agreement contained certain ‘Conditions Precedent’ required to be fulfilled by the parties for them to declare Appointed Date from which construction period commences. The Agreement contained provisions for granting extensions in achieving Appointed Date and for imposing damages for delays. NHAI terminated the Agreement on account of various defaults of the Concessionaire in achieving financial close and recovered ₹7.45 crore as damages from the performance security bank guarantee of ₹49.10 crore. Audit observed that the recovery of only ₹7.45 crore instead of forfeiting the whole of the performance security (as per clause 4.5 of the Agreement) resulted in undue benefit of ₹41.65 crore to the Concessionaire, and equivalent loss to NHAI.

(Para 8.2)

NHAI invited Request for Proposals (RFP) for the work of upgradation of the existing road from Savali Vihir to start of the Ahmednagar Bypass Section of NH 160 to four lanes with

paved shoulder configuration, on Engineering Procurement and Construction (EPC) mode. The EPC Contractor failed to achieve first Project Milestone of 10 *per cent* progress by the due date. Based on the Contractor's request, NHAI merged the first and second Project Milestones. As the environmental permission required for extracting temporary earth and stones, from National Green Tribunal (NGT) was not available, the Contractor's request for mutual foreclosure was approved by NHAI. Audit observed that NHAI, extended undue favours to the Contractor which resulted in not imposing damages of ₹19.42 crore on account of not achieving project milestones as per Concession Agreement.

(Para 8.3)

While the construction works in the Greenfield stretches of the Sanchole to Santalpur section of NH-754K (part of the Amritsar-Bhatinda-Jamnagar Economic Corridor) in Gujarat was progressing, certain landowners complained (2021) about non-receipt of compensation for the whole area of land acquired from them. In Package-4 of the Sanchole to Santalpur section, the construction was progressing not along the land that was acquired but along the coordinates given in the EPC Agreement resulting in mismatch of 05 to 25 meters along the entire length of the project. This caused land acquired on one side lying idle and construction progressing on land which was not acquired at all. Later, NHAI had to acquire 31.45 hectares of additional land (January 2024) in Package-4 at a cost of ₹16.41 crore. The same issue existed in Package-3 of Sanchole to Santalpur section, for which NHAI had to acquire 8.95 hectares of additional land costing ₹1.11 crore. Audit observed that acquisition of land by NHAI beyond the boundaries of land required as per EPC agreement resulted in avoidable investment burden of ₹17.52 crore.

(Para 8.4)

Chapter - I
MINISTRY OF COAL

CHAPTER I: MINISTRY OF COAL

Bharat Coking Coal Limited

1.1 Review of Construction of New Coal Washeries

1.1.1 Introduction

Coal is the most abundantly available fossil fuel in India. Indian coal is broadly classified into two types, viz., Coking coal and non-coking coal. Coking coal is a grade of coal which produces good-quality coke. Coke is an essential fuel and reactant used in the blast furnace process for primary steel making. Coke should be low in ash, moisture, sulphur and phosphorus content. However, Indian coking coal is characterised by high ash percentage with heavy washability characteristics due to typical geological formation and origin. On the other hand, non-coking coal does not have coking properties and is used by sectors other than steel.

Based on ash percentage, coking coal is further categorised as steel grade coal having ash content up to 18 *per cent* (directly used by the steel sector without washing) and washery grade coal having ash content of more than 18 *per cent*. Washery grade coal requires washing in the coal washery to reduce the ash percentage as the same cannot be used directly in the steel industry. After going through the process of washing, the washery grade coal having ash content less than 18 *per cent* is supplied to steel sector as washed coking coal and the coal having ash content more than 18 *per cent* is supplied to other sectors as washed coal power.

The National Steel Policy (NSP) of 2005 and 2017 highlighted that about 85 *per cent* of the coking coal requirement of the domestic steel industry was met through imports. The main objective of the policy was to increase domestic availability of washed coking coal so as to reduce dependence on imported coking coal from 85 *per cent* to 65 *per cent* by 2030-31.

As per coal statistics of Coal Controller Organisation (CCO) for the year 2018-19 to 2022-23, demand and supply of steel grade coal to steel sector in the country is as under:

Table 1.1: Details of demand *vis-a-vis* supply of steel grade coal to steel sector

Year	Demand of steel grade coal (in MT)	Supply of steel grade coal to steel sector (in MT)			Percentage of import to total supply (%)
		Domestic	Import	Total	
2018-19	58.37	17.66	51.84	69.50	75
2019-20	70.00	17.15	51.84	68.99	75
2020-21 ¹	77.00	8.94	51.29	60.23	85

¹ During 2020-21, supply of washed coking coal (Domestic) to steel sector reduced due to Covid -19 from mid of March 2020 and subsequent lockdown, loss of production etc. (Source: Annual Report of BCCL for the year 2020-21).

Year	Demand of steel grade coal (in MT)	Supply of steel grade coal to steel sector (in MT)			Percentage of import to total supply (%)
		Domestic	Import	Total	
2021-22	83.00	8.22	57.16	65.38	87
2022-23	70.00	13.83	56.05	69.88	80
Total	358.37	65.80	268.18	333.98	80

From the table, it is evident that more than 75 per cent of the supply of steel grade coal to the steel sector was met through import.

1.1.1.1 Coal Beneficiation

Coal beneficiation is a value addition process of cleaning raw coal in a washery by separating ash or extraneous material as well as associated impurities to get relatively clean, marketable coal with increased calorific value and thereby generating additional revenue. In course of beneficiation, the raw coal is processed at different stages and produces a main product i.e., washed coking coal and two by-products namely washed coal power and coal rejects.

1.1.1.2 Coal Beneficiation in BCCL

Bharat Coking Coal Limited (BCCL), a subsidiary of Coal India Limited (CIL), is the major producer of coking coal in India. It functions under the Ministry of Coal (MoC) and is headquartered at Dhanbad. BCCL had the necessity of setting up new washeries as the existing washeries of BCCL were very old, which were commissioned during 1962-1998.

To improve the supply of quality coal to steel consumers, the Ministry instructed (January 2007) that for washing of available high-ash coal, washeries of 10 MTY², 5 MTY and 2.5 MTY need to be set up for supply of washed coking coal to the consumers by the end of 11th Five Year Plan (i.e. by 31 March 2012). Accordingly, CIL decided (April 2008) to set up new coal washeries in BCCL and approved (August 2008) setting up of six washeries with a projected washing capacity of 18.6 MTY at a capital cost of ₹515 crore.

1.1.1.3 Status of construction of new coal washeries

BCCL initially decided to set up six washeries at Madhuband, Dugdha, Patherdih-I, Patherdih-II, Bhojudih and Dahibari. However, construction of Dugdha washery was cancelled due to non-viability of the project. Subsequently, based on the feasibility study carried out by Central Mine Planning & Design Institute Limited (CMPDIL), another subsidiary of CIL, it was decided (November 2019) to setup a washery at Moonidih instead of Dugdha.

² Million Metric Tonne per year.

1.1.2 Audit Scope and coverage

Audit was conducted to review the events related to construction of the washeries at BCCL and status of washeries. Audit covered BCCL Headquarters and Washery Division located at Dhanbad and the project offices of the washeries.

1.1.3 Audit findings

Out of proposed six washeries, three washeries were in operation, two washeries were at different stages of completion and construction contract for one washery was yet to be finalised/signed as on 31 March 2023. The status of construction of new coal washeries of BCCL is shown in Table:

Table 1.2: Status of construction of new coal washeries

Sl. No.	Name of Washery (capacity in MTY)	Date of signing of contract	Contract value (₹ in crore)	Actual Expenditure till 31.03.2023 (₹ in crore)	Date of commissioning	
					Scheduled commissioning date (time from the date of signing of contract)	Date of commissioning
1	Patherdih-I (5.0)	17 October 2012	131.66	129.64	17 April 2014 (18 months)	July 2020
2	Madhuband (5.0)	12 November 2012	262.99	288.42	12 June 2014 (18 months)	November 2023
3	Dahibari (1.6)	28 December 2013	113.35	115.35	28 June 2015 (18 months)	August 2018
4	Patherdih-II (2.5)	27 April 2016	243.00	37.213	27 April 2018 (24 months)	In progress
5	Bhojudih (2.0)	30 March 2019	242.55	131.03	30 September 2020 (18 months)	In progress
6	Moonidih (2.5)	Yet to be signed.	454.30	0	36 months from the date of signing of the contract.	

(Source: Information/documents provided by the Management)

Audit findings related to construction of washeries are discussed in the subsequent paragraphs.

1.1.3.1 Non-completion of construction of washeries

Ministry of Coal, in the meeting held in January 2007, for review of economic washing of available high ash coal, instructed that washeries need to be set up for supply of washed coking coal to the consumers by the end of 11th Five Year Plan.

Audit observed that by the end of 11th Five Year plan, none of the approved six washeries were operational. The Standing Committee on Steel and Coal (2013-14) expressed its dissatisfaction with the slow progress of setting up of new coal washeries. The Committee considered it as a serious executorial lapse on the part of MoC/CIL.

National Steel Policy-2017 enumerated steel production target of the country as 300 million tonne (MT) by 2030-31. To achieve the targets, the country needed to ensure utilisation of the coking coal in the most efficient manner, which would lead to reduction of imports. Therefore, timely completion of construction of washeries was crucial to ensure availability of quality coking coal for the steel sector. As per the coal statistics of CCO, the details of import of coking coal during 2018-19 to 2022-23 are shown below:

Table 1.3: Details of import of steel grade coal

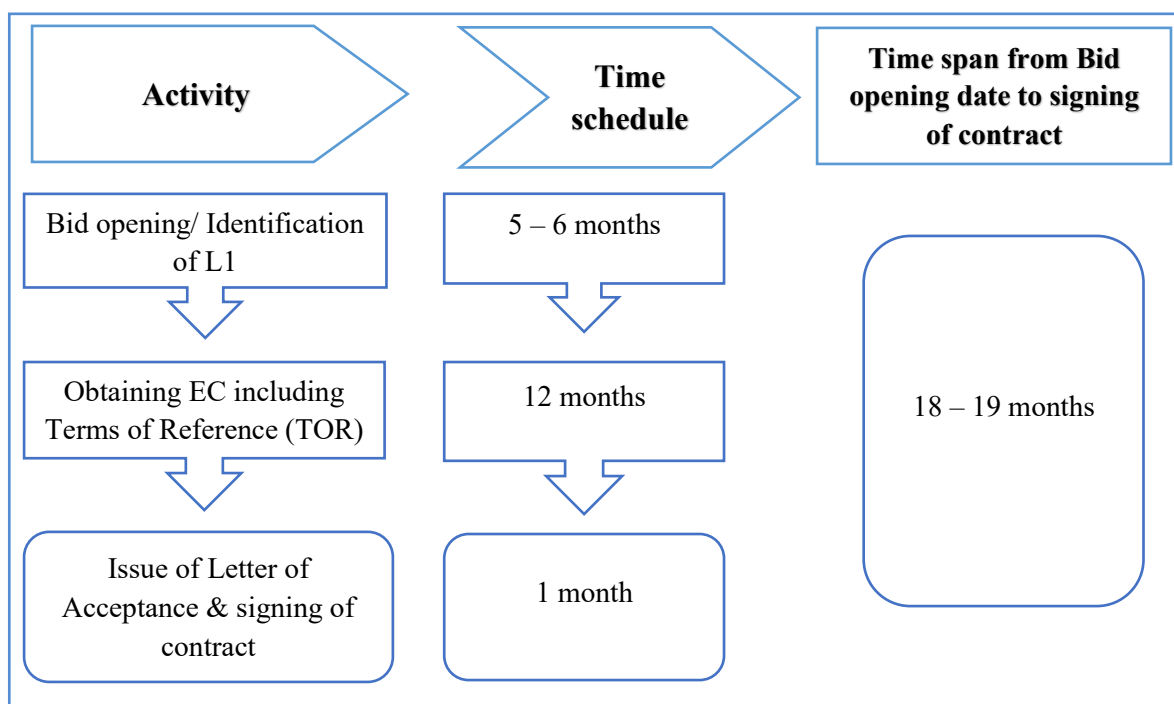
Year	Quantity of coking coal imported (in MT)	Value of the Imported coking coal (₹ in crore)	If washeries were completed, reduction in import ³ (in MT)
2018-19	51.84	72,049.70	18.55
2019-20	51.84	61,266.80	18.57
2020-21	51.29	45,435.50	18.51
2021-22	57.16	1,02,995.80	18.41
2022-23	56.05	1,53,839.97	18.41
Total	268.18	4,35,587.77	92.45

From the table, it is evident that had the washeries been completed within the time schedule i.e. by March 2012, supply of indigenous washed coking coal would have increased by 92.45 MT during the period 2018-19 to 2022-23. Timely commencement of washeries could have helped the country in reducing the import of coking coal for supplying to the Steel Sector, to the extent of washery capacity. Delays at different stages of construction of washeries have been examined and are discussed in the subsequent paragraphs.

1.1.3.2 Delay in construction of washeries

The tender document for award of work for construction of the washeries specified activity wise time schedule commencing with the bid opening date/ identification of L1 bidder upto the signing of the contracts. The activity wise time schedule prescribed in the tender document is detailed in the Figure 1.1.

³ Total capacity of the six new coal washeries of BCCL was 18.6 MTY. However, two operational washeries i.e., Patherdih-I and Dahibari produced a total of 0.048 MT, 0.026 MT, 0.095 MT, 0.19 MT and 0.19 MT during 2018-19 to 2022-23 and the same has been deducted from total capacity of washeries i.e. 18.6 MTY.

Figure 1.1: Activity wise time schedule for construction of the washeries

Audit observed that the bids for construction of the six new washeries of BCCL were opened between March 2009 and January 2022. However, the construction of the washeries were delayed at various activity stages. Activity stage wise delays are as under:

A. Delay in completion of bid evaluation process:

As per the tender document, BCCL was required to complete the process of evaluation of the bids within five/ six months from the date of opening of the bids. Actual time taken for completion of bid evaluation process by BCCL is given in Table 1.4.

Table 1.4: Time taken for completion of the bid evaluation process

Name of Washery	Time stipulated for bid evaluation (in months/ days)	Date of opening of bid	Date of completion of bid evaluation	Actual time taken (in days)	Delay (in days)
(a)	(b)	(c)	(d)	(e)	(f) = [(e)-(b)]
Madhuban d	5 Months (150 days)	31 March 2009	3 March 2010	337	187
Patherdih-I	5 Months (150 days)	23 July 2009	29 September 2010	433	283
Dahibari	5 Months (150 days)	31 May 2010	15 December 2012	929	779
Patherdih-II	6 Months (180 days)	20 January 2014	21 February 2015	397	217
Bhojudih	5 Months (150 days)	28 February 2014	26 November 2014	271	121
Moonidih	No time prescribed	28 January 2022	7 July 2022	160	NA

It is evident that bid evaluation process was to be completed in prescribed time of five/ six months from the date of opening. Also, no time has been prescribed in case of Moonidih Washery in NIT/ bid document. BCCL delayed the process of bid evaluation in respect of five washeries that ranged between 121 days to 779 days.

Audit noticed that, during evaluation of bid documents, BCCL made several deliberations with the bidders to clarify the terms of the tenders, which led to inordinate delay in evaluation of bids. Deliberations made by BCCL with the bidders for each washery is detailed below:

Table 1.5: Washery wise time taken by BCCL to deliberate the terms of the tender with the bidders

Name of the Washery	No. of deliberations held	Time taken
Madhuband	13	31 March 2009 to 07 January 2010 (09 months 07 days)
Patherdih -I	15	23 July 2009 to 08 September 2010 (13 months 16 days)
Dahibari	18	31 May 2010 to 08 November 2012 (29 months 08 days)
Patherdih –II	15	20 January 2014 to 21 February 2015 (13 months 2 days)
Bhojudih	10	28 February 2014 to 26 November 2014 (08 months 26 days)
Moonidih	4	10 February 2022 to 07 July 2022 (05 months 10 days)

(Source: Information/documents provided by the Management)

BCCL took time between 5 months to 29 months to deliberate the terms of the tender with the bidders. Even after completion of technical evaluation, financial evaluation proposals moved through various committees/ sub-committees. The process got delayed in deciding the financial terms related to payment of compensation/commitment charges and the rate of washing charges.

Audit also noticed that even after identification of L1 bidders, all the subsequent activities got delayed including the signing of contract with the L1 bidders. This provided the opportunity to L1 bidders to claim compensation for delays for reasons which are attributable to BCCL.

In reply, the Management/Ministry (March/July 2024) stated that:

- The tender floated by BCCL was of very complex nature and differed from the usual tenders. Neither BCCL nor CMPDIL had prior expertise for such kind of tendering.
- Since this type of tender was first in CIL, BCCL could not anticipate the time it would require. The initial timeline did not consider the aspect that all bidders would fail to submit the necessary documents simultaneously. This unforeseen situation caused

delays beyond the original plan. However, BCCL had learned from the experience and implemented necessary system improvements.

- As per the decision of CIL, evaluation of offers of all the bids had been offloaded to CMPDIL. There had been unavoidable delays sometimes due to limited manpower of CMPDIL and also due to its engagement for evaluation of bids, preparation of conceptual report *etc.*, for washeries proposed to be constructed at different subsidiaries of CIL.
- It was anticipated that high-quality bidders would submit bids in a professional manner for such a high-value tender. However, the bidders failed to submit the required documents in one attempt. Given the existing tender evaluation process, BCCL had no option but to repeatedly request for the documents not submitted by the bidders to finalise the tender. Otherwise, rejection of all or most of the bids could have excluded potential bidders and diminished competition, potentially jeopardising the entire tendering process.
- For compliance of the internal procedure/guidelines of CIL, considerable time was taken for financial evaluation and concurrence of each of the project.

The replies of the Management/Ministry may be viewed in the light of the following facts:

- The time schedule for completion of various stages of construction of the washeries was prepared by CMPDIL and was accepted by BCCL, considering the various complexities.
- Though CMPDIL was entrusted for evaluation of bid documents for each washery, no timeline was fixed by BCCL for CMPDIL to complete the work of evaluation of the bid offers.
- The reasons like delayed submission of information/ documents and submission of information on piece-meal basis *etc.*, by the intended bidders and internal procedure for financial evaluation are characteristic of all bidding process and could have been avoided through prompt liaison with the bidders.

The delay in bid evaluation process was a contributing factor for non-completion of the tendering process within the scheduled timeframe.

B. Delay in signing of the contract agreements

BCCL was required to sign the contract for construction of the washeries with the L1 bidder within one month from the date of receipt of Environment Clearance (EC). Details of actual time taken by BCCL in signing of contracts after receipt of EC is shown below:

Table 1.6: Time taken in signing of contract.

Name of the washeries	Stipulated time for signing of contract from the date of grant of EC (in months/ days)	Actual date of grant of EC by MoEF&CC	As per stipulation, date of issue of LOA/ signing of contract after obtaining EC	Actual date of issue of LOA & signing of contract	Delay in signing of contracts (in days)
(a)	(b)	(c)	(d)	(e)	(f) = (e – d)
Madhuband	1 month (30 days)	25 January 2012	26 February 2012	12 November 2012	260
Patherdih-I	1 month (30 days)	25 January 2012	26 February 2012	17 October 2012	234
Dahibari	1 month (30 days)	6 February 2013	7 March 2013	28 December 2013	296
Patherdih II	1 month (30 days)	6 July 2015	7 August 2015	27 April 2016	264
Bhojudih	1 month (30 days)	10 August 2016	11 September 2016	30 March 2019	930
Moonidih	1 month (30 days)	EC is yet to be granted		NA	

From the table above, it is evident that BCCL delayed in signing the contracts ranging between 234 days and 930 days beyond the prescribed norm of within 30 days from grant of EC.

Audit noticed that after getting the EC, BCCL duly invited the L1 bidders to sign the contracts. But L1 bidders were reluctant to sign the contracts as considerable time had elapsed since publication of the bids and demanded compensation for the time gap as per the provisions of bid documents. Consequently, BCCL paid compensation amount of ₹22.24 crore to the contractors for the delays attributable to BCCL.

In reply, the Management/Ministry stated (March 2024/July 2024) that the main reason for the delay in signing of the contracts was reluctance of the selected operators (i.e. L1 bidders) to sign the contract without compensation for the delays not attributable to them during bid evaluations. BCCL subsequently decided to provide reasonable compensation to the L1 bidders. Finalisation and approval of the modalities and the determination of amount of compensation consumed time resulting in delay in signing of the contracts. In addition, the Management also highlighted other constraints like delay in receipt of all types of pre-requisite statutory clearances.

The reply of the Management/Ministry is to be viewed in the light of the fact that demand for the compensation was raised by the L-1 bidders as per the terms of the bid documents for the time gaps/ delay on part of BCCL. Subsequently, BCCL reviewed and decided to provide reasonable compensation to the bidders. After approval of compensation, the contractors agreed to sign the contracts. The payment of compensation for delays which were clearly attributable to BCCL and were to be paid as per bid conditions could have been avoided.

C. Avoidable payment of compensation

The general terms and conditions of the bid document stipulated that the contractor would be entitled to claim reasonable compensation, if delays resulted in any increase in cost of work. It stated that BCCL would compensate the contractors for the 'setting up cost' for the period of delay in signing of the contract agreements attributable to BCCL. The owner (*i.e.* BCCL) shall examine such claim and, if satisfied, the extent of compensation shall be mutually agreed depending upon the circumstances at the time of such an occurrence.

Audit analysed the period elapsed between publication of the bid and invitation sent to the bidders for signing of contract and actual date of signing of contract in respect of Patherdih-I, Dahibari and Madhuband washeries and the same is detailed below:

Table 1.7: Delay attributable to BCCL for delay in finalisation of contract in respect of Patherdih-I, Dahibari and Madhuband washeries

Sl. No.	Particulars	Patherdih-I	Dahibari	Madhuband
A	Date of Opening of Bid	23 July 2009	31 May 2010	31 March 2009
B	Scheduled date of signing of contract as per bid document ⁴	24 January 2011	30 November 2011	2 October 2010
C	Actual date of inviting contractor to sign the contract	21 February 2012	25 March 2013	6 February 2012
D	Scheduled date of signing of contract as per the invitation	22 March 2012	25 April 2013	6 March 2012
E	Actual date of signing of contract	17 October 2012	28 December 2013	12 November 2012
F=(B-E)	Total delays from scheduled date of signing of contract as per bid document to actual date of signing of contract (in days)	632	759	772
G	Delay attributable to contractor during evaluation of bid as provided by the Management (in days)	38	15	27
H	Delay attributable to contractor after scheduled date of signing of contract as per the invitation as provided by the Management (in days)	208	248	248
I=[F-G-H]	Actual delays attributable to BCCL (in days)	386	496	497

Audit observed that there was delay of 386, 496 and 497 days in respect of Patherdih-I, Dahibari, Madhuband washeries respectively, that were attributable to BCCL. Committee of BCCL examined (September 2013) the delays and the report of the Committee was approved by the Board of BCCL in October 2013. The above contractors claimed compensation of ₹8.95 crore, ₹3.86 crore and ₹13.06 crore respectively, which were paid by BCCL except in Madhuband washery where ₹9.43 crore was paid.

⁴ As per bid document, schedule date of signing of contract was 18 months from the date of opening of bid for the three washeries (Patherdih-I, Dahibari and Madhuband).

It is also noted that the contractor for Bhojudih Washery also claimed (September 2019) compensation of ₹24.54 crore for delays, which were not reviewed as yet. Also, in case of Patherdih-II Washery, the contractor is yet to claim any compensation for delay in signing of contract. Thus, the possibility of future outgo in this regard cannot be ruled out considering the terms of the tender.

Despite the fact that BCCL itself decided the stage wise timelines for evaluation of technical and financial bids, awarding or finalisation of the contract as well as signing of contract, it failed to adhere the timelines which led to delay in finalisation and signing of contracts. Consequently, BCCL paid avoidable compensation charges of ₹22.24 crore to the Contractors.

Management/Ministry stated (March 2024/July 2024) that:

- Had BCCL outrightly rejected the bids of bidders whose bids contain some shortcomings; this would have resulted in arbitrary rejection leading to questions with regard to fairness of the tender committee.
- After finalising L1 bidders, BCCL called them for signing of contract and all of them wanted escalation for the delayed signing for reasons not attributable to them. If the compensation was not approved, fresh tender had to be floated and finalised and fresh EC had to be obtained.

The replies of the Management/Ministry may be viewed in light of the following facts:

- BCCL itself accepted that a considerable time elapsed in bid evaluations. After approval of compensation by BCCL, the contractors agreed to sign the contracts. This clearly established the fact that the delays for which compensation was paid, was clearly attributable to BCCL.
- Moreover, BCCL itself fixed the timeline in the bid for the activities to be executed in various stages involved in finalisation of contracts for the washeries considering all complexities, so involved. However, it failed to adhere to its own finalised time schedule.

Thus, delay in signing of contracts resulted in avoidable payment of compensation to the contractors and possibility of further future outgo cannot be ruled out.

D. Non-completion of construction work of washeries within stipulated time

As per timeline specified under the contract, construction of the washeries was to be completed within 18/ 24/ 36 months from the signing of contract. The status of construction of the washeries is shown in Table below:

Table 1.8 – Status of construction of the washeries

Name of Washeries	Time prescribed for completion of washery	Actual date of signing of contract	Stipulated date of completion of contract	Completion Status	Delay from stipulated date of completion
(a)	(b)	(c)	(d)	(e)	(f)= (e - d)
Madhuband	18 months	12 November 2012	12 May 2014	November 2023	9 year 5 months
Patherdih-I	18 months	17 October 2012	17 April 2014	July 2020	6 years 2 months
Dahibari	18 months	28 December 2013	28 June 2015	August 2018	3 years 1 months
Patherdih-II	24 months	27 April 2016	27 April 2018	In progress	4 years 11 months
Bhojudih	18 months	30 March 2019	30 September 2020	In progress	2 year 6 months
Moonidih	36 months	Yet to be signed	Not applicable	Not applicable	Not applicable

(Source: Information/documents provided by the Management).

As is evident from the table, commercial operation commenced only in three washeries. The construction work of all the washeries was delayed, that ranged between two year six months and nine years five months from the dates of signing of the contract agreements.

Proposal for preparation of the Feasibility Report (FR) for construction of the Moonidih washery was entrusted (September 2011) to CMPDIL. An interim FR was submitted by CMPDIL in September 2013, but no decision was taken by BCCL. Subsequently, after lapse of five years, BCCL requested (August 2018) CMPDIL to submit the updated report. CMPDIL, after prolonged discussion with BCCL, prepared a techno-economic comparative report (January 2020), based on which tendering process was started in June 2020. The tender was cancelled twice (February 2021 and October 2021) citing ineligible bidders. On subsequent tender (December 2021), L1 bidder was finalised (7 July 2022). However, contract agreement was not signed till March 2023 due to non-receipt of EC.

Audit observed that BCCL made delays at every stage in finalisation of the tenders, which resulted in overall delay in completion of construction of washeries. Audit examined the delays and noticed the following reasons that contributed to the above cited delays:

- BCCL failed to provide the hindrance free sites to the contractors on time (for Madhuband, Dahibari, Patherdih –II and Bhojudih washeries).
- Change of site location for construction of Silo⁵ (Madhuband washery).
- Delay in shifting of barrack of security force (CISF), falling within the construction site (Madhuband washery).
- Non-provision of water supply for construction activities (Madhuband washery).

⁵ *SILLO is a structure for storing bulk materials.*

- Non-availability of railway track hopper unloading system for unloading wagons and insufficient supply of raw coal for conducting performance guarantee test of the unloading system (Patherdih- I washery).
- Unauthorised construction of hutments and failure of BCCL to shift the hutments (Patherdih –II washery).
- In respect of Moonidih Washery, BCCL could not comply with the environmental control measures and other conditions as mentioned under the ‘Terms of Reference’ issued in January 2021 by the Ministry of Environment, Forest & Climate Change (MoEF&CC) which consequently delayed the submission of application for EC as well as signing of the contract agreement.

In reply, the Management/Ministry (March 2024/July 2024) furnished the washery wise reasons for delay in construction as below:

Madhuband washery:

- The delay in shifting of the security force (CISF) barrack occurred as the construction of new CISF barrack was delayed.
- Inadequate preparation and mobilisation of required resources by the washery contractor operator.
- The fund crisis of the washery contractor was also one of the major reasons for delay in completion of the washery.
- BCCL also served risk and cost notice to the washery contractor for completing the construction work. Subsequently, the performance guarantee test was completed on 28 November 2023 and commercial operation of the washery commenced from 29 November 2023.

Patherdih I washery:

- The site was under litigation involving the occupant villagers; thus, the delay was inevitable.
- Shifting of structures of security barrack (CISF) and the high-tension overhead line, took time.
- Delay in grant of factory as well as electrical licence by the State Government.
- The performance guarantee test was delayed due to non-construction of the washery.

Dahibari washery:

- There were trees at the site. Permission from State Government for the felling of the trees took some time due to which site hand over was delayed.
- There was delay due to the fault of the washery contractor.

Patherdih II washery:

- Unauthorised hutment on the proposed land. There was law and order issue due to which shifting of the hutment took considerable time as unauthorised dwellers were staying at the site since more than 50 years.
- Due to nationwide lockdown due to Covid-19 pandemic, the project was delayed.
- Slow progress of work by the contractor. Damages for delay in construction would be levied on the contractor for the fault attributable to them.

Bhojudih washery:

- Due to nationwide lockdown due to Covid-19 pandemic the project was delayed.
- Slow progress of work by the contractor. Damages for delay in construction would be levied on the contractor for the fault attributable to them.

Ministry further stated (July 2024) that:

- Contract was awarded only after checking the financial position of the L1 bidder, but funds crunch with the contractor started in the midway of the contract. Thus, BCCL had no option other than managing with whatever resources available in hand. It may be pertinent to mention here that BCCL had cancelled the Letter of Intent (LoI) issued to the contractor for Moonidih Coal washery due to its financial health and poor performance.
- BCCL in order to commission the projects at the earliest, made all-out effort to complete the project at the earliest, however, the contractors failed to adhere to the timelines.

The contentions of the Management/Ministry may be viewed in light of the following facts:

- Awarding of the contract to a contractor having funds crunch as well as not mobilising required resources to the site within prescribed time reflect on the inadequacies in the technical and financial eligibility criteria adopted for bid evaluation as well as shortfalls in contract management.
- Reasons for delays like land dispute, non-availability of hindrance-free site, delay by contractors at site, etc., are regular and controllable features in coal mining sector and do not justify the long delays ranging up to more than nine years.
- Many of the constraints pointed out should have been evaluated before awarding of the contract, to assess appropriate time schedule for completion of work.

The delay in construction of the washeries is a pointer to non-preparedness/ improper planning for completion of the washeries within the scheduled timeframe. This is evident from the fact that only three washeries became operational till date, construction of two

washeries are in progress and the contract for construction of Moonidih washery is yet to be finalised even after a lapse of 15 years since initiating the process to set up the washeries.

Recommendation no. 1: Company should take necessary steps to expedite the completion of construction of the incomplete washeries on priority to avoid further delays and also identify and disseminate the lessons learnt for more efficient contract management for future.

1.1.3.3 Deficiency in awarding contract of Patherdih-I washery

BCCL awarded (February 2012) the work for construction of the Patherdih-I washery to the contractor. Besides construction of the washery, the contract agreement included construction of railway track hopper system⁶ for discharging wagons consisting of Reinforcement Cement Concrete (RCC) bunker.

Review of records revealed that:

- As per the tender, the RCC bunker along with the overall system would be required to be planned and designed in such a manner that the entire process of unloading of one rake is completed within the free time of two and half hours allowed by the Railways. The RCC bunker would consist of two rows, with each row capable of accommodating half of the rake length.
- Thus, to facilitate the above requirements, the desired length for effective functioning of the track hopper system should be around 220 meters. However, the length of 220 meters for track hopper system has not been specifically mentioned in the tender document.
- The L1 bidder, in the tender, quoted (July 2009) for construction of 32 meters track hopper, against the requirement of 220 meter. After deliberation, the offer of the L1 bidder was accepted by BCCL and the contract was awarded with the condition that full rake of coal to be unloaded in the free time as per stipulation of Railways. Thus, the tender was deficient to that extent.
- BCCL awarded (September 2012) the work for renovation/ strengthening of railway siding associated with all the six upcoming washeries to RITES Limited (RITES) including Patherdih-I washery. RITES informed (April 2013) BCCL that 32 meters length track hopper at Patherdih-I washery is not sufficient to unload racks in stipulated time and might result in inordinate delay leading to payment of demurrage

⁶ *A track hopper system is a hopper shaped receiver placed in underground tunnels below the track to receive coal discharged from Bogie Open Bottom Rapid (BOBR) Discharge Coal Hopper Wagons. If the wagons are held beyond stipulated time during unloading of coal, demurrage charges are levied by Railways. To avoid repetitive demurrage charge, Track Hoppers for BOBR wagons is essential. A BOBR wagon would be around 11 to 15 meters in length and generally, one rake contains around 40 to 58 wagons. Hence, the minimum length of rake is 440 meter and half of one rake is 220 meters in length.*

charges. It also recommended (December 2013) that the length of track hopper should be 220 meters.

- In compliance to the recommendations of RITES, BCCL made several correspondences with the contractor and instructed to construct the track hopper system with the required length of 220 meter. However, the same was not accepted by the contractor and the construction of track hopper system got delayed.
- As the construction of the track hopper system did not commence by stipulated time, BCCL issued a fresh tender for the work at the risk and cost of the contractor and awarded (February 2022) the contract for construction of track hopper system with required length of 220 meter at cost of ₹84.99 crore.
- The contract amounting to ₹84.99 crore was awarded at the risk and cost of previous contractor. However, BCCL had an amount of ₹13.17 crore available with it from the original contractor. Till March 2023, only 40 *per cent* of the work of track hopper system was completed.

Management stated (March 2024) that:

- As per the undertaking submitted by previous contractor during tendering, it was his responsibility to satisfy all the conditions of the tender for setting-up the washery including that of track hopper system for unloading of coal.
- Also, on receipt of the recommendation of RITES, the Director (Finance) of BCCL opined to explore the feasibility of construction of bare minimum 220-meter length track hopper system. Thereafter, the construction of 220-meter length track hopper system was approved by BCCL Board.
- Subsequently, BCCL wrote various letters to previous contractor during January 2016 to August 2018, with request to construct the track hopper system as per the specifications given in tender document, so as to prevent any delay in the completion of Patherdih-I coal washery project. However, previous contractor simply declined to construct the track hopper as per the stipulations of the tender document and demanded additional amount over and above the contractual amount for construction of the track hopper system. As previous contractor was contractually bound to construct full length of 2 x 330 meter, therefore, BCCL had not agreed for the payment of additional amount.
- Before finally floating the tender for construction of the track hopper system at the risk and cost of previous contractor, BCCL tried to ensure that any contention which at any later stage be challenged before Court could be pre-empted.

Ministry in its reply (July 2024) stated that:

- The tender was clear on the length of the Track Hopper. It was due to the false declaration of previous contractor in the bid that specifications of various electrical and mechanical equipment and all civil structural work would be meeting the capacity

and all other requirements of the plant, confirming to tender stipulations. Had the contractor denied at the tendering stage to construct the track hopper capable of unloading one (1) rake within free time, their offer would have been rejected.

- The NIT was framed after consulting all stakeholders and keeping in mind all rules and regulation in vogue by CMPDIL.
- In the tender document, it was mentioned that the bunker along with the overall system would be planned and designed in such a manner that the entire process of unloading one rake of BOBR type wagons was completed within free time of two and half hours allowed by the Railways.

Thereafter, BCCL planned to construct a BOBR 220 m length track hopper. Since, BCCL was constructing the same at the risk and cost of previous contractor, BCCL Board decided to construct bare minimum length as it would save some cost to BCCL.

The replies of the Management/Ministry may be viewed considering the following facts:

- Initially in Draft Project Report, BCCL proposed to construct the track hopper system with the length of 2 x 330 meter. However, the same configuration was not incorporated in the bid document, but it was mentioned that the process of unloading of one rake have to be completed within the free time of two and half hours. In response the contractor offered 32 meter length of the proposed track hopper and after deliberation the same was accepted the BCCL and the contract was awarded accordingly.
- BCCL had not made any technical analysis on the offer of the contractor before awarding the contract in February 2012. After awarding the work, BCCL approached M/s RITES in September 2012 for technical advice regarding the length of track hopper system and RITES advised that 32 meters length track hopper is not sufficient to unload rakes in stipulated time and recommended (December 2013) that the length of track hopper should be 220 meters and the same was accepted by the BCCL subsequently.

Thus, difference in specification of the track hopper system proposed initially against the actual requirement showed the faulty project management which not only delayed the construction of the track hopper system, a very essential system needed to ensure the timely receipts of required quantity of coal, but also led to underutilisation of the installed capacity of the Patherdih-I washery.

1.1.3.4 Underutilisation of Patherdih-I washery

The Patherdih-I washery having capacity of five MTY, commenced commercial operation in July 2020. However, the daily requirement of coal at washery could not be supplied due to non-commissioning of the railway track hopper system. Thus, coal was transported by road through trucks. During July 2020 to March 2023, the washery operated at only 20 *per cent* capacity. In absence of the railway track hopper system, BCCL failed to feed

the washery with the optimum quantity of raw coal. BCCL, instead supplied the raw coal to other consumers at lower realisable price.

Thus, during the period July 2020 to March 2023, due to under-utilisation of Patherdih-I washery, BCCL lost the opportunity to earn additional revenue to the tune of ₹371.33 crore on account of higher realisable price of washed coking coal/washed power coal as detailed in **Annexure I**.

Management/Ministry, clarified (March 2024/July 2024) that:

- As per design of Patherdih-I Washery, raw coal was to be received through track hopper system. As the construction of track hopper system was not completed by the contractor as per the requirement of the tender, the same was offloaded (Feb 2022) to another contractor at risk and cost of the (original) washery contractor. The work was yet to be completed.
- A temporary arrangement of receiving raw coal through mechanical unloading of wagons at siding and transportation of the coal into the hopper had been implemented. Efforts were made to supply maximum possible quantity of raw coal to Patherdih-I washery but the same was hindered due to limitation of unloading capacity of the temporary system. The Railways supplied 13.89 lakh tonne (28 *per cent* of total capacity) raw coal to Patherdih-I Washery in 2022-23 and 16.21 lakh tonne in 2023-24 (32.42 *per cent* of total capacity). Full capacity of supply of raw coal to the washery would be anticipated upon the operational commencement of the BOBR⁷ track hopper system.

1.1.3.5 Non-Compliance of Environment Clearance condition

As per laid down environmental regulations, prior to commencement of any coal washery plant, the project proponent is to obtain Environment Clearance (EC) from the Nodal agency i.e., MoEF&CC. EC, so granted, contain general and specific condition, which are to be adhered. Failure to comply with the conditions, may result in withdrawal of the EC along with imposition of penalties as per the provisions of Environment (Protection) Act, 1986.

Audit noticed the following non-compliances:

A. Non-disposal of Washery Rejects

Washery rejects, arising during the process of beneficiation in the washeries, are a major source of environmental contamination. It comprises of waste coal, slate, clay etc., which are hazardous for the environment. Time bound disposal of washery rejects is an important

⁷ *Bogie Open Bottom Rapid Discharge Railway Wagon.*

aspect of washery operation. MoEF&CC, while sanctioning EC for the washeries, stipulated that the coal rejects to be utilised in thermal power plants⁸.

BCCL, entered (November 2011) into a Memorandum of Understanding (MoU) with the contractor for disposal of the rejects generated from the five washeries (except Moonidih for which EC is yet to be received) for use in thermal power plant. As per MoU, rejects were required to be liquidated/ removed within two days of production, in compliance to the guidelines of MoEF&CC.

The details of the washery rejects generated and disposed by the washeries which are in operation as on March 2024 are given in **Annexure II**.

It is evident that a total of 21.12 lakh tonne of rejects were generated in the three washeries. Audit observed that the contractor, failed to lift/ remove any quantity of rejects. Accordingly, BCCL, through e-auction, disposed 11.62 lakh tonne rejects. Washery rejects of 9.50 lakh tonne were still lying at the washeries.

Audit noticed that despite having specific norms in EC for time bound disposal of hazardous washery rejects, the MoU did not contain any penal provision for non-lifting/ non-removal of rejects in time bound manner. The undisposed washery rejects were lying in open space and contaminating the environment. Thus, BCCL failed to comply with the EC norms of time bound disposal of hazardous washery rejects.

In reply, the Management/Ministry stated (March 2024/ July 2024) that:

- The MoU did not fructify due to no responses from the concerned firms and till date, no reply from these firms has been received. Meanwhile, the Ministry of Coal formulated the Reject Disposal Policy.
- As per the Reject Disposal Policy of MoC, High Calorific Value (HCV) reject is presently sold through e-auction for power generation after ensuring due diligence. Thus, rejects were being utilised for energy generation.
- Moreover, it has been envisaged to revive reject based old captive power plant at Moonidih. Also, as per directive of Functional Directors of BCCL, possibility is being explored to set up a new FBC based power plant in BCCL.

The contention of the Management/Ministry may be viewed in the light of the fact that BCCL did not enforce the MoUs for disposal of the rejects within the prescribed timeframe as per the stipulation contained in MoEF&CC clearance. Further, despite disposal of rejects through e-auction, 9.5 lakh tonne of rejects were still pending for disposal and contaminating the environment.

⁸ *In Fluidised Bed Combustion (FBC) based Thermal power plants where a combustion technology is used to burn solid fuels.*

Recommendation no. 2: BCCL should expedite the disposal of rejects in compliance of EC norms so as to curb the contamination of Environment further. Clause for penal provision should be incorporated in future MoUs with the contractors, to ensure lifting of rejects as per the agreed terms.

B. Transportation of raw coal through road

MoEF&CC, while granting Environment Clearance for Patherdih-I washery, permitted coal transportation through rail mode only. However, due to non-completion of the railway track hopper system, BCCL engaged road transporters for movement of coal from the mines to washery, which was in violation of EC condition.

Management/Ministry, while accepting the fact, stated (March 2024/July 2024) that:

- As per design of Patherdih-I washery, raw coal was to be received through the track hopper system by Rail. The railway track hopper system was to be constructed by the washery contractor as per the requirement stated in the tender.
- To increase the supply of indigenous washed coking coal to steel sector and decrease import of the coking coal and to start the operation of the washery, raw coal was received by road. Temporary alternative arrangement of mechanical unloading of wagons at siding and transportation of the same to the hopper by trucks was also arranged for receiving raw coal at washery.
- Majority of raw coal was received through the temporary alternative arrangement, and 100 *per cent* receipt of coal was not feasible through this mode.
- Also, for shortage of railway rakes, road mode was used as a mode of receipt. Transportation of raw coal to Patherdih-I washery by road during 2022-23 was 0.52 lakh tonne whereas the same in 2023-24 till January 2024 was only 0.066 lakh tonne. Since October 2023 supply of raw coal by road has been completely stopped.

1.1.3.6 Short supply of raw coal to Dahibari washery

BCCL awarded the contract for construction and operation of Dahibari washery. As per the terms of contract, BCCL had to ensure supply of raw coal from the linked mines to the contractor. In case of exhaustion or disruption of supply of coal, the quantity would be replenished from other mine sources. In case of failure to supply or short supply of raw coal by BCCL as per the specified contractual quantity for operation of the washery, the contractor was entitled to commitment charges @ 50 *per cent* of the rate of washing charges.

The Monthly Schedule Quantity (MSQ) of raw coal to be supplied at washery was jointly fixed by BCCL and the contractor for uninterrupted washery operations. Commercial operations of Dahibari washery commenced in August 2018. Audit observed that during the period from August 2018 to March 2023, BCCL failed to provide stipulated quantity of

coal. Coal supplied to the washery, ranged between 16 *per cent* and 32 *per cent* of committed MSQ as shown in Table:

Table 1.9: Status of coal supplied by BCCL against the MSQ

Year	MSQ (in lakh tonne)	Coal supplied by BCCL (in lakh tonne)	Percentage of coal supplied by BCCL against MSQ	Percentage of short supply of coal by BCCL against MSQ
2018-19 (August 2018 to March 2019)	9.77	2.72	28	72
2019-20	16.00	2.52	16	84
2020-21	16.00	5.02	31	69
2021-22	16.00	5.08	32	68
2022-23	16.00	4.41	28	72
Total	73.77	19.75	27	73

It is evident from the table that since commencement of the operations of the washery there was short supply of coal that ranged between 72 *per cent* and 84 *per cent*. Consequently, as per the terms of the contract, BCCL paid commitment charges amounting to ₹36.18 crore to the contractor for short supply of coal.

Audit also observed that though BCCL failed to provide committed quantity of coal to the Dahibari washery, it simultaneously despatched 25.21 lakh tonne raw coal to outside consumers from the same linked mines. Thus, apart from paying avoidable commitment charges of ₹36.18 crore to the washery contractor, BCCL by supplying 25.21 lakh tonne raw coal to the outside consumer, lost the opportunity to generate additional revenue of ₹113.32 crore as detailed in **Annexure III**.

In reply, the Management/Ministry accepted (March 2024/July 2024) the fact and submitted the reasons for short supply of raw coal to Dahibari washery as detailed below:

- The washery was planned (2009) to be fed from single source- Dahibari Basantimata mine. Accordingly, production of coal from the mine (Patch B) was planned with 1.45 MTY capacity. Contract with the contractor for Dahibari washery was signed in December 2013, whereas production from the mine commenced from June 2013. The washery was commissioned only in August 2018.
- Over the period, washability characteristics of coal changed significantly. When washery got commissioned, raw coal so produced from the linked mine became unsuitable. BCCL started blending raw coal from another mine Damagoria, to improve quality of coal.
- Further, due to Director General of Mines Safety (DGMS) restriction (2019), production from Dahibari Basantimata mine was stopped. BCCL immediately planned to start two new patches: Damagoria Borira Patch- A and Dahibari

Basantimata Patch- C, to make up for the raw coal so planned. While Dahibari Basantimata Patch- C was delayed due to Covid- 19 pandemic and lockdowns; Damagoria Borira Patch- A was delayed due to delay in receipt of Environment Clearance.

- After starting of new patches, coal production was disrupted due to agitation by the land losers (owners).
- In 2022-23, the total washery feed was 4.57 lakh tonne coal, while the coal dispatched to outside customers was only 0.77 lakh tonne coal.

The contentions of the Management/Ministry may be viewed considering the following facts:

- The MSQ of raw coal to be supplied to the washeries was fixed jointly by BCCL and contractor, so that the total coal supply to the washery remained uninterrupted. But BCCL failed to ensure the supply of MSQ to washery.
- Since commencement of the washery in August 2018, BCCL failed to provide uninterrupted supply of coal to the washery. BCCL dispatched 25.21 lakh tonne of raw coal to outside consumers instead of feeding the same in its own washery.

Thus, apart from payment of avoidable commitment charges to the washery contractor, BCCL, by supplying 25.21 lakh tonne raw coal to the outside consumers, lost the opportunity to generate additional revenue of ₹113.32 crore.

Recommendation no. 3: Steps should be taken for optimum capacity utilisation of newly constructed washeries by ensuring supply of adequate quantity and quality of raw coal.

1.1.4 Conclusion

BCCL failed to adhere to the prescribed time schedule at various stages for construction of the washeries. Delay in completion of washery resulted in payment of compensation charges ₹22.24 crore to the contractors for Patherdih-I, Dahibari and Madhuband washeries. Audit also noticed deficiencies in awarding of contract for construction of BOBR track hopper system at Patherdih-I washery, that not only led to underutilisation of the washery capacity but also deprived BCCL from earning additional revenue of ₹371.33 crore. Audit noticed instances of violation of conditions specified in environment clearance, non-disposal of washery rejects as specified by the Ministry of Environment, Forest and Climate Change. Even after commencement of operation of Dahibari washery, BCCL failed to supply committed quantity of raw coal, which led to avoidable payment of commitment charges of ₹36.18 crore and also resulted in loss of opportunity to earn additional revenue of ₹113.32 crore.

Coal India Limited and its Subsidiaries

1.2 Follow up of Report No. 12 of 2019 on “Assessment of Environmental Impact due to Mining Activities and its Mitigation”

1.2.1 Introduction

Coal, a fossil fuel, is extracted predominantly through open cast mining⁹. The main activities involved in coal mining are drilling of bore holes, blasting and loosening of coal seams, extraction of coal reserve and transportation of coal from mines to the washeries or to the railway siding. Extraction of coal involves environmental concerns such as air, noise and water pollution, land degradation and consequences on local biodiversity. Mining must, therefore, be carried out in a wise, socially responsible and environmentally sustainable manner. Coal India Limited (CIL), a Central Public Sector Enterprise, through its seven coal producing subsidiaries¹⁰ is contributing to around 80 *per cent* of the Nation's entire coal output.

Performance Audit on “Assessment of Environmental Impact due to Mining Activities and its Mitigation in Coal India Limited and its Subsidiaries” was conducted by CAG, covering the period from 2013-14 to 2017-18. The report was printed vide Report No. 12 of 2019 and was tabled in the Parliament in December 2019. First Action Taken Note (ATN) on the Report was submitted by the Ministry of Coal (MoC) in November 2021 wherein Ministry stated that remedial action had been taken/ was under implementation on the issues raised in the Report. The Report was discussed by the Committee on Public Undertakings (COPU) in December 2021. During the proceedings, COPU desired for carrying out a follow-up audit on the Report. The present Compliance Audit has been undertaken in the above background, to assess the action taken by the Ministry/ Management on the issues highlighted in the said Performance Audit Report.

1.2.2 Audit Scope and Methodology

The audit was carried out for the period from April 2018 to March 2022 and the figures have been updated till December 2024. Audit reviewed the compliances made by the Management on the recommendations made in Report no 12 of 2019 of CAG. Ministry submitted the first ATN in November 2021. Subsequent ATNs were submitted by Ministry in March 2022, June 2022, February 2023 and October 2023, which are duly considered while finalising the Report.

1.2.3 Audit Findings

Audit reviewed the status of Action Taken Notes (ATNs) submitted by Ministry on the recommendations/observations contained in the Performance Audit Report. It was noticed

⁹ A surface mining technique of extracting rock or minerals from the earth from an open-air pit.

¹⁰ Eastern Coalfields Limited (ECL), Bharat Coking Coal Limited (BCCL), Central Coalfields Limited (CCL), Western Coalfields Limited (WCL), South Eastern Coalfields Limited (SECL), Northern Coalfields Limited (NCL) and Mahanadi Coalfields Limited (MCL).

that some of the recommendations/observations were complied with by the Management (**Annexure IV**). However, certain issues, highlighted in the Report, remained partially complied or were yet to be complied with. Audit noticed that out of nine recommendations made in the Previous Performance Report, four recommendations have been complied with whereas compliance of three recommendations are still in progress. Two recommendations are partially complied with.

The observations/ recommendations which were only partially complied or not complied with are discussed in subsequent paragraphs:

1.2.3.1 Green Initiative - Renewable Energy

CIL committed (February 2015) to the Government of India for development of 1,000 Mega Watt (MW) Renewable Energy projects by March 2019 to save energy charges of ₹55.50 crore annually. Performance Audit Report (vide para 2.2), highlighted that though CIL had signed MoU with Solar Energy Corporation Limited for establishment of the solar projects, however, CIL failed to initiate the necessary steps/progress for achieving the targets of 1000 MW which was to be achieved by 2019. It was recommended in the report that implementation of solar power project may be put on fast track so that the environmental benefits fructify as envisaged.

Government of India entrusted (2017) CIL the task to develop 3,000 MW of solar power by 2024, to become Net Zero Energy¹¹ Company. Accordingly, CIL established Joint Ventures with NTPC Limited (April 2010) and NLC India Limited (NLCIL) (November 2020) for development of solar projects of 1000 MW each in addition to the MoU with Solar Energy Corporation Limited. CIL formed (April 2021) a separate Special Purpose Vehicle (SPV) Company i.e. CIL Navikarniya Urja Limited to execute the solar projects on fast-track basis.

In the First ATN (November 2021), Ministry stated that solar power project of 4.84 MW were already installed, which include 2.83 MW roof top solar project and 2.01 MW ground mounted solar power plant. CIL and its subsidiaries had taken steps to install 10 MW aggregate capacity of roof top solar project in the financial year 2020-21. CIL had executed an agreement for formation of Joint Venture with NLCIL regarding development of solar power project. Further development in this regard had not been stated by the Ministry/ Management in subsequent ATNs.

Audit noticed that till December 2024, the installed capacity of solar projects in CIL and its seven subsidiaries was 122.492 MW which was only 4.08 *per cent* of the envisaged capacity of 3,000 MW of solar projects. Work orders had been issued only for 692.50 MW of ground mounted projects and 34.56 MW of rooftop projects till December 2024, with anticipated commissioning by 2027-28.

¹¹ *The company that drastically reduced greenhouse gas emissions*

Management in its reply (February 2023) attributed the slow progress to supply chain disruption in Photo Voltaic (PV) solar modules post Covid 19 pandemic and added that the Ministry of New and Renewable Energy had given (December 2022/ January 2023) blanket time extension to all the solar projects till March 2024. The Management further stated that the solar capacity addition plans of other Public Sector Enterprises were also affected due to Covid 19 pandemic.

The Management also submitted the revised plan of solar capacity addition which is as follows:

Table 1.10: Revised Plan for Solar capacity addition by CIL and its subsidiaries

Year	Up to 2022-23	2023-24	2024-25	Total
Capacity in (MW)	11.313	397.42	1,443	1,851.733

The Management further stated that above-mentioned capacity of 1,851.733 MW was being developed over own land (CIL)/ in Solar Park/ across different states of India. Balance capacity of 1,148.267 MW (3,000 MW – 1,851.733 MW) would also be developed over own land and through participation in Pan India projects. Regarding roof top projects, the Management stated that CIL had identified approximately 2,67,000 square metres of rooftop area in offices, hospitals, workshops, guest houses, schools and residential buildings of CIL and its subsidiaries for installation of solar PV modules.

The Ministry stated (July 2023) that CIL had also planned for solar capacity addition of 1,158 MW by 2025-26 and it would explore floating solar projects at the abandoned mines as well as at stabilised overburden (OB)¹² dumps in different subsidiaries of CIL. However, the Ministry had remained silent about the progress of the work.

Though, Government entrusted (2017) CIL with the task to generate 3,000 MW of solar power by 2024, to become Net Zero Energy Company, the installed capacity as on 31 December 2024 for solar projects was only 4.08 *per cent* of the envisaged capacity. The extension of timeline has been provided for completion of the targets by 2027-28.

Recommendation no. 4: CIL should execute the solar power projects on fast track for generation of 3,000 MW solar power, as committed to the Government, to become Net Zero Energy Company as well as gain the environmental benefits.

1.2.3.2 Air pollution

In coal mines, air pollution starts with removal of massive OB which discharges fine particles. It is followed by drilling/ extraction of coal and movement of extracted coal to the washery/ crusher/ coal handling plant (CHP) and finally transportation of coal to the

¹² Overburden is the natural rock and soil that sits above and around the ore body

consumers. These operations generate Suspended Particulate Matter (SPM) and Respirable Particulate Matter (RPM), which are the main sources of air pollution.

A. Non-adherence to the guidelines regarding transportation of coal

CIL guidelines (March 2014) stipulate that for mitigating air pollution, generation of dust was to be controlled at source with necessary measures *viz.*, coal handling plant CHP, piped conveyor belt system, silo¹³ including Rapid Loading System, Merry-Go-Round, dust suppression by water sprinklers, mist blowers, mechanical brooming etc. Further, dust generation was to be minimised during coal/ waste transportation by roads and green belt was to be created around the source of dust. These guidelines were reiterated in August 2022.

The earlier Performance Audit (vide Para 4.6.1) highlighted the shortcomings in the implementation of CIL Guidelines in 17 out of the 28 sampled mines in respect of six different parameters of Air Pollution. The Performance Report recommended that the capital works relating to pollution control measures may be completed expeditiously. Different parameters of Air Pollution where shortcomings were noticed were:

1. Use of covered conveyor belt/ system for transporting coal from mines to railway siding/ washery for reducing air pollution.
2. Use of silos for rapid and dust free loading of coal into wagons.
3. Wetting of top surface of coal loaded trucks by sprinklers/ mist sprays for dust suppression.
4. Use of fixed sprinkler for dust suppression at railway siding.
5. Use of mechanical brooming/ industrial cleaner to suppress dust.
6. Plantation at railway siding/ stockyard/ approach roads to reduce air pollution.

The ATNs submitted by the Ministry/Management from time to time, furnished mine wise as well as parameters wise status of corrective action taken. Audit observed that corrective action has been taken in respect of three parameters (Wetting of top surface of coal loaded trucks, Use of fixed sprinkler and Plantation at railway siding) by all subsidiaries. However, the shortcomings continued to exist in respect of three parameters in eight mines of two subsidiaries. The parameter wise shortcomings in the mines is highlighted below:

Table 1.11: Parameter wise details of the mines which did not adhere to the Guidelines

Sl. No.	Parameters as per previous PA	Name of Subsidiary	Name of the Mine
1	Use of covered conveyor belt/system for transporting coal from mines to railway siding/ washery for reducing air pollution	ECL	Kunustoria, Dabor and Jhanjra

¹³ A silo is a structure for storing bulk materials

Sl. No.	Parameters as per previous PA	Name of Subsidiary	Name of the Mine
2	Use of silos for rapid and dust free loading of coal into wagons	ECL	Jhanjra
3	Use of mechanical brooming/ industrial cleaner to suppress dust	ECL	Rajmahal, Jhanjra, Sonapur Bazari, Kunustoria and Dabor
		WCL	Gokul, Majri IIA and Penganga

Audit observed that:

- For the use of covered conveyer belt system to reduce air pollution, ECL commissioned Coal Handling Plant (CHP) including conveyer belt system in Sonapur Bazari mine in November 2021. In Jhanjra mine, work related to covered conveyer belt system/ CHP was awarded in December 2020 which was expected to be completed in October 2023. However, in case of Kunustoria and Dabor mine process was still at planning stage.

In the ATNs, Ministry while accepting the fact stated that installation of CHP including conveyer belt system was to be explored at Dabor mine and feasibility study was in progress at Kunustoria mine. It further added (December 2024) that as the production capacity of Dabor is less than 05 lakh tonne per year, in such less producing mines construction of conveyer belt is not feasible and economical. However, as a pollution control measure the Coal transportation is being done by tarpaulin covered trucks.

Also, Ministry stated (October 2023) that in Jhanjra mine, the construction work was in progress and was expected to be completed by December 2023. It further added (December 2024) construction work was in progress and was expected to be completed by June 2025.

- For the use of silo for rapid and dust free loading, ECL commissioned Coal Handling Plant/ silo including conveyer belt system in Sonapur Bazari mine in November 2021. However, in Jhanjra mine, construction work related to silo/CHP was awarded in December 2020 and expected to be completed in October 2023.

In ATNs, Ministry accepted and stated that construction work for silo/CHP was in progress at Jhanjra mine and was expected to be completed by December 2023. Management, further added (December 2024) that expected date of completion was by June 2025.

- For deployment of mechanical brooming, completion was still pending at the mines of ECL¹⁴ and WCL¹⁵ which were pointed out in previous audit report. Ministry, in

¹⁴ Sonapur Bazari, Rajmahal, Jhanjra, Kunustoria and Dabor mines

¹⁵ Gokul, Majri II and Penganga mines

ATN (March 2022), stated that the process of procurement of mechanical brooming/road sweeping machine was in progress.

Management (February 2023) stated that mechanical brooming would be explored in future projects of ECL. Whereas in WCL, the equipment for mechanical brooming were under procurement. Management further added (December 2024) that in Majri II of WCL, supply order had been issued and supplier sought time extension for delivery till December 2024. In Penganga mine of WCL, order had been issued and brooming machine was expected to be deployed by 31 March 2025.

Ministry endorsed (July 2023) the views of the Management.

Thus, the parameters related to conveyor belt system, silo and deployment of mechanical brooming for dust mitigation measures are yet to be completed in mines of ECL and WCL.

Recommendation no. 5: CIL need to expedite the corrective action for compliances of the parameters as per the CIL guidelines for mitigating air pollution.

1.2.3.3 Water Pollution & Control Measures

Mining is likely to have significant effects on ground water as well as surface water. Mining operations can both contaminate and cause severe physical dislocation of aquifer. Sewage Treatment Plant (STP) cleans the effluents from the sewage water of the residential colonies of the mines before releasing it back to the environment. While approving the Environment Clearance for projects from time to time, MoEF&CC stipulated that STP needs to be installed in the residential colonies of the collieries.

A. Sewage Treatment Plant

MoEF&CC, while approving the EC for projects, stipulated that Sewage Treatment Plant (STP) be installed in the residential colonies of the collieries. Performance Audit Report (vide Para no. 5.6), highlighted that in case of 14 mines of 6 subsidiaries¹⁶, STPs were not installed. The Performance Report recommended that the capital works relating to pollution control measures may be completed expeditiously.

In the ATN (November 2021), Ministry stated that the STPs were installed at Sonapur Bazari mine (ECL), Block B mine (NCL), and Rajendra mine (SECL). Installation of STPs was under process in mines of Lingraj, Basuandhara and in Jhanjra mine. Further, in Dabor and Kunustoria mines of ECL, STPs were not installed. Ministry also stated that in the highlighted mines of WCL and CCL, where STPs were not installed, Management had shown inability to install STP in view of existing old soak pit system.

¹⁶ CCL (3), ECL(4), MCL(2), NCL(1), SECL(1) and WCL(3)

In further ATN (June 2022), Ministry intimated that the employees of Gokul and Penganga mines of WCL had been shifted to other colonies wherein STPs already exist.

Audit examined the status of implementation of STPs as intimated by the Ministry. The current status is as under:

Table 1.12: Status of installation of Sewage Treatment Plant

Sl. No.	Subsidiary	Mines highlighted in PA Report where STP was not installed	Status of installation of STP
1	CCL	Piparwar, Kathara and AKK mines	No installation made.
2	ECL	Dabor, Kunustoria, Jhanjra & Sonepur Bazari mines	STP was installed only in Sonepur Bazari mine. In remaining three mines, installation is not completed.
3	MCL	Basundhara and Lingaraj mines	STP at Lingaraj mine is operational since February 2023. Whereas in Basundhara mine, work is in progress.
4	NCL	Block B mine	Completed
5	SECL	Rajendra Mine	Completed
6	WCL	Majri II A, Gokul and Penganga mines	Work is in progress at Majri II A mine. In Gokul and Penganga mines, employees were shifted to other colonies wherein STPs already exist.

Audit noticed (March 2023) that CCL initiated action to install STPs at Kathara and Piparwar mine. Work order for installation of STPs was awarded by CCL and work is in progress. However, in AKK mines, the proposal for installation of STP is in progress.

Management stated (February 2023) that in mines of Jhanjra, Basundhara, Piparwar, Kathara and Majari IIA work of installations of STPs were under progress. Ministry stated that the construction of STP at Lingaraj had been completed in January 2023 and the STP was under operation since 1 February 2023.

In compliance to observations of Performance Audit Report highlighting that in 14 mines of 6 subsidiaries where the STPs were not installed, STPs installation is still pending in the residential colonies of the 8 mines of four subsidiaries {CCL (3), ECL (3), WCL(1) and MCL(1)} which continued to expose the ground water to contamination.

Recommendation no. 6: Installation of Sewage Treatment Plants need to be expedited in the residential colonies of the eight mines of four subsidiaries (CCL, ECL, WCL & MCL) in compliance to the conditions of EC and to prevent contamination of ground water.

B. Mercury Content

Mercury is one of the natural and environmentally harmful components of coal. Central Pollution Control Board (CPCB) recommended (February 2013) that:

- (a) Mercury levels to be analysed in all coal seam samples of all the projects of Northern Coalfields (NCL) on annual basis through IIT, Banaras Hindu University (IIT BHU)/ IIT Kanpur.
- (b) Mercury level to be analysed in blood samples of its employees (NCL) to generate a data bank and
- (c) A study to be conducted through Indian Medical Council for assessing the impact of mercury pollution on the population of the Singrauli region (NCL) within a radius of 15 km area.

The earlier Performance Audit Report (vide para 5.9), highlighted that NCL did not get the coal seam samples analysed for mercury content on annual basis. Also no analysis of coal samples was made after June 2016.

In the ATNs, received from time to time, Ministry stated that NCL issued (November 2018) work order to IIT (BHU) for testing of mercury content in coal samples. IIT (BHU), Varanasi submitted (September 2019) report on mercury content in coal samples wherein inherent presence of quantity of mercury in the coal seams was stated. Ministry also stated that the level of mercury was being monitored through Central Mine Planning & Design Institute Limited (CMPDIL) on regular basis both in water and ambient air and it was found below detection limits. Report also, recommended that a detailed investigation was required by conducting systemic sampling across and along the coal seams and associated rocks with different intervals over a year or so.

Audit noticed that no such study of coal seams was taken up by NCL. It was also noticed that, NCL has neither carried out any study for assessing the impact of mercury pollution on the population of Singrauli region nor any data bank was generated for mercury level in blood samples of employees, as recommended (February 2013) by CPCB. The work for coal seam study was awarded to IIT Kanpur for five years for all mines of NCL.

Audit also noticed that Nehru Shatabdi Chikitsalaya, at Jayant project of NCL was equipped (October 2019) with mercury analyser, to test level of mercury in blood samples. But the Mercury Analyser was not used for analysis of blood samples since 2020 and the same was not in working condition. Thus, the mercury level in blood samples of the employees remained unascertained and the instructions of MoEF&CC remained unimplemented.

The Management (February 2023) accepted the fact that no study was conducted to assess the status of mercury content on the nearby population of the Singrauli region as recommended by CPCB. Ministry while endorsing the views of the Management, stated (July 2023) that analysis of blood samples of local people of Singrauli through Mercury Analyser was not done since 2019.

Ministry, also intimated (October 2023), that NCL received the mercury calibrator (part of Mercury Analyser) from the supplier in September 2023 and the service engineer was expected for installation. Management intimated (December 2024) that Mercury analyser has now been operational.

The earlier Performance Audit Report highlighted that NCL did not get the coal seam samples analysed for mercury content annually to generate a data bank and no analysis of coal samples was made after June 2016. Despite lapse of considerable time, NCL had not complied the recommendations of CPCB as mercury level analysis in blood samples of all its employees to generate a data bank has not been carried out.

Recommendation no. 7: Northern Coalfields Limited should get the mercury level analysed in the blood samples of its employees periodically and generate a data bank in compliance to the recommendations of Central Pollution Control Board.

C. Threat of Subsidence

Mining operations in Deulbera mine of MCL which commenced in 1926, was discontinued since July 2006 due to threat of subsidence. Performance Audit Report (vide Para no 5.10) highlighted that sand stowing of 3.30 lakh cubic meter was required for stabilisation of the mined area. However, after carrying out sand stowing to the extent of 1.02 lakh cubic meter, the work was stopped on expiry of lease period. The renewal of lease was not taken up due to involvement of time-consuming formalities. Ministry in the ATN (June 2022), accepted that sand stowing was still in progress in Deulbera mine of MCL.

Audit noticed that Central Institute of Mining and Fuel Research (CIMFR), Dhanbad has been engaged to assess the stability of the mine. The final report from CIMFR was awaited and action would be initiated as per guidelines of CIMFR. However, it was observed that till April 2022, out of envisaged 3.30 lakh cubic meter of sand stowing, only 1.23 lakh cubic meter of sand stowing was achieved (37.27 per cent).

Management stated (February 2023) that Central Institute of Mining and Fuel Research (CIMFR), Dhanbad has been engaged to assess the stability of the mine. Ministry endorsed (July 2023) the views of the Management and stated that sand stowing to the extent of 1.30 lakh cubic meter had been completed.

Ministry, while updating (October 2023) the status, stated that as on September 2023, out of 3.30 lakh cubic meter, only 1.32 lakh cubic meter of sand stowing had been done and final report from CIMFR was awaited. On receipt of the final report, action would be initiated as per guidelines of CIMFR.

Recommendation no. 8: MCL should take up the matter with Central Institute of Mining and Fuel Research for expediting finalisation of the Report so as to complete the sand stowing work without further delay.

1.2.3.4 Land Management – Mitigation of Land Degradation and Reclamation

During extraction of coal, land degradation takes place which is countered by creating an external dump with the OB removed and after completion of mining activity, backfilling of the void with the accumulated OB dump is done.

The process of land management includes topsoil management, technical reclamation of external OB dump, internal dump or backfilled area, management of void left after completion of extraction of coal, technical reclamation of subsidence due to underground mining, plantation *i.e.*, biological reclamation of technically reclaimed dumps and monitoring progress of reclamation through satellite surveillance.

A. Topsoil Management

Topsoil is the upper and outer most layer of soil, usually the top 5 cm to 20 cm soil layer. It has the highest concentration of organic matter and microorganisms wherein most of the earth's biological soil activity occurs. It takes approximately 1,000 years for formation of one inch of topsoil-deposit. Considering the time taken to generate topsoil and its relative importance, MoEF&CC stipulated that in mines topsoil be stacked at earmarked specific sites with adequate measures of preservation and maintenance of proper records and the topsoil may be used either for backfilling or as a top layer for reclamation of mined out areas. Performance Audit Report (vide para no. 6.1 and 6.1.1) highlighted non-maintenance of topsoil stacking records in 13 mines of five subsidiaries¹⁷. It also highlighted that in three mines of WCL, though topsoil was stacked at earmarked sites, but remained unutilised.

Ministry in ATN (November 2021) stated that BCCL, CCL, NCL, ECL and SECL had taken the corrective action to maintain and utilise the topsoil properly. In subsequent ATN (June 2022), Ministry stated that Gokul mine was relatively new mine and topsoil generated till 2018-19 was stacked at the earmarked site which would be utilised for spreading over the external and internal OB dump after arriving at final profile prior to reclamation activities. It also stated that in Penganga mine, the desired profile/height of topsoil was yet to be reached and the spreading of the topsoil would be done after that.

Audit observed that:

- Topsoil records are being maintained at BCCL, CCL, NCL and SECL. However, in ECL (Dabor and Jhanjara mines), the records have not been maintained regularly.
- In WCL, topsoil is stacked at earmarked places and is fully utilised at Majri II (A) mine. However, the topsoil remained un-utilised in remaining two sampled mines of WCL. The details of the utilisation of top soil at the mines is as under:

¹⁷ BCCL(2), CCL(4), ECL(3), NCL(2) and SECL(2)

Table 1.13: Utilisation of Topsoil generated in mines of WCL*(As of November 2024)*

Name of Mine	Topsoil generated (in Mm ³)	Topsoil utilised (in Mm ³)	Utilisation Percentage
Gokul	6.76	2.59	38.31
Penganga	12.63	3.83	30.32
Total	19.39	6.42	33.11

Management, while accepting the facts, stated (February 2023) that considering the site-specific condition of the WCL mines all possible efforts were being taken for best utilisation of the topsoil. However, it was noticed that only 30.85 *per cent* of the total topsoil generated till March 2023 has been utilised. Ministry endorsed (July 2023) the views of the Management.

The Performance Report highlighted that topsoil stacking records are not maintained in 13 mines of five subsidiaries. It also pointed out that in three mines of WCL, topsoil which are stacked at earmarked sites, were remained unutilised. In compliance, in two mines of ECL (Dabor and Jhanjara mines), the records are not been maintained regularly. Also, top soil remained unutilised in two sampled mines of WCL.

Recommendation no. 9: WCL should take corrective measures to ensure proper utilisation of topsoil in Penganga and Gokul mine.

1.2.3.5 Adherence to other regulatory conditions for protection of environment

Mining companies are required to follow various rules, regulations and guidelines related to activities like mine closure, fly ash dumping, handling of hazardous wastes, corporate social responsibilities and directives of respective State Pollution Control Boards issued from time to time.

A. Ecological restoration of closed mine

MoEF&CC, in the terms of reference, for preparation of Environment Impact Assessment-Environment Management Plan (EIA-EMP) related to Environment Clearance of the mines, stipulated that the abandoned quarries/voids relating to pre-nationalisation period be properly backfilled and biologically reclaimed. Filling of mine voids with fly ash has been considered as one of the viable options by the coal companies. The earlier Performance Audit (vide para no. 7.1.3) highlighted the inadequacies in dumping of fly ash in the mines of ECL and MCL. Report pointed out that uniform policy for the dumping of fly ash was not adopted by MCL. MCL permitted to dump fly ash for consideration/charges. However, no charges were recovered for dumping of fly ash at South Balanda mines which deprived, MCL of revenue amounting to ₹4.78 crore. Report also highlighted that ECL permitted five thermal power plants to dump fly ash in eight abandoned mines without consideration. The Performance Report recommended that CIL should frame

uniform and scientific policy towards use of fly ash in the mines so as to ensure environmental sustainability.

Ministry, in the ATN (November 2021), while accepting the facts, stated that a committee had been formed to fix the rate for filling of fly ash and the same was still under process.

As per the uniform policy for fly ash disposal, as approved by CIL (April 2020), all the subsidiaries were required to identify the mine voids of the abandoned mines for disposal of fly ash. Also, lease rent paid to the State Government by the subsidiaries was to be recovered from power plants supplying the fly ash as per the said policy. During the audit, the following violations were observed:

- NTPC thermal power plant continue to dump fly ash at South Balanda mines of MCL, till September 2020. MCL did not raise any bill. Thus, revenue of ₹1.03 crore¹⁸ was foregone.
- ECL continued giving permission for fly ash dumping in its mine voids without any charge. ECL further allowed (April 2020) to dump fly ash in void mines of Kajora and Mugma area without any charge. Thus, revenue of ₹0.35 crore, was foregone.

Management stated (February 2023) that:

- MCL stated that finalisation of rate for filling of fly ash was under process as per the report submitted by the Committee.
- ECL while accepting stated that presently, no charges for dumping of fly ash was being levied on thermal power plants. It also stated that as and when decision is taken by the competent authority to levy the charges, the same would be claimed retrospectively. It also stated that uniform policy regarding dumping of fly ash has been adopted.

Ministry stated (July 2023) that as per guidelines of CIL, subsidiary companies would not charge the Power Plant/Agency for fly ash filling in the abandoned voids of mines. However, MCL charges only the amount levied by the State Government on the company and expenditure incurred by MCL for supervision, watch and ward of the work. MCL recovered an amount of ₹94.95 lakh from NTPC for dumping of fly ash at Jagannath mine. Ministry also stated that in ECL, recovery of annual cost of fly ash filling would be made by the Area authority in due course following the methodology adopted for calculation of annual cost to be charged.

The earlier Performance Audit Report highlighted absence of uniform policy for dumping of fly ash in MCL. Though MCL permitted to dump fly ash for consideration to a power

¹⁸ *Considering prevalent fly ash filling rate being realised by Jagannath mine (MCL) at the rate of ₹0.71 per cubic meter.*

plant and a steel company, no charges were recovered for dumping of fly ash from one company. Report also highlighted that ECL permitted five thermal power plants to dump fly ash in eight abandoned mines without consideration. Though MCL recovered the charges after being pointed out by Audit, ECL is yet to recover any amount from the thermal power plants for dumping of fly ash.

1.2.3.6 Adherence to regulatory conditions

As per EIA notification (September 2006) every coal project shall require prior Environmental Clearance (EC) from the concerned regulatory authority *i.e.* MoEF&CC before commencement of the mining activities. The EC issued by MoEF&CC specifies the maximum quantity of coal that can be extracted from the mines per year after compliance of various measures specified therein.

A. Infertuous expenditure

It is highlighted in the earlier Performance Audit vide para no 7.2.4 that Hurilong underground coal project, was rejected (August 1998) by MoEF&CC citing close proximity of the location of the project to Palamau tiger reserve forest. Yet, CCL, while following up (August 2007) the matter with MoEF&CC, acquired 6.58 acre non-forest land and constructed service building, besides equipping the area with overhead electricity transmission line. These facilities were created at a cost of ₹2.98 crore. However, MoEF&CC rejected (October 2007) the subsequent proposal also and hence the expenditure of ₹2.98 crore was rendered infertuous.

Ministry/Management through ATNs submitted from time to time stated that Ministry had been requested for necessary action regarding allocation of the block through e-auction. The block has been included in the list of Mine and Mineral Development Regulation blocks for allocation through e-auction.

Management, while accepting the fact, stated (February 2023) that instead of removing the existing infrastructure, CCL has requested the Ministry for reimbursement of incurred expenditure from the next allottee (non-CIL) of the block. Ministry (July 2023), endorsed the views of the Management.

The reply may be viewed in the light of the fact that despite various rounds of auction, MoC has not been able to allocate the mine to anyone. Hence, expenditure of ₹2.98 crore made by CCL was yet to be recovered and remains idle.

1.2.3.7 Rehabilitation and Resettlement caused by Mine Fire

The previous Performance Audit Report vide para 8.1.1 and 8.1.2 highlighted the problems of subsidence and fires of Raniganj coalfields (RCF) and Jharia coalfields (JCF). The problems of subsidence and fires of Raniganj coalfields (RCF) and Jharia coalfields (JCF), presently under ECL and BCCL respectively, are the result of unscientific mining carried

out by the erstwhile mine owners over more than 200 years of operations prior to nationalisation. The population living in the old mining areas increased unabated over the years though these areas were declared unsafe for habitation by the local administration. A High Level Committee was set up (December 1996) by the Ministry by co-opting members from the Ministry, other government departments, coal companies and the concerned State Governments to deal with the problem of fire, subsidence and rehabilitation. Based on the recommendations of the Committee, GoI approved (August 2009) a Master Plan to deal with fire, subsidence and rehabilitation and diversion of surface infrastructure within the leasehold areas of ECL and BCCL at an estimated investment of ₹9,773.84 crore for coalfields of Raniganj (₹2,661.73 crore) and Jharia (₹7,112.11 crore). In the Performance Report, it was recommended that remedial actions for mitigation and arresting the adverse impact of subsidence and fire at Jharia Coalfields on the environment may be expedited.

A. Implementation of Master Plans

ECL and BCCL were notified as the Implementing Agencies for handling the fire in the coalfields and for rehabilitation/ resettlement of their employees and their families from the unsafe areas of Raniganj and Jharia coalfields respectively. State Governments of West Bengal and Jharkhand, in their respective state jurisdiction, were responsible to rehabilitate and resettle other population (including encroachers) living in the respective areas.

A.1 Raniganj Master Plan

The Performance Audit Report highlighted that while implementing the Raniganj Master Plan (RMP), ECL shifted the families of all employees from unstable locations. The task relating to rehabilitation of non-ECL families was taken up by the State Government of West Bengal through its administrative agency *i.e.* the Asansol Durgapur Development Authority (ADDA). It conducted meetings with ADDA for timely elimination of constraints hindering the implementation of rehabilitation programme.

Audit noticed that the work of shifting of affected non- ECL families is yet to be completed.

The Management added (February 2023) that time frame for implementation of Raniganj Master Plan had expired in August 2019. A draft comprehensive proposal incorporating alternative rehabilitation package, time, and cost overrun had already been prepared and the same was under consideration of the State Government of West Bengal to finalise the revised Rehabilitation and Resettlement package.

Ministry (July 2023) stated that, at present, all seven identified fire sites were under control. Out of 10,144 houses/flats proposed to be constructed for non- ECL families, 7,344 flats had been constructed. 156 flat owners (2.12 *per cent*) had taken provisional possession certificate of the flats for shifting their residence to Bijaynagar resettlement site. The remaining 2,800 flats were still under construction. Ministry also stated that since the time frame for implementation of the Raniganj Master Plan had already expired and the revised

Master Plan was yet to be approved, CIL had released ₹300 crore to ECL in March 2023 for rehabilitation of non-ECL families for implementation of Raniganj Master Plan on the direction of the Ministry.

Recommendation no. 10: ECL should expedite the shifting of affected non-ECL families under the Raniganj Master Plan.

A.2 Jharia Master Plan

The Performance Audit Report highlighted that even after a lapse of nine years, since Jharia Master Plan was approved, BCCL did not formulate fire-fighting activities as envisaged therein. The fires thus continued to endanger the lives of the people residing in and around the fire area, besides adversely impacting the environment.

Report also pointed out that the stretch of National Highway 32 (NH) between Putki and Godhur, passing over coal bearing fire affected area was to be handed over to BCCL on lease by the State Government of Jharkhand, to facilitate excavation of coal. Although BCCL deposited (February 2012) ₹19.85 crore towards above, it did not obtain possession of the stretch.

Ministry in first ATN (November 2021) and subsequent ATNs updated the status of construction and occupation of quarters under Jharia Mine Plan (JMP). Regarding the stretch of NH 32, Ministry also intimated that the stretch of NH 32 had not come under its possession. BCCL was continuously pursuing the matter with NH authorities and the State Highway Authority Jharkhand.

Audit noticed that:

- Possession of the stretch of NH 32 is yet to be obtained by BCCL.
- With respect to surface fire covered area, excavation and back filling technique is being used to reduce the surface fire area. As per survey of National Remote Sensing Centre (NRSC) (October 2020/August 2021), 27 fire sites has been identified in Jharia area. Out of these, in 15 sites which were economically viable projects for mining, work has been started and was likely to be completed during 2023-28.
- The surface fire area had been reduced to 1.80 sq. km from previous 3.26 sq.km as per the latest study by NRSC in August 2021.

Management while accepting the fact, stated (July 2023) that

- Out of 27 identified fire sites, 15 fire sites were found economically viable, wherein work had been awarded and implementation started and schedule completion of work is 2024- 28.
- The status for construction of quarters for its employees and others is as under:

Table 1.14: Status of construction and occupation of quarters

Sl. No.	Quarters	BCCL Employees	Others	Total
1	To be constructed	15,713	54,159	69,872
2	Actually constructed	11,798	6,352	18,150
3	Percentage of (2) to (1)	75.08	11.73	25.97
4	Actually occupied	4,205	2,686	6,891
5	Percentage of (4) to (2)	54.51	42.29	38

Ministry stated (July 2023), that time frame for implementation of the Jharia Master Plan had already expired in August 2021 and the revised Master Plan was yet to be approved. A committee under the chairmanship of Secretary, Coal had been constituted (August 2021) to review the Jharia Master Plan. The committee had submitted its report. The report was discussed in the meeting held on 7 February 2023 chaired by the Cabinet Secretary and necessary steps for approval of the final report for implementation of Jharia Master Plan was under process.

The reply may be viewed in the light of the fact that 75 *per cent* of the quarters were constructed for the employees of BCCL whereas for non BCCL employees only 11.73 *per cent* quarters were constructed. Further, out of quarters constructed, only 55 *per cent* quarters were occupied by BCCL employees and non-BCCL employees occupied only 42 *per cent* quarters. Hence, balance 62 *per cent* of the quarters constructed were still lying vacant. Also, possession of the stretch of NH 32 is yet to be obtained by BCCL.

Recommendation no. 11: Remedial actions for mitigation and arresting the adverse impact on the environment due to subsidence and fire at Jharia Coalfields may be expedited.

1.2.4 Conclusion

The Performance Audit on “Assessment of Environmental Impact due to Mining Activities and its Mitigation in Coal India Limited (CIL) and its Subsidiaries” was undertaken and printed vide Report No. 12 of 2019. In Action Taken Notes on the Report, Ministry of Coal, stated that remedial action had been taken/ were under implementation on the issues raised in the Report. The audit was carried out to examine the action taken by the Ministry/ Management on the issues highlighted in the Report. Audit noticed that out of nine recommendation made in the Previous Performance Report, four recommendations have been complied with whereas compliance of three recommendations are still in progress. Two recommendations are partially complied with. These relate to efforts required to combat air pollution, water pollution, as well as concerning rehabilitation and resettlement for mine fire and monitoring of environmental activities. The capital works relating to air and water pollution control measures such as construction of two coal handling plant in Mahanadi Coalfields Limited and sewage treatment plant in eight mines of four subsidiaries

were still under progress. Even after lapse of more than 10 years since Jharia Mine Plan was approved, the latest study by National Remote Sensing Centre, Hyderabad (August 2021) indicated that the surface fire area existed in 1.80 sq. km, spreading over 27 sites. In respect of Raniganj Master Plan, the shifting of affected non Eastern Coalfields Limited families is yet to be carried out. The present installed capacity of solar projects in CIL and its seven subsidiaries was only 4.08 *per cent* of envisaged capacity of 3,000 MW of solar projects. There is a need to speed up the remedial measures to address environmental issues caused through mining activities of CIL and its seven coal producing subsidiaries by improving the oversight mechanism by the CIL and the Ministry.

Central Coalfields Limited

1.3 Violation of Forest Regulations resulting in avoidable expenditure of ₹8.70 crore

Amrapali Project/mine of Central Coalfields Limited violated provisions of Forest (Conservation) Act, 1980 and diverted 8.38 hectare of forest land to build and use road for transportation of coal from the mine to nearby Shivpur Railway Siding without prior approval of the Central Government and incurred avoidable expenditure of ₹8.70 crore as penalty.

Central Coalfields Limited (CCL), a subsidiary of Coal India Limited, is engaged in coal mining activities. Mining of coal, in forest areas, is to be carried out in conformity with stipulated forest regulations as prescribed by the Ministry of Environment, Forest and Climate Change (MoEF&CC).

Forest (Conservation) Act, 1980 (the Act), was enacted to check unauthorised diversion of forest land without adequate mitigating measures. The Act provided that the User Agency (CCL in the instant case), was required to obtain the prior approval of the Central Government for diversion of forest land for non-forest purpose with adequate mitigating measures such as creation and maintenance of Compensatory Afforestation, realisation of Net Present Value (NPV) of the diverted land, preparation of wildlife conservation plan etc. and was to apply before the respective State Government to seek such approval.

The Project Report of Amrapali mine with capacity of 12 Million Tonne per year (MTY), was approved in February 2012 for carrying out mining through outsourcing mode. Amrapali mine of CCL commenced mining activities from 2013-14. The capacity was further enhanced from 12 MTY to 14.4 MTY (March 2020) and from 14.4 MTY to 20.16 MTY (May 2021).

The Amrapali mining area was a remote location, surrounded by forest land and no basic infrastructure, viz. road, railway was available. Project report also provided for provision of basic infrastructure facilities including road, railway siding, coal handling plant (CHP) which was to be completed in four years from approval i.e. by February 2016.

After commencement of the production in 2014, without developing basic infrastructure for evacuation of coal, despatch of coal was commenced through Tori siding, which was at a distance of 65 KMs from the Amrapali mine. With the enhanced volume of production and to reduce the distance of road transportation, it was decided (October 2018) to evacuate the coal produced by Amrapali mine through nearby railway siding i.e. Shivpur siding (operationalised in March 2018) via Honhe village road at a distance of 6-7 KM from project. Further, the railway siding at Amrapali as provisioned in the Project Report, was under construction and the same had not been commissioned till date. Accordingly, to liquidate the coal stock, CCL initiated (October 2018) a proposal before the Board for loading and transportation of 175.2 lakh tonne coal by road, over a period of three years, which was approved (April 2019) and the above work was awarded (May 2019) to a contractor.

Audit observed that:

1. Before awarding of the contract, CCL did not ensure the availability of the required land for construction of road to facilitate commencement of transportation of coal. CCL requested (February 2019) the Government of Jharkhand for providing the required land for transportation of coal. However, CCL decided (July 2019) to commence the transportation of coal through village road i.e. from Honhe village to Shivpur siding without obtaining permission of State Government.
2. CCL in December 2021 realised that some part of the road which was being used for coal transportation was covered under forest land (8.38 Ha) and required prior approval of Central Government for diversion, which was not taken. CCL filed (December 2021), an application with the Forest Department, Government of Jharkhand for regularisation and approval of diversion of forest land for construction of road.
3. The Forest Department viewed (March 2022) this as a severe irregularity and offense, as the land was already in use by CCL for transportation of coal by trucks through the forest land without obtaining prior approval of Government of India as mandated in the Act.
4. Stage-I Forest clearance¹⁹ (FC) was granted by MoEF&CC (September 2022) with the conditions which required CCL to deposit the cost related to Compensatory Afforestation, Net Present Value of the diverted land, penal NPV and cost of plantation in Jharkhand CAMPA²⁰ account. Forest Department of Jharkhand raised (October 2022) a demand on CCL and asked CCL to pay ₹11.18 crore out of which

¹⁹ *Stage I of forest clearance, under the FC Act, is the in-principle agreement on a proposal for forest land diversion or clearing for non-forest use. This stage usually includes conditions such as: transfer, mutation, and declaration of equivalent non-forest land for compensatory afforestation Funds for raising compensatory afforestation. The formal approval for forest clearance is known as Stage II*

²⁰ *State level Compensatory Afforestation Fund Management and Planning Authority set up on the basis of the Supreme Court Order dated 10th July 2009*

₹8.70 crore was penalty for violation of forest regulations.

5. The CCL, for regularisation of encroachment and ex-post facto approval for use of forest land for construction of road, paid (November 2022) Penal NPV of ₹5.68 crore to MoEF&CC in addition to ₹3.02 crore as Compensatory Afforestation (CA) cost²¹ (which is ten times of normal Compensatory Afforestation cost of ₹0.33 crore).

Thus, transporting coal by road to Shivpur siding without obtaining prior permission/clearance of the Forest Department, in violation of the provisions of the Forest (Conservation) Act 1980, led to the avoidable expenditure of ₹8.70 crore (₹5.68 crore plus ₹3.02 crore) towards penal NPV and additional Compensatory Afforestation cost.

Management, while accepting the fact, stated that (February 2024):

- Amrapali project is one of the major mines which aimed to fulfil the target of Government of India of achieving one billion tonne coal production. Also, country requires enhanced domestic coal to reduce dependency on imported coal with cost optimisation and savings in foreign exchange. Thus, solely, relying on incurrence of additional expenditure of ₹8.70 crore is not a fair view. Para had been issued relying only on the statutory provisions/ requirements of the Act.
- As Amrapali mine did not have its own siding, the only option for dispatch of coal was through road to Tori siding at about 65 KMs from Amrapali mine. To facilitate the increased coal off-take/ disposal, higher numbers of trucks were deployed for coal transportation. However, coal traffic/movement of trucks was severely restricted by Chatra district authorities due to increased pollution and incidents of accidents. Since the evacuation facility of coal from Amrapali mine was only by road, the stock gradually increased at the Amrapali mine.
- CCL decided (October 2018) to use Honhe to Shivpur siding road for the coal off-take/ disposal as it resulted in reduction of road distance and was beneficial in terms of environment and economic factors viz. lesser environmental impact, reduction in accidents, etc.
- Further, several letters were written by CCL to District Collector, Chatra; Department of Road Construction, Government of Jharkand and Secretary, Department of Road Construction, Government of Jharkand in the matter of road connectivity between Amrapali and Shivpur siding. Hence, in the given circumstances, it was the most viable option to start the transportation of coal from the new route and opt for regularisation by the respective authorities.

²¹ *The Department had demanded CA cost of ₹3.35 crore (ten times) instead of normal CA cost of ₹0.33 crore. Thus, penal CA = ₹3.35 crore minus normal CA ₹0.33 crore, which is ₹3.02 crore*

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

- The para highlighted violation of forest regulations that led to imposition/ payment of penalty by CCL, which could have been avoided by adequate planning.
- Though Amrapali is a mega project, CCL failed to obtain necessary/ required forest clearance for transportation of coal by road. It is worth noting that CCL decided to commence the transportation of coal through village road from Honhe village to Shivpur siding in July 2019. Whereas it was only in 2021, it realised that some part of the road used for coal transportation was covered under forest land and required prior approval of Central Government. Thereafter, in December 2021, CCL filed an application for regularisation and approval for diversion of the forest land for construction of road.
- Communication with the various authorities related to Amrapali to Shivpur siding were taken up only from 2019 despite the fact that the coal production from Amrapali commenced in 2014. Timely action (during 2015 to 2017) by CCL management for obtaining prior permission for use of forest land could have saved CCL from penalty of ₹8.70 crore.

While endorsing (May 2024) the views of the Management, the Ministry of Coal stated that to prevent same type of occurrence at other projects in future, preventive actions were being taken and reviewed at appropriate level.

Thus, violation of forest regulations led to avoidable expenditure of ₹8.70 crore.

Chapter - II

**MINISTRY OF PETROLEUM AND
NATURAL GAS**

CHAPTER II: MINISTRY OF PETROLEUM AND NATURAL GAS

Bharat Petroleum Corporation Limited

2.1 *Idling of Time Charter Vessels and resultant infructuous expenditure of ₹470.56 crore*

Deficient planning in assessing the need for the creation of Storage and Infrastructure facilities coupled with deficient Supply and Logistics planning resulted in underutilisation of Time Chartered Vessels hired by BPCL and infructuous expenditure of ₹470.56 crore during the period from 2019-20 to 2022-23.

A Shipping Charter is an agreement between two or more parties called charter parties for hiring vessels under fixed terms and conditions. The charterer is an individual or organisation which hires the ship *i.e.*, BPCL for voyages. Time Charter Vessels are hired for a particular period varying from few months to few years. Under time charter contracts, payment is made at uniform rate on per day basis which is fixed during the execution of contract and per day cost of vessel will be same throughout the period irrespective of usage or idling of vessel.

Idle cost of Time Charter vessels occurs due to various factors which are broadly segregated by BPCL into two categories *i.e.* controllable and non-controllable. The controllable factor is augmentation of storage and infrastructure facilities while, the non-controllable factors are Port congestion, limited priority berthing, draft restrictions in ports etc.

An analysis of Time Chartered Vessels hired by BPCL (2019-20 to 2022-23) which were utilised for less than *75 per cent* revealed that:

- i. The cost towards idling of the LPG Time Charter Vessels was around *85 per cent* of the total idle cost and
- ii. The percentage utilisation of LPG Time Charter Vessels varied between *53 per cent* and *75 per cent* and of product vessels between *47 per cent* and *75 per cent*.

Thus, many vessels hired by BPCL during the period from 2019-20 to 2022-23 at a total hiring cost of ₹3,641.47 crore on Time Charter basis were kept idle for long duration out of the total period covered in contract resulting in substantial cost being incurred without any service or productivity to the Company.

The idle cost incurred by BPCL towards underutilisation of Time Chartered Vessels hired for LPG and for products during the period from 2019-20 to 2022-23 amounted to ₹1,092.26 crore (**Annexure V**).

Audit further observed that:

- i. Out of the total idle cost of ₹1,092.26 crore incurred during the period from 2019- 20 to 2022-23, ₹470.56 crore was on account of controllable factors accounting for 43.12 *per cent* of the total idle cost.
 - ii. The idle cost of LPG vessels in the FY 2022-23 (post COVID period) was ₹219.77 crore which accounted for 46.70 *per cent* of the total controllable idle cost.
- (Annexure V)**

BPCL/ Ministry in its response (March 2023/August 2023/December2023/February 2024) stated that 43.12 *per cent* of the total idle cost of LPG tankers are attributed to controllable reasons viz. Storage and Infrastructure issues. It further stated (August 2023) that augmentation of storage and related infrastructure is in progress at JNPT/Dahej which is likely to be completed in FY 2023-24, while work related to Aegis Mumbai is completed. However, these augmentations will not eliminate the idling of vessels completely. Management, while reiterating its earlier reply further added (December 2023) that Return on Investment is also to be considered while creating additional infrastructure facilities. Many a times such projects are not viable as vessel waiting is rather sporadic in nature for reasons like mismatch between the laycans (loading window) given by suppliers and the one required by BPCL, sudden congestions at ports, seasonality of the LPG demand in the country etc.

The Management/ Ministry response may be viewed in light of the fact that as import/ export is a continuous process and keeping the products in Time Chartered Vessels floating and idle for long duration by paying a significant Per Day Pro Rate (PDPR) to tide over storage constraints at refineries lacks justification.

Further, the company did not do any cost benefit analysis before arriving at a conclusion to float the Time Chartered Vessels with products rather than creating additional storage facilities. Since BPCL has incurred ₹470.56 crore during 2019-20 to 2022-23 as idle cost on Time Charter Vessels due to controllable factors, there is an urgent need for assessing the need for creation of storage facilities and prudent scheduling for the optimum utilisation of the Time Charter Vessels.

Thus, deficient planning in assessing the need for the creation of Storage and Infrastructure facilities coupled with deficient Supply and Logistics planning resulted in underutilisation of Time Chartered Vessels hired by BPCL and infructuous expenditure of ₹470.56 crore during the period from 2019-20 to 2022-23.

Indian Strategic Petroleum Reserves Limited

2.2 Creation of Strategic Petroleum Reserves in India

2.2.1 Introduction

The demand for petroleum products is increasing in India to support the rapid economic and social development. Availability of oil is vital for all countries, oil security is of particular concern for the countries like India with high oil import dependency which was around 70 per cent of consumption in 2003-04 and increased to 87.70 per cent of consumption in 2023-24. Major portion of country's crude oil requirement is being met from imports mainly from Middle East region. Any disturbance in this region can lead to disruptions in India's crude oil supply chain. It, therefore, becomes necessary for India to construct a reserve for buffer supply of crude oil, to deal with any disruption in the supply chain due to external reasons such as instability in the Middle East region, war, naval blockade, natural calamity etc. In exceptional circumstances, the buffer stock could also be used to deal with the situation of an abnormal increase in the world crude oil prices.

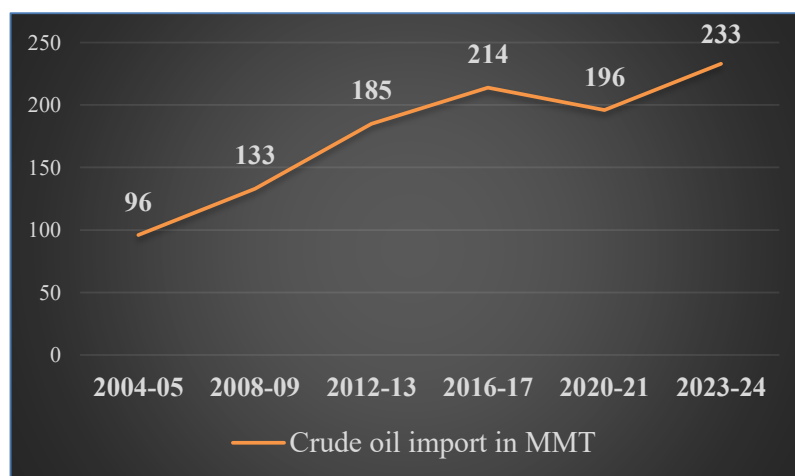


Figure 2.1: Crude oil import during 2004-05 to 2023-24

The Cabinet in January 2004, while noting the need for a strategic crude oil reserve of 15 MMT¹ in a phased manner, approved the construction of strategic crude oil reserves of 5 MMT (subsequently revised to 5.33 MMT in June 2011) at three locations (Visakhapatnam, Mangalore and Padur, near Mangalore) under Phase-I². A Special Purpose Vehicle (SPV), namely Indian Strategic Petroleum Reserves Ltd. (ISPRL) was formed on 16 June 2004 as a wholly owned subsidiary of Indian Oil Corporation Limited (IOCL) to implement and manage the proposed strategic crude oil storage projects. ISPRL

¹ Equivalent to 14 days cover on consumption basis and 19 days cover on import basis considering the projected demand of products and oil import dependency by the end of the 10th Five Year Plan i.e., in 2006-07

² As per approval of Cabinet Committee on Economic Affairs (January 2006) for financing mechanism towards creation of strategic crude oil storages, time period of nine years was fixed for Phase-I project.

further became a 100 *per cent* owned subsidiary of Oil Industry Development Board³ (OIDB) on 9 May 2006. ISPRL has implemented the project at three locations, with Engineers India limited (EIL), a Public Sector undertaking under the Ministry of Petroleum and Natural Gas (MoPNG) as the Project Management Consultant (PMC).

Subsequently, the Integrated Energy Policy (IEP), approved by Cabinet in December 2008, also recommended that a reserve equivalent to 90 days of oil imports by 2011-12 or latest 2012-13 should be maintained for strategic cum buffer stock purposes. As per an Approach Paper prepared by MoPNG in December 2009, the requirement of 13.32 MMT⁴ capacity was worked out to cover 90 days of storage of net import by 2020. The Cabinet accorded “in principal” approval for establishing 6.5 MMT additional underground rock cavern Strategic Petroleum Reserves (SPRs) at two locations, Chandikhol in Odisha (4 MMT) and Padur in Karnataka (2.5 MMT) under Phase-II on 27 June 2018. Timeframe for Phase-II project had been decided six years for Chandikhol and five years for Padur from the date of award of concessionaire contract. Request for Proposal (RFP) for engagement of concessionaire has been made by ISPRL for only Padur in February 2024, however, no response for the same has been received so far. Further, process of land acquisition for above two locations was in progress (August 2024).

2.2.2 Organisation Overview

ISPRL has been mandated to operate the storage facilities of core critical sovereign crude oil reserves apart from operating the facilities as custodian of crude oil for any other entity that Government decides. It shall also coordinate the release and replenishment of strategic crude oil stock during supply disruption through an Empowered Committee of the Government of India.

ISPRL Board of Directors under the chairmanship of Secretary, MoPNG is the governing body of ISPRL for taking crucial decisions related to the organisation. The Chief Executive Officer and Managing Director (CEO & MD) of ISPRL, appointed by the Board, is the organisation head and responsible for taking operational and administrative decisions.

With respect to operational activities at locations, Head Sites (In-charge of ISPRL caverns sites) are responsible for operations and maintenance of the plant on day-to-day basis and comply all statutory requirements according to rules and regulations. The Head Sites reports to Deputy CEO who further reports to CEO & MD of ISPRL.

³ *OIDB was established on 13 January 1975 under the Oil Industry (Development) Act, 1974 to provide financial assistance for development of Oil Industry. OIDB is functioning under the administrative control of Ministry of Petroleum & Natural Gas. The main objectives are to make grants, advance loans and make equity investments for establishment of facilities for production, handling, storage & transportation of crude oil, refining & marketing of petroleum products, & fertilizer, experimental or pilot studies in any field of oil industry, training of personnel, etc.*

⁴ *Keeping in view of 90 days norms, 30.82 MMT was already available/under constructions to cover 63 days requirement, hence remaining requirement of 27 days crude oil storage capacity worked to 13.32 MMT (44.14 MMT-30.82 MMT) by 2019-20 [44.14 MMT (179.03 MMT/365*90)].*

2.2.3 Physical Performance

The facilities with storage capacities of 5.33 MMT have been constructed and commissioned at Visakhapatnam (1.33 MMT), Mangalore (1.50 MMT) and Padur (2.50 MMT) in underground rock caverns from May 2015 to December 2018. Capital cost for constructing these strategic storage facilities was originally estimated at ₹2,396.83 crore based on September 2005 prices which underwent upward revision to ₹4,098.35 crore (November 2013/August 2014). Summary of estimates and physical performance of the three storages facilities are given in Table:

Table 2.1 Summary of estimates and physical performance of storages facilities

Particulars	Visakhapatnam	Mangalore	Padur	Total
Capacity of storages in MMT	1.33	1.50	2.50	5.33
Estimated cost of construction (₹ in crore)	671.83	731.72	993.28	2,396.83
Revised estimated cost of construction (₹ in crore)	1,178.35	1,227.00	1,693.00	4,098.35
Actual cost of construction (₹ in crore)	1,126.86*	1,208.00	1,692.00	4,026.86
Actual capacity of caverns space held with ISPRL as on 31 March 2024 [^]	0.73	0.75	2.50	3.98
Quantity of crude oil filled in the caverns held with ISPRL as on 31 March 2024 in MMT	0.52	0.01	2.38	2.91
Cavern capacity empty in MMT (held with ISPRL)	0.21	0.74	0.12	1.07
Empty Cavern capacity (in %)	28.77	98.67	4.80	26.88

* Visakhapatnam caverns have two compartments i.e. Cavern-A (1.03 MMT) and Cavern-B (0.30 MMT). Cavern-A is kept with ISPRL and Cavern-B is kept with Hindustan Petroleum Corporation Limited (HPCL). Total cost of ₹1,126.86 crore was shared between ISPRL and HPCL in cavern capacity ratio i.e. 1.03:0.30 and hence cost of ₹872.68 crore was born by ISPRL and ₹254.18 crore was born by HPCL.

[^] Capacity of caverns space was considered excluding caverns kept with HPCL (0.30 MMT in cavern-A and 0.30 MMT cavern space in compartment-B at Visakhapatnam against leasing the strategic petroleum reserves) and a foreign oil company (0.75 MMT at Mangalore). Hence, out of total quantity of 5.33 MMT, ISPRL held only 3.98 MMT crude oil (0.73 MMT at Visakhapatnam, 0.75 MMT at Mangalore and 2.50 MMT at Padur).

Out of the total cavern capacity of 5.33 MMT, capacity of 1.35 MMT (25 per cent) was not held with ISPRL/leased out and of the balance capacity of 3.98 MMT held with ISPRL, 1.07 MMT (27 per cent) remained empty as on 31 March 2024.

2.2.4 Financial performance

The Cabinet Committee on Economic Affairs (CCEA) approved funding for strategic reserves in January 2006. According to CCEA approval, the estimated cost of the 5 MMT strategic reserves was ₹11,267 crore over nine years⁵ with ₹2,397 crore as capital cost for

⁵ Six years for construction of caverns and three years for filling of crude oil caverns from the approval of CCEA in January 2006.

three caverns and ₹8,870 crore for filling up of caverns with crude oil. The capital cost for creation of storage caverns was met from the equity capital of ₹3,790.05 crore contributed by OIDB upto March 2024.

As per CCEA approval (March 2015), funding for crude oil to be filled in the caverns and Operation & Maintenance (O&M) expenditure was to be met from Gross Budgetary Support (GBS). Consequently, Government approved ₹4,948 crore in March 2015 and ₹3,184 crore in April 2020 for purchase of crude oil to be filled in caverns. The O&M funds are released by the Government annually to meet out day to day operational activities of ISPRL.

Financial performance of the ISPRL from 2017-18 to 2023-24 was as given in Table:

Table 2.2 Financial performance of ISPRL

(₹ in crore)							
Particulars	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Total Assets	3,562.34	3,669.61	4,246.33	3,662.87	3,725.15	3,502.64	3,671.75
Property, plant and equipment	1,777.97	3,352.45	3,385.16	3,280.09	3,179.96	3,081.07	2,982.19
Equity	3,685.37	3,775.87	3,775.87	3,775.88	3,790.05	3,790.05	3,790.05
Other Equity ⁶	-165.95	-233.22	-334.84	-435.36	-534.67	-631.68	-720.38
Liabilities	42.92	126.95	805.03	322.35	469.77	344.27	602.08
Revenue from Operations	-	-	-	-	-	2.06*	10.48*
Revenue from Other Income	0.26	3.45	4.54	8.61	8.96	149.66^	145.3^
Expenses	60.23	70.62	105.00	106.51	108.27	248.73^	244.51^
Profit (Loss) before Taxation	(59.97)	(67.17)	(100.46)	(97.90)	(99.31)	(97.01)	(88.70)
Tax Expenses (Deferred Tax)	-	-	1.14	-	-	-	-
Profit (Loss) for the year	(59.97)	(67.17)	(101.60)	(97.90)	(99.31)	(97.01)	(88.70)

*ISPRL earned operating income from a foreign oil company & MRPL⁷ against pumping charges as well as lease rent from HPCL against leased cavern space of 0.30 MMT.

^From 2022-23, grant received from Government has been considered as income by ISPRL and related expenditures made from grants are being shown in Statement of Profit & Loss. Earlier, grants along with expenditure incurred against the same were not being accounted for in Statement of Profit & Loss.

It is evident from the above that ISPRL has been a loss making entity since inception due to lack of revenue from operations while expenses in the nature of depreciation and amortisation continue to be incurred.

To make ISPRL financially self-sustainable organisation, CCEA approved (July 2021) commercialisation of 30 per cent leasing of caverns space and 20 per cent trading of crude

⁶ Other equity represents retained earnings of ISPRL. Due to accumulation of loss in the Financial Statements of ISPRL, retained earnings were in negative.

⁷ Mangalore Refinery and Petrochemicals Limited

oil by ISPRL. Subsequently, ISPRL had sold 1.298 MMT crude oil to HPCL (0.537 MMT) and MRPL (0.761 MMT) upto March 2024 for the purpose of creating leasing space in caverns. The basic value of crude oil sold to oil companies was ₹5,378.02 crore (excluding VAT amount of ₹118.32 crore⁸). After TDS and other deduction amounting to ₹5.53 crore made by oil companies (HPCL and MRPL), ISPRL deposited realised amount of ₹5,372.49 crore in Bharatkosh⁹ account of Government of India. ISPRL had also entered into an agreement with HPCL (February 2024) for leasing out 0.30 MMT cavern space at Visakhapatnam effective from January 2024.

2.2.5 Scope of Audit and Limitations

A. Scope of Audit:

Audit covered the planning and execution of Phase I for creation of strategic crude oil reserves of 5.33 MMT at three locations viz: Visakhapatnam, Mangalore and Padur. Audit also covered progress of purchase and filling up of crude oil storage caverns, release and replenishment, maintenance and operation of strategic crude oil caverns since filling of first crude oil in Visakhapatnam cavern in May 2015. Audit covered the period from 2017-18 to 2021-22 (updated up to March 2024).

B. Audit Limitations:

Even after repeated requests, the following documents/information were not provided to Audit:

- Correspondence/documents containing engagement of foreign consultant, approval of preparation of Detailed Feasibility Reports, approval of selection of locations in respect of Phase-I.
- Revised Detailed Feasibility Report of Mangalore project for 1.5 MMT under phase I along with its approval.
- Copy of final “Strategic Petroleum Storage Bill” submitted to MoPNG on 4 August 2004.
- Annexure referred in Note for the Cabinet Committee on Economic Affairs dated 22 December 2005.

ISPRL/ Ministry stated (March 2023/ November 2023) that due to records being very old, requisitioned documents could not be made available in spite of their best efforts.

2.2.6 Audit Findings

Audit reviewed the planning for creation of strategic crude oil reserves as decided by the Government in January 2004, financing mechanism for strategic crude oil reserves, building up of strategic crude oil caverns, construction of caverns and operation of strategic

⁸ Out of ₹118.32 crore an amount of ₹50.43 crore was deposited by HPCL and ₹67.89 crore was deposited by ISPRL.

⁹ BHARATKOSH is the initiative of O/o Controller General of Accounts, M/o Finance, and Government of India to provide one stop services to deposit any fees/fine/other money into the Government Account. It converges all the Civil Ministries/ Departments of Government of India.

petroleum reserves. The findings of Audit in these areas are discussed in subsequent paragraphs:

2.2.6.1 Planning for creation of Strategic Petroleum Reserves (SPRs)

Planning for creation of strategic crude oil reserves was started with approval of proposal in July 1999 for preparation of Detailed Feasibility Report (DFR) for building the strategic reserves in India by GoI/ MoPNG. The DFR was approved by the Committee set up by MoPNG in March 2001.

Subsequently, MoPNG had submitted proposal regarding creation of 5 MMT of strategic storage and formation of ISPRL to the Cabinet in December 2003 which was approved by Cabinet in January 2004. Key decisions on creation and operation of caverns were taken during the period 2004 to 2021. Following table brings out the change in approach of MoPNG/ ISPRL towards creation and operation of caverns:

Table 2.3: Key decisions on creation and operation of Caverns (Phase-I)

Date	Key decision
January 2004	The Union Cabinet approved creation of 5 MMT strategic crude oil storage in January 2004. In the meeting, Union Cabinet also directed that details of financing mechanism of the same be settled by MoP&NG with Ministry of Finance (MoF).
January 2006	The CCEA approved funding for strategic reserves. According to CCEA approval, the estimated cost of the 5 MMT strategic reserves was ₹11,267 crore over nine years with ₹2,397 crore (₹672 crore for Visakhapatnam, ₹732 crore for Mangalore and ₹993 crore for Padur) as capital cost for three storages and ₹8,870 crore as estimated cost of filling up of caverns with crude oil. The entire cost for SPRs was to be met from the existing funds available with OIDB.
June 2011	CCEA approved enhancement of the capacity of caverns at Visakhapatnam from 1 MMT to 1.33 MMT. Resultantly, total capacity of caverns was increased from 5 MMT to 5.33 MMT. Estimated cost of Visakhapatnam was increased to ₹1,038 crore (Further revised to ₹1,178 crore in second revised estimates in November 2014).
June 2011	Cabinet Committee on Infrastructure (CCI) directed to explore the feasibility of SPR facilities being made available to other countries/multi-national companies for storage of crude oil at different locations in India.
September 2012	On the recommendation of MoF (July 2011) regarding treating the cost of crude oil to be filled in caverns as plan capital expenditure, MoP&NG approached Planning Commission and the Planning Commission allocated fund of ₹4,948 crore under Gross Budgetary Support (GBS) in the 12th five year plan (2012-17) in September 2012.
	CCEA while approving allocation of ₹4,948 crore for purchase of strategic crude oil for Visakhapatnam mentioned that MoPNG would continue to

Date	Key decision
	explore alternative models for financing the remaining cost of crude oil to fill the Mangalore and Padur cavern.
March 2017	Approval of Union Cabinet for filling of crude oil in cavern A at Mangalore with crude oil of a foreign oil company at its own cost (cost to be borne by the foreign oil company) under an Agreement signed with ISPRL.
November 2018	Union Cabinet approved filling of crude oil in Padur strategic petroleum reserves which had already been implemented for filling of crude oil in cavern-A at Mangalore. However, MOU (made by ISPRL with the foreign oil company in October 2019 for Padur SPR) could not be executed as MoP&NG itself procured the crude oil with Government fund.
July 2021	CCEA approved to allow ISPRL to utilise part of the petroleum reserves created under Phase-I for commercialisation purposes. In this regard, 30 <i>per cent</i> of the crude reserves under Phase-I of SPR was decided to be leased and 20 <i>per cent</i> of the crude oil capacity was allowed for sale/purchase by ISPRL while keeping 50 <i>per cent</i> capacity as strategic.

2.2.6.2 Planning for assessment of the quantum of strategic reserves

Creation of 5 MMT (revised to 5.33 MMT in 2011) of strategic reserve was equivalent of about 14 days cover on consumption basis and 19 days cover on import basis with base year of 2006-07.

In this regard, Audit observed the following:

- i) The planning and assessment of number of days of import cover for estimated reserve of 5 MMT was based on the period 2006-07. It did not account for the probable increase in the reserves due to planned construction period for six years and time for filling of crude oil in the caverns (three years).
- ii) As against approved timeline of six years, ISPRL took around 9 to 12 years in construction of strategic crude oil caverns whereas five years were taken in filling of crude oil against envisaged period of three years.
- iii) With available capacity of 5.03 MMT (excluding cavern B at Visakhapatnam held by HPCL), the SPRs could provide import cover for 7.88 days¹⁰ and consumption cover of 7.83 days¹¹ which was far less than envisaged planned cover of 19 days on import basis and 14 days cover on consumption basis.

¹⁰ Import during 2023-24 was 233.118 MMT hence per day requirement is 0.6387 MMT (233.118 MMT/365 days). With available capacity of 5.03 MMT could cover for 7.88 days (5.03 MMT/0.6387).

¹¹ Consumption during 2023-24 was 234.43 MMT hence per day requirement is 0.6423 MMT (234.426 MMT/365 days). With available capacity of 5.03 MMT could cover for 7.83 days (5.03 MMT/0.6423).

Management stated (March 2023) that 19 days import cover of strategic storage was projected to be achieved by establishing five MMT capacity of SPR, making total storage of petroleum product with country equivalent to 90 days including storage capacity in line with the norms adopted by the member countries of International Energy Agency. Ministry further added (November 2023) that India is the third largest consumer of energy in the world with an upward trajectory of energy demand. Hence, whatever is the quantum of SPRs planned, they will require a revision in terms of India's growing need. Further, the development of Strategic Petroleum Reserve is a capital-intensive programme for which funds have to be arranged.

Reply may be viewed in light of the fact that as crude oil consumption had increased significantly (from 111.63 MMT in 2004-05 to 234.30 MMT in 2023-24) during these intervening periods, therefore, need for strategic reserves would only go up. Envisaged reserve of 5.03 MMT for meeting 19 days requirements was with reference to imports in 2006-07, however, ISPRL/ Ministry have not reviewed and revised the target of strategic reserve keeping in view the growing consumption and imports.

Recommendation no. 12: ISPRL/MoPNG need to reassess the volume of strategic petroleum reserves, considering current consumption requirements and the progress made so far.

2.2.6.3 Inordinate delay in decision regarding strategic cum commercial model

In CCEA Note of MoPNG (December 2005) it was stated that being a strategic reserve, it may be funded by the Government. Subsequently, a consultant was engaged (January 2006) for exploring other funding options for filling of crude oil. Thereafter, alternate business model was also suggested by Cabinet Committee on Infrastructure (in 2011), Planning Commission (2011) and CCEA (2015) to explore strategic cum commercial model. Audit, however, observed that no significant steps to explore strategic cum commercial model were taken until agreement with a foreign oil company in February 2018. The Ministry took 12 years (from CCEA approval in January 2006 to agreement with the foreign oil company in February 2018) for implementation of alternative arrangement for filling of crude oil.

Management/ Ministry stated (March/ November 2023) that over the years, there have been many changes in political as well as economic scenarios and since the concept of SPR was very new for the country and given its unique nature, decisions related to SPRs were reviewed time and again in order to remain relevant with time. Changes in policy are necessitated due to strategic reasons depending on the global energy landscape. Having an inflexible policy for eternity defeats the purpose of SPRs.

Management/ Ministry reply may be viewed in the light of the fact that there was considerable delay of almost 15 years, from the approval (January 2006), in commercialisation of the project which was completed in July 2021.

2.2.6.4 Project execution of storage caverns

The strategic storage facilities of 5.33 MMT were completed and commissioned between May 2015 and December 2018 at Visakhapatnam (1.33 MMT), Mangalore (1.5 MMT) and Padur (2.5 MMT) in underground rock caverns. Capital cost for constructing these strategic storage facilities was originally estimated at ₹2,397 crore at September 2005 prices which underwent upward revision to ₹4,098 crore. Actual cost of construction of the caverns at three locations was ₹4,026 crore.

Audit findings on execution of strategic storage facilities are discussed in the succeeding paragraphs:

A. Engagement of Project Management Consultancy Services

The Cabinet while approving creation of strategic storage in January 2004, directed that details of financing mechanism of the same be settled by Ministry of Petroleum and Natural Gas with the Ministry of Finance (MoF). Further, on review of status of strategic crude oil storage (November 2004), MoF commented that Indian Oil Corporation Limited (IOCL) and other Public Sector Undertakings (PSUs) were not proposing any financial stake in the strategic crude oil storage and proposed that entire burden for the same be borne by OI DB which was agreed to by MoPNG. However, timeline for framing the financial mechanism was not fixed for creation of strategic crude oil storage. In December 2005, MoPNG proposed the financial mechanism for crude oil strategic reserve for approval to CCEA which was approved by CCEA in January 2006.

Meanwhile, EIL had been engaged (May 2004) for Project Management Consultancy Services for pre-project activities on nomination basis at an estimated fees of ₹27.55 crore. While the EIL as PMC was being engaged, it was decided (May 2004) by IOCL¹² that as necessary expertise in design, construction, operation & maintenance of the underground storage in rock caverns was not fully available in the country, a Foreign Back-up Consultant (FBC) would also have to be engaged by EIL for the specialised areas of work. Audit observed that though EIL as PMC was engaged in May 2004, however formal work order for consultancy was issued to EIL only in November 2006 due to delay in approval of financing mechanism.

Ministry in July 2005 directed EIL not to open the price bids of FBC as grant from OI DB was pending. The work order for FBC was finally awarded in December 2006. Due to delay in engagement of PMC and FBC, Notice Inviting Tender (NIT) for construction of caverns at Visakhapatnam could be issued only in March 2007.

¹² *ISPRL was formed on 16 June 2004 as a wholly owned subsidiary of Indian Oil Corporation Limited (IOCL) to implement and manage the proposed strategic crude oil storage projects. The ISPRL further became a 100 per cent owned subsidiary of Oil Industry Development Board on 9 May 2006.*

Time period of two years taken in approval of financing mechanism for the strategic crude oil reserves resulted in increase in PMC fee from ₹27.55 crore to ₹44.19 crore (excluding foreign consultant) due to annual escalation of seven *per cent* and pay revision of the manpower of PMC. Thus, absence of timely decision on financing mechanism resulted in increase of PMC fee by ₹16.64 crore.

ISPRL/Ministry while noting the observation for future projects stated (March 2023/November 2023) that delay in placing formal work order was mainly due to various pre-project activities viz. land acquisition and various statutory approvals including environmental clearances in addition to approval of financing mechanism. Placement of order before completing pre-project activities can result in time and cost overrun and contract litigation.

ISPRL/ Ministry reply needs to be viewed considering the fact that in October 2004, ISPRL itself asked EIL to go ahead to perform all the required activities (preparation of tender documents, invite bids for engaging the back-up consultant, etc.) for implementation of the project without any delay. However, later on, Ministry directed EIL (July 2005) not to open price bids of the foreign back-up consultant due to pending release of grant from OIIB. Additionally, pre-project activities such as land acquisition and securing various statutory approvals, including environmental clearances, were carried out in parallel from September 2004 to July 2009 for three caverns, while EIL was issued a formal work order only in November 2006. Therefore, the delay in placing of work order for PMC services was due to delayed approval of financing mechanism.

B. Time and cost overrun of project

As per CCEA approval of January 2006, it was envisaged that crude oil will be filled in three years following the completion of construction of caverns i.e., from January 2012 to January 2015 for all the three locations. Creation of SPRs was approved to be utilised at the time of any emergencies arising and were to be completed in nine years i.e., by 2015. However, the construction of caverns followed by filling of crude oil could be completed by September 2020 after delay of five years. The following table indicates delay in construction and commissioning of caverns:

Table No: 2.4: Time overrun in completion of caverns

	Vishakhapatnam	Mangalore	Padur
Target date of mechanical completion	October 2011	September 2013	January 2014
Actual date of mechanical completion	December 2014	April 2016	December 2017
Time overrun in completion of caverns (in months)	38	31	47

It can be seen from the above table that as against approved timeline in CCEA approval, time overrun in construction of caverns ranged from 31 to 47 months.

In this regard, Audit observed that:

- i) Though the Cabinet had approved strategic storage in January 2004, however, financing mechanism to carry out the further activities could not be finalised by the Ministry in consultation with stakeholders¹³ till January 2006 and there was insignificant progress in creation of strategic crude oil reserves till that date. Thus, due to absence of financing mechanism, subsequent activities like acquisition of land, environmental clearance, engagement of contractors for construction of caverns, etc. could not be accelerated for completion of project in time.
- ii) At Vishakhapatnam for 1.33 MMT cavern, total 68 acres of land was acquired on lease from Visakhapatnam Port Trust (38 acres) and from Eastern Naval Command (30 acres). Audit observed that ISPRL took eight months from the approval of project (January 2004) to approach (September 2004) the Eastern Naval Command (ENC) as well as Visakhapatnam Port Trust (VPT) for acquisition of land in respect of Visakhapatnam project. However, due to the pendency for release of fund by OADB, acquisition of 38 acres of land could only be approved by ISPRL Board in May 2006. However, for acquisition of 30 acres of land from ENC, there was no fund constraint, as ₹1.00 per annum was to be charged as token money for 30 acres of land by ENC. After resolving all the formalities, MoU was signed on 1 May 2007 by ISPRL with ENC for 30 acres of land.
- iii) Besides above, there was also inordinate delay in acquisition of land at Mangalore. ISPRL took seven months from approval in January 2004 in requesting the Karnataka Industrial Development Board (KIADB) for assistance in acquiring the proposed site at Mangalore. The proposed location was falling in Mangalore Special Economic Zone (MSEZ) and overlapping with Mangalore Refinery and Petrochemicals Limited (MRPL). KIADB advised (December 2004) ISPRL to sort out the location with MRPL mutually. Audit however, observed that ISPRL took up the matter with MRPL only in June 2006 and MRPL accordingly conveyed (September 2006) its acceptance to the Government of Karnataka for allocating the identified land to ISPRL. Although clearance was given by MRPL, however, as the identified land was falling within Special Economic Zone (SEZ), approvals for the same had to be obtained from Mangalore SEZ Limited (MSEZL) authorities. MoPNG requested (16 October 2006) CEO, Mangalore SEZ to create the working group for facilitating site related issues. Mangalore SEZ in October 2006 communicated in principle approval for allotment and further action. However, instead of acquiring the land allotted by MSEZL in 2006 itself, ISPRL requested (August 2007) MSEZL for supplementary investigations for expansion of Mangalore Cavern Capacity. Audit however, observed that the Cabinet had already approved the capacity of Mangalore cavern and further process towards expansion of Mangalore cavern capacity resulted in time overrun as the final capacity

¹³ *National Security Council, Planning Commission, Ministry of Defence, Ministry of Home Affairs, Ministry of Environment & Forest, Departments of Expenditure and Shipping.*

of Mangalore cavern remained as per approval of the Cabinet. Due to lapse of time in the process of expansion of cavern capacity, acquisition of land got delayed by almost two years and was finally acquired in July 2009.

- iv) For Padur, there was delay in cadastral survey which resulted in to delay in possession of land. In respect of pipeline route survey at Padur location, Surveyor had pointed out (January 2009) mistakes in marking of original Field Measurement Books (FMBs) of Padur site (pipeline Route Survey) for acquisition. After resolving all the issues, land for Padur could be acquired in May 2010 and November 2011 with area of 101.815 and 36.755 acres respectively (revised 37.35 acres in August 2017).
- v) Due to time overrun in the projects, estimated capital cost was revised from ₹2,397 crore to ₹4,098 crore (**Annexure VI**). Audit noticed that while the cost estimates were being revised, estimated cost of PMC (Mangalore and Padur)¹⁴ amounting to ₹136 crore was increased to ₹279 crore (105.15 *per cent* increase over initial cost). As approved by the CCEA in January 2006, construction of all the projects should have been completed by January 2012. However, projects could not be completed as per envisaged timeline and hence construction period of the project was extended upto August 2014 which resulted in extension of PMC for the project. Audit observed that out of increased amount of ₹143 crore (₹279 crore – ₹136 crore), ₹114 crore was increased due to escalation of rates only which could have been avoided by timely completion of the projects.

Management stated (March 2023) that ISPRL could place the formal work order only after financing mechanism was approved. Further, any application could have been made only after formation of SPV which was formed in June 2004 subsequent to which application was submitted in September 2004 within a period of three months for Vishakhapatnam. Also, delay was there due to time taken in approval by VPT Board and concerned Ministry. Regarding Mangalore, delays occurred in release of land from MRPL. Further, Ministry stated (November 2023) that land is a State subject which is contingent on the execution by State governments. Delay in land acquisition for big capital projects is a problem which is being dealt at the highest level.

ISPRL/ Ministry reply may be viewed in light of the fact that in March 2004 itself, MoPNG had asked IOCL to get in touch with the State Government of Karnataka and Andhra Pradesh to acquire the land in the name of SPV. Hence, acquisition of land was in progress (Since March 2004) even before formation of ISPRL, whereas financial Mechanism was approved in January 2006. Further, application for acquisition of land for Visakhapatnam and Mangalore was initiated in September 2004 after eight months. For Mangalore, although MRPL had given its approval in September 2006, however, it took further 33 months to take possession of the land. Hence, there was considerable delay in acquisition

¹⁴ *Time overrun in Visakhapatnam project was not considered as the same was due to change in scope due to increase in capacity of cavern from 1 MMT to 1.33 MMT and rock slide incident happened in April 2011.*

of land in addition to delay in approval of financial mechanism which resulted in overall delay and cost overruns in the whole project.

Recommendation no. 13: MoPNG/ ISPRL may finalise and secure financing mechanisms in advance to avoid delays and ensure timely completion of future projects.

Recommendation no. 14: MoPNG/ ISPRL need to establish a suitable mechanism to enhance synchronisation and coordination among various departments to facilitate faster approval processes and streamline land acquisition efforts to achieve the project timelines.

2.2.6.5 Operation of strategic petroleum reserves

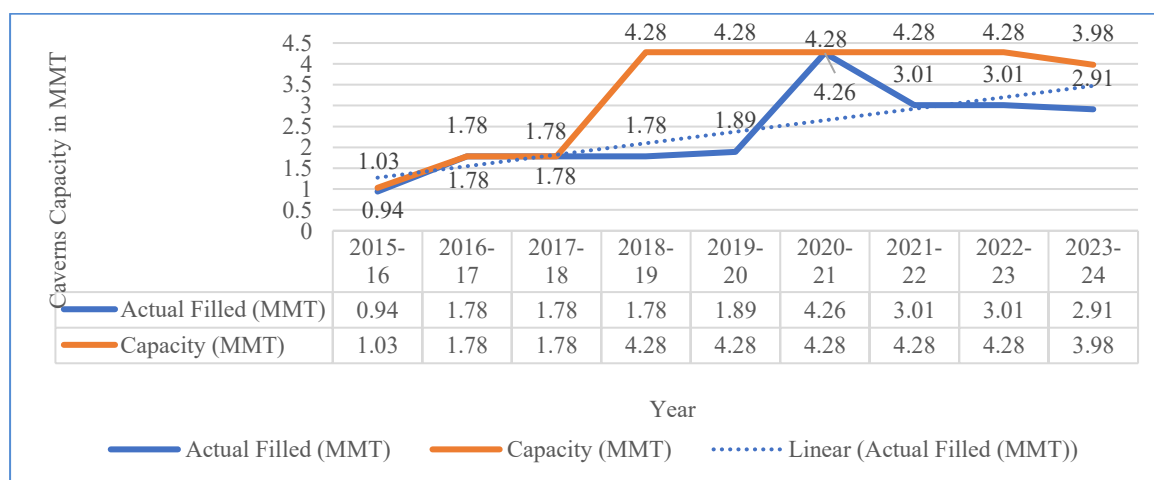
First strategic crude oil cavern (1.03 MMT) was completed at Visakhapatnam in December 2014. The 1st parcel of crude oil in cavern was received in May 2015 and cavern had been considered as commissioned accordingly. With the filling of crude oil in cavern, operational and maintenance activities of cavern had also started for which Government had provisioned (March 2015) O&M funds (₹179 crore annually for all the three locations including ₹47 crore for first completed cavern at Visakhapatnam). Caverns at two another locations (Mangalore and Padur) were commissioned in October 2016 and December 2018 respectively.

Audit findings on operational activities for strategic petroleum reserves (strategic caverns and strategic crude oil) are discussed in succeeding paragraphs:

A. Underutilisation of capacity of caverns

Year wise status of the crude oil filled against the capacity of caverns is given in graph below.

Figure 2.2: Utilisation of caverns capacity during 2015-16 to 2023-24



Source: Information provided by ISPRL. In February 2024, ISPRL leased out 0.30 MMT cavern space in Cavern A at Visakhapatnam and hence capacity was reduced from 4.28 MMT to 3.98 MMT.

From the graph, it can be seen that since 2018-19 when all the caverns had been commissioned, caverns remained underutilised (ranging 8.74 *per cent* to 58.41 *per cent*) except in 2020-21. Total capacity of caverns available with the ISPRL (excluding compartment given to HPCL/ foreign oil company) was 3.98 MMT as on 31 March 2024, however, only 2.91 MMT was filled with crude oil and balance capacity 1.07 MMT remained vacant, which resulted in underutilisation of the cavern capacity to the tune of 27 *per cent*. Current filled capacity of 2.91 MMT held by ISPRL as on 31 March 2024 could provide import cover only for 4.56 days¹⁵ as against the envisaged SPR capacity with import cover of 19 days.

ISPRL stated (March 2023) that caverns are kept partially emptied in line with mandate given to ISPRL for partial commercialisation. MoPNG however, did not offer any specific comment on underutilisation of caverns.

Management reply may be viewed in light of the fact that commercialisation was approved in July 2021 whereas most of the space in caverns was underutilised in 2018-19 (58.41 *per cent*) and 2019-20 (55.84 *per cent*) when the exploration for commercialisation was being made and by that time, no mandate was in place for commercialisation of empty space of caverns.

B. Operation & maintenance service at Visakhapatnam

ISPRL awarded (February 2018) Operation & Maintenance (O&M) contract of Visakhapatnam caverns to HPCL on nomination basis with a total cost of ₹11.87 crore for the period of one year from November 2018 (commencement date). The O&M contract was further extended till 31 March 2022 as per existing terms & conditions to operate Visakhapatnam site. HPCL was awarded the contract on nomination basis as HPCL had a very important presence in Visakhapatnam and would be better equipped to respond to the emergency as it has the necessary back up in terms of manpower and resources. If ISPRL operations are handled by HPCL, it would ensure smooth coordination between ISPRL and HPCL installations.

ISPRL also awarded the O&M service contract for other two caverns sites at Mangalore and Padur through open tender in August 2018 and December 2018 for two years period w.e.f. September 2018 and January 2019 respectively at a cost of ₹11.43 crore and ₹16.57 crore respectively. These contracts were further extended for 12 months. After expiry of these contracts, ISPRL invited fresh open tender for O&M work at Mangalore and Padur for one year in July and September 2021 and fresh O&M works of Mangalore facility was further awarded at ₹5.27 crore w.e.f. 1 September 2021 for one year period

¹⁵ *Considering import of 233.14 MMT crude oil during 2023-24, per day coverage of crude oil would be 0.6387 MMT (233.14/365) in 2023-24. Hence 2.91 MMT would cover 4.56 days keeping in view of import of 233.14 MMT.*

whereas in respect of Padur, O&M contract was awarded at ₹7.57 crore (including applicable taxes) for one year period effective from 1 January 2022.

Audit noticed that as per agreement, similar manpower (49 personnel) and services were being provided by both the contractors viz. HPCL (Visakhapatnam) and a private contractor (Mangalore and Padur¹⁶). Audit, however, observed that in spite of similar scope of work in both the contracts as well as lower capacity of Visakhapatnam facility (1.33 MMT) than Mangalore (1.50 MMT) and Padur sites (2.50 MMT), ISPRL awarded O&M services for Visakhapatnam on higher rate in comparison to other sites that too on nomination basis. After flagging of the issue by Audit (March/April 2021), regarding O&M contract for Visakhapatnam on higher rate in comparison to other two locations, ISPRL approached (September 2021) HPCL and stated that HPCL is charging a very high premium from ISPRL for O&M services than other ISPRL's site. Subsequently, HPCL agreed to reduce O&M cost and provide its O&M services at ₹6.55 crore from April 2022, which was 45 *per cent* lower than previous cost. Had, ISPRL made efforts for reducing the high O&M cost for Visakhapatnam site initially, an amount of ₹18.88 crore (till 31 March 2022) could have been saved (**Annexure VII**).

ISPRL stated (March 2023) that the agreement with HPCL was entered in November 2018 and was continued till March 2022. At the time of renewal, the O & M rates were reviewed in comparison with similar works at Mangalore and Padur. Accordingly, HPCL was advised to review their rates for the new contract. HPCL reworked their calculations and submitted their new offer of ₹6.55 crore plus taxes.

Ministry stated (November 2023) that initial contract envisaged deployment of regular employees for the O&M services and hence the quotation of HPCL was kept to take care of higher salaries to the personnel deployed. However, based on experience of ISPRL, the O&M service contract was renegotiated with assistance from MoPNG and the cost could be brought down.

ISPRL/ Ministry reply may be viewed in light of the fact that ISPRL had extended the contract (till March 2022) for O&M activities (awarded to HPCL) for Visakhapatnam caverns on nomination basis with existing terms & conditions including eight *per cent* annual escalation. Contention regarding higher salaries to personnel is also not convincing as only two personnel were on regular payroll of HPCL and rest of 47 personnel were outsourced. When Audit flagged the issue regarding O&M contract for Visakhapatnam awarding on higher rates (March/ April 2021), ISPRL took initiative for negotiation and approached HPCL in September 2021 to reduce the O&M cost.

¹⁶ 49 personnel were deployed at Visakhapatnam and Mangalore. In Padur, there were 67 personnel were deployed.

C. Delay in commercialisation of strategic reserves

The Cabinet (July 2021) allowed ISPRL to utilise part of the petroleum reserves created under Phase-I for commercialisation purposes. In this regard, 30 *per cent* of the crude reserves under Phase-I of SPR was decided to be leased and 20 *per cent* of the crude oil capacity was allowed for sale/purchase by ISPRL while keeping 50 *per cent* capacity as strategic. The commercialisation process and return of money from sale of crude oil to the Government to the extent of leasing of 30 *per cent* of caverns capacity was to be completed within six months from the date of signing of the agreement with Oil Marketing Companies (OMCs). The sale/purchase of 20 *per cent* of overall oil storage capacity of caverns to Indian companies was to be commenced by ISPRL within six months of the Cabinet decision.

The release of the commercial stock through leasing/ renting and sale/ purchase of crude oil was decided to be handled by a Management Committee as determined by ISPRL Board of Directors from time to time comprising Directors of ISPRL. Accordingly, ISPRL Board (July 2021) had constituted the Committee of Directors to approve the quantity of crude oil to be released for selling from caverns/ purchase of crude oil (price, quantity and grades) for caverns and to decide on the terms and condition of leasing of caverns. The authority for release of stock in the strategic portion of 50 *per cent* of crude storage would vest with Inter-Ministerial Empowered Committee during oil shortage event. The Committee of Directors directed (January 2022) ISPRL to expedite framing of the rules & regulations defining the modalities of commercialisation at the earliest. Consequently, ISPRL had sold 1.298 MMT crude oil amounting to ₹5,378.02 crore (excluding VAT amount of ₹118.32 crore) to HPCL (0.537 MMT) and MRPL (0.761 MMT) upto March 2024 for the purpose of creating leasing space in caverns. After TDS and other deduction amounting to ₹5.53 crore, ISPRL deposited realised amount of ₹5,372.49 crore to the Government of India. ISPRL had also entered into an agreement with HPCL (February 2024) for leasing out 0.30 MMT cavern space at Visakhapatnam effective from January 2024. Though ISPRL has taken action for leasing of 30 *per cent* space of cavern (Visakhapatnam) in February 2024 but trading (sale/ purchase) of crude oil has not been commenced so far due to non-finalisation of modalities for the same.

Audit observed that:

- a) As approved by the Cabinet in July 2021, trading (sale/ purchase) of crude oil (within the 20 *per cent* of storage capacity of caverns) was to be commenced within six months of the Cabinet Decision i.e. by January 2022. However, trading (sale/purchase) of crude oil has not been commenced so far (August 2024) as modalities of the same could not be framed. As per Cabinet approval, ISPRL was expected to earn upto ₹174 crore per year from sale/purchase of crude oil of 20 *per cent* capacity which could make ISPRL financially self-sufficient.

- b) To implement the commercialisation of 30 *per cent* of leasing out of caverns, ISPRL floated Expression of Interest (EOI) for leasing/ renting of cavern storage space from Mangalore and Visakhapatnam in February 2022 against which HPCL and MRPL submitted their response along with rate of lease rent at 0.16 USD/bbl per month and 0.18 USD/bbl per month respectively on 24 February 2022. However, offered rates submitted by HPCL and MRPL were not accepted by ISPRL stating that the same were not as per their expectations (0.30 USD/bbl per month considered in CCEA approval). Further, ISPRL negotiated with HPCL and hence agreement with HPCL for leasing space of 0.30 MMT in cavern at Visakhapatnam was finalised at 0.21 USD/bbl per month w.e.f. January 2024. Audit observed that ISPRL took 28 months¹⁷ in negotiation with HPCL whereas in respect of leasing of Mangalore cavern, final decision has not been taken so far (August 2024).

ISPRL stated (March 2023) that EoI for leasing the caverns was floated for renting Strategic Petroleum Reserves at Visakhapatnam and Mangalore in February 2022. However, offers received from HPCL and MRPL were much lower than expectation. Negotiations were done with the vendors. Ministry further added (November 2023) that in accordance with partial commercialisation mandate, 1.19 MMT crude was released to create ullage (cavern space) for rentals, for which EoI was floated in February 2022 as per advice of Management Committee. Ministry also stated that once the commercialisation is started full-fledged, we can expect getting some commercial gains, which can cover depreciation and amortisation losses and make some profits. ISPRL had further sold additional 0.09 MMT crude oil in 2023-24 and hence total quantity of crude oil sold was 1.298 MMT.

ISPRL/ Ministry reply may be viewed in light of the fact that Cabinet provided the timeframe of six months for commencement of trading (sale/ purchase) of crude oil. However, the same has not been commenced so far (August 2024) even after lapse of more than three years from approval of commercialisation in July 2021. ISPRL was still dependent on O&M funds from the Government.

ISPRL had not accepted offered rates of HPCL (0.16 USD/bbl per month) and MRPL (0.18 USD/bbl per month) in February 2022 as the same were not matching with expected rates of 0.30 USD/bbl per month. However, while HPCL was offering its rates, it stated that HPCL may also consider matching the best bid for hiring of cavern A at Visakhapatnam but ISPRL had taken 28 months in negotiation with HPCL even though EoI for Mangalore cavern was short closed. ISPRL finalised the rates at 0.21 USD/bbl per month of HPCL in January 2024 which was still much lower than expectation of ISPRL at 0.30 USD/bbl per month.

¹⁷ 28 months taken from approval of commercialisation in July 2021 to decision taken for offering 0.30 MMT cavern space to HPCL November 2023.

Neither ISPRL could achieve self-sustenance after lapse of more three years from the approval nor could fill cavern space at Mangalore which is empty by 0.761 MMT since March 2022.

Recommendation no. 15: ISPRL/ MoPNG need to ensure that the caverns are utilised fully to provide the cover against the oil shortage event as and when it arises. Decision on the empty space at Mangalore should be taken on priority as it is of strategic importance.

Recommendation no. 16: Modalities of commercialisation for sale/ purchase of crude oil may be finalised at the earliest as directed in the CCEA note.

2.2.6.6 Other findings

A. Avoidable payment of electricity charges of ₹19.27 crore at project sites

As per tariff policy for high tension lines for Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL) and Mangalore Electricity Supply Company Limited (MESCL), if the power consumption was less than the contracted demand, the billing demand which was a minimum of 80 per cent (Andhra Pradesh) and 85 per cent (Karnataka) of the contracted demand or the maximum demand recorded during the month, whichever was higher, had to be paid.

ISPRL's Head-Site at Visakhapatnam (Andhra Pradesh) and Padur (Karnataka) have entered into agreements with Eastern Power Distribution Company of Andhra Pradesh Limited (EPDCAPL) and Mangalore Electricity Supply Company Limited (MESCL) for supply of electricity at the above two locations. As per agreement, contractual demand at Visakhapatnam was 4,000 KVA whereas in respect of Padur, the same was 9,500 KVA. Audit however, observed that monthly consumption of electricity never reached the contracted demand at Visakhapatnam during April 2016 to November 2022 and at Padur during January 2018 to December 2022. This has resulted in avoidable expenditure¹⁸ of ₹13.95 crore towards payment of higher demand charges till December 2022.

ISPRL in its reply (March 2023) stated that the maximum demand varies from month to month as per the actual operational requirement carried out on a regular basis. Hence, there shall be change in billing demands on monthly basis. Ministry stated (November 2023) that reduction in contract demand from 4,000 KVA to 3,000 KVA was given to State Electricity Board of Andhra Pradesh on 21 March 2019 by Head Site Vizag which was not agreed by the Electricity Board. Further, in view of observation by Audit, contract demand figure for Mangalore and Padur is being reviewed and ISPRL would take up with State Electricity Board suitably for possibility in reduction of contracted demand.

¹⁸ ₹13.95 crore = Maximum demand (80 and 85 per cent) - billing consumption x rate of monthly demand charges in respect of electricity consumed at Visakhapatnam and Padur.

ISPRL/ Ministry reply needs to be viewed in light of the fact that though the maximum contract demand¹⁹ varies from month to month, however, out of 99 months (from April 2016 to June 2024), Visakhapatnam project could not consume electricity upto its contractual demand in 97 months and shortfall in electricity consumption against contractual demand ranged from 3.50-69.00 *per cent*²⁰. Whereas, in respect of Padur, electricity consumption upto its contractual demand could not be made in 76 months out of 78 months (January 2018 to June 2024) and shortfall of electricity consumption against contractual demand ranged from 12.82-96.26 *per cent*. Regarding reviewing the contractual demand, Ministry reply needs to be viewed in light of fact that the avoidable expenditure towards non-consumption of electricity upto contractual demand at Visakhapatnam and Padur has increased from ₹13.95 crore (November/ December 2022) to ₹19.27 crore till June 2024.

B. Non-availing of refund of service tax due to delay in making claim

To carry out the project activities in Special Economic Zone (SEZ) area at Mangalore site, an agreement was entered into between the Mangalore Special Economic Zone Limited (MSEZL) (Developer) and ISPRL (Co-developer) in November 2009. The Government of India (GoI) also granted approval (August 2010) to ISPRL as co-developer for providing infrastructure facilities in sector specific Economic Zone for Petrochemicals and Petroleum at Mangalore developed by MSEZL. Audit noticed that Government had exempted the taxable services in relation to the authorised operations in a SEZ area under Section 66 of the Finance Act 1994. Accordingly, activities undertaken at Mangalore by the ISPRL were exempted from the payment of service tax.

The GoI had issued notification (17/2011-ST) in March 2011 wherein it was mentioned that *“claim for refund shall be filed within one year from the end of the month in which actual payment of Service Tax was made by such developer or unit to the registered service provider or such extended period as the Assistant Commissioner of Central Excise or the Deputy Commissioner of Central Excise, as the case may be shall permit”*. In the said notification, it was also provided that the Developer or Unit of a SEZ, who has paid the service tax under section 66 of the Finance Act, shall avail the exemption by filling a claim for refund of service tax paid on specified services used for the authorised operations.

Audit noticed that ISPRL made the payment of ₹12.60 crore on account of service tax between July 2008 and December 2011. Furthermore, ISPRL filed a refund claim for 49 invoices involving service tax of ₹8.11 crore on 25th January 2012, however 26 invoices involving service tax of ₹4.49 crore were missed out from filing refund claim. ISPRL filed an additional claim (February 2014) for ₹4.49 crore, both the claims were for the period

¹⁹ *If at any time the maximum demand recorded exceed the demand entitlement during the billing period, the penalty shall be two times the normal rate. Impact of the same has been considered in the calculation of the avoidable payment.*

²⁰ *Shortfall in consumption was calculated considering minimum 80 per cent and 85 per cent demand in respect of Visakhapatnam and Padur project sites.*

July 2008 to December 2011. The tax authorities completed assessment in July 2020 and accepted claim for 24 invoices for ₹3.70 crore and rejected claim of 51 invoices for ₹9.10 crore on time barred ground.

ISPRL stated (March 2023) that out of ₹12.60 crore claimed as refund under Service Tax paid at Mangalore site (SEZ location), the company has received an amount of ₹3.69 crore as refund in its bank account. For the balance amount of ₹9.10 crore, the company has filed an appeal with the Appellate Authority claiming legitimate refund to company which is pending before Customs Excise & Service Tax Appellate Tribunal (CESTAT).

Ministry further stated (November 2023) that during the course of assessment, ISPRL explained reasons for delay in filing claim and submitted application for condonation, the receipt of request was admitted by assessing authority but not considered to condone delay. The authority also did not consider the national importance of the project and the fact that the source of fund were provided by GoI.

ISPRL/ Ministry reply needs to be viewed considering the fact that due to delay in claiming of service tax refund, amount of ₹9.10 crore had been rejected by the Service Tax Authority. After approval of ISPRL as co-developer in the sector specific SEZ for petrochemical and petroleum on 12 August 2010, ISPRL was entitled to claim a refund w.e.f. 12 August 2010. However, ISPRL failed to claim refund timely.

2.2.7 Conclusion

Given the dependency of crude oil on import, country needs to prepare for emergency oil shortage situations. Progress in this direction has been slow as Government/ISPRL has created only 5.33 MMT capacity of storage which can provide for 7.88 days import cover (March 2024) against the 19 days import cover as envisaged in Phase-I. The current filled reserves of 2.91 MMT of strategic crude oil kept with ISPRL/Government can provide import cover only for 4.56 days. Significant delays and consequent cost overruns were witnessed in construction and creation of Strategic Oil reserves. Utilisation of caverns have also been sub-optimal. The commercialisation of crude oil operations (sale/ purchase of crude oil) to make ISPRL self-sustainable for operation & maintenance activities has not been started despite Cabinet approval in 2021. In operation and maintenance, deficiencies such as high O&M costs, avoidable payment of electricity demand charges, non-availing of timely refund of tax were noticed. The ISPRL needs to reassess the volume of strategic petroleum reserves, aligning it with current consumption requirements and evaluating the progress made to date. The MoPNG need to improve synchronisation and coordination facilitating faster approvals and streamlining land acquisition to meet project timelines. Ensuring full utilisation of storage caverns is essential to provide adequate coverage in the event of an oil shortage. Priority should be given to decisions regarding the empty cavern at Mangalore, as it holds strategic importance. Additionally, modalities for the commercialisation of crude oil sales and purchases should be finalised promptly.

A determined and consistent effort to further strengthen emergency energy security to the country needs to be prioritised.

Oil and Natural Gas Corporation Limited

2.3 Failure of ONGC in timely construction of office building at MBA Basin, Kolkata resulting in an additional financial burden of ₹39.47 crore

The office building for ONGC's MBA Basin Kolkata could not be constructed for more than 17 years despite acquiring the land at a cost of ₹9.80 crore in October 2006. The construction of the building was delayed on account of procedural delays in approvals, finalisation of design and re-tendering. An expenditure of ₹9.81 crore incurred on design, vetting, statutory approvals etc. was rendered unfruitful, alongside continued incurrence of rent for hired premises amounting to ₹29.66 crore during the delayed construction period (December 2016 - October 2024)

Oil and Natural Gas Corporation Limited (ONGC)'s MBA Basin²¹ was conducting its operational and administrative activities from different rented buildings²² in Kolkata city. To consolidate all the offices in Kolkata at a single place, the Company decided (June 2006) to purchase 4.50 acres of land at ₹9.80 crore from West Bengal Housing Infrastructure Development Corporation Ltd. The construction of an office complex at Kolkata on green building concept with plain and simple structure, at an estimated cost of ₹228.20 crore, was approved (April 2007) by the Board of Directors.

Similarly, construction of office building projects in New Delhi and Mumbai was also approved in Board meetings held in April 2006 and in October 2007 respectively. The construction work for office building at Delhi was awarded in January 2010 and completed in July 2017 (in seven and half years). The construction works at Bandra Kurla Complex Mumbai was awarded in January 2011 and completed in January 2017 (in six years). In comparison to Delhi and Mumbai, the construction of the building in Kolkata suffered multiple delays as detailed below:

- (i) ONGC's Board approved (April 2007) engagement of National Buildings Construction Corporation Ltd. (NBCC) as Project Management Consultant (PMC). NBCC further engaged an architectural consultant. On NBCC expressing inability to carry out the project, the agreement with NBCC was foreclosed (May 2008) and the Company decided to go ahead with in-house management.
- (ii) The Executive Committee (EC) of the Company however decided (May 2008) to retain the consultant for architectural consultancy towards construction of ONGC

²¹ Mahanadi, Bengal-Purnia and Andaman.

²² Kanak building, 50 JLN Road Office, Old court house street office, Transport depot road office, CIT office, FSO premises, AC market office. Presently official working of MBA Basin is running under single premise i.e. Technopolis building, Kolkata from December 2016.

office complex at Kolkata at a fee @ 2.625 per cent for scope of work as per agreement. Total estimated contract value was ₹5.21 crore. Architectural consultant submitted unique and iconic architectural design of office building with an estimated cost of construction amounting to ₹326.95 crore. The design was vetted by Construction Industry Development Council (CIDC)²³ and on the recommendation of CIDC, estimated cost was revised to ₹339.78 crore. Accordingly, the Board approved the proposal for construction of ONGC office complex at Kolkata in August 2009.

After completion of pile foundation²⁴, the Company invited the Lump Sum Turnkey (LSTK) tender for construction of office building in July 2012. The lowest quote after further negotiations was ₹438.10 crore, 40.18 per cent higher than the estimates and the EC decided (August 2013) to close the tender with a decision to construct a smaller, simpler building.

- (iii) EC approved (December 2013) construction with new architectural design at an estimated cost of ₹355.96 crore and also approved re-engagement²⁵ of an architectural consultant for preparation of technical drawings, technical specifications, cost estimates etc. on the same terms & conditions as specified in previous PMC contract for cancelled tender. Executive Procurement Committee approved Bid Evaluation Criteria for new design in June 2015. Thereafter architectural plan, detailed engineering and cost estimates (₹294 crore) were prepared and submitted by an architectural consultant in February 2017. The Company accorded (March 2017) technical sanction for construction of office building.
- (iv) Meanwhile, due to enforcement of new National Building Code 2016 (NBC-2016) effective from March 2017, the Company decided (February 2018) to re-visit the design with necessary modification and estimates. Accordingly, Scope of Work (SOW) was changed and the single LSTK package for complete building was split in two separate packages, viz. (a) Sub-structure without services through item rate/percentage rate tender and (b) Super-structure with complete service through LSTK tender. EC approved (June 2019) to construct the building in two phases.
- (v) The work for construction of sub-structure of ONGC Complex, Kolkata was awarded (August 2020) to a private contractor through an open tender at a total cost of ₹54.22 crore. The construction of sub-structure got delayed and was completed in June

²³ *Construction Industry Development Council (CIDC) was established in 1996 by the Planning Commission (Now NITI Aayog), Government of India. CIDC undertakes a wide range of activities to benefit the construction industry which includes conducting training at various levels, organising workshops and conferences, publishing journals and newsletters, welfare programmes for construction workers, grading, placement and so on.*

²⁴ *At a cost of ₹26.87 crore.*

²⁵ *In the EC meeting held in December 2013, it was opined that since the architectural consultant for the project was associated since its conceptualisation, it would be beneficial to re-engage them.*

2024 against schedule completion date of July 2021. The construction of office building will get further delayed as construction of super-structure work has not started till October 2024.

In the meantime, the committee, constituted for evaluation of all the expenditure incurred on 1st design (in initial tender) and 2nd design (for re-tender), had worked out the unfruitful expenditure of ₹9.81 crore (₹5.39 crore on 1st design and ₹4.42 crore on 2nd design). The 1st design was wasteful due to decision of construction of simpler and smaller office building instead of unique and iconic design. Further, 2nd design could not be executed due to enforcement of National Building Code. The EC decided (March 2023) to write off the unfruitful expenditure incurred on architectural design of Green Building at Kolkata along with the approval of booking of expenditure attributable to change in National Building Code 2016 as project cost.

In this regard, Audit observed that:

1. The Company took 26 months in various internal approvals (from initial approval in April 2007 to additional sanction of estimated cost in June 2009) and 12 months in completion of tendering procedures. Further, as against initial tender, completion period of the construction of works was scheduled for 30 months. Thus, the whole project was to be completed in 68 months (26+12+30). Had the Company taken initiatives for tendering procedures parallel from award of pile foundation work in April 2010, the whole project of construction of office building could have been completed within 80 months²⁶ i.e. by November 2016²⁷ (before notification of National Building Code in March 2017).
2. The tender for construction of office building was invited in July 2012 i.e. after almost three years from the approval of revised estimates with completion period of 30 months. The Company, however, failed to include any provision for escalation in rates in the tender nor reviewed the estimates while inviting the tender. Thus, non-considering of cost escalation led to closure of the initial tender. Also, EC decided (August 2013) to close the tender with a decision to construct a smaller, simpler building. Hence the expenditure of ₹5.39 crore incurred on initial design of the structure of the building, technical vetting of structural design and statutory approvals was rendered unfruitful.
3. Considering the high rates of the LSTK tender, the Executive Procurement Committee of the Company decided (August 2013) to close the tender. The Bid Evaluation Criteria (BEC) for new design was however approved by Executive Procurement Committee in June 2015 after 21 months of closing of first tender. Thereafter, the Company took more

²⁶ *Considering of 12 months each for closing of initial tender and further re-tendering for construction of smaller and simpler office building.*

²⁷ *If the Company started tendering procedures parallel to commencement of pile foundation work) from April 2010 then 80 months were to be completed in November 2016. (26 months in administrative and financial approvals + 24 months in tendering procedures twice + 30 months in completion of project)*

than 21 months in finalisation of architectural plan and approval of technical sanction (March 2017). Due to inordinate delay in finalisation of BEC and technical sanction for revised design, company had to again revise the design which rendered the expenditure of ₹4.42 crore incurred for the second time on design of the structure of the building, technical vetting of structural design and statutory approvals as unfruitful.

4. Due to delay in construction of office building, the Company had to operate its activities in rental building thereby incurring additional financial burden on account of rent amounting to ₹29.66 crore from December 2016 to October 2024.

Management/ Ministry stated (March 2024/ October 2024) that:

1. The building being constructed by ONGC at Kolkata is a modern building and designing of such buildings requires adequate time which is longer than the average. ONGC followed execution methodology as approved on similar basis of Vasant Kunj project. However, Vasant Kunj Project did not have pile foundation. The Kolkata office building location falls in filled-up/ developed area with low soil bearing capacity and waterlogging. The soil condition and design consideration necessitated pile foundation construction, which was required to be taken up first, through experienced/ expert agency. The continuous seepage in the soil strata from adjacent areas required dewatering during construction period and monsoon added difficulties further. Pile foundation, being a specialised work, was carried out at Kolkata through a separate contract, after taking due approval from the Competent Authority.
2. Before the tender could be floated, National Building Code (NBC) 2016 came in to force in March 2017 and therefore, an assessment of the 2nd design was carried out along with all the stakeholders w.r.t the new codal changes. It was found that the 2nd Design was not conforming to the new codal changes. Hence, the competent authority approved a 3rd design of building to incorporate the codal changes. ONGC had taken in-principle approval in December 2013 regarding re-engagement of architectural consultant. Subsequently, the case for re-engagement of architectural consultant was processed along with revised BEC, price bid format, milestone payments, supplementary agreement etc. and approval of competent authority was obtained by ONGC and finally the approval was accorded in April 2015. For the revised design, statutory clearances/approvals were obtained within a period of about nine months (from November 2015 to August, 2016).
3. Executive Committee (EC) while according in-principle approval to write off the unfruitful expenditure incurred on architectural design of Green Building at Kolkata, advised that the expenditure attributable to change in National Building Code 2016, be booked under project cost. Hence all the expenditure is not additional financial burden. Construction of sub-structure (Two-level underground basement) of office building work is complete and tender for construction of super-structure is under process.

Further it is also submitted that the tentative building completion schedule is June 2026.

Management/Ministry reply needs to be viewed considering the following:

1. Contention regarding requirement of adequate time for construction of modern building and its designing may be viewed in light of the fact that the Company had itself decided the period of 30 months in initial tender and 36 months in latest tender for construction of office building. However, the Company took 15 months, only for approval (April 2015) for re-engagement of existing consultant based on its decision in EC meeting held in December 2013. Further, the Management contention citing time taken for statutory approvals/clearances during 2nd design is also not convincing as all the statutory approvals/clearances were received within a span of nine months from the application date. The Company, however, took almost four years only in internal approvals for re-engagement of existing consultant, BEC, finalisation of drawings, technical specifications, and cost estimates.
2. Architectural consultant submitted only total estimate for the project during August 2011. The architectural design, however, had already been approved by EC in May 2009 and thereafter Board of Directors approved revised estimated cost of ₹339.78 crore with an additional sanction of ₹111.59 crore in August 2009. By the time of approval of ONGC Board, structural design and rate analysis of various items for cost estimation of office building had been done/vetted.

Clause 8.1.1 of the Works Manual 2007 of the Company stipulated that "*in case any excess over the sanctioned amount is known before tendering or during tendering, the tendering process shall not be held up for want of additional expenditure sanction.*" Thus, as per provision of Works Manual, tendering process could have been started at any time just after August 2009 when ONGC Board sanctioned the estimated cost of approved design. However, the Company took almost three years (till June 2012 when LSTK tender was finalised) in various activities like technical sanction, special/general, condition of contract, instruction to contractors, etc.

3. Regarding location related constraints, Ministry reply needs to be viewed in light of the fact that Company was well aware of all the location related constraints and the same should have been considered while the construction schedule was drawn. Further, while the 2nd design of office building was being prepared, location related constraints had already been known by the Company during preparation of 1st design. However, the Company took 15 months in re-engagement of existing consultant and further, more than 20 months in finalisation of architectural plan. Thus, the Company took abnormal excess time of almost four years to complete internal processes for re-tendering after closing of initial tender in August 2013.

4. Construction work for office building at Vasant Kunj (approved in April 2006) was awarded in January 2010 which was completed in July 2017 i.e. in 7.5 years. The office building at Bandra Kurla Complex (approved in October 2007) was awarded in January 2011 and the same was also completed in January 2017 i.e. in six years. However, even after lapse of more than 17 years from the approval for construction of office building at Kolkata in April 2007, construction of office building could not be completed so far (October 2024).
5. The entire expenditure of ₹9.81 crore (₹5.39 crore on 1st design and ₹4.42 crore on 2nd design) was considered as unfruitful by the committee (constituted for evaluation of unfruitful expenditure incurred on designs of office building). EC had advised to book the expenditure attributable to change in National Building Code 2016 as project cost which was incurred on 2nd design of the building. However, after the issue was flagged by Audit, the entire expenditure of ₹9.81 crore incurred on the 1st and 2nd design of building was considered as unfruitful by the Company.

Thus, due to delay in construction of own office building, the Company had to operate its activities in rental building incurring additional financial burden of rent amounting to ₹29.66 crore²⁸ (excluding maintenance charges) from December²⁹ 2016 to October 2024. Since even the construction of super-structure of office building has not been started (as of October 2024), the lease rent on hiring of office building will continue till construction of building is completed. Thus, failure in timely construction of the office building at MBA Basin, Kolkata has resulted in an additional financial burden of ₹39.47 crore³⁰.

²⁸ *Total rent paid from December 2016 to October 2024 - ₹36.69 crore, of which maintenance charges constitutes ₹7.03 crore (₹7.40 lakh per month approx. for 95 months from December 2016 to October 2024)*

²⁹ *Considering 12 months for fresh tendering procedures after cancellation of initial tender in August 2013 and further 30 month time for completion of the project as envisaged in the initial proposal.*

³⁰ *₹9.81 crore towards design changes and ₹29.66 crore (excluding maintenance charges) towards payment of rent for hired office building till October 2024*

Chapter - III

MINISTRY OF FINANCE
(Department of Financial Services)

CHAPTER III: MINISTRY OF FINANCE (Department of Financial Services)

United India Insurance Company Limited

3.1 Comprehensive Online Real-time System

3.1.1 Introduction

United India Insurance Company Limited (the Company/UIIC), Chennai, is one of the public sector general insurance companies and in operation since its nationalisation in 1972. The Company has a pan India organisation structure having Regional Offices, Corporate Branches and Operating offices under its control. The core business activities of the Company included underwriting of risks and settlement of claims under fire, marine, and miscellaneous portfolios, reinsurance operations and investment operations. The Company is regulated by the Insurance Regulatory and Development Authority of India (IRDAI).

The Company conceptualised (January 2007) implementation of Comprehensive Online Real-time System (CORE) to address the entire end-to-end functional requirements of general insurance business, insurance products and process definition to actual transactions on direct business, reinsurance and accounting. The Architecture of this system was three-tiered i.e. Web, App and Database Layers. The CORE Insurance System covered the insurance modules for different lines of business (i.e. Motor, Health, Personal Accident, Fire, Engineering, Marine cargo, Marine Hull, Property Accident, Aviation, Liability, Rural, Package), financial accounting, human resource management and document management system.

The Office of the Comptroller and Auditor General of India (CAG) had undertaken (2016-17) audit on Implementation of CORE System in UIIC and the results of the audit were included in Report No. 9 of 2017 (Para 7.5) tabled in the Parliament on 5 April 2017. The Ministry in its ATNs to the report informed that transactions in all lines of business were taking place in Genisys Configurator CORE insurance solution in all operating offices and the legacy system Genisys was retired with effect from 1 April 2017 and data of integrated Reinsurance Software was integrated with CORE insurance system from 1 April 2021.

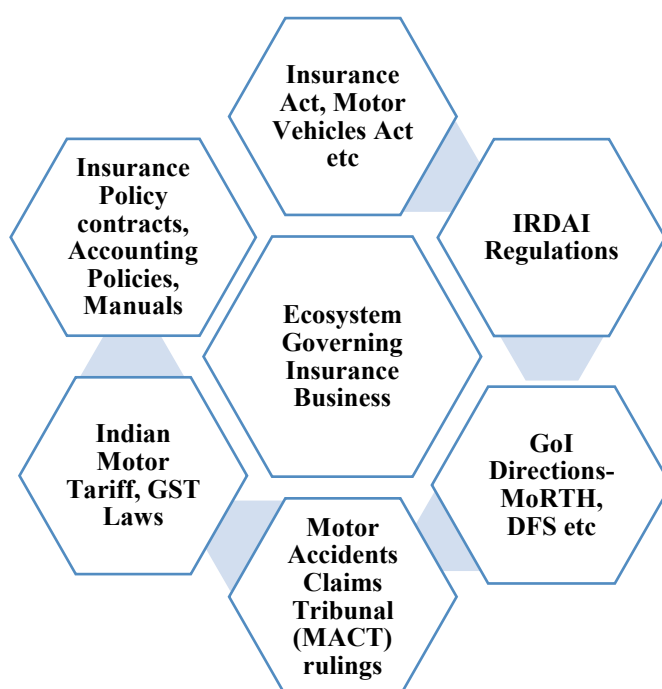
3.1.2 Audit Scope and Methodology

IT Audit was conducted (October 2022 to April 2023) covering the insurance business transactions pertaining to the period from April 2019 to March 2022. The centralised database of UIIC at Head Office in Chennai was accessed and reports were generated using Structured Query Language on pan India basis. The audit findings related to database were verified/test checked with selected records maintained at operating offices under seven

southern India ROs. The records and data pertaining to earlier and subsequent periods were also examined to draw conclusions and update the information, wherever required.

3.1.3 Organisation structure of Information Technology Department

The Information Technology (IT) Department is headed by a General Manager (GM) assisted by a Deputy General Manager (DGM). IT Department is in turn supported by a team of Chief Managers, Managers, Deputy Managers, Assistant Managers, and other officials. The IT Department was responsible for monitoring, updating the changes, maintenance and security of the IT system as per the business requirements and the elements involved in the eco-system governing insurance business as shown in the picture below:



3.1.4 Audit Findings

Audit observed that even after stabilisation and consolidation of CORE system in 2017-18, there were deficiencies in the IT system controls. There were lapses in Application controls such as weak input controls and validation controls in mapping and updating the business rules in compliance with the various elements of insurance business eco system. Inadequate General controls, other than physical access controls, such as improper maintenance of master data files and issues related to IT security were also noticed as detailed in the succeeding paragraphs.

3.1.4.1 Audit Findings related to business and managerial requirements

A. Delay in mapping of revised motor third party premium rates in IT system

By virtue of powers vested in the Authority under Section 14(2)(i) of the IRDAI Act, 1999, IRDAI shall notify the premium rates applicable to Motor Third Party liability insurance every year. Accordingly, IRDAI revised (4 June 2019) the premium rates for Motor Third Party liability insurance with effect from 16 June 2019 for the financial year 2019-20. However, it is noted that there was no laid down specific procedure/process for implementation of rate changes in CORE system in a timely manner. Further, system did not have a mechanism to generate exception report for policies issued at old rate covering the period from effective date after the rates were updated.

Database of motor policies issued with policy period commencing on or after 16 June 2019 to 31 March 2020 in respect of private cars, two wheelers less than 75CC and goods carrying vehicles (Other than 3 wheelers) - Private Carriers was reviewed on test check basis. Audit observed that the revised premium rates were not charged as prescribed by IRDAI. Thus, delay in correctly mapping the revised rates in the CORE system resulted in loss of premium to the Company to the tune of ₹1.21 crore¹

The Company replied (May 2023) that in respect of policies issued prior to the notification date with risk commencement on or after 16 June 2019, the old rates alone would have been charged. The Company further replied (July 2023) that IRDAI notified the TP rates on 4 June 2019 (with effective date from 16 June 2019) and changes were deployed on 15 June 2019 midnight. In respect of policies issued prior to the notification date with risk commencement on or after 16 June 2019, policies issued by OEM prior to patch deployment and proposals generated prior to patch date and collected after patch execution, the old TP rates have been charged. Discussions have been initiated with the department to generate exception report for such cases and ensure compliance of correct TP rates.

Ministry (September 2023) endorsed the views of the management.

Reply of the Management and Ministry needs to be viewed in light of the fact that the premium rates prescribed by IRDAI were linked to the date of commencement of risk, hence the IT system should have a mechanism to generate exception reports for policies covering risk from the effective date of notification to enable recovery of short premium for policies issued at old rates. Audit noted that old rates were charged even on the policies issued after 16 June 2019. Further, the Company did not develop proper mechanism to implement the changes as per the regulatory requirements in the IT system without delay

¹ *During 2019-22, 92 lakh private cars, 5.01 lakh two wheelers less than 75 CC and 1.63 lakh Goods carrying vehicle (other than three wheelers) policies were issued. Of which in case of 35,126 private car insurance policies, 3,340 two wheeler insurance policies and 773 goods carrying vehicle insurance policies, the revised rates were not charged resulting in undercharging of premium to the tune of ₹1.08 crore, ₹ 0.02 crore and ₹ 0.11 crore respectively.*

despite Ministry's confirmation in Action taken note to similar issue reported earlier in Audit Report No. 9 of 2017 (Para 7.5).

B. Settlement of claims on Total Loss basis

In line with Section 55 of Motor Vehicles Act 1988, IRDAI issued (25 July 2019) a circular reiterating that all insurance companies should ensure cancellation of certificate of registration of the vehicle in the case of 'Total Loss' claim settlement to prevent misuse. As per the manual for claims settlement by General Insurance Public Sector Association (GIPSA), in the case of motor claims settled on 'Total Loss' basis, the policy should be cancelled with effect from the date of loss and the damaged vehicle should be disposed of along with intimation to Regional Transport Office.

Analysis of 14,974 claims settled on 'Total Loss' basis revealed that the IT system allowed 418 policies to continue till the expiry of the policy period and 6,920 policies were renewed in subsequent periods even after settlement of claim on 'Total loss' basis. Further, 325 claims were also paid on such renewed policies. Audit observed that adequate modification/validation controls were needed to be built into the system to prevent the issue/renewal of policies for the same vehicle once the claim is settled on 'Total Loss' basis. Lack of controls in the system to prevent renewal of insurance in respect of vehicles on which claims were settled earlier on a total loss basis resulted in avoidable financial outgo² of ₹1.72 crore.

The Company replied (May 2023) that change initiative has been raised for necessary validation in the system. The Company further replied (July 2023) that Motor Department has raised the Change initiation request on 24 April 2023.

Ministry replied (September 2023) that the Company stated that the required validation has been made in the system to rectify the issue.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that there were 199 policies which were renewed in 2024-25 after the vehicle suffered total loss in 2023-24 in the previous policy. Hence, remedial action was yet to be completed. Audit is of view that these cases should also be investigated to identify the control failure in approval process.

C. Procurement of insurance policies through black listed agents

IRDAI maintained a centralised list of blacklisted agents where details such as name of agents, PAN, Agency code, Pin code, etc. were given. Audit reviewed the Agent master database of the Company and noted that 22 blacklisted agents³ were active in the Company's agents master database. The Company continued to procure business through 12 agents blacklisted as per IRDAI portal. The Company paid commission of ₹0.38 crore

² In 325 claims for claim amount (₹1.63 crore) and claim related expenses(₹0.09 crore)

³ Extracted based on PAN numbers of agents given in the centralised data base.

to these agents. Audit observed that lack of robustness in timely updating the database and validation controls led to continued procurement of business from agents blacklisted by IRDAI.

The Company accepted the audit observation and stated (May 2023) that all the 12 agents blacklisted either by the Company or by other Insurance Companies were disabled. It was also stated that the system had the facility to disable the agent from placing business with any of the offices of the Company and all system related changes were handled on the basis of change initiatives. However, no request was received from the domain departments for blacklisting of agents as per IRDAI list. Management further replied (July 2023) that IT department has been informed to update the GC CORE on a regular periodicity.

Ministry replied that (September 2023) disabling of 12 agents is completed. As and when changes are intimated, disabling shall be done by the Company.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that agent's database of the Company is yet to be updated in synchronisation with IRDAI portal as there were 570 policies generated with agency code of eight blacklisted agents out of 12 agents during October 2023 to December 2024. Necessary steps to update and synchronise the Company's Agents master database with IRDAI list of blacklisted agents may be completed at the earliest.

D. Surveyor mis-mapping in the IT system

Section 64UM of Insurance Act, 1938 prescribed that no person shall act as a surveyor or loss assessor in respect of general insurance business unless he was holding a valid license issued to him by IRDAI. As per the IRDAI (Insurance Surveyors and Loss Assessors) Regulations, 2015, every person who was a member of the Indian Institute of Insurance Surveyors and Loss Assessors⁴ (IIISLA) and intending to act as a surveyor and loss assessor in respect of general insurance business, shall obtain license from the IRDAI to act as surveyor. IRDAI would grant the license mentioning the level of membership granted by the IIISLA, particular class/department or subject of general insurance business namely, fire, marine cargo, marine hull, engineering, motor, miscellaneous, crop insurance and loss of profit, which shall be valid for a period of three years and could be renewed upon the expiry.

On scrutiny of data of active individual surveyors extracted from CORE system of the Company, Audit noted that there were cases of surveyor data without license number and PAN number or the same captured as zero. Audit further noted that claims were assigned to surveyors pertaining to departments other than the departments in which they were granted license by IRDAI. On verification of surveyor licenses, it was noted that 12 surveyors who were not licensed to survey for fire claims were allotted 58 fire claims, 14

⁴ *promoted by IRDAI under Section 14(2)(f) of IRDA Act, 1999 and incorporated under Section 8 of the Companies Act, 2013*

surveyors licensed to survey only 'Engineering department' claims and three surveyors licensed to survey only 'Motor Department' claims were allotted 52 and 352 claims related to other departments respectively. Three surveyors with cancelled or surrendered licenses were also found active in the master data base. Details of the cases noted by Audit is given in **Annexure VIII**.

Audit observed that there were no adequate input controls in capturing all the required details of surveyor and for mapping the assigning the work to surveyors with their level of membership. Necessary controls need to be incorporated into the system to capture complete surveyor details and for allotment of work to surveyors.

The Company replied (May 2023) that license numbers and PAN numbers were the mandatory fields for creation of surveyor and necessary validation controls would be initiated. It was also stated that in the case of cancelled/surrendered licences, the surveyors would be disabled from the system based on the confirmation from domain department. In respect of audit observation on assignment of survey work in other lines of business, the Company stated that services of the surveyor from the other lines of business having capability were utilised with the approval of competent authority. Management further replied (July 2023) that cases where license number is not available or captured as zero, surveyors will be disabled in the system. As regards PAN number, system charges TDS @ 20 per cent, if PAN is absent. In case the surveyor obtains specific exemption from Income Tax department, the same is suitably flagged in the system. As regards updating of cancellation of licenses, IT department will take it up with respective departments and do the needful. As regards the assignment of surveyors to lines of business for which they do not have license, necessary validation will be incorporated in the system.

Ministry replied that (September 2023) software modification to validate license number and to capture income tax exemption is implemented and periodic exception report of unlicensed surveyors would be generated. It stated that surveyor master has been updated by the Company.

The reply of the Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit it was noted that there were 984 active surveyors without license numbers in the system. Also, two surveyors remained active in the system out of the three surveyors license cancelled by IRDA. As per Regulation 16(5) under Chapter VI Code of Conduct of IRDAI (Insurance Surveyors and Loss Assessors) Regulations, 2015, Surveyor and Loss Assessor shall not accept or perform survey works in areas for which he does not hold a license. Hence, utilisation of services of the surveyors from the other lines of business was a violation of IRDAI regulations.

Necessary steps to update and synchronise the Company's surveyor master database with IRDAI list may be completed at the earliest.

E. Compulsory Deductibles

General Regulation No. 40 of India Motor Tariff provided that motor policies which insures own damage portion of all classes of vehicles are subject to compulsory deductible. As per the policy terms and conditions, 'deductible' was that portion of claim for which Company shall not be liable. In other words, 'deductible', also known as 'excess', was the amount over and above which the claim will be payable.

On a review of underwriting data pertaining to commercial vehicles/private cars/two-wheelers during 2019-2022, it was noted that system was permitting to underwrite policies without enabling the condition of compulsory deductibles and consequently, claims were paid without applying compulsory deductibles. Audit noted that -

- The compulsory excess was shown as zero in 25,134, 223 and 1,929 policies out of 30.08 lakh, 92 lakh and 2.19 crore policies of commercial vehicles, private cars and two-wheelers generated by the IT system
- Out of 27,286 policies issued without compulsory deductibles, 452 (431- Commercial Vehicle, 17-Private Car, 4-Two wheeler) claims were reported and settled⁵ till December 2022.

Audit observed that lack of input and validation controls in the system while underwriting motor policies led to non-compliance with extant tariff rules and excess payment of claims.

The Company accepted the observation and stated (May 2023 and July 2023) that suitable validation controls would be implemented.

Ministry replied that (September 2023) suitable validations have been implemented in the system.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that necessary validation controls were not in place as compulsory deductible in commercial vehicles was 'Zero' in 164 policies with effective date from 1 October 2023 to 31 December 2024

Validation controls for applying compulsory deductible in the system while underwriting motor policies and settling the claims may be implemented at the earliest.

F. Non-Mapping of Vehicle Overload

As per section 113(3) of the Motor Vehicles Act, 1988, no person shall drive or cause or allow to be driven in any public place any motor vehicle where the laden weight of which

⁵ *Amount of compulsory deductible not considered: $448 * ₹500 + 4 * 50 = ₹2.24 \text{ Lakh}$. (₹500 is the Minimum compulsory deductible for 4 wheeler vehicles, ₹50 is the minimum compulsory deductible for two wheeler vehicles)*

exceeded the gross vehicle weight (GVW) specified in the certificate of registration. Subsequently, a tolerance of five *per cent* was allowed in the GVW by way of notification dated 7 January 2016 by the Ministry of Road Transport and Highways (MoRTH). IRDAI directed (13 May 2016) all the general insurers to take note of the said notification. As per the general terms and conditions of insurance policy for commercial vehicles, Company shall not be liable to make any payment in respect of damage caused by overloading of the insured vehicle. In view of the above, it was essential to capture the actual load of the vehicle at the time of accident in the system for proper claim settlement process.

During the period 2019-2022, the Company settled 1.42 lakh claims related to Goods Carrying Vehicles (GCVs) for a total amount of ₹3,060 crore. On a review of claim settlement database, it was observed that there was no provision in the system to capture the actual load of the vehicles at the time of accident to rule out the instances of overloading.

The Company accepted the audit observation and stated (May 2023 and July 2023) that necessary validation in the system to capture the overload details will be made.

Ministry replied that (September 2023) necessary validation has been made in the system to capture the overload details.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that necessary validation controls were not included in claims details table as there was no field in data table to capture the actual load at the time of accident.

Input and validation controls to capture the overload details for settling the claims may be implemented at the earliest.

G. Absence of system to ensure existence of valid PUC certificate

IRDAI issued a circular (July 2018) to all general insurance companies to comply with the order issued (August 2017) by the Hon'ble Supreme Court of India directing the Insurance companies not to insure a vehicle unless it has a valid Pollution Under Control (PUC) certificate on the date of renewal of the insurance policy.

On a review of the underwriting of motor policies in the IT system, Audit observed that Company did not make any provisions in its IT system to ensure that the motor vehicle to be insured had a valid PUC certificate on the date of renewal of the insurance policy. Thus, the IT system lacked controls to ensure compliance with directives Hon'ble Supreme Court of India and IRDAI with reference to obtaining PUC certificate.

The Company stated (May 2023 and July 2023) that 'change initiative' for software development is being coordinated with the domain department.

The Ministry replied that (September 2023) the software development is in progress and shall be deployed by October 2023.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024), Audit could not notice existence of necessary validation controls in the policy information table.

Input and validation controls to ensure that the motor vehicle to be insured had a valid PUC certificate on the date of renewal of the insurance policy may be implemented at the earliest.

H. Underwriting of vehicles with reduced seating capacity

As per Indian Motor Tariff, two types of policies could be issued for motor vehicles viz., (i) Liability Only Policy which covered 'Third Party liability' (TP) for bodily injury and/or death and property damage and (ii) Package Policy which covered loss or damage to the insured vehicle in addition to (i) above. IRDAI stipulated different TP liability premium rates for two wheelers, private cars and commercial vehicles. The rate of TP liability premium for commercial vehicles carrying passengers for hire or reward depended on the seating capacity.

Audit observed in the data extracted from CORE system that motor vehicles with registered seating capacity of more than two persons were underwritten as two wheelers⁶. Sixty-three motors two-wheeler policies were issued during the period 2019-22 with registered seating capacity ranging from three to fifty. Test check of these vehicles in VAHAN Website of MoRTH revealed that 19 of these vehicles were buses, 23 were private cars, nine were maxi-cabs, three were three wheelers and nine were goods carrying vehicles. All the sixty-three policies were underwritten through the same web aggregator. This indicated inadequate control over the interface of web aggregator, along with direct financial implication⁷.

The Company replied (May 2023 and July 2023) that in respect of the web aggregator, Vahan validation was implemented from 4 May 2023 and also stated that the validation would be ensured with respect to all other digital platforms as well.

Ministry replied (September 2023) that VAHAN validation has been implanted for GC core Portal and online integrations.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, deviations were noticed indicating that the VAHAN validation process needed to be further strengthened to verify the vehicle type and seating capacity on the date of underwriting the risk.

⁶ During 2019-22, 2.19 crore Two-Wheeler policies issued.

⁷ Short collection of motor third party premium to the tune of ₹0.10 crore.

I. Weak input controls in identification of subject matter of insurance

(i) Chassis Number of Vehicles

In line with Central Motor Vehicle Rules, 1989, chassis numbers (known as Vehicle Identification Numbers consisting of 17 digit alphanumeric code)⁸ were used for vehicle identification purposes for motor underwriting. On a review of motor policies underwriting data for the period 2019-22, Audit observed that data entered in the system at the time of underwriting motor policies did not have adequate input and validation controls as there were cases where this was not being properly captured in the system while underwriting motor insurance policies. Out of 3.53 crore motor policies, the policies were underwritten without chassis number in 155 cases, chassis numbers recorded as dots in 1600 cases, chassis number having less than five digits in 404 cases and chassis number containing random alphabets in 228 cases.

The Company explained during audit that engine/chassis number was being validated both for new vehicles and renewal proposals through VAHAN web services with effect from 10 April 2021. However, Audit noted 12 instances of inadequate capturing of chassis number of vehicles even after 10 April 2021.

The Company replied (May 2023 and July 2023) that the matter has been flagged to review the validation. Ministry replied (September 2023) that the Company has stated that VAHAN validation for motor implemented in GC core portal and online integrations.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that 79 chassis numbers were having dots for policies effective between October 2023 to March 2024 indicating need to further strengthen the mechanism.

(ii) Registration Number of Vessels

As per the circular issued (May 2018) by the Company for vessel identity in marine hull policy, Registration Number field was made mandatory in CORE system to identify the vessel. Registration Number/IMO Number was one of the unique characteristics of a vessel that differentiates a vessel from all other vessels and removes any doubt in establishing the uniqueness of the vessel there by avoiding delay in claims processing.

On review of 2.91 lakh marine policies issued during 2019-22, Audit observed that the Registration number was not a mandatory field in the IT system and the system allowed null values in respect of 25 fishing vessels. In respect of ocean-going vessels, the International Maritime Organisation would assign a unique seven-digit number followed by IMO. Due to lack of validation controls in the Registration number field, the system

⁸ *First three characters of the code assigned to the vehicle manufacturer, next six characters (letters or numerals), which shall serve to indicate the general characteristics of the vehicle and next eight characters shall in conjunction with the other two sections to provide clear identification.*

allowed to record IMO with digits less than seven in 396 policies. In respect of 9 cases system allowed dash(-) and dots(.)

The Company replied (May 2023 and July 2023) that the matter has been flagged to review the validation. Ministry (September 2023) did not offer its remarks on the audit observation.

Reply of Management need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that in 218 policies of ocean going vessels registration number was not as per IMO format and in two fishing vessels IMO numbers were recorded as dots for policies issued between October 2023 to December 2024.

Input and validation controls in identification of subject matter of insurance may be implemented by the Company at the earliest.

J. Lack of controls in underwriting motor policies on renewals

Audit reviewed database of motor policies underwritten in the IT system during the period 2019-22. Audit noted that the system permitted to issue policies under any business type⁹ i.e. 'New Collected' or 'Rollover'¹⁰ or 'Renewal Business'¹¹ without any validation control for the business type field. Audit further noted that the class code¹² of vehicles could also be changed with a risk of charging of premium at lower rate.

Audit observed that validation controls in selecting the business type and vehicle class code at the time of underwriting and issuance of the policies were required to be built in the system. Details of the 20,792 motor polices underwritten out of 3.53 crore policies with change of business type and/or vehicle class code at the time of issuance of the policies and impact on premium in test checked 50 cases is given in **Annexure IX**.

The Company replied (May 2023) that vehicle class was being validated through VAHAN portal since April 2021. It was (July 2023) further added that whenever VAHAN services are down, underwriting comes to a standstill and at such point VAHAN validation is bypassed to prevent loss of business. Policies underwritten during such period will not have VAHAN validation. Company is exploring an option to revalidate such policies as and when VAHAN services are again available and generate an exception report for policies which do not meet the validation criteria.

Ministry (September 2023) while endorsing the views of the management added that the Company has stated that the current decision is not to bypass VAHAN validation services.

⁹ *Business type = New, Renewal and Rollover*

¹⁰ *Policies issued by UIIC where previous year policies with another Insurance Company*

¹¹ *Policies issued by UIIC where previous year policies are also with UIIC*

¹² *As per IRDAI classification*

Reply of Management need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that vehicle class code and business type were changed in 2,778 cases during 2024.

The VAHAN validation for identification of vehicles type may be implemented at the earliest and followed by the Company in underwriting motor policies. The correct business type may be ensured by implementing appropriate input and validation controls.

K. Control lapses in payment of commission on terrorism premium

Indian Market Terrorism Risk Insurance Pool (Pool) was formed in April 2002, to create domestic capacity within India to underwrite terrorism risk. All Indian non-life insurance companies including the General Insurance Corporation of India (GIC Re) are members of the Pool. The Pool is applicable for the insurance of terrorism risk covered under property insurance policies. GIC Re on behalf of all the members, manages the Pool including maintenance of accounts, investment of funds, etc. As per GIC Re circular¹³, the maximum rate of brokerage/agency commission on the terrorism premium as approved by IRDAI was five *per cent*.

Audit observed that the systems did not have in built controls to ensure that the commission on terrorism premium did not exceed the maximum allowed rate. It was noticed from the underwriting data extracted in respect of 18 standalone terrorism policies out of 392 policies in fire portfolio, IT system allowed to pay commission in excess of stipulated five *per cent*, in the range of 5.35 to 11.5 *per cent*. Thus, lack of validation controls in the IT system resulted in excess payment of commission in standalone fire terrorism policies.

The Company accepted the observation and stated (July 2023) that validation is under development and will be deployed shortly. Ministry replied (September 2023) that the modified software for capping commission structure was implemented from May 2023.

Audit noted that there were contradictions in the reply given by the Management and the Ministry. On further verification (December 2024) by Audit, two cases of higher commission payment (11.5 *per cent*) were noticed indicating that the validation controls were not working effectively.

Input and validation controls to ensure correct payment of commission as per IRDAI circular may be implemented by the Company at the earliest.

L. Issue of policies without Basic Sum Insured

Banker's Indemnity Policy of the Company provided an indemnity to the Banks and the policy covered the risks in the various sections viz., (a) On Premises; (b) In transit; (c) Forgery or alteration, (d) Dishonesty, (e) Hypothecated goods, (f) Registered Postal

¹³ TPOOL/CIR/6/2013-14 dated 01 January 2014.

Sendings, (g) Appraisers and (h) Janata Agent/Chotibachat Yojna Agents/PYGMIE collectors. As per the Manual for miscellaneous insurance policies prepared by UIIC HO in 2014, the premium for Banker's Indemnity Policy would be calculated based on the basic sum insured and the number of employees. The basic sum insured would cover all the risks under (a) to (h) as mentioned above and rate of premium was six *per cent*. In addition to the basic sum insured, the policy also provided for additional limits of sum insured in respect of risks under (a) and (b) on payment of extra premium which shall be charged at a flat rate of one *per cent* on the additional sum insured.

On a review of underwriting data for the period 2019-2022, it was noticed that system permitted to issue policies to the customers with basic sum insured as 'zero' in the policy document even though the data for basic sum insured was captured in the system. Out of 5,192 proposals received during the period 2019-2022, 33 policies were issued to the customers with basic sum insured as 'zero' in the policy document. The total basic sum insured omitted in the policy documents was ₹103.85 crore. Thus, lack of adequate validation controls in the CORE system which allowed issuance of policies without basic sum insured resulting in short collection of premium of ₹6.23 crore calculated at the applicable rate of six *per cent*.

The Company replied (May 2023 and July 2023) that a bug was identified in the system which was resolved in April 2023.

Ministry in their reply (September 2023) stated that due to the technical glitches the basic sum insured was not printed on the policy documents which was rectified in April 2023. The Ministry added that due to de-tariff, the premium rate on bankers' indemnity policies were based on claim experience and market competition and hence it was adequate and there was no cause for recovery.

Audit noted that the glitches were corrected. The company may ensure that robust validation controls and review mechanisms are kept in place to ensure correct issuance of policies and collection of premium.

M. Payment of health claims beyond prescribed limits

As per circulars¹⁴ issued by the Company in March 2019 and February 2021 related to health insurance, the terms and conditions of Individual Mediciclaim Policies prescribed maximum limits for payment of claims in respect of specified diseases. Accordingly, the limits fixed were ₹40,000 per eye and ₹1,00,000 in respect of Cataract and Hernia diseases respectively subject to 25 *per cent* of sum insured whichever was lower.

On a test check of health claims data¹⁵ related to Cataract and Hernia for the period 2019-22, it was observed that there were no validation controls in the system to ensure that

¹⁴ HO: Health: CIR dated 20.03.2019 and circular No. HO: Health: CIR:25:2020-21 dated 13.02.21.

¹⁵ During 2019-22, 3.57 lakh claims were settled in respect of Individual Mediciclaim Policies.

the claims were paid within the maximum limits. Non-configuration of policy terms in the IT system resulted in excess payment of ₹2.51 crore in 2,891 claims.

The Company accepted the Audit observation and stated (May 2023/July 2023) that necessary change initiation will be taken up for implementing validation.

Ministry replied that (September 2023) the software development work is in progress and shall be deployed by October 2023.

Audit noted that the validation was subsequently implemented. The company may ensure that robust validation controls and review mechanisms are kept in place to ensure correct processing of claims.

N. Non-mapping of Cubic Capacity of vehicles

As per India Motor Tariff 2002, cubic capacity (CC) of a vehicle was the crucial factor for determining premium payable in the case of insuring two-wheeler and Private car policies.

Audit observed that the IT system lacked adequate input controls to ensure that the column for capturing CC did not contain null or zero values. It was noted that during the period 2019-2022, the IT system permitted to issue 1441 and 138 policies out of 2.19 crore two wheeler and 92 lakh private car policies respectively without capturing CC value of the vehicles and also noted undercharged premium¹⁶ in test checked cases.

The Company accepted the audit observation and stated (July 2023) that software development is in progress for not accepting zero or null value. Ministry replied (September 2023) that necessary validations have been incorporated in the software.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that the validation checks were not working as per the plan with system allowing issue of two wheeler policy with zero cubic capacity. Necessary validation controls to accept the correct cubic capacity of the vehicle may be implemented in the IT system at the earliest.

O. Motor Third Party claims

The motor insurance business constituted a significant portion of the total business of the Company and effective management of Third Party (TP) claims was critical for the financial well-being of the Company. As per the manual for TP claims, continuous, periodic and systematic review of all major aspects of Third-Party motor claims was considered essential by the Company to ensure efficient management and prevent leakages. Audit noticed deficiencies in maintaining the database for motor third party claims, details of which are given in subsequent paras.

¹⁶ Premium undercharged was found to be ₹9,129 in 10 test checked cases.

(i) Lack of input controls in maintaining Case Number Records

Case Number Record (CNR) was a 16-digit alphanumeric unique number assigned to each case filed in district and taluka courts in the country. The pattern of CNR number was first two digits for State code, second two digits for District Code, next two digits to represent the particular court in the district, next six digits to represent random number generated by Case Information System and last four digits represented the year of filing the case in the court. Thus, CNR number would help to track the exact status of the case.

The manual of Motor TP claims framed by the Company envisaged capturing the CNR number in the system at the time of registration of TP claims to enable the operating offices to keep track of the cases. The manual also envisaged capturing of CNR number in the system for already registered claims as a one-time exercise.

On a review of 1.86 lakh motor third party claims for the period 2019 to 2022 Audit noticed that there were no validation controls in system to capture the complete CNR number as per the prescribed format. Number of TP claims without prescribed format and complete CNR numbers is given as under:

Sl. No	Description of CNR recorded in system	No. of claims
1.	CNR number recorded as blank	41,415
2.	CNR recorded as zero	15,813
3.	Last 4 digits of CNR number not matching with case year	5,888
4.	CNR number starting with number	194
5.	CNR number ending with alphabet	7

Thus, inadequate input controls in capturing the case numbers in the intended manner affected the envisaged purpose of database helping in tracking the cases.

The Company accepted the audit observation and stated (July 2023) that updation of CNR number in the IT system will be done shortly. Ministry replied (September 2023) that necessary changes have been deployed in respect of updation of CNR numbers in the IT system.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that in 48,970 cases CNR number was blank and in 578 cases last 4 digits of CNR number were not matching with the year in which case was filed, indicating that updation of CNR numbers was not done completely in the IT system. Hence, necessary validation controls may be implemented and updated CNR numbers may be entered in the IT system at the earliest.

(ii) Incorrect mapping of date of petition

As per section 171 of Motor Vehicles Act, liability to pay interest on amount awarded by the Motor Accident Claims Tribunal (MACT) arises from a date not earlier than the date of making the claim. Thus, the liability of the Company to provide for interest on motor third party claims would arise from the date of filing petition by the claimant.

On a review of 1.86 lakh motor third party claims for the period 2019 to 2022, Audit observed that date of filing petition and date of loss (accident) were same in 4,046 number of cases. As noted from the website of e-court services, actual dates of petitions and the dates entered in the IT system were different.

Audit observed that system lacked sufficient validation controls while capturing the date of filing petitions. This had an impact on the calculation of interest liability also since the IT system of the Company was configured to automatically calculate the interest on outstanding claim balances as at the end of accounting period. Audit conducted a test check of 50 cases out of 4,046 in the website of e-court services where it was found that there was difference in actual petition date and the date entered in the IT system. This had an impact of extra interest liability to the tune of ₹0.58 crore, worked out at the rate of seven *per cent*.

The Company replied (May 2023) that CORE system had the validation to ensure that the date of petition was on or after the date of loss only. It was also stated that necessary exception report would be provided as a one-time measure for corrective action in the cases where date of petition and loss date were same and would implement additional validation such that date of petition was later than date of loss. Management further replied (July 2023) that it will incorporate validation in “Date of petition” field as per audit observation.

Ministry replied (September 2023) that the necessary changes have been deployed in respect of validation of date of petition field in the IT system.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that date of filing petition and date of loss were same in 2,280 cases for the year ended 31 March 2024.

Hence, necessary validation controls to capture the correct date of petition filing after the date of accident may be implemented in the IT system at the earliest.

P. Master database maintenance in IT system

Master/Standing Data File controls were meant for integrity and accuracy of Master Files and Standing Data. Information stored in master and standing data files was critical to the processing and reporting of financial and operational data. Information on master files could affect many related transactions and must therefore be adequately protected.

The stakeholders in the underwriting business of the Company mainly included customers who availed insurance policies and intermediaries who would facilitate the procurement of insurance business. On a review of master database of customers and intermediaries of the Company, Audit noticed several issues as discussed in succeeding paragraphs.

(i) Weak input controls in customer master database

On a review of customer master database containing 28,99,898 corporate customers and 15,00,27,368 individual customers as on 31 March 2022, Audit noticed the following:

- PAN was not mapped in the system (25,14,502 corporate customers)
- PAN captured was not as per the prescribed pattern of ten digits (35,15,062 individual customer and 4,800 corporate customer),
- PAN captured represents neither individual nor corporate customer (1.18 lakh customers)
- Same PAN was mapped with more than one customer (32,599 cases).
- Columns for mobile number, email id and pin code were blank in IT system (3,04,890 individual customers and 16,99,875 corporate customers)

The Company accepted the audit observation and stated (May 2023 and July 2023) that necessary validation controls and system modifications would be taken up. Ministry replied (September 2023) that the necessary system modification has been made.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, no improvement was noted in PAN data. However, 69,588 PAN numbers belonging neither to individual nor to corporate customers were noticed in respect of new entries made after 1 April 2022.

Hence, necessary controls to capture the correct PAN details of customers may be implemented in the IT system at the earliest.

(ii) Issue of policies in the name of deceased customers

As per the terms and conditions of a motor insurance policy, a fixed amount is assured through Personal Accident (PA) cover in case of death or injury of owner-cum-driver of the insured vehicle subject to a maximum limit of ₹0.15 crore.

Audit observed that there was no mechanism of auto linkage of factual status of the customers whose death claims were reported for settlement in the IT system. During the period 2019-2022, Audit noticed that system permitted to issue 173 renewal policies in respect of 145 vehicles in the names of deceased customers in subsequent years. The total PA cover risk undertaken by the Company in 173 policies was ₹25.95 crore. Though Audit did not notice any further claims in respect of renewed policies, this control lapse in the system needed to be corrected.

The Company stated (May 2023) that for the settlement of these claims, the documents issued by various statutory authorities were required to be submitted by the claimant which would get issued after a considerable time delay from the date of accident. By the time, the vehicle policy would get renewed in the existing insured's name itself. Company further replied (July 2023) that system is under review and upon confirmation of logic from technical department, the same would be incorporated.

Ministry replied (September 2023) that the validation requirements was taken up with the Technical Department for their review and the same would be deployed by October 2023.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that similar instances were noticed during the year 2024 also indicating need to further strengthen the validation controls.

Q. Intermediary Master Database

On a review of Intermediary master database containing 45,145 active agents marked as 'Corporate' and 1.24 lakh active agents marked as 'Individual' as on 31 March 2022, Audit observed absence of PAN details and incorrect PAN mapped in the database¹⁷.

The Company accepted the audit observation and stated (July 2023) that necessary validation controls and system modifications would be taken up. Ministry replied (September 2023) that suitable validations for intermediary master have been developed and the modified software has been deployed.

Reply of Management and Ministry need to be viewed in the light of the fact that on further verification (December 2024) by Audit, it was noted that corporate PAN were mapped with individual agents and same PAN was mapped with for more than one corporate agent in 105 cases. Hence, validation controls updated by the Company need to be further strengthened to avoid incorrect mapping or non-mapping of PAN in intermediary database.

3.1.4.2 Audit Findings related to IT controls and security

IT security involves implementing a suitable set of controls, including a secure environment, appropriate policies, procedures and practices, organisational structures etc. to address the security objectives of the organisation. The protection of data is vital, it is protected through a layered series of technological and non-technological safeguards such as physical security measures, user identifiers, passwords, firewalls, etc.

¹⁷ 29 Corporate Agents had PAN applicable for individuals, 1334 agents were considered as individual though had corporate PAN, 542 Corporate Agents had no PAN mapped, In 1581 cases same PAN mapped with multiple Intermediary codes and in 11870 cases PAN mapped for intermediaries was not in compliance with the prescribed pattern.



A. Lapses in compliance to Information and Cyber security guidelines of IRDAI

IRDAI issued (April 2017) guidelines on Information and Cyber Security for insurers. Audit noticed that there were lapses in complying with the IRDAI guidelines for formulation of comprehensive Information and Cyber Security framework for the Company as discussed below:

Guidelines	Observation	Reply/Action taken
Appointment of Chief Information Security Officer	The timeline fixed for appointing a person exclusively as CISO was 30 April 2017. Till March 2022, UIIC did not appoint exclusive CISO and the CISO responsibility was given as additional charge.	Exclusive appointment was not done due to manpower shortage. An exclusive CISO was appointed on a contractual basis for a period of two years with effect from 1 June 2023.
Comprehensive Information and Cyber Security Assurance Audit	The timeline for the first Information Systems Audit was 31 March 2018. Company did not conduct the Audit for the years 2017-18 and 2018-19. First audit was conducted for the year 2019-20.	After tendering for Vulnerability Assessment & Penetration Testing (VAPT) audit in September 2017, report submitted in February 2018.
Finalisation of Cyber Crisis Management Plan and Information and Cyber Security Policy	The timeline fixed for finalisation of the plan and policy was 30 June 2017 and 31 July 2017 respectively. This was done in February 2018 with a delay of more than six months	Formulation and finalisation of Cyber Crisis Management Plan and Information and Cyber Security Policy was a specialised activity and process for identification of consultant took time hence IRDAI timeline could not be met.
Mechanism to ensure Information and Cyber Security	Audit could not verify whether the Company has put in place any mechanism to monitor its intermediaries with respect to the compliance with IRDAI guidelines on cyber security.	IRDAI issued detailed guidelines on Information and Cyber Security in April 2023 wherein detailed scope is clearly defined. Tender for implementation of IRDAI guidelines called for in August 2024 which was under finalisation.

Guidelines	Observation	Reply/Action taken
Board approved information and cyber security policy - Updation of Business Continuity Management	Business Continuity Management policy was approved in September 2020. The periodicity of review/update was not specified. Recovery Time Objective and Recovery Point objective was not included.	Business Continuity Management policy is under review and Disaster Recovery document has defined the Recovery Time Objective and Recovery Point Objective values as 180 minutes and zero respectively.

The tender called for formulation of comprehensive information and cyber Security framework may be finalised at the earliest. The Company may ensure complete and timely compliance to IRDAI cyber security guidelines in future.

B. Inadequate user data management

As per the Access Control Policy of the Company, access to IT system and information is managed based upon 'Need to know' and 'Authorised to know' attributes. All persons with access to information processing facilities are identifiable without repudiation.

All the employees requiring access to IT system were given a password enabled user id. The user ID was an eight-character alpha numeric string, of which the first three characters were taken from the name of the employee and the last five digits represented the employee number assigned by the Human Resource Department. As per the Password policy of the Company, passwords used to access IT systems and IT information must be changed regularly as per password procedure. Passwords will be expiring after a maximum period of 90 calendar days.

On a review of user master database in CORE system of the Company, Audit observed the following:

Issue Noticed in Audit	Management Reply
The user IDs for employees did not match with the established pattern and contained either alphabets or numerals and also less than eight characters for 254 out of 12,296 active users.	User IDs for employees of the Company contained eight characters, user IDs of business associates contained 11 characters and other users had 8 to 15 characters. IT department is analysing the details of user IDs with less than eight characters or only alphabets and taking suitable action.
Employee user IDs included 74 users who were in fact intermediaries such as Web aggregators, OEM tie up partners, etc., and were active in database.	Web aggregators and OEM have been provided user IDs for API call only and user IDs created as employee will be reviewed and suitable action will be taken
Twenty-one user IDs were showing active status even though they were not logged in	Exploring the option for disabling unused user IDs after a certain periodicity.

Issue Noticed in Audit	Management Reply
for a period ranging from 390 to 812 days since the log off.	
The validity period for the password was not uniform for all the users and ranged from 0 to 900 days. In the case of nine user IDs, the column for password validity period was blank.	Exploring to implement the password expiry limit.
In respect of 2,644 active employee user IDs, column for capturing passwords was blank.	Once the Privilege Identification Module (PIM), is implemented, access would be fully tracked.

Reply of Management and Ministry needs to be viewed in light of the fact that on further verification (December 2024) it was observed that suitable actions were yet to be taken as there were 1,811 active employees were not having passwords and the password validity period was not uniform for all users.

Weak user Id and password policy would compromise the security of the IT system. Company should implement a strong user-ID and password maintenance policy under the ambit of access control policy of the Company.

C. Weak logical access controls

Logical access controls were a system of measures and procedures, both within an organisation and in the software, products used, aimed at protecting computer resources (data, programs and terminals) against unauthorised access attempts. The objective of logical access controls was to protect the financial applications and underlying data files from unauthorised access, amendment or deletion.

The objectives of limiting access were to ensure that users have only the access needed to perform their duties, access to very sensitive resources such as security software program, was limited to very few individuals and employees were restricted from performing incompatible functions or functions beyond their responsibility. As part of effective user group management, access should be timely revoked when the 'users' exit.

On an analysis of database in the IT system, Audit observed that there was no automated system to deactivate the login credentials of employees immediately on their retirement to prevent unauthorised use. The access control system existed in the Company was vulnerable and prone to the risk of unauthorised access. Login credentials of retired employees were used for initiation of underwriting and claim process as well as approvals as under:

Use of log in credentials of retired employees	No. of log in credentials used
No. of login credentials of retired employees were used for generating 196 approval requests related to intermediary, higher discounts, claim related etc.	39
No. of login credentials of retired employees used for five claim related approvals.	2

The period of use of access credentials of retired employees ranged from 1 to 783 days after the date of their retirement during 2019-22.

The Company replied (May 2023) based upon communication of HR department, users are disabled within 48 hours. Such IDs are reactivated and deactivated based on HR department requests. One-time cleansing of user IDs was done in December 2022. Every six-month such clean up activity will be undertaken. The Company further replied (July 2023) that as on date user IDs are deactivated upon exiting of the employee along with roles assigned to them.

Ministry endorsed (September 2023) the reply of the Company.

Reply of Management and Ministry needs to be viewed in light of the fact that on further verification it was noted that there were 51 cases of intermediary approval given during August 2023 to December 2024 by user IDs of four retired employees.

The logical access controls were weak, and the user credentials of retired employees were compromised. The Company should deactivate user-ids immediately upon exiting of the employee along with roles assigned to them as per access control policy of the company.

3.1.4.3 Conclusion

The CORE Insurance system of the Company is in use since 1 April 2017. Various control lapses and weaknesses in the system were noticed in audit. Various critical information such as GVW, PUC compliance, chassis number, vessel registration number etc, were not captured in the system. The input controls also needed to be strengthened to capture identification of subject matter of insurance Claim processing and settlements including for accepting valid CNR number and petition date, to restrict claim payments as per the limits and to apply policy deductibles etc. Similarly, the maintenance of master database files for customers and intermediaries also needed to be made more robust to capture vital details including PAN and customer type. There were delays in timely adherence to the IRDAI security guidelines with respect to appointment of CISO on exclusive basis, conducting Comprehensive information and cyber security assurance audit, framing of security related policies, etc. The logical access controls also needed to be strengthened in various aspects including deactivation of user credentials of retired employees.

Chapter - IV

MINISTRY OF HEAVY INDUSTRIES

CHAPTER IV: MINISTRY OF HEAVY INDUSTRIES

Bharat Heavy Electricals Limited

4.1 Execution of Solar Power Projects by BHEL

4.1.1 Introduction

A. Company Profile

Bharat Heavy Electricals Limited (BHEL), a Central Public Sector Enterprise (CPSE), under the administrative control of Ministry of Heavy Industries, Government of India, is India's largest power generation equipment manufacturer. BHEL has 4 Regional Offices, 16 Manufacturing Plants, 2 Repair Units, 8 Service Centres, 15 Regional Marketing Centres, 3 Overseas Offices and a Research and Development Division. BHEL has footprint in 83 countries in all six inhabited continents, having more than 150 project sites.



Figure 4.1 - Kadiri Solar Park, Sri Satya Sai District, Andhra Pradesh

Solar Business segment of BHEL, established in 1983, provides end-to-end in-house solutions for all solar power needs—including conceptualisation, design, engineering, manufacturing, erection, testing, commissioning, Operations and Management (O&M).

B. Working Results

The solar projects were handled by Electronics Division (EDN) and Electro Porcelain Division of BHEL Bengaluru prior to January 2021. From January 2021, the Electro Porcelain Division has been renamed as Solar Business Division (SBD) to handle Solar Business independently in addition to its existing portfolios¹. Working results of EDN and SBD from solar portfolio for the last six years ended 31 March 2023 are as under:

¹ *Porcelain Insulators, Industrial Ceramics, Composite Insulators, Control Panels and Selective Catalyst Reactors (for limiting emissions from Thermal Power Plants).*

Table 4.1: Performance of Solar Business of BHEL

Year	EDN Turnover			Electro Porcelain Division/ SBD Turnover		
	Physical (MW)	Income from Solar Business (₹ in crore)	Profit/ (Loss) (₹ in crore)	Physical (MW)	Income from Solar Business (₹ in crore)	Profit/ (Loss) (₹ in crore)
2017-18	102.05	319.49	-119.56	55.68	176.97	-37.00
2018-19	190.97	468.3	-170.18	87.00	163.16	-59.00
2019-20	257.01	652.01	-156.27	120.00	203.11	-81.00
2020-21	300.15	774.25	-206.00	12.95	23.66	-42.83
2021-22	Not Applicable			227.57	655.2	-296.77
2022-23	Not Applicable			53.84	360.01	-270.37

MW – Mega Watt

C Organisational Set-up

Solar Business Division is headed by an Executive Director, who is assisted by two General Managers, six Additional General Managers and six Senior Deputy General Managers. The total strength of the employees as on 31 December 2023 was 406. The SBD Unit Head reports to Director (Industrial Systems & Products) at Corporate Office, BHEL. The SBD is responsible from order booking to contract closing for the entire solar value chain (except Roof Top Solar which is entirely executed by BHEL Unit at Rudrapur, Uttarakhand).

4.1.2 Audit Framework

The audit was taken up to assess the functioning of the solar business of BHEL, particularly the economy, efficiency and effectiveness in project execution. In the audit, of the 31 solar projects which were due for completion during 2017-18 to 2021-22 as also solar projects which were due for completion prior to 2017-18 but completed during 2017 – 2022, 15 solar projects were selected for review, using stratified random sampling. The selected sample covered about 48 *per cent* of the solar projects by number and about 78 *per cent* of the total value of the solar projects. Further, the operation and maintenance of solar projects already completed during 2017-2022 was also reviewed in Audit. The facts and figures in the report have been updated till December 2023. The list of projects selected for review is given in **Annexure X**.

The audit commenced with an Entry Conference on 19 October 2022, wherein the audit approach was delineated. The Audit Findings were discussed with the Management in the Exit Conference held on 19 May 2023. The draft report, incorporating Management response, was issued to the Ministry of Heavy Industries on 14 July 2023. Response of the Ministry, received on 23 November 2023, has been considered while finalising this report.

4.1.3 Audit Findings

4.1.3.1 About Solar Power: How solar power is produced

A Solar Photovoltaic (PV) Power Plant works on conversion of solar radiation into electricity using semiconductor devices called Solar Cells. The Solar Cells are connected and sealed in a weather tight encapsulation and these are called Solar PV Modules. The modules then are wired up in series known as string which are connected in parallel with one another, called as PV Array.

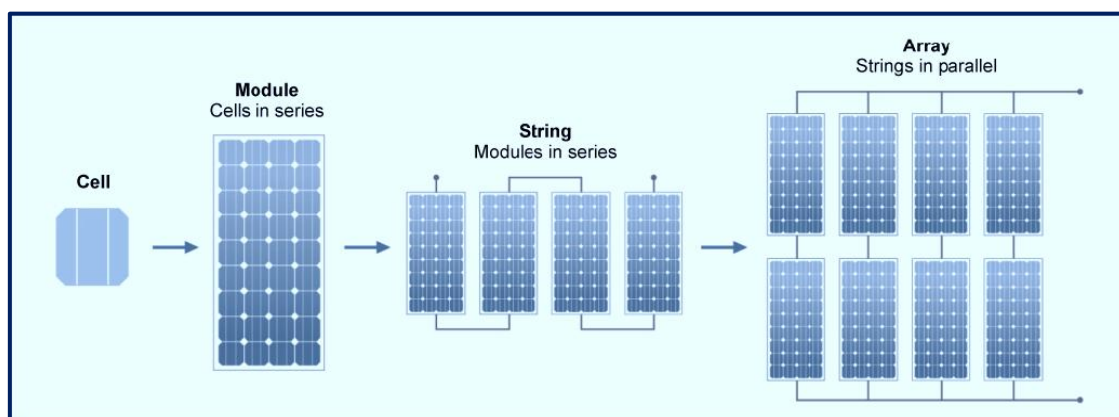


Figure 4.2 - Solar Power Generation Process

The electrical power generated by the PV Array is Direct Current (DC) which is then converted by the inverter/ power conditioning unit into three phase Alternating Current (AC) which is fed directly into the grid. The power generated needs to be conditioned in respect of voltage, phase and frequency to integrate it properly with the grid.

4.1.3.2 Solar Energy Generation Capacity and Role of BHEL

Solar Energy Generation Capacity- Scenario of the World and India

The solar energy generation capacity of the World and India are given below:

Table 4.2: Solar Energy generation capacity of World and India

Year	World (in MW)	India (in MW)	per cent of increase over the last year	
			World	India
2016	3,01,186	9,982	--	--
2017	3,96,316	18,257	32	83
2018	4,92,641	27,485	24	51
2019	5,95,492	35,250	21	28
2020	7,28,405	39,705	22	13
2021	8,73,858	49,950	20	26
2022	10,73,136	63,390	23	27
2023	14,18,969	73,109	32	15

Source: Renewable Energy Statistic 2022 Report by International Renewable Energy Agency.

The solar energy capacity of the World is increasing at an average of 25 *per cent* per year. Solar energy capacity in India had picked up in 2017 with an increase of nearly 83 *per cent* over 2016. From 2017 to 2023, solar energy capacity in India has grown at an average rate of 26 *per cent*. Solar capacity added in India in the last five years and contribution of BHEL to the solar capacity in India is depicted below:



Figure 4.3 - NTPC Ramagundam Floating Solar Plant

Table 4.3: Solar capacity addition

Year	Solar capacity addition		
	Capacity added during the year (in MW)	Capacity addition by BHEL* (in MW)	Per cent of BHEL capacity addition
A	B	C	D=C/B%
2017-18	9,563.69	93.60	0.98
2018-19	6,750.97	89.30	1.32
2019-20	6,510.06	135.00	2.07
2020-21	5,628.80	89.00	1.58
2021-22	12,760.50	122.00	0.96
Total	41,214.02	528.90	1.28

* Capacity of the projects completed during the financial year.

Source: Response submitted by Ministry of New & Renewable Energy to Rajya Sabha and Lok Sabha Questions.

Solar power generation capacity is being added steadily in the last five years through two Modes, viz., Developer Mode² and Engineering, Procurement and Construction (EPC) Mode³. Total capacity of solar power has increased by 41,214.02 MW from 2017-18 to 2021-22. However, the capacity addition contributed by BHEL has been minimal at 528.90 MW (1.28 *per cent*).

Management stated (May 2023) that the capacity addition is largely driven by growth in Developer Segment in India which is about 95 *per cent* where BHEL currently does not operate. Majority of Developers are private firms which carry out EPC through in-house resources/expertise. BHEL has been addressing 'Developer' mode indirectly via its Memorandum of Understanding with Central Public Sector Undertaking Developers like GAIL (India) Limited, Sutlej Jal Vidyut Nigam Limited and Railway Energy Management Company Limited.

² The entity develops a Solar Plant and takes the responsibility for capital cost and operation and maintenance including sale of solar energy generated.

³ The scope of work under EPC mode includes only providing end-to-end solar services from designing the system, procuring the components, installing and commissioning the project.

Ministry added (November 2023) that BHEL participated along with GAIL (India) Limited in four Developer mode tenders but the orders could not be bagged. Ministry also added that orders could not be bagged since the desired Internal Rate of Return (IRR) of BHEL was much below the benchmark minimum IRR expectation of PSU Developers. Further, Developer mode tender would require capital investment, sale and purchase of electricity and long term (at least 25 years) association with the developed project which BHEL may not be able to adhere to.

The reply of the Management may be viewed in the light of the fact that BHEL, while making business projections for Solar business in January 2016, considered not only 100 *per cent* of the orders floated in EPC mode but also assumed that 20 *per cent* of the orders of power projects through Developer mode would also be their addressable business. However, BHEL has not been able to capture that market as Private Developers did not float any EPC tenders during the last five years. Further, Ministry's reply confirmed that BHEL has not secured any order through its Memorandum of Undertakings with Central Public Sector Undertaking Developers as well, as of November 2023 and no orders were received subsequently also even up to 31 December 2023.

4.1.3.3 Order book of BHEL Solar Business

Order book or order backlog is an indicator of level of customer demand and future financial stability. The Company bagged a few orders during 2016-17 to 2019-20 but could not bag any orders thereafter. The Company was only executing the orders received up to 2019-20 in the later years. As per information furnished by the Management, success rate in securing orders of solar business (EPC) during 2016-17 to 2021-22 are summarised in Table 4.4 below:

Table 4.4: BHEL Order Book

Year	No. of bids quoted/ participated on EPC Mode			Orders Secured			Orders Lost		
	No.	Value (₹ in crore)	Order (MW)	No.	Value (₹ in crore)	Order (MW)	No.	Value (₹ in crore)	Order (MW)
2016-17	14	1,565.00	348.50	8	720.00	131.00	6	845.00	217.50
2017-18	6	724.00	118.00	3	410.00	95.00	3	314.00	23.00
2018-19	17	2,516.00	585.00	4	713.00	164.00	13	1,803.00	421.00
2019-20	17	3,502.00	743.15	9	2,038.00	402.00	8	1,464.00	341.15
2020-21	2	1,078.00	156.00	0	0	0	2	1,078.00	156.00
2021-22	5	1,884.00	820.00	0	0	0	5	1,884.00	820.00
Total	61	11,269.00	2,770.65	24	3,881.00	792.00	37	7,388.00	1,978.65

It can be seen from the above table that though the Company has bagged nearly 40 per cent of the orders it had bid for, in terms of numbers, it has been able to bag orders amounting to around 28 per cent of the rated capacity it had bid for. The Management stated that all the orders lost in the last six years are only due to 'price'. Audit noticed that in case of six tenders, price difference between L1 price and BHEL was less than 5 *per cent* and in case of remaining 31 tenders, price difference ranged between 5.07 *per cent* and 51.88 *per cent*.

Moreover, the Company has not been able to bag projects with higher capacity with only three of the projects bagged by the Company being more than 100 MW during the last six years.

Management replied (May 2023) that detailed analysis of every tender is not possible as only lumpsum EPC price is available in the public domain. Factors contributing to higher material cost have been analysed and steps such as expanding vendor base to obtain competitive rates, sourcing Solar PV modules through Techno Commercial Memorandum of Understanding, etc. have been taken at Solar Business Division for reducing the cost. It was also replied that the PV modules contribute to 60 *per cent* of the material cost and their procurement is governed by Global Tender Enquiry Restrictions⁴ and General Financial Rules restrictions for procurement from Border Sharing Countries which are not affecting all other private EPC contractors. Management also stated that, to address market competitively and to mitigate risk, BHEL is targeting specific opportunities where BHEL is cost competitive and have capabilities like Balance of Systems (BOS) tenders⁵, floating Solar plants⁶ etc.

Ministry added (November 2023) that BHEL targeted the Floating Solar segment and has been able to bag 147 MW (34 *per cent*) of orders and reiterated that BHEL has been finalising Techno Commercial Memorandum of Understanding and pre-bid tie-up for target tenders to be competitive as well as to mitigate execution risk.

The replies of the Management and Ministry may be viewed in light of the fact that Solar Business Division has been incurring losses on account of high material procurement cost and poor cost estimation even before the introduction of Global Tender Restrictions in June 2020 and General Financial Rules restrictions in July 2020 as is clear from Table 4.11 given in Para 4.1.3.5 (B).

Further, the steps initiated by BHEL to target the Balance of Systems segment were yet to produce results as BHEL was not able to bag two⁷ tenders participated by it in January 2022 and March 2023. In case of NTPC Nokh, the initial quote submitted by BHEL was higher than the awarded price by 25 *per cent*. Floating Solar Plants executed by BHEL have been at a loss and no bid could be secured despite engaging pre-bid tie-ups for Solar PV modules of high rating up to 540 watt power (Wp) through Techno Commercial Memorandum of Understanding in order to obtain firm and competitive prices at the time of bidding. So far as Global Tender Enquiry restrictions are concerned, the Ministry has power to grant

⁴ *Department for Promotion of Industry and Internal Trade vide order dated 4 June 2020 restricted procurement of all goods, services or works with estimated value of purchases less than ₹200 crore without the approval of Competent Authority as designated by Department of Expenditure. Purchase preference was to be given to supplier having local content ≥ 50% of total procurement undertaken.*

⁵ *The scope of work of the tender includes the design, engineering, manufacturing, packing, transporting, unloading, storage, installation, testing and commissioning of solar projects, excluding the supply of solar modules.*

⁶ *The projects wherein the solar panels are mounted on water bodies are called Floating Solar Plants.*

⁷ *NTPC Nokh (3 X 245 MW) in January 2022 and NTPC Khavda (4 X 300 MW) in March 2023.*

exemption and to reduce minimum local content. For example, it was seen that BHEL approached the Administrative Ministry for exemption only once in September 2021 and received it in December 2021 for 2021-22. No further requests were made.

Recommendation no. 17: The Company needs to further analyse the reasons for its quotations being higher resulting in losing tenders and also review the steps taken as they have not yielded fruitful results.

4.1.3.4 Infrastructure facilities and utilisation

BHEL is one of the first engineering enterprises to manufacture Solar Photo Voltaic (SPV) Cells and Modules in the country. The infrastructure facilities available with BHEL for manufacture of solar cells and modules are given below:

Table 4.5: Manufacturing facilities at BHEL

Name of the facility	Capacity	Date from which the facility was available	Capital cost (₹ in crore)
Cell manufacturing	20 MW	2009	18.44
	85 MW	January 2017	119.88
Module manufacturing	26 MW	March 2013	14.59
	200 MW	January 2017	61.55

Utilisation of these facilities is detailed in succeeding paragraphs.

A. Solar Cell - Manufacturing Capacity and Utilisation

Solar cells are made of silicon wafers and are the basic building blocks of PV modules. These are the active components of PV modules which are responsible for converting light energy into electricity with the help of photoelectric effect. Solar Cells are divided as Mono Crystalline⁸ and Multi Crystalline (poly) based on the Wafer type used in manufacturing. BHEL is equipped with manufacturing both the type of Cells at Bengaluru.

(i) 20 MW Mono Crystalline Solar Cell facility: This facility uses 157 mm size wafers. Due to non-availability of 157 mm Mono Crystalline Wafers in the market, this facility is not functional since 2018-19. The company has not incurred any expenditure on maintenance of the facility during the period 2017-22.

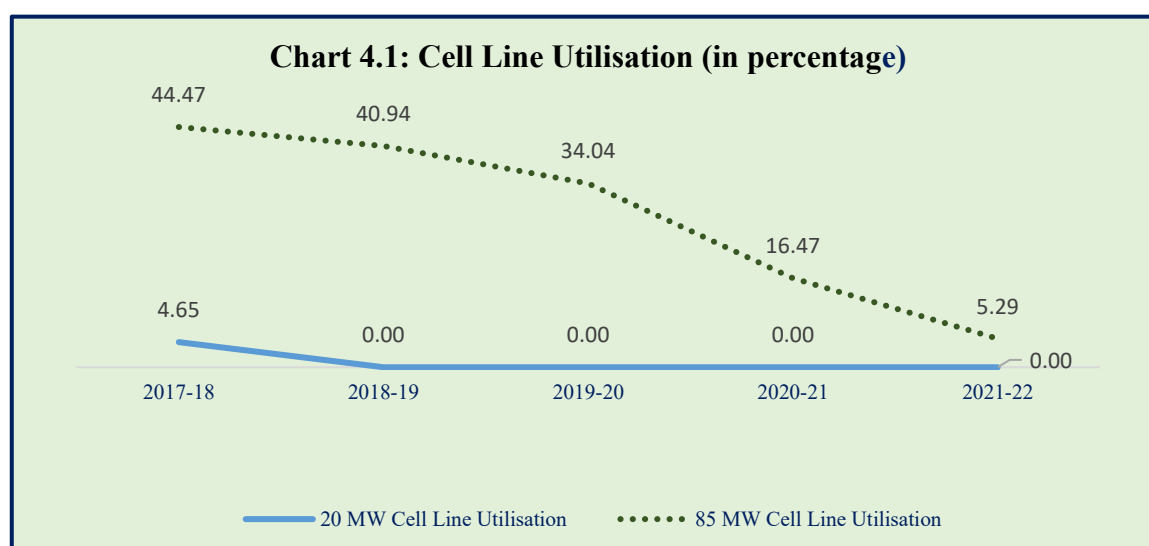
⁸ *Mono Crystalline solar panels have solar cells made from a single silicon crystal while Multi/ Poly Crystalline solar panels have cells made from multiple fragments of silicon crystals melted together. Mono Crystalline solar panels give better performance than Multi Crystalline but are expensive.*

(ii) 85 MW Multi Crystalline Solar Cell facility: This facility is equipped with machinery to manufacture Multi Crystalline Solar Cells using 157 mm wafers. However, from 2019 onwards, majority of wafer manufacturers have upgraded from 157 mm to 166 mm, 182 mm and 210 mm wafers. Because of the said market upgradation, 157 mm wafers availability has become limited making the capacity of BHEL facility redundant in view of non-availability of technology to manufacture solar cells required by the current market demand. The Unit spent ₹2.64 crore towards maintenance of this facility during the period⁹ 2018-19 to 2021-22.



Figure 4.4: 85 MW Solar Cell Manufacturing Facility

Utilisation of both the cell lines in terms of percentage, is displayed in the Chart below:



The average of manufacturing output over 5 years is less than 1 *per cent* for 20 MW facility and only 28.24 *per cent* for 85 MW facility.

Audit observed that the 20 MW Mono Crystalline Cell Manufacturing facility was completely abandoned due to non-availability of Mono Crystalline Wafers in market and, on an average, only 24 MW output could be received from the 85 MW line due to technical deficiencies such as requirement of software updates and good quality screens. The maintenance cost for addressing the technical issues¹⁰ were very high, affecting the overall

⁹ No expenditure was incurred on maintenance of this facility in 2017-18.

¹⁰ Maintenance cost for addressing the technical issues (₹7.19 crore), charges for Consent of Operation (₹ 0.25 crore), Zero Liquid Discharge (₹3.50 crore) and maintenance of Zero Liquid Discharge (₹ 1 crore per annum).

profitability. For both the 20 MW Cell Line and 85 MW Cell Line, BHEL is exploring options for using the equipment of the facility for alternative uses or means of monetisation by selling, renting or repurposing.

Out of 15 projects selected in sample for scrutiny, the in-house Cell Manufacturing facilities were utilised partly for manufacturing modules for three projects only, viz., NTPC Ramagundam, WBPDCCL Sagardighi, NTPC Mandsaur and complete quantity for 1 MW BEL Medak. Table 4.6 below details the utilisation against each of the four projects:

Table 4.6: Capacity Utilisation at BHEL

Sr.	Project Name	Procured Outside (MW)	Manufactured In-house (MW)	Total Supplied (MW)	In-house per cent
	A	B	C	D	E=C/D%
1	NTPC Ramagundam	24.63	0.29	24.92	1.18
2	WBPDCCL Sagardighi	3.46	2.27	5.73	39.62
3	BEL Medak 1 MW	-	1.00	1.00	100.00
4	NTPC Mandsaur	10.90	4.47	15.37	29.08

It can be seen from the above that only in case of one project, complete requirement of the Cells was processed in-house.

Management stated (May 2023) that the technological shift in 2019 from Slurry Cut to Diamond Wire Sawing¹¹ required stabilisation resulting in a slowdown in production and decreased average utilisation. The COVID pandemic added to the issue with operating restrictions further reducing capacity utilisation. BHEL intends to use the production line based on customer orders and aims to obtain a Global Tender Enquiry exemption.

Ministry added (November 2023) that 85 MW cell line was established with a view to address the Domestic Content Requirement of Solar PV projects. However, all existing and new projects with Domestic Content Requirement were stopped vide Ministry of New and Renewable Energy order dated 11 December 2017¹² and added that BHEL could not utilise its 85 MW Cell Line due to change in Government Policies.

The reply needs to be considered in the light of the fact that the existing 85 MW Cell Manufacturing capacity was equipped with machinery to process Slurry as well as Diamond Wire Sawing of 157 mm wafers. However, due to upgradation of wafer market for increased wafer sizes beyond 157 mm, the facility could not be utilised. It is further noticed that the utilisation was poor before the pandemic as well. The capacity utilisation of the 85 MW Cell Manufacturing facility remained low due to technical issues. Further,

¹¹ *To make cheaper solar cells, thin wafers of superior quality and strength are needed. The wafers are cut from silicon ingot using the wire sawing process. Loose Abrasive Slurry sawing has been replaced with fixed abrasive Diamond Wire Sawing which offers several advantages including smaller kerf (width of cut made by a saw) loss, reduced wafer cost, and greater environmental friendliness.*

¹² *The Order lifted the restrictions earlier placed for the import of raw material required for Renewable Energy Projects. With this, there was no restriction on the minimum requirement of domestic content in supplies.*

to start production, permissions are required from Pollution Control Board. Cells are the input material for manufacture of modules and hence, BHEL could have utilised its Solar Cell manufacturing facilities to feed the in-house Solar Module manufacturing facilities, irrespective of the restrictions on Domestic Content requirement. Further, Government of India approved CPSE scheme Phase-II on 5 March 2019 for setting up grid connected Solar PV Power Projects, in which Domestic Content Requirement was mandated for solar PV cells and modules, thereby generating demand for domestically produced solar cell, which could have been taken advantage of by BHEL. However, BHEL could not address the demand generated through CPSE scheme Phase-II as the facility at BHEL had become obsolete due to shift in technology. Thus, while Government Policies have had a role to play in the fluctuating demand for domestically produced solar cells, the main reason for low capacity utilisation was the technological obsolescence of the BHEL facility. Therefore, it is vital for Management to consider essential measures aimed at enhancing its facilities at par with prevailing market demand and conditions after appropriate cost-benefit analysis.

B. Solar PV Modules - Manufacturing Capacity and Utilisation

Each individual cell produces solar energy of only 4-5 Watts. To increase the power output, cells are connected and sealed in a weather tight encapsulation which is called a Solar PV module. Solar PV Modules are the key element in PV systems which convert the solar radiation/ energy into Direct Current (DC) electrical power. BHEL is equipped with two in-house module manufacturing facilities of total 226 MW capacity located at Bengaluru.

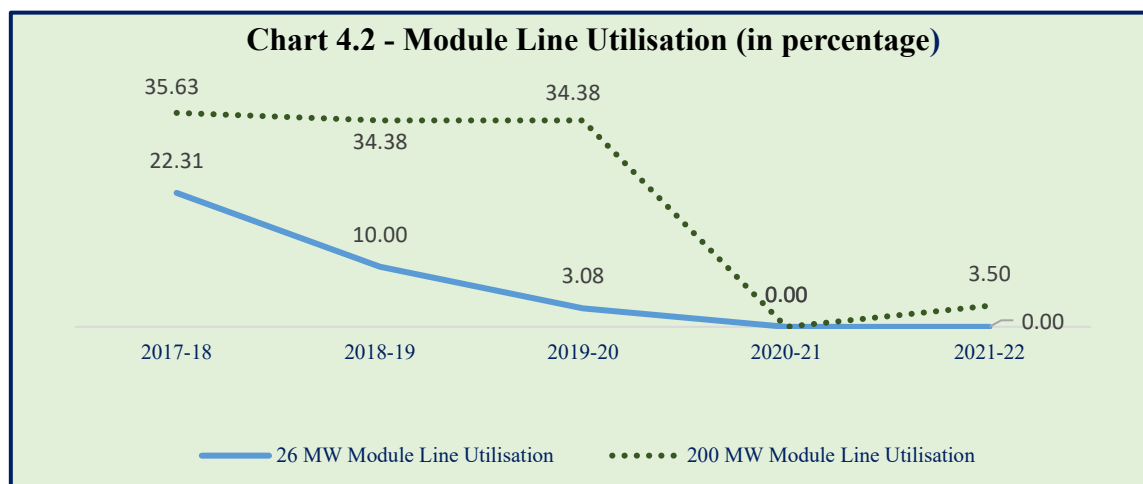
(i) 26 MW Module Manufacturing facility: The manufacturing line of this facility established in March 2013 uses 3 and 4 Bus Bar¹³ Mono as well as Multi Crystalline Solar Cells of size 156 mm. As Module Manufacturing facility is limited to process only 3 and 4 Bus Bar Solar Cells of size 156 mm and since these Bus Bar Cells were not available in the market since 2018, the facility has become defunct in view of not meeting the market requirement. Accordingly, the Unit has incurred a meagre sum of ₹9.41 lakh towards maintenance during the five years ended 31 March 2022.

(ii) 200 MW Module Manufacturing facility: This production line established in January 2017 was designed to process 156 mm Mono as well as Multi Crystalline Solar Cells. In 2021, the facility was upgraded to accommodate in-house manufacture of 158.75 mm Mono PERC¹⁴ Cells. Further upgradation to 166 mm is not possible. Due to limited availability of 158.75 mm cells in the market, the manufacturing ability of the facility is severely restricted. The Unit spent ₹3.87 crore towards maintenance during the five years ended 31 March 2022.

¹³ *Bus Bar is a thin strip of copper or aluminium between Cells that conducts electricity.*

¹⁴ *PERC (Passivated Emitter and Rear Contact) is a new technological advancement in solar industry. It has higher efficiency than that of conventional Mono Crystalline.*

The manufacturing output of both the module lines is displayed in the Chart below -



The average capacity utilisation for 5 years for 200 MW line is 21.58 *per cent* and for 26 MW line, the same is only 7.08 *per cent*. The 26 MW facility uses 3 and 4 bus bar solar cells of size 156 mm and due to their non-availability in the market, the facility has produced only 0.80 MW of module in 2019-20 and nothing thereafter.”



Figure 4.5: 200MW Solar Module Manufacturing Facility

The 200 MW facility currently can only manufacture 143 MW because of technical deficiencies such as non-availability of laminator and dedicating one test bench each for Mono PERC and other for Multi Crystalline Panels. Since the Plant was more than 5 years old, the compulsory downtime was abnormally high at 2 ¼ hours for a shift of 8 hours.

Out of 15 projects selected in sample for scrutiny, the in-house Module manufacturing facilities were utilised partly in six projects and complete quantity was processed only in case of two projects. Table 4.7 below details the utilisation against each of the eight projects:

Table 4.7: In-house Module facility utilisation against each project

Sr.	Project Name	Procured Outside (MW)	Manufactured In-house (MW)	Total Supplied (MW)	In-house <i>per cent</i>
	A	B	C	D	E=C/D%
1	NTPC Ramagundam	120.6	25.93	146.53	17.70
2	GSECL Raghunesda II	91.14	30.58	121.72	25.12
3	GIPCL Charankha	75.00	22.63	97.63	23.18
4	NLC Neyveli	73.03	3.23	76.26	4.24

Sr.	Project Name	Procured Outside (MW)	Manufactured In-house (MW)	Total Supplied (MW)	In-house per cent
	A	B	C	D	E=C/D%
5	WBSEDCL Santaldih	3.96	6.97	10.93	63.77
6	WBPDCCL Sagardighi	0	5.46	5.46	100.00
7	BEL Medak 1 MW	0	1.10	1.10	100.00
8	NTPC Mandsaur	35.00	16.47	51.47	32.00

Thus, BHEL was forced to procure or outsource Modules directly from market as available manufacturing facilities were not technically up to date.

C. Year-wise Comparison in MW of Modules/ Cells manufactured in-house and procured from the market

The details of in-house manufacturing and outside procurement (both domestic and global) of Modules and Cells are given below:

Table 4.8: Table showing comparison of PV Module and Solar Cells Procurements

Comparison of PV Modules Procurement			Comparison of Solar Cells Procurement		
Year	Outside procurement	Manufactured in-house	Year	Outside procurement	Manufactured in-house
2017-18	23.91	77.05	2017-18	56.88	38.73
2018-19	180.96	71.35	2018-19	75.79	34.80
2019-20	359.98	69.56	2019-20	36.01	28.93
2020-21	218.85	0.00	2020-21	0.00	14.00
2021-22	200.58	7.00	2021-22	39.70	4.50

Due to obsolete technology available in-house, the Company had to procure PV Modules and Solar Cells from outside (both domestic and global) rather than manufacturing them in-house.

Management stated (May 2023) that the fast-paced technological advancements in the PV industry created challenges in sourcing raw materials and COVID pandemic added to the issue with operating restrictions further reducing utilisation. Moreover, restrictions on the Global Tender Enquiry and General Financial Rules also contributed for lower utilisation. BHEL intends to use the production line based on customer orders and aims to obtain a Global Tender Enquiry exemption. It was also stated that Company is planning to utilise the current capabilities to manufacture modules with a capacity of up to 400 Wp with specific emphasis on addressing the needs of identified business segments.

Ministry added (November 2023) that in-house manufacturing of PV Modules was planned in all available opportunities but, considering project execution timelines, concurrent execution of orders and for meeting technical specifications, BHEL had resorted to outsourcing the Modules and Cells requirement. It was further stated that the Company has been approached by Original Equipment Manufacturers and Industry Experts for possibility

of modifying the existing facility to manufacture 520-540 Wp PV Modules. In addition to this, Ministry stated that upgradation/ creation of manufacturing facilities involved capital investments and its viability shall be examined and decision shall be taken accordingly.

Reply needs to be viewed in light of the fact that impact of pandemic could not be visualised separately as the capacity utilisation of the 200 MW Module Manufacturing facility remained low due to other factors also such as shift in the technology and limited vendors for 158.75 mm solar cells. Consequently, it is vital for the Management to undertake essential measures to utilise in-house manufacturing facilities.

Recommendation no. 18: The Company may explore possibilities of creating new / upgrading existing manufacturing facilities with suitable up to date technology as per market demand/ conditions, after considering the costs and benefits, to ensure optimum utilisation of in-house manufacturing capacities.

D. Consolidation of Solar Business

To give unified thrust to solar business segment and to ensure responsiveness to the changing business environment and long-term viability of the product, Electro Porcelain Division Bengaluru was renamed as Solar Business Division (SBD) and was made to operate independently as the primary solar business centre of BHEL from January 2021. Audit observed that BHEL has not secured any EPC Solar Power Plant orders and accordingly in-house capacity utilisation has been meagre even after consolidation of business in January 2021.

The Table below shows capacity utilisation of the facilities in Pre and Post Consolidation period.

Table 4.9: Capacity utilisation comparison

(Data in per cent)

	Pre-Consolidation				Post Consolidation
Manufacturing line	2017-18	2018-19	2019-20	2020-21	2021-22
20 MW Cell line	4.65	0	0	0	0
85 MW Cell line	44.47	40.94	34.04	16.47	5.29
26 MW Module line	22.31	10.00	3.08	0.00	0.00
200 MW Module line	35.63	34.38	34.38	0.00	3.50

The meagre utilisation of in-house capacity as indicated above shows that the decision to form a separate Solar Division has not yielded any significant results so far.

Management stated (May 2023) that the EPC orders could not be booked due to competitive disadvantage faced by BHEL due to the import restrictions imposed by Government of India on Central Public Sector Undertakings. Post consolidation of SBD, market scenario has undergone drastic changes in terms of pricing, raw material availability, supply chain issues, etc. which were majorly caused by the pandemic.

Ministry while reiterating the facts brought out by the Management stated (November 2023) that in spite of many challenges, the projects could be completed within a reasonable time beyond the contractual schedule only because the operations had been consolidated and decisions were taken in a co-ordinated manner.

The reply of the Management needs to be viewed in the light of the fact that the Projects carried out post-consolidation, viz., NTPC Kayamkulam, NTPC Ramagundam, GSECL Raghnesda I and Raghnesda II faced similar issues¹⁵ as those experienced before consolidation, viz., BEL Medak, and GIPCL Charankha such as multiple revisions in drawings, delayed order placement and supply and significant delays in execution. Despite efforts to streamline operations through consolidation, the manufacturing facilities have continued to operate at a low utilisation rate and the order book status remained meagre.

4.1.3.5 Execution of Solar Power Projects

Audit of Solar Power Projects executed by BHEL disclosed significant time and cost overruns in most projects. Detailed examination of various important activities such as preparation of detailed estimates, realisation of contract amount, etc. in respect of the 15 sample selected projects revealed the following:

A. Cost Overrun

Out of 15 selected projects, the contract value was more than the total cost (including overheads) in only one project. In 13 projects, the contract value was less than even the actual material cost incurred. On the aggregate, the combined actual material cost exceeded the contract value by ₹524.63 crore, which is 19 *per cent* of contract value (₹2,806.79 crore¹⁶). The combined total cost (including overheads) exceeded the contract value by ₹1,145.30 crore, which is 41 *per cent* of the contract value. The extent of cost overrun in individual projects ranged between ₹12.38 crore and ₹198.44 crore as depicted in the table below:

Table 4.10: Contract value vis-à-vis the Actual cost of selected projects

(₹ in crore)

Sl No	Name of the project	Contract Value (without O&M)	Actual Material cost	Actual OH	Actual cost	Excess of Actual Cost over Contract Value
		A	B	C	D=B+C	E=D-A
1	NTPC Mandsaur	265.87	299.56	64.37	363.93	98.06
2	BEL Medak (15 MW)	92.04	107.07	27.76	134.83	42.79
3	NLC Neyveli	322.54	350.02	81.34	431.36	108.82
4	WBSEDCL Charrah	50.42	54.78	13.86	68.64	18.22
5	BEL Medak (1MW)	6.38	6.27	0.06	6.33	-0.05
6	WBSEDCL Santaldih	50.90	50.59	14.56	65.15	14.25
7	GIPCL Charankha	283.20	353.91	91.49	445.40	162.20

¹⁵ Please refer to Annexure XII to Annexure XIX of this Report.

¹⁶ Excluding Taxes and Operations and Maintenance Price.

Sl No	Name of the project	Contract Value (without O&M)	Actual Material cost	Actual OH	Actual cost	Excess of Actual Cost over Contract Value
		A	B	C	D=B+C	E=D-A
8	SCCL Manuguru	115.11	126.52	24.48	151.00	35.89
9	SCCL Ramagundam	191.85	219.01	39.62	258.63	66.78
10	WBPDCCL Sagardighi	20.32	27.66	5.04	32.70	12.38
11	GSECL Dhuvaran	229.94	235.63	46.40	282.03	52.09
12	NTPC Ramagundam	382.78	506.32	74.90	581.22	198.44
13	GSECL Raghnesda I	346.67	423.52	71.00	494.52	147.85
14	NTPC Kayamkulam	102.10	109.56	14.77	124.33	22.23
15	GSECL Raghnesda II	346.67	461.00	51.02	512.02	165.35
Total		2,806.79	3,331.42	620.67	3,952.09	1,145.30

Audit reviewed the two major components of the total cost, namely, Material cost and Overheads. The observations of audit in respect of these two components are brought out in the subsequent paragraphs.

B. Cost estimation not reflective of actual cost incurred

Of the 15 selected projects, NTPC Mandsaur 50 MW project was the earliest project awarded to BHEL in March 2016 while the GSECL Raghnesda II 100 MW project awarded to BHEL in December 2019 was the last project. In all the 14 projects where estimates were prepared, the actual material cost exceeded the estimated material cost, ranging between 3.02 *per cent* and 60.90 *per cent*, as brought out in the table below:

Table 4.11: Estimated and Actual Material cost of selected projects

S. No.	Name of the project	Estimated Material Cost	Actual Material Cost	Actual in excess of estimate %
		A	B	C=(B-A)/A %
1	NTPC Mandsaur	242.11	299.56	23.73%
2	BEL Medak (15 MW)	75.03	107.07	42.69%
3	NLC Neyveli	286.12	350.02	22.33%
4	WBSEDCL Charrah	45.60	54.78	20.13%
5	BEL Medak (1MW)		6.27	
6	WBSEDCL Santaldih	46.06	50.59	9.85%
7	GIPCL Charankha	251.67	353.91	40.62%
8	SCCL Manuguru	90.89	126.52	39.21%
9	SCCL Ramagundam	151.48	219.01	44.58%
10	WBPDCCL Sagardighi	17.19	27.66	60.90%
11	GSECL Dhuvaran	228.73	235.63	3.02%
12	NTPC Ramagundam	359.35	506.32	40.90%

S. No.	Name of the project	Estimated Material Cost	Actual Material Cost	Actual in excess of estimate %
		A	B	C=(B-A)/A %
13	GSECL Raghnesda I	340.02	423.52	24.56%
14	NTPC Kayamkulam	90.53	109.56	21.02%
15	GSECL Raghnesda II	340.02	461.00	35.58%
		2564.80	3331.42	

Note: BEL Medak 1 MW has been awarded as a Repeat Order and hence, no separate estimates were prepared.

C. Overhead estimation not in line with the policy

BHEL follows a three-tier-cost estimate system as per Corporate Guidelines dated 9 May 2001. The three-tier-cost structure is mentioned below -

Level-1: Estimated Factory Cost¹⁷;

Level-2: Estimated Factory Cost + Variable Commercial and Administrative Overheads;

Level-3: Estimated Factory Cost + Variable Commercial and Administrative Overheads + Fixed Commercial and Administrative Overheads.

At BHEL Solar Business Division, the overhead distribution in three-tier-cost structure was determined by analysing previous year trends for Solar projects at the Division - For Level 1, a cost of 2.5 *per cent* of the material cost was considered. For Level 2, an additional 2.5 *per cent* was added to material cost, and for Level 3, another 2.5 *per cent* was added to the material cost.

Audit reviewed the estimated overheads distributed as per three-tier-cost-structure and actual overheads incurred for the fifteen projects selected for review. In eight projects, overheads were estimated at 7.5 *per cent*. However, for the WBSEDCL Sagardighi, GSECL Dhuvaran, Raghnesda Phase I & II, and NTPC Ramagundam projects, overheads were estimated at 2.76 *per cent* only and in case of BEL Medak 15MW project, the Unit estimated overheads at 14 *per cent* of the estimated material cost.

The actual overheads incurred/ apportioned exceeded the estimated overheads in all the 14 projects where estimates were prepared and ranged between 11.07 to 28.78 *per cent* of actual material cost incurred as brought out in the Table below:

¹⁷ *Raw Material; Sub-Contracting Charges; Power and Fuel Charges; Labour; Engineering, Design and Development Charges; Testing Charges; Packing Charges; Insurance, Forwarding and Carriage Outward; Variable Office Expenses; Selling Variable Expenses; Contractual Obligation; Financing Charges; Other Direct Variable Expenses.*

Table 4.12: Estimated and Actual Overheads of selected projects

Sl No	Name of the Project	Overhead	Estimated Material Cost	% Overhead of Estimated Material Cost	Actual OH	Actual Material Cost	Actual Overhead as a % of Actual Material Cost
		A	B	C=A/B%	D	E	F=D/E%
1	NTPC Mandsaur	18.16	242.11	7.50%	64.37	299.56	21.49%
2	BEL Medak (15MW)	10.55	75.03	14.05%	27.76	107.07	25.93%
3	NLC Neyveli	21.46	286.12	7.50%	81.34	350.02	23.24%
4	WBSEDCL Charrah	3.42	45.60	7.50%	13.86	54.78	25.30%
5	BEL Medak (1MW)				0.06	6.27	--
6	WBSEDCL Santaldih	3.45	46.06	7.50%	14.56	50.59	28.78%
7	GIPCL Charankha	18.88	251.67	7.50%	91.49	353.91	25.85%
8	SCCL Manuguru	6.82	90.89	7.50%	24.48	126.52	19.35%
9	SCCL Ramagundam	11.36	151.48	7.50%	39.62	219.01	18.09%
10	WBPCL Sagardighi	0.48	17.19	2.76%	5.04	27.66	18.22%
11	GSECL Dhuvaran	6.32	228.73	2.76%	46.40	235.63	19.69%
12	NTPC Ramagundam	9.93	359.35	2.76%	74.90	506.32	14.79%
13	GSECL Raghnesda I	9.40	340.02	2.76%	71.00	423.52	16.76%
14	NTPC Kayamkulam	6.79	90.53	7.50%	14.77	109.56	13.48%
15	GSECL Raghnesda II	9.40	340.02	2.76%	51.02	461.00	11.07%

Note - BEL Medak 1 MW has been awarded as a Repeat Order and hence, no separate estimates were prepared.

The SBD's estimation of overheads at lower than the prescribed levels for certain projects, despite earlier projects showing significant overhead overruns, indicated inadequate assessment of the actual overhead costs leading to inaccurate estimation of viability of these projects at bidding stage and consequent execution of orders with losses.

Management attributed (May 2023) the higher material cost to Global Tender Enquiry Restrictions and General Financial Rules restrictions for procurement from Border Sharing Countries which were not affecting all other private EPC contractors and added that these restrictions hindered BHEL's ability to source raw materials from international suppliers, resulting in delays and higher procurement costs. Management further stated that several optimisations were made to rationalise the costs before finalisation of tender. Factors such as manpower deployment, in-house manufacturing or outsourcing of PV Modules and

Cells, depreciation, etc. need to be considered while distributing the overheads. Thus, the overhead rate of 7.50 *per cent* is considered for optimised cost to ensure competitiveness in the market.

Ministry, while reiterating the steps initiated by BHEL for restricting costs added (November 2023) that, apart from the above constraints expressed by the Management, site conditions, change in law, supply chain disruptions due to pandemic, etc., also contributed to additional costs. Ministry, further, added that a detailed exercise is being done to review the overheads and now the overheads are streamlined by apportioning among different product verticals in Solar Business Division. Further, all high value cost estimates are reviewed and vetted through Cost Optimisation Cell.

The replies need to be viewed in the light of the fact that only five out of the 15 selected projects had completion dates after February 2020, when the Global Tender Enquiry Restrictions and General Financial Rules restrictions were imposed. However, apart from BEL Medak 1 MW project, which had a contract value exceeding the actual cost by 0.78 *per cent*, all other projects suffered operational losses regardless of their execution cycle, pre or post-pandemic. The restrictions led to price increase of 4.5 *per cent* to 9 *per cent* for Indian made Modules as stated by Management itself, but material costs for projects like NTPC Ramagundam and GSECL Raghnesda I & II exceeded expected values by 25 *per cent* to 41 *per cent*. The lacunae in SBD's methodology for estimating cost affected project viability and profitability, emphasising the need for accurate costing information to prevent execution of loss-making orders.

While BHEL has initiated corrective course of action, efficacy of which would be verified in future audits, the reply of the Management may be viewed in the light of the fact that the comparison of estimated and actual overheads in all the 14 projects where estimates were prepared revealed substantial disparities. The use of incorrect overhead estimations had led to inflated profitability projections, but eventual operational losses. The discrepancies in the methodology employed by SBD to estimate overheads underscores the importance of precise costing information to avoid unviable orders.

Recommendation no. 19: The Company may review the material procurement process and analyse the reasons for material costs incurred being more than the estimated material cost.

Recommendation no. 20: The Company may review the cost estimation system periodically by adopting current market rates to participate in the bids and accordingly consider quoting in cases which are viable and where at least the variable cost to be incurred is recovered.

Case Study – 1

Procurement of Solar PV Modules at higher price due to lack of coordination between two BHEL Units–Extra expenditure of ₹5.67 crore on procurement, additional expenditure of ₹2.17 crore on Safeguard Duty

Headquarters of BHEL (November 2018) informed Electro Porcelain Division (EPD), Bengaluru in advance to initiate manufacturing action for modules required for 70 MW Solar PV Plant at Singareni Collieries Company Limited (SCCL). Headquarters also directed Electronics Division (EDN), BHEL, Bengaluru for procurement of another 70 MW PV solar modules for the same project.

At that time, EPD used to procure solar cells from EDN, as EDN was mandated to provide solar cells either by in-house manufacturing or through outsourcing to EPD. EPD used to manufacture solar modules in the Unit with the solar cells supplied by EDN. EDN communicated (January 2019) to place purchase order for SPV cells at the earliest, however, EPD placed purchase order (March 2019) on EDN for solar cells required for SCCL Project for a value ₹54.03 crore after a delay of five months from the date of Headquarters' advice to initiate manufacturing action, i.e., November 2018. However, EDN informed EPD (April 2019) to take alternate action for procurement of cells suitable for the SCCL project as EDN was not able to supply the cells against SCCL requirement since procurement of cells with such high wattage and efficiency was difficult to source and will not be cost effective for EDN. In view of the inability expressed by EDN for supply of required solar cells and keeping in view the project timelines, EPD sourced 71.77 MW PV modules (which were to be manufactured in house by EPD) awarding order on Contractor A and Contractor B at the negotiated price of US\$ 240.00 per KW on 15 June 2019. However, it was noticed that EDN had already procured their share of 71 MW capacity modules from Contractor A and Contractor B in February/ March 2019 itself, at US\$ 228.72/ 223.90 per KW.

In this regard, Audit observed that had EPD acted diligently and communicated with EDN as early as in November 2018, immediately after getting information from BHEL Headquarters, the required quantity of Modules could have been clubbed with the quantity ordered by EDN in February/ March 2019. Thus, laxity on the part of EPD in communicating its requirement resulted in incurring additional cost of ₹5.67 crore, being the difference in US\$ rate between US\$240 and US\$228.72 for 71 MW, towards differential in procurement cost of modules. Further, as per the detailed price break-up, the Safeguard Duty allocated for SCCL project was ₹46.56 crore, against which the actual expenditure incurred was ₹48.73 crore resulting in additional expenditure of ₹2.17 crore, beyond the ceiling agreed upon.

Management stated (May 2023) that the EPD had initiated action for procurement of input materials required for manufacturing PV Modules based on communication received in

November 2018 but as communication from EDN was received on 4 April 2019 expressing its inability to supply, fresh order had to be placed.

Ministry added (November 2023) that efforts were made through negotiation to reduce the price, before finalising the contracts. To address these issues, for all major tenders, Solar Business Division is entering into pre-bid tie-ups for major equipment to cover the risks arising due to rise in cost of procurement during execution after receipt of order.

The replies may be viewed in the light of the fact that the order for Solar Cells was placed on EDN on 28 March 2019 after nearly five months from the date of Headquarters' advice to initiate action and EDN expressed their inability to supply on 4 April 2019, i.e., on receipt of confirmed order. This delay on the part of EPD in placement of confirmed order on EDN resulted in incurring extra expenditure which could have been avoided.

Case Study – 2

Excess expenditure of ₹17.41 crore in procurement of Module Mounting Structures (MMS) Columns and Superstructures for 100 MW Ground Mounted Solar Power Project at Gujarat State Electricity Corporation Ltd. (GSECL) Raghanesda Phase I

BHEL received Letter of Intent (LoI) (June 2019) from GSECL for execution of 100 MW Solar Power Project on EPC basis for a contract value of ₹395.57 crore. The work was completed with a cost overrun of ₹147.85 crore and with a delay of nearly 23 months. In this regard, Audit noticed that as per the milestones provided in the Contract, Topography Survey and Soil Investigation are among the initial activities to be conducted at site after receipt of LoI and had to be completed by 25 August 2019. However, these works were awarded by BHEL with a delay on 2 November 2019 as the site was not accessible due to water logging and the Survey Report was submitted on 7 January 2020. GSECL approved the Report on 18 January 2020. As per Soil Investigation report, MMS foundation design was submitted to GSECL on 10 February 2020 and it was approved by GSECL on 16 April 2020.

Based on the findings of Soil Investigation Report, column length was to be decided through Pile Pull Out Test, a test to estimate the load capacity of the pile corresponding to settlement criteria. The test was conducted in May 2020 and was considered as a partial failure. Based on the test results, BHEL revised the designs and the same were approved by GSECL on 26 June 2020. Proposal for go-ahead with job pile and MMS design for 18 MW area out of 100 MW site with pile depth of 2.2 metre was frozen in August 2020 by GSECL. For the balance 82 MW, BHEL suggested a pile depth of 2.2 metre and 3.4 metre for the balance 22 MW and 60 MW respectively. The proposal of BHEL for 82 MW with revised drawings was approved by GSECL in October 2020, after more than a year from date of LoI resulting in delay in procurement and erection works at project site.

As a result of delay in completing Topography Survey and Soil Investigation and thereafter delays in communicating approved designs by BHEL to vendors, all the vendors on whom orders were placed in December 2019/ January 2020 backed out due to delay in getting manufacturing clearance from BHEL and increase in steel prices. Consequently, all the purchase orders had to be foreclosed and retendered in March 2021. This resulted in avoidable excess expenditure of ₹17.41 crore, in comparison with prices as per orders placed in December 2019/ January 2020, affecting the profitability of the Project.

Management replied (May 2023) that it would not be appropriate to state that only due to delay in Topography and Geotechnical Surveys which have influence of only 11 to 21 *per cent* of weight have contributed to increase in cost by ₹17.41 crore. The main reason for increased cost has been steep increase in steel price during 2019-20 due to unprecedented supply chain disruption in market post Covid.

Ministry, while reiterating the constraints faced by Management, added (November 2023) that, due to non-construction of drain by Gujarat Power Corporation Limited (GPCL), which is the designated nodal agency by Government of Gujarat for development of solar park and other renewable projects, the site was not accessible upto October 2019 due to waterlogging. BHEL has thereafter, to reduce dependency in Topographical Survey and Soil Investigation, carried out design modification to standardise steel columns for different site conditions which will help in expeditious procurement and will also reduce dependency of estimate of quantum of MMS columns and Super Structure with Geotechnical Reports.

The Ministry reply needs be viewed in the light of fact that BHEL approached GSECL with respect to non-construction of drain only in November 2021 i.e., almost two years after Topographical Survey was conducted. While acknowledging the action taken by Management to mitigate these risks, it is noted that the delays in completing Topography Survey and Soil Investigation further delayed the approval of designs which were the basis for firming up orders. Had the tests been concluded as planned, the Management could have avoided placement of orders during the post Covid scenario which witnessed steep increase in steel prices.

D. Excess warranty period on equipment and systems arranged by BHEL

BHEL provides for a defined period of warranties/ guarantees against the equipment and systems that are supplied and installed by them as per contract with the customer. During the period of warranty, BHEL shall remain liable to replace/ repair any defective parts. Audit analysed the warranty period promised by BHEL to the customer and the warranty promised by Original Equipment Manufacturers (OEM) to BHEL for some of the equipment and systems and found non-alignment in warranty carried forward for eleven items. The detailed comparison between the two warranty periods for all fifteen projects has been mentioned in **Annexure XI**.

The warranty promised to customer by BHEL starts from the date of trial run/ start of Operation & Maintenance (O&M)/ provisional takeover, etc. depending on the terms of the Contract and the warranty provided by OEM to BHEL starts from the date of supply or commissioning of the item for a defined period. In majority of the projects, the warranty promised by the OEM is for a shorter period than BHEL's warranty to the customer, e.g., in GIPCL Charankha Project, the warranty provided by BHEL to customer for these eleven items covered five years after the start of O&M, however, the warranty provided by OEM is only for one year from the date of supply. Similarly, in case of GSECL Dhuvaran Project, warranty has been provided by BHEL for ten years from the start of O&M, however, the OEM has provided warranty only for one year from the date of supply. Hence, in case of faults or defects at site in the equipment and systems listed in **Annexure XI** after completion of warranty extended by the OEM, BHEL will have to take corrective action at its own cost. Further, in some instances, the warranty extended by the OEMs have expired even before the commissioning of the Projects, e.g., in case of WBPDC, Sagardighi, the supply of AC/ DC cables, inverter transformer, etc. was completed by November/ December 2019 and the items were bearing a warranty of 1 year from the date of supply. However, the warranty provided by OEM had expired before the commissioning of the Project in December 2020. Thus, not obtaining back-to-back warranty from OEMs or not restricting the warranty to the customer to the extent of warranty received from the OEM could result in extra cost to BHEL.

Ministry endorsed (November 2023) Management's reply (May 2023) that majority of items sourced from OEMs/ vendors have standard warranties of 18 months from supply or 12 months from commissioning. Change in warranty periods may lead to poor vendor participation and cost increase. Hence, obtaining back-to-back warranties is not always possible. Further, in recent estimates, provisions of spares/ AMC are kept covering against any post warranty replenishment.

The Management should strive towards ensuring that the warranty provided by the OEM is synchronous with the warranty offered by BHEL to customers to avoid incurring extra cost on this account. Accordingly, Audit suggests that BHEL should try to engage with OEMs through MoUs/ Long Term Agreements to synchronise the warranty offered and try to reduce the losses.

E. Time overrun and levy of liquidated damages

Audit observed that out of 15 projects, 14 projects were completed after their scheduled date of completion and BHEL incurred Liquidated Damages (LD) from the customers due to the delay.

The Table below details the delay in commissioning of the project and LD (as on 31 December 2023) imposed on BHEL by respective customers.

Table 4.13 – Delay in Commissioning

Sr.	Project	Capacity (MW)	Completion time as per LoI/LOA	Scheduled Commissioning Date (including approved extension)	Actual Commissioning Date	Delay	Liquidated damages (₹ in crore)
1	NTPC Ramagundam	100	14 months	24-04-2021	30-06-2022	14 months	LD levied but later waived
2	GSECL Raghnesda I	100	12 months	10-11-2020	18-10-2022	23 months	37.75
3	GSECL Raghnesda II	100	12 months	28-04-2021	1-06-2023	25 months	30.96
4	GIPCL Charankha	75	12 months	19-03-2019	04-06-2019	3 months	3.21
5	GSECL Dhuvaran	75	12 months	15-04-2021	15-04-2021	-	Nil
6	NLC Neyveli	65	12 months	04-06-2017	03-05-2018	11 months	32.77
7	SCCL Ramagundam	50	9 months	01-10-2019	February 2023	17 months	Yet to be finalised
8	NTPC Kayamkulam	22	14 months	23-04-2021	23-03-2022	11 months	LD levied but later waived
9	SCCL Mannuguru	30	9 months	29-09-2019	01-08-2020	10 months	Yet to be finalised
10	WBSEDCL - Santaldih	10	225 days	06-04-2018	03-10-2019	18 months	5.89
11	WBSEDCL - Charrah	10	225 days	23-06-2017	10-02-2020	31 months	0.40
12	WBPDCCL Sagardighi	5	6 months	31-08-2019	02-12-2020	15 months	Yet to be finalised
13	BEL Medak	1	150 days	27-08-2017	30-04-2018	8 months	0.32
14	NTPC Mandsaur	50	12 months	31-03-2017	02-06-2017	2 months	3.70
15	BEL Medak	15	170 days	17-11-2016	30-10-2017	11 months	4.61
TOTAL							119.61

As per the terms of the contract, LD was levied by the customers for the delay and it amounted to ₹119.61 crore for nine projects and in respect of three projects, the LD is yet to be finalised by the customer. The delay was on account of many aspects. The results of detailed examination for the delay of these 15 projects are discussed in the succeeding paragraphs.

Management stated (May 2023) that the time extension requests have been submitted with the Customers and are currently under review in case of NLC Neyveli, GSECL Raghnesda Phase I and Phase II. Ministry added (November 2023) that an amount of ₹6.85 crore has been recovered from the vendors by BHEL.

Case Study – 3

Acceptance of water logging area for execution of Gujarat State Electricity Corporation Limited (GSECL) 100 MW Raghnesda I & II

GSECL called for the tender for “Execution of 100 MW Solar Power Plant at Raghnesda - I” in Gujarat State in February 2019. The details of Soil Test Report were provided in the tender documents and bidders were advised to conduct their own geotechnical investigations to ascertain soil parameters of the site. The Hydrological Study, for testing soil strength, shared by GSECL was conducted by IIT Roorkee in the month of September 2016. BHEL conducted a site visit on 18 February 2019 prior to bidding for the tender. The reverse auction for tender was held on 20 April 2019 and BHEL stood L1. BHEL communicated their site preference (24 April 2019) for Plot A as their most preferred, followed by B, F, E, C, G and D sites which was based on distance from the substation. This preference was revised on 26 April 2019 after taking into account proximity of the sites to water body and inputs from the competitors. Now, Plot F was made first preference followed by G, E, C, D, B and A. BHEL received the Letter of Intent (LoI) for Phase I on 11 June 2019 for ₹377.57 crore excluding O&M cost of ₹18.00 crore.

Encroachment issues on Plot F were discussed in meeting held on 21 June 2019 amongst representatives from GPCL, GSECL and BHEL. BHEL was then allotted Plot C for Phase I construction which was confirmed in kick off meeting held on 25 June 2019. The map of site was revised, and names of Plots C and F were interchanged. While BHEL started executing the works for Phase I which were hampered due to unsuitable Plot Area, the Company accepted a Repeat Order on 5 December 2019 for another 100 MW for Phase II for same cost (₹377.57 crore) but allowed a discount of ₹3.97 crore on the O&M price when compared with Phase I. For Phase II, BHEL was allocated (1 January 2020) Plot A. Hence, Plot F (erstwhile Plot C) allotted in Phase I and Plot A allotted in Phase II were not the preferred sites as per their preference order submitted on 26 April 2019 to GSECL.

Even though the sites offered were not as per the preference order of BHEL, the Company went ahead and executed the works of Phase I and Phase II. Phase I was commissioned on 18 October 2022 with a delay of 23 months, while Phase II was commissioned on 1 June 2023 and is also delayed by 25 months. The difficulties faced by BHEL in execution of the project were mainly due to water logging at both the sites which was made amply clear in the Hydrological Survey made available by GSECL along with the tender documents.

Thus, accepting to execute works at an unviable waterlogged site resulted in delays in execution and attracted liquidated damages of ₹68.71 crore {₹37.75 crore for Phase I and ₹30.96 crore for Phase II} which have been withheld from the bills. Further, due to site and soil conditions, there has been abnormal increase in material and overhead cost by ₹313.20 crore {₹147.85 crore for Phase I and ₹165.35 crore for Phase II}.

Management replied (May 2023) that GSECL tender specified that the allotment of plot shall be as per Gujarat Urja Vikas Nigam Limited tender for selection of Developer. BHEL had only given preference for the plot and was in a position to execute the project irrespective of plot to be allotted.

Ministry added (November 2023) that IIT Roorkee have surveyed the Site and are preparing their Report on Site Drainage Infrastructure. Further, it was also stated that the matter for reimbursement of additional costs due to lack of infrastructure was being repeatedly taken up with GSECL and positive response was awaited.

The replies may be viewed in the light of the fact that the allotment was not made in the preference order opted by BHEL in case of both the Projects (Raghnesda I & II). As such, despite knowing the soil and site conditions, the projects were undertaken which resulted in cash losses wherein variable costs also could not be recovered. Further, despite facing difficulties in execution of Phase-I, acceptance of repeat order for Phase-II was not a prudent decision.

E.1 Non-adhering to L2 schedule

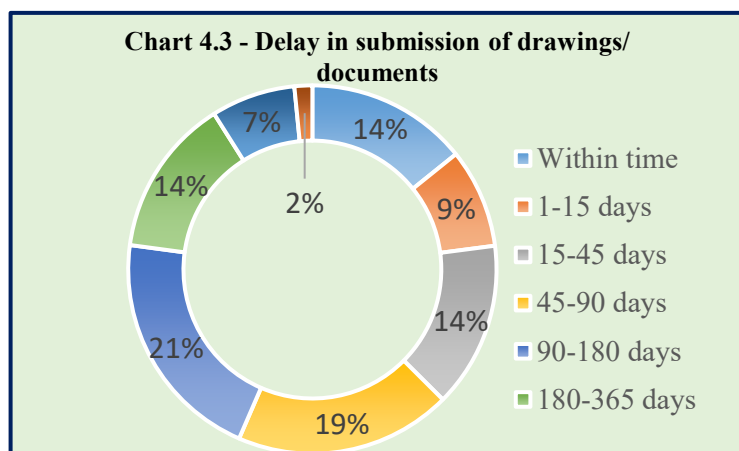
An integrated project schedule for the entire project time frame (i.e., L2 schedule) which shows the project milestones of engineering, procurement and construction and identifies critical path and key deliverables is signed between the customer and contractor as one of the primary activities for execution of EPC contracts. Following the critical path mentioned in L2 schedule ensures completion of the project as per timelines. However, delays were noticed in adhering to L2 schedule. For the convenience of comparison, the L2 schedule was divided, based on the nature and purpose of work, into three categories, viz., (i) Submission of documents, (ii) Procurement/ Manufacturing and Supply at Site and (iii) Works execution at Site (Erection, Installation and Commissioning).

(a) Submission of documents

After the award of the contract, detailed engineering process takes place. A Master Drawing List (MDL) is prepared by BHEL and approved by the customer. MDL includes all the Drawings and Documents to be submitted for approval or information to the customer along with scheduled dates of submission. On approval of the Drawings/ Documents, Detailed Engineering of each equipment and item is done at micro level in the Unit. Audit noted that 1,596 drawings were required to be submitted in respect of the selected 15 projects but 25 drawings have not been submitted as yet. Audit observed that there were significant delays in the first submission of the drawings vis-à-vis the scheduled submission dates as detailed in **Annexure XII**. A summary is presented below:

Table 4.14 – Delay in Submission of Drawings/ Documents

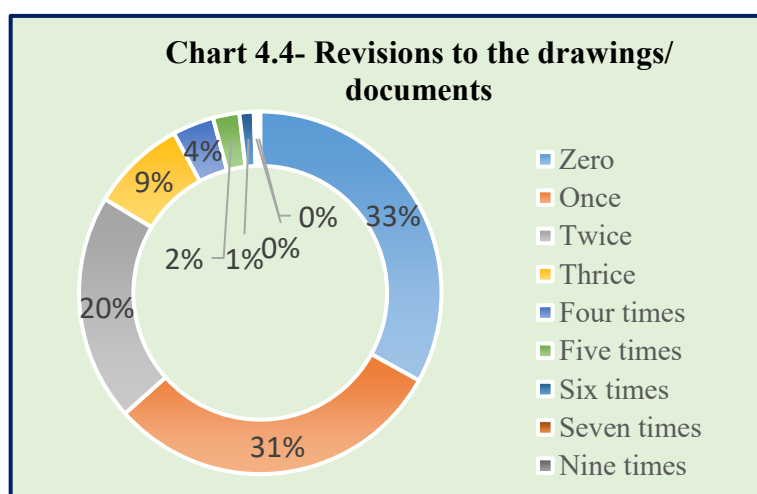
Delay range	No. of drawings
No delay	227
1 – 15 days	139
15-45 days	232
45 – 90 days	304
90 – 180 days	329
180 – 365 days	222
Above 365 days	118

**(b) Revisions to the drawings**

Audit also noticed that nearly two-thirds of the Drawings / Documents required multiple revisions as detailed in **Annexure XIII**. A summary is presented below:

Table 4.15: Revision of Drawings

No. of Revisions	No. of drawings
No revisions	519
1	477
2	318
3	133
4	58
5	37
6	20
7	5
9	4



Once the Drawings/ Documents receive the approval of the customer, Engineering Department issues indent for procurement of equipment and items based on Basic/ General drawing. Once the detailed drawings/ documents receive customer approval, manufacturing clearance is given. While the drawings in a project are subject to revisions and revisions cannot be completely eliminated, the multiple revisions increased the time required for the completion of the projects and the prescribed schedule could not be adhered to.

Management stated (May 2023) that BHEL follows an execution methodology for solar projects that involves creating preliminary drawings based on customer requirements and releasing all major indents for electrical items. Indents for MMS and Civil items are released based on approved drawings. The exact details of major electrical items are obtained from OEMs after the purchase order is placed, and drawing approval is sought from the customer. The Material Clearance for equipment is released upon customer approval. Some indents may be intentionally put on hold based on site progress and vendor pricing considerations.

Ministry added (November 2023) that the documents prepared at the time of Material Clearance planning – L2 Schedule is not allowed to be revised even though there is valid reason for time extension like pandemic, customer infrastructure delays, etc. Time extension of 5 months (150 days) was granted in NTPC Ramagundam, NTPC Kayamkulam, GSECL Raghunesda Phase I and Phase II and GSECL Duvaran wherein abnormal delay in drawing submission was noticed. This time extension applies to drawing submission dates also.

The replies of the Management and the Ministry need to be viewed in the light of the fact that the delay in obtaining customer approval for drawings has resulted in the corresponding delay in providing clearance to vendors. This delay has been observed consistently across all the reviewed projects and reasons for the same need to be scrutinised in detail so that future projects can be handled more efficiently.

Case Study – 4

Loss of valuable time due to not adhering to terms and conditions

As per the terms of the contract for 129 MW Solar Power Project at Singareni Collieries Company Limited (SCCL), “Seasonal Tilt of SPV Arrays” are to be provided. EDN submitted designs to SCCL for approval of Module Mounting Structures (MMS)/ Superstructures with ‘Fixed Tilt’ on 22 January 2019 instead of ‘Seasonal Tilt’.

In case of ‘Fixed Tilt’, the solar panels are mounted at a fixed angle/orientation and the tilt is determined by the location of the installation and the seasonality of the Sun’s path. It is simple and cost effective. In case of ‘Seasonal Tilt’, there is change in orientation of solar panels when the season changes as it is important to align them to capture as much sunlight as possible.

SCCL rejected the drawings with “Fixed Tilt” design and the same were revised to “Two Seasonal Tilts” and resubmitted on 12 February 2019. EDN, while ignoring the project requirement and before approval of designs, invited tender for procurement of steel on ‘Fixed Tilt’ design basis in February 2019 instead of ‘Seasonal Tilt’ design for MMS Columns and Superstructures.

Audit observed that due to non-acceptance of the designs by SCCL, the orders initiated in February 2019 were eventually revised in June/ July 2019. This avoidable process of

floating tenders for ‘Fixed Tilt’ in the first instance and later on revising to “Seasonal Tilt’ as per the agreed designs, consumed precious time and resulted in delay in project completion at Ramagundam and Manuguru as detailed below:

Table 4.16 – Delay in Procurement with consequent delay in Execution

Equipment	Place of the Project	Scheduled date of completion of the Project	Actual date of completion of the Project	Scheduled date of completion of delivery of MMS	Date of complete receipt of MMS	Delay on the part of procurement
MMS Column	Ramagundam	04.10.2019	February 2023	18.07.2019	20.01.2020	186 days
MMS Superstructures	Ramagundam	04.10.2019	February 2023	18.07.2019	04.11.2020	475 days
MMS Column	Manuguru	29.09.2019	01.08.2020	18.07.2019	22.11.2019	127 days
MMS Superstructures	Manuguru	29.09.2019	01.08.2020	18.07.2019	15.02.2020	212 days

Management replied (May 2023) that efforts were made with Solar Energy Corporation of India Limited (SECI)¹⁸ (Consultant to SCCL) to permit tender deviation to offer ‘Fixed Tilt’. Though SCCL and SECI agreed in principle with BHEL’s proposed idea, however, as a deviation to tender would require immense paperwork and time, to expedite project completion, BHEL was instructed to proceed with Seasonal Tilt Design. Ministry added (November 2023) that SECI has shifted to Fixed Tilt Design in large projects and incorporated in subsequent tenders.

However, it may be noted that the request of BHEL at the pre-bid stage was not agreed to by SCCL and SECI and as such, Management has not adhered to the conditions stipulated in the tender with reference to design of MMS Structures.

E.2 Procurement and Supply of Equipment and Systems

The procurement and supply to site should take place in a timely and periodical manner to ensure smooth execution of the project. However, delays in delivery to site were noticed during analysis of procurement and dispatch documents in 13 projects.

A. There were considerable delays in placement of purchase orders for Equipment and Systems when compared to the dates committed in L2 schedule as detailed in **Table** below:

Table 4.17: Item wise range of delay in procurement

Sl. No.	Nature of Product	No. of Projects	Range of Delay (days)	
			Minimum	Maximum
1	MMS Columns/ Floater	11	11	500
2	MMS Superstructures	9	7	618
3	PV Module	10	30	933

¹⁸ *Solar Energy Corporation of India is a Navratna Company and a leading PSU dedicated to development and expansion of Renewable Energy capacity in India. It issues tenders for selecting developers through tariff-based competitive e-bidding process. It also signs parallel Power Purchase Agreements as well as Power Sale Agreement with Developers and DISCOMs or buying entities respectively.*

Sl. No.	Nature of Product	No. of Projects	Range of Delay (days)	
			Minimum	Maximum
4	Inverter	10	17	208
5	String Monitoring Unit	11	13	339
6	Supervisory Control and Data Acquisition	2	10	16
7	HT Switchgear	4	8	213
8	Inverter Transformer	12	12	284
9	Direct Current cable	12	29	843
10	Alternating Current cable	12	21	583
11	Balance of Systems	12	43	342
12	Switchyard	6	48	149

The project-wise delays with reference to each item have been mentioned in **Annexure XIV**.

B. There have been significant delays in supply of Equipment and Systems to Site against the dates committed in L2 schedule in respect of major items as indicated below:

Table 4.18: Item wise delay in days

Sl. No.	Nature of product	No. of projects	Range of delay (days)	
			Minimum	Maximum
1	MMS Columns / Floater	12	35	880
2	MMS Superstructures	9	59	1,044
3	PV Module	13	48	844
4	Inverter	12	61	536
5	String Monitoring Unit	10	27	505
6	Supervisory Control and Data Acquisition	11	37	600
7	HT Switchgear	11	82	535
8	Inverter Transformer	13	32	670
9	Direct Current cable	13	24	684
10	Alternating Current cable	12	35	536
11	Balance of Systems	12	72	931
12	Switchyard	6	123	956

Project-wise delays with reference to each item have been mentioned in **Annexure XV**.

These significant delays in procurement and then supply to site lead to delay in commissioning of the projects and handing over to the customer.

Management stated (May 2023) that as per the execution methodology for solar projects, BHEL takes approval of some primary technical drawings¹⁹ and releases indents for major electrical items. The exact equipment details are provided by Original Equipment Manufacturers only after Purchase Order placement. Material Clearance for the equipment is provided on the same date of customer approval. The cases of major delays are those

¹⁹ *Primary technical drawings viz. Alternating Current – Single Line Diagram, Direct Current – Single Line Diagram and preliminary Array Layout.*

where the previous vendors had backed out due to price increase owing to pandemic and Ukraine War.

Ministry added (November 2023) that to avoid uncertainties due to backing out of vendors after order placement, Solar Business Division is focusing on pre-bid tie-up for major items, specifically PV Modules.

The replies may be viewed in the light of the fact that timely and periodic procurement and supply to the site are crucial for the smooth execution of projects. Among the 15 projects reviewed, only five were scheduled for completion after February 2020 (i.e., after COVID pandemic and Ukraine War), yet delays in order placement and site supply were noticed in cases of projects which were due for completion before as well as after the pandemic. Further, the vendors backed out because of delays on the part of BHEL in giving manufacturing clearance as already highlighted in Case Study 2.

E.3 Works execution at Site

The Equipment and Systems supplied to site have to be installed and commissioned in a systematic manner. Multiple works at site are to be performed for smooth delivery. The initial works to be completed at site are Topography Survey/ Bathymetry²⁰ and Geotechnical Investigation. These works are followed by casting of MMS Columns, Superstructures and erection of PV Modules above them. Erection of Inverter Room and construction of Road and Drains are other works. Audit observed that there were significant delays in completion of these works which led to delay in commissioning of the projects and handing over to the customer as detailed below.

A. Comparison of dates of placement of Work order against the dates committed in L2 schedule indicated significant delays as highlighted in **Table** below:

Table 4.19: Item wise delay

Sl. No.	Nature of Product	No. of projects	Range of delay (days)	
			Minimum	Maximum
1	Topography Survey / Bathymetry Survey	8	1	94
2	Geotechnical Investigation	8	6	94
3	MMS Foundation, Erection Modules	10	14	178
4	Inverter Room/ Foundation Yard	10	21	268
5	Road and Drain	9	19	421

Project-wise delays with reference to each item have been mentioned in **Annexure XVI**.

²⁰ *A Bathymetric Survey is a type of hydrographic (water based) survey that maps the depths and shapes of underwater terrain to illustrate the land that lies below.*

B. Delay in comparison of dates of performance of work at site against the dates committed in L2 schedule also indicated significant delays as highlighted in Table below:

Table 4.20: Item wise delay

Sl. No.	Nature of Product	No. of projects	Range of delay (days)	
			Minimum	Maximum
1	Topography Survey / Bathymetry Survey	10	4	280
2	Geotechnical Investigation	9	5	267
3	MMS Foundation, Erection Modules	13	70	1,019
4	Inverter Room/ Foundation Yard	13	44	1,001
5	Road and Drain	9	41	1,116

Project-wise delays with reference to each item have been mentioned in **Annexure XVII**.

From the above, it is clear that BHEL lagged in completing the projects on all fronts. BHEL has recorded delays in getting approval from customer for drawings, placement of purchase orders/ work orders, delay in supply of equipment/ systems to site and the actual work of installation/ commissioning of these equipment/ systems. This resulted in execution of the projects with delays as mentioned in Para 4.1.3.5 (E).

Management stated (May 2023) that to avoid disruptions during cable laying, road and drain works were intentionally scheduled towards the end of project execution. This may result in longer durations for these activities. The extended timeline for GSECL Raghanesda Phase I & II projects was due to design finalisation influenced by site conditions and backing out of previous contractors. SBD has established an additional wing for works procurement and conducts regular reviews to ensure timely work order placement. Rate contracts for topography/ bathymetry/ geotechnical surveys were finalised to ensure immediate placement of work orders.

Ministry added (November 2023) that Solar Business Division is participating only in those tenders where the complete details of site are known. This is going to reduce the uncertainties during execution – making the estimates more accurate and reduce implementation time. Additionally, the Division will carry out their own Surveys, etc. before the start of zero date, to reduce implementation time.

Reply of the Management substantiates the audit observation on delays in work execution.

Recommendation no. 21: The Company should analyse the reasons for slippages from the mutually agreed L2 schedule and take steps to mitigate the controllable factors leading to slippages to ensure adherence to the timelines (L2 schedule) at each stage of project execution to avoid time and consequent cost overruns

F. Inaccurate estimation of quantities

The estimated quantities and actual utilised quantities for multiple equipment and systems were analysed for all the fifteen projects under review. High variations were observed between the estimations at bidding stage, procurement stage and actual quantity utilised for Module Mounting Structures and Cables used at Project Site as discussed below -



Figure 4.6 - Module Mounting Structures



Figure 4.7 – Cables

For MMS, variation in quantities between bidding stage to procurement stage ranged between (-) 32 and 6 *per cent* in 10 out of 11 projects²¹ and variation in quantities between procurement stage and final utilisation ranged between (-) 23 and 28 *per cent* in case of 9 out of 12 projects²² as shown in **Annexure XVIII**. Similarly, in respect of Cables, variation in quantities between bidding stage to procurement stage ranged between (-) 54 and 103 *per cent* in 14 out of 15 projects whereas variation in quantities between procurement stage and final utilisation ranged between (-) 27 and 40 *per cent* in case of 10 out of 15 projects as shown in **Annexure XIX**.

Basic and Detailed Engineering for all equipment and systems required at project site is the primary activity while executing any project. These substantial variations in quantity requirements at different stages of project execution suggest that Unit was not able to correctly assess the quantities required at site at different stages of project execution cycle.

Management stated (May 2023) that the variation in quantities of MMS and Cables can be attributed to several factors. In the case of MMS, the design of finalised PV module details (including dimensions, weight, and mounting pitch) can vary from the initial estimation. Additionally, the tonnage of MMS columns depends on the pile design. For Cables, the estimation is challenging due to the unknown details of Modules, Inverters, and String Monitoring Boxes during the initial stage. The Cable quantity is determined by factors

²¹ *Out of 15 projects, 3 projects are Floating Projects which do not require MMS. In case of GIPCL Charankha, lumpsum quote was received from OEM vendor and the same was used by BHEL in its quote to GIPCL. Hence, no separate figure is available for comparison.*

²² *Excluding three Floating Projects.*

such as Array layout, Module wattage, String Monitoring Box details, Power Conditioning Unit, Transformer Rating, etc.

Ministry added (November 2023) that there was abnormal increase in Cable quantities in two projects viz., (i) WBPDCCL Sagardighi, being the first floating project executed by BHEL, and (ii) NTPC Mandsaur because the exact layout was not known.

Audit agrees that there are multiple factors that can affect the quantities of MMS and Cables needed for a project. However, abnormal variations ranging between (-) 54 and 103 *per cent* highlight the need of precise estimation and planning during the early stages of a project.

4.1.3.6 Operation and Maintenance

Comprehensive Operation & Maintenance (O&M) commences after commissioning of the Plant and successful completion of a technical test i.e., Operational Acceptance Test/ Trial Run/ Performance Ratio Test to certify that the systems installed are functioning properly as per the contract requirements. It remains in effect till the Final Acceptance or culmination of O&M period, whichever is later, as defined in the contract. During the O&M period, BHEL is responsible for supply of spares, consumables, repairs/ replacement of any defective equipment including civil works as required from time to time. BHEL is paid as per the terms of the contract for conducting the O&M activities. The O&M period and payment terms may vary from contract to contract.

A. Incorrect estimation of O&M contract value

Contract value includes the cost of O&M for a fixed period. The period of O&M varies from contract to contract. The estimate prepared by the Company while bidding for the project includes the amount estimated for O&M. BHEL outsources all the O&M contracts to different contractors.

Out of 15 projects, O&M with customer had commenced in 13 projects²³ wherein the contractual obligations had been fulfilled. However, the outsourced contracts by BHEL towards O&M obligation have commenced at site in all projects wherein the project works were completed.

Due to variation in period of contract with the customer and outsourced contractor, a direct comparison on contract value basis could not be made for each project. Hence, Audit compared the cost per MW/ per annum for estimated price of O&M contract, cost of the outsourced contract and the amount of contract value as per LOA/LoI with the customer and noticed that out of 15 projects where O&M contract is outsourced, the price of outsourced contract is more than the estimated price of BHEL in all the 15 projects and the amount to be paid to the contractor is more than the amount to be received from the

²³ *Excluding WBSEDCL Projects at Santaldhi and Charrah as the same are under dispute.*

customer in 11 projects. The per MW per annum cost of outsourced contract for NTPC Kayamkulam and GIPCL Charankha was more than the awarded contract value by 233 *per cent* and 260 *per cent* respectively. The details are mentioned in **Annexure XX**.

Management stated (May 2023) that total price for a contract was divided into EPC Price and O&M Price, with adjustments made to ensure better project cash flow. The O&M Contract was outsourced earlier than the customer contract for enabling works, conducting Performance Ratio tests, and for operational acceptance. In most of the contracts, the extra period of O&M was included in the estimated cost of tender floated by BHEL for O&M and in some cases, deviation approval of existing contract had been taken as required. BHEL finalised O&M contracts through open tender with provision of online reverse auction. However, the 'L1' bidder value was higher than the contractual amount with the customer.

Ministry added (November 2023) that O&M contract value is not to be considered in isolation, but to postpone cash flows at earlier stages.

As seen at Para 4.1.3.5 (A) of this Report, the Management was not able to recover the actual cost incurred in 14 out of 15 projects reviewed. As such, since the contracts have been executed for losses, the adjustment of O&M cost in EPC price is not feasible. Further, the outsourced contract price at NTPC Ramagundam has exceeded the estimated amount by nine times. Higher value of the "L1" bidder compared to the customer's contractual amount in as many as 11 contracts out of 15 contracts examined by Audit raises questions on BHEL's pricing methodology and system in place for obtaining the best value for the company. BHEL should review and improve processes to ensure that the estimates are accurate.

B. Delay in commencement of O&M

Out of 15 projects which were commissioned in full, O&M commencement was delayed in eight projects, two projects are under discussion/ dispute and only in respect of balance five projects, the O&M was commenced in time. The reasons for delay in commencement of O&M services, vary from project to project e.g. in GIPCL Charankha, the delay was due to exit by vendor for Balance of Systems and in SCCL Ramagundam, the delay was due to damages to solar arrays due to site flooding as also vandalism/ theft of copper string cables installed at site.

In 11 out of 15 Projects, the O&M contract with outsourced vendor started earlier than the O&M start date with Customer. Further, there was incorrect estimation of O&M contract value with reference to the actual outsourced value as already mentioned in Para 4.1.3.6 (A) above. Audit calculated the excess cost incurred by BHEL in providing the O&M. The details of commencement of O&M operations and the corresponding cost details are indicated in Table below:

Table 4.21: Cost of O&M per MW per Annum

(₹ in Lakh)						
Sl. No.	Name of the project	O&M start date with Customer	O&M price receivable from customer as on 31.12.2023	O&M start date with Outsourced Vendor	O&M price paid to outsourced vendor as on 31.12.2023	Difference in cost of O&M (excess cost incurred/ saved)
A	B	C	D	E	F	G=F-D
1	NTPC Ramagundam	1.12.2022	207.23	15.11.2022	342.94	135.71
2	GSECL Raghnesda I	02.02.2023	98.08	21.11.2022	122.26	24.18
3	GSECL Raghnesda II	12.01.2024	0.00**	01.07.2023	72.48	72.48
4	GIPCL Charankha	03.08.2019	129.25	25.06.2019	484.15	354.90
5	GSECL Dhuvaran	14.10.2021	262.08	01.07.2021	271.82	9.74
6	NLC.Neyveli	21.09.2019	929.13	23.05.2018	1627.08	697.95
7	SCCL Ramagundam	20.06.2023	44.69	01.04.2021	407.98	363.29
8	NTPC Kayamkulam	1.08.2022	77.51	01.08.2022	184.00	106.49
9	SCCL Manuguru	15.10.2021	139.69	16.10.2021	182.04	42.35
10	WBSEDCL Santaldih	Under Dispute	0.00	01.06.2021	33.30	33.30
11	WBSEDCL Charrah		0.00	01.03.2018	88.66	88.66
12	WBPCL Sagardighi	1.11.2021	43.85	01.10.2021	44.00	0.15
13	BEL Medak (1MW)	1.04.2019	Covered in BEL 15 MW	01.04.2019	Covered in BEL 15 MW	0
14	NTPC.Mandsaur	17.12.2017	1178.94	17.12.2017	617.34	-561.60
15	BEL Medak (15 MW)	1.08.2018	201.91	01.03.2018	347.89	145.98
	Total		3,312.36		4,825.94	1,513.58

** O&M start date was 12 January 2024 hence value receivable is 'Nil' as on 31 December 2023.

Thus, BHEL has incurred an amount of ₹15.14 crore in the delivery of O&M services as on 31 December 2023, which is non-reimbursable by the customer.

Management stated (May 2023) that the delay in initiating the Technical Test and the commencement of O&M can be attributed to two main factors. Firstly, due to the phased synchronisation practice in the solar industry, BHEL is required to begin O&M for partially commissioned plants before the formal declaration of O&M by the customer after complete synchronisation, leading to variations in O&M periods. Secondly, unforeseen factors such as supply issues, terrain conditions, labour problems, and statutory clearances during the erection and commissioning stages result in a widening gap between the initial and final phases of commissioning.

Ministry added (November 2023) that the costs for covering the vendors costs, beyond the execution and commissioning activities such as enabling works e.g. conducting of performance tests, temporary manning until declaration of Commercial Operation Date and start of paid O&M by the customer, are factored in the Project Cost to the anticipated levels of extended period as well as running costs. Further, as a corrective action a Project Commissioning & Completion Group has been formed for expediting technical tests upon completion of installation works/ commissioning.

While Audit acknowledges the phased synchronisation practice in the solar industry, BHEL should closely monitor and minimise the delays to avoid additional costs. Further, inclusion of pre O&M costs in Project Cost has not served the purpose as even the actual material costs could not be recovered in most of the Projects.

Recommendation no. 22: The Company may review the O&M cost estimation procedure adopted by it to ensure that the costs reflect the actual recoveries from the customers on this account.

Recommendation no. 23: The Company needs to take steps to conduct and complete the technical tests to the satisfaction of the Customers immediately on completion of installation works.

Case Study – 5

Quoting low value for O&M cost-Loss of ₹4.52 crore on O&M and forced deposit of Additional Retention Money of ₹26.10 crore

BHEL received (19 March 2018) the order for the execution of 75 MW Solar Power Project at Gujarat Solar Park, Charanka from the Gujarat Industries Power Company Limited (GIPCL) on EPC basis at a contract value of ₹305.63 crore and Operation and Maintenance (O&M) for 10 years at a contract value of ₹4.47 crore. GIPCL expressed concern over quoting low value for O&M expenditure in the meeting between BHEL and GIPCL held on 7 March 2018 and insisted on retention of 10 *per cent* of contract value towards 10 years O&M as a precondition for order placement on BHEL which meant retaining ₹30.57 crore as against ₹4.47 crore towards O&M contract.

The project was commissioned on 4 June 2019 and O&M was commenced on 3 August 2019. For outsourcing the O&M contract, BHEL estimated a price of ₹6.36 crore for five year period of maintenance while the awarded contract value was ₹4.47 crore for ten year period. While BHEL had underquoted the O&M cost with GIPCL, it in-turn awarded outsourced O&M for ₹6.76 crore for five years. Thus, inaccurate estimation of O&M cost has resulted in loss of ₹4.53 crore (₹6.76 crore less half of ₹4.47 crore) for first five years of O&M expenditure (ending 2 August 2024) and for subsequent five years (August 2024 to July 2029) also there would be an estimated minimum loss of another ₹4.53 crore which may further increase depending on the market rates.

Further, funds amounting to ₹26.10 crore (₹30.57 crore minus ₹4.47 crore) were blocked up for over ten years due to insisting for 10 *per cent* of EPC price as deposit for O&M work by GIPCL. As per the contract terms, the additional deposit was to be refunded in ten equal instalments along with interest accrued on the deposit. However, GIPCL has not refunded the proportionate deposit amount of ₹2.61 crore for the year 2022 and interest pertaining to the period 2020-21 and 2022-23 amounting to ₹2.25 crore due to the Project not meeting the minimum generation of electricity required as per the terms of the contract.

Management replied (May 2023) that adjustment for EPC and O&M price was done in a way to ensure better cash flows for the project. BHEL accepted revised terms based on condition that amount retained by GPCL would be deposited in Escrow Account, interest of which will be passed on to BHEL and that retention will be made from final payment only. Management's reply was silent on non-refund of the proportionate deposit amount of ₹2.61 crore and interest thereon.

Ministry added (November 2023) that the deposit amount and the corresponding interest will be paid by GPCL during the fifth year of O&M (2023-24) after setting off Energy Generation shortfall.

Reply needs to be viewed in light of the fact that justification of ensuring better cash flows is contradicted by the blocked funds of ₹26.10 crore for over a period of ten years, leading to financial strain. Further, EPC contract cost exceeded the contract price by 57.27 *per cent* and electricity generation fell below guaranteed level in three out of four O&M years indicating uncertainty in recovering shortfalls and compounding projects losses in the remaining O&M years.

C. Penalty for shortfall in electricity generation

The terms of the contract between the Customers and BHEL define the Net Electricity Energy Generation Guarantee (NEEGG) for the specified contract period at the metering point.

The NEEGG is the minimum electricity to be generated at the solar power plant during the defined period. The NEEGG is calculated annually and it is based on the Capacity Utilisation Factor (CUF) of the Plant. The CUF is the ratio of actual energy generated vis-à-vis rated capacity of the Plant. For any shortfall in NEEGG promised, the compensation is recovered from BHEL.

Out of 15 projects reviewed by Audit, O&M years ranging from 1 to 5 years were completed in ten projects as given in Table below. Audit observed that except in the case of NTPC Ramagundam where there was generation in excess of the guarantee given and NTPC Mandsaur, where the penalty was defined on the basis of equipment availability, in all the other contracts BHEL incurred penalty of ₹49.04 crore due to generated power being less than the guaranteed generation. Out of 25 O&M years completed for all the projects taken together, penalty was imposed for 17 years. The details of penalty charged is given in Table below:

Table 4.22: Shortfall in electricity generation

S.No	Project Name	Capacity (MW)	O&M start date	O&M Period (Years)	O&M years completed as on 31.12.2023	No. of years when generation was less than guaranteed	Penalty (in ₹ crore)
1	GIPCL Charanka	75	03.08.2019	10	4	3	13.78
2	GSECL Dhuvaran	75	14.10.2021	10	2	1	9.48

S.No	Project Name	Capacity (MW)	O&M start date	O&M Period (Years)	O&M years completed as on 31.12.2023	No. of years when generation was less than guaranteed	Penalty (in ₹ crore)
3	NLC Neyveli	65	21.09.2019	5	3	3	Evaluation in progress with Customer
4	SCCL Manuguru	30	15.10.2021	10	2	2	10.09
5	WBPDCS Sagardighi	5	01.11.2021	5	2	2	0.54
6	NTPC Mandsaur	50	17.12.2017	5	5
7	BEL Medak	15+1	01.08.2018	10	5	5	14.39
8	NTPC Kayamkulam	22	01.08.2022	3	1	1	0.76
9	NTPC Ramagundam	100	1.12.2022	3	1	0	Nil
Total					25	17	49.04

Note: Energy shortfall for 1 MW BEL Medak is calculated along with 15 MW BEL Medak project as per the terms of the contract.

Apart from above, in case of NTPC Mandsaur, the customer levied a penalty of ₹0.50 crore towards non-availability of equipment as guaranteed. Thus, there was a total penalty of ₹49.54 crore towards operation and maintenance of solar panels.

Management in its reply (May 2023) stated that GSECL Dhuvaran demonstrated excess generation over the guaranteed value since October 2022. BEL Medak witnessed intermittent equipment failures and movement of Defence tankers in the periphery resulting in accumulation of dust on the PV panels.

Ministry added (November 2023) that the generation shortfall at WBPDCS Sagardighi and SCCL Manuguru was due to contract conditions of fixed generation irrespective of radiation and temperature. In case of GIPCL Charanka, energy shortfall in first year was due to backing out of O&M vendor. Project indicated positive generation in second year which again came down subsequently due to pandemic related procurement issues. Ministry further added that BHEL has taken actions for improvement in Energy Generation such as daily monitoring of Site SCADA from Headquarters, procurement of spares in advance, additional attention given to jungle clearance and module cleaning, strict adherence to project maintenance schedules to minimise frequent outage of equipment, etc.

The replies may be viewed in the light of the fact that there were significant issues with BHEL's ability to achieve minimum generation targets in majority of the completed O&M years. This shows that there were systemic deficiencies within BHEL, particularly in accurately assessing the potential electricity generation based on Direct Current capacity and effectively maintaining the systems and equipment necessary for generating power. BHEL needs to ensure that they meet their contractual obligations and reduce preventable losses in future.

Recommendation no. 24: *The Company needs to strictly monitor entire process of execution right from stage of submission of Drawings to commissioning of the Plant as deviation at any stage of the execution impacts timely commissioning of the Plant. Proper care also needs to be taken during maintenance period to enable generation of assured quantum of energy and avoid the penalties.*

4.1.3.7 Expansion of Manufacturing facilities

The 477th Board of Directors meeting held on 12 January 2016 approved capital investment proposal for capacity augmentation of Solar Cell manufacturing capacity to 105 MW from 20 MW at EDN Bangalore at an estimated cost of ₹163.45 crore and establishment of Solar Photovoltaic (SPV) Module manufacturing capacity of 200 MW at EPD Bangalore at an estimated cost of ₹80.15 crore. The proposal was approved based on financial viability and risk analysis. BHEL incurred ₹119.88 crore for setting up 85 MW Solar Cell manufacturing facility and ₹61.55 crore for setting up 200 MW Solar PV Module manufacturing facility.

The financial viability for both the investment proposals considered is mentioned in the Table 4.23 and business projections considered in the proposal are mentioned in Table 4.24 below:

Table 4.23: Returns considered for investment proposal (in per cent)

Parameters	IRR	ROI	Pay Back Period
105 MW Cell facility	23.93	15.68	5 years 3 months
200 MW Module facility	18.74	27.62	7 years 5 months
Total Basis	25.64	27.12	5 years 9 months

Table 4.24: Business Projections

Sr.	Financial year		2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
1	Ministry of New and Renewable Energy Projections (MW)	A	12,000	15,000	16,000	17,000	17,500	17,500
2	Developers: 80 per cent of A (MW)	B	9,600	12,000	12,800	13,600	14,000	14,000
3	EPC: 20 per cent of A (MW)	C	2,400	3,000	3,200	3,400	3,500	3,500
4	Addressable market for BHEL 20 per cent of B and 100 per cent of C (MW)	D	4,320	5,400	5,760	6,120	6,300	6,300
5	Business Projection (MW)	E	200	360	480	520	600	700
6	per cent share of BHEL in market (E/D*100)	F	4.6	6.7	8.3	8.5	9.5	11.1

The performance of both EPD and EDN Unit with respect to Actual Turnover (in ₹) and Physical Turnover (in MW) is indicated in the Tables 4.25 and 4.26 below:

Table 4.25: Actual Turnover

Year	EDN Turnover			EPD Turnover			Projections (MW)	Actual (MW)	Per cent of achievement over projection
	Physical (MW)	Financial (₹ in crore)	Loss (₹ in crore)	Physical (MW)	Financial (₹ in crore)	Profit/Loss (₹ in crore)			
2017-18	102.05	319.49	-119.56	55.68	176.97	-37.00	360	157.73	44
2018-19	190.97	468.3	-170.18	87.00	163.16	-59.00	480	277.97	58
2019-20	257.01	652.01	-156.27	120.00	203.11	-81.00	520	377.01	73
2020-21	300.15	774.25	-206.00	12.95	23.66	-42.83	600	313.10	52
2021-22	NA	NA	NA	227.57	655.2	-296.77	700	227.57	33

Note: Physical and Financial turnover includes the cells and modules manufactured in-house also in addition to other project related material.

Table 4.26: Capacity Utilisation (in MW)

Unit	EDN (Capacity – 105 MW)		EPD (Capacity – 200 MW)	
	Actual Production	Per cent of capacity utilisation	Actual Production	Per cent of capacity utilisation
2017-18	38.73	37.00	71.25	36.00
2018-19	34.80	33.00	68.75	34.00
2019-20	28.93	28.00	68.76	34.00
2020-21	14.00	13.00	0.00	0.00
2021-22	4.50	4.00	7.00	4.00
2022-23	0.00	0.00	29.50	15.00

There was negative cash flow from financial performance of both the divisions and the full capacity of both the plants has never been utilised and business has not shown any profit in the last five years. As such, the Returns in terms of IRR are indeterminable. Audit observed that the business projections considered at the time of approving capacity expansion have been found unrealistic. After five years, the Unit continues to have dismal business performance figures despite creation of additional facilities with an investment of ₹181.43 crore.

Hence, as noticed by Audit in the preceding paras, BHEL has been able to capture less than one *per cent* of the market capacity and even for the one *per cent* captured business, has incurred huge losses and has not even been able to recover the material costs in EPC projects.

Management reiterated (May 2023) the restrictions imposed through Global Tender Enquiry and General Financial Rules and the technological upgradations in the PV industry.

Ministry added (November 2023) that BHEL had considered the business from tenders floated by the Developers, including Private Developers for EPC of their Solar Projects as addressable market. However, Private Developers had not floated any EPC tenders during the last five years. EPC tenders issued by CPSEs were limited which were only addressed by BHEL. It was further stated that Solar Business Division was formed with a main

objective to build competitiveness and ensure viability to sustain and grow in Solar Business. The Division is presently targeting specific opportunities where BHEL is cost competitive and has capabilities like Balance of Systems tenders, Floating Solar Plants, etc. The decision for limited expansion was in view of non-achievement of the expected IRR, tenders floated by Solar Energy Corporation of India²⁴ under ‘Developer’ mode, halt of business activities due to COVID, etc. Upgradation/ creation of manufacturing facilities involves capital investments and its viability shall be examined and decision shall be taken accordingly.

The reply needs to be seen in light of the fact that Company has incurred losses in Solar business and it needs to address various deficiencies explained by audit in previous paras such as high material cost, incorrect overhead estimation and delays in execution of the projects.

Recommendation no. 25: The Company may analyse its current experience of execution of orders and its market presence for deciding on investment for future expansions in Solar Business.

4.1.3.8 Research & Development (R&D)

R&D activities were mainly carried out by Corporate Research and Development Unit at Hyderabad. The Ministry of New and Renewable Energy (MNRE) has sanctioned (December 2017) a R&D project “Development of high efficiency (21 per cent / 19 per cent) Passivated Emitter and Rear Contact (PERC) type of mono crystalline silicon (c-Si)/ multi crystalline silicon (mc-Si) solar cells” to be implemented by BHEL (BHEL, Amorphous Silicon Solar Cell Plant), Gurugram.

The Board, in its 497th meeting (29 May 2018), approved the “Development of high efficiency PERC type of c-Si/ mc-Si (>21 per cent/ >19 per cent) solar cells” which is advanced when compared to commercially available conventional solar cells. It was discussed in the Board meeting that at present, BHEL is producing solar cells with conventional technology, i.e., Aluminium-Back Surface Field (Al-BSF) with efficiencies of 19.5 per cent for mono crystalline (c-Si) and 18.5 per cent for multi crystalline (mc-Si) solar cells which are comparable to the global benchmark efficiency of commercially available conventional solar cells. To improve cell efficiency, the PERC cell is required to be



Figure 4.8 - BHEL R&D Lab

²⁴ *Solar Energy Corporation of India is a Navratna Company and a leading PSU dedicated to development and expansion of Renewable Energy capacity in India. It issues tenders for selecting developers through tariff-based competitive e-bidding process. It also signs parallel Power Purchase Agreements as well as Power Sale Agreement with Developers and DISCOMs or buying entities respectively.*

developed which will enhance the efficiency of c-Si solar cells to >21 *per cent* from 19.5 *per cent* and mc-Si solar cells to >19 *per cent* from 18.5 *per cent*. PERC technology is already being used for large scale production of solar cells in China, Taiwan and Germany. Sourcing of this technology is difficult and extremely costly. For the project, ₹16.49 crore were funded by MNRE, and ₹3.88 crore was from BHEL. It was envisaged that the capability to develop higher efficiency solar cells was to maintain an edge over competition by implementing in the commercial line at EDN.

The project was concluded during 2020-21 and, as a result of the R&D project, maximum efficiency with new PERC solar cells of 21.7 *per cent*, with average efficiency of 21.08 *per cent* could be achieved. However, the indigenously developed technology by BHEL R&D Unit by investing ₹20.37 crore (₹16.49 crore *plus* ₹3.88 crore) and three years of efforts is yet to be translated into business opportunities by implementation in the Unit's 105 MW Cell Manufacturing facilities making the expenditure of ₹20.37 crore infructuous.

Ministry endorsed (November 2023) the Management's views (May 2023) regarding challenges in commercialisation of PERC technology, viz., old equipment at Bengaluru facility, requirement of additional space, dismantling and recommissioning of equipment, etc. Further, Research Reports from PV industry predict replacing PERC technology by Tunnel Oxide Passivated Contact (TopCon) or Heterojunction Technology (HJT) in the coming years.

Reply of the Ministry makes it clear that Mono PERC technology developed through R&D at BHEL has become outdated with introduction of more energy efficient technologies. The failure to leverage technological developments in Cell Line has, therefore, led to infructuous expenditure of ₹20.37 crore.

4.1.3.9 Monitoring Mechanism

Solar Business Division has a Project Monitoring Group comprising of Project Manager, Engineering Coordinator, Material Management Coordinator and Commercial Coordinator to ensure smooth coordination and execution of the project as per approved timelines. Internal Review Meetings are done for projects under execution on weekly basis with the Project Monitoring Group stationed in Bangalore and at Site. The meetings are chaired by Head of the Unit and comprehensive review is conducted taking inputs from Engineering, Procurement, Site Works and Cash Collection. The status of projects is highlighted by Project Monitoring Group, Commercial Group and Site Team. Actions to be taken by various departments are focused on meeting the commitments, viz., Commissioning, Turnover, Cash Collection, Milestone Achievements, etc. made to Customers and Management.

The Unit conducts various Review Meetings depending on the requirements of the contracts with Customers such as – (i) Overall Project Review Meeting (PRM) or Contract

Review Meeting (CRM) with Customer is organised every month for ongoing projects as per contractual provisions; and (ii) Site Level Meetings are held on daily basis with Customers, Contractors and Sub-Contractors covering matters like work allocation, daily plan, work monitoring, compliances to instructions from statutory agencies, safety, etc.

The effectiveness of the review mechanism developed by BHEL for Solar Projects execution may be viewed against the following facts –

- (i) Fourteen out of fifteen projects selected by Audit have not been commissioned as per contractual timelines and attracted penalties for the delays in commissioning.
- (ii) 23 *per cent* of the drawings submitted to the Customers were delayed beyond 180 days from their scheduled date and 16 *per cent* of the Drawings were revised three and more than three times.
- (iii) The delay in placement of procurement orders ranged between 7 to 933 days *vis-a-vis* L2 schedule and supply to site was delayed between 24 to 1,044 days.
- (iv) The delay in placement of work orders when compared with L2 schedule ranged between 1 to 421 days and delays in performance of works at site has ranged between 4 to 1,116 days.
- (v) The cost incurred has exceeded the contract value in fourteen out of fifteen projects. The total cumulative loss amounted to ₹1,145.30 crore (₹524.63 crore towards material costs; ₹99.19 crore towards variable overheads and ₹521.48 crore towards fixed costs) constituting 41 *per cent* of total contract value.

Management stated (May 2023) that the execution of most projects (450 MW) was significantly impacted by the COVID-19 pandemic. The repercussions were long-lasting, affecting multiple stages of the execution cycle, including procurement, material inspection, delivery, and site execution. These pandemic related challenges resulted in schedule slippages that were beyond the reasonable control of BHEL. Despite the Project Monitoring Group identifying the pandemic as the primary cause for the delays, additional claims for contractually valid reasons such as change in law and unforeseen site conditions were not considered by government customers like NTPC and GSECL. These customers, under pressure from their respective parent Ministries, compelled BHEL to continue rapid execution without addressing BHEL's claims for the additional costs incurred.

Ministry added (November 2023) that the Solar Projects are being on-boarded on “Integrated Project Monitoring System” (IPMS), a Software Tool developed by BHEL for progress monitoring of projects along with cost controls. Further, Ministry added (November 2023) that future Solar Projects are planned to be executed on Project Director Concept with a dedicated Engineering, Procurement and Site Execution Group for faster decision making to ensure timely execution of projects and within the estimated costs.

While Audit acknowledges the impact of COVID on the execution cycle of projects, Audit has noticed that the controls established within BHEL have not been effective in meeting the objectives. Whether it was before or after the pandemic, the delivery performance of SBD has consistently been below par.

Recommendation 26: The Company needs to strengthen its monitoring mechanism in view of the delays with consequent cost and time overruns noticed in almost all projects to ensure that the project execution is done as per planned schedule to avoid losses.

4.1.4 Conclusion

The technology used in the manufacturing facilities operated by the Company has become outdated resulting in poor utilisation. The existing 85 MW Cell manufacturing facility and 200 MW Module manufacturing facility have minimal utilisation due to limited raw material availability and 200 MW Module Line cannot be further upgraded. The actual material cost incurred by company has exceeded the estimates prepared by Company for quoting tender in all the 14 projects where estimates were prepared indicating that the Company was unable to get materials at competitive rates. The Company has not followed its own overhead estimation methodology leading to incorrect estimation of costs for executing the solar power projects. The Company did not adhere to approved schedules of the Projects leading to delay in fourteen out of fifteen projects and attracted penalties of ₹119.61 crore for the delays in commissioning. The Company incurred additional expenditure of ₹15.14 crore on providing O&M services at site as value receivable from customers was less than the amount payable to outsourced contractors by BHEL coupled with delay in start of O&M contract with customers. The Company could not provide the minimum guaranteed electricity generation as per the contractual terms in majority of the O&M years incurring penalty of ₹49.04 crore. To conclude, deficiencies were noticed in several areas, viz., in-house capacity utilisation, engineering, procurement, site works, O&M, etc. Due to incorrect cost estimation and time over run, the Company incurred loss of ₹1,145.30 crore constituting 41 *per cent* of total contract value.

Chapter - V
MINISTRY OF STEEL

CHAPTER V: MINISTRY OF STEEL

Steel Authority of India Limited

5.1 Extra expenditure of ₹12.88 crore

Not exercising the option for shipment holiday and delivery extension in time, burdened the Company with avoidable expenditure of ₹12.88 crore.

Steel Authority of India Limited (SAIL or Company) entered (June 2017) into a Contract of Affreightment¹ with a ship owning Company through a broker for shipment of 1.35 million tonnes limestone to be loaded at Mina Saqr port in UAE and to be discharged at Visakhapatnam/Gangavaram/Paradip/Haldia in India. As per Clause 74 of the Contract of Affreightment, the period of shipment was likely to commence in July 2017 and completed in 12 months subject to shipment holiday² (limited to maximum two months) and delivery extension³ (limited to maximum three months) at the option of SAIL. Both the options were to be exercised only once and at least one month prior intimation was to be given to ship owner. The first shipment against the Contract of Affreightment was requisitioned in September 2017 by SAIL.

The ship owning Company continued to perform its obligations since October 2017 and at the time of request made (June 2018) by SAIL for nominating vessel for 19th shipment between 25 June 2018 to 4 July 2018, the broker on behalf of ship owner intimated (June 2018) SAIL that this vessel i.e. the 19th vessel will be the last and final shipment and they would not offer any further vessel under the above Contract of Affreightment. SAIL contended (14 June 2018) that the owners had to provide vessels till September 2018 as the first vessel was requisitioned in September 2017 and the Contract of Affreightment was valid for 12 months from then. The contention of SAIL was not accepted by the ship owner Company and it stated (June 2018) that the Contract of Affreightment was entered in June 2017 and completion period was 12 months. Subsequently, SAIL invoked (28 June 2018) shipment holiday for one month in July 2018 followed by delivery extension of three months that would automatically extend the delivery schedule till January 2019. SAIL's claim for delivery extension was rejected by the ship owning Company on the ground of erroneous interpretation of the Contract of Affreightment terms as to commencement and conclusion of the Contract.

¹ *Contract of Affreightment is the agreement between ship owning Company and SAIL wherein the ship owner agrees to transport a certain quantity of specified cargo from a specified port to discharge ports as indicated in the agreement during a fixed period at an agreed freight rate.*

² *Shipment holiday refers to deferment of supplies during the referred period. The terms further provide that in case of exercise of this option, the agreed delivery schedule would be treated to be automatically extended by a proportionate period (in months or part thereof).*

³ *Extension in the agreed/auto extended delivery schedule further deferring the supplies to the subsequent months (i.e after completion of the delivery schedule) is referred as Delivery extension. In case of exercise of this option, the delivery schedule would be treated to be further extended automatically by a proportionate period (in months or part thereof).*

As the ship owners did not nominate any vessel after July 2018, SAIL invoked risk purchase clause and shipped 0.41 million tonnes of limestone at a higher cost with additional freight of ₹8.52 crore (USD 11,87,847). SAIL raised the additional freight of USD 11,87,847 on ship owners through various debit invoices but the same was not accepted by them. Consequently, SAIL withheld (August to December 2018) the additional freight amount from amounts payable to the ship owning Company under this Contract of Affreightment and three other agreements with the Company. The ship owners initiated separate arbitration cases for the amount withheld by SAIL from this Contract of Affreightment and other three agreements. SAIL's interpretation of the period of commencement of Contract of Affreightment was not considered to be correct and all the arbitral awards were passed (2020/2021) against SAIL and it was directed to pay the withheld amount (along with compound interest at the rate of 12 *per cent* interest per annum with quarterly rests in two cases and 10 *per cent* per annum in other two cases). SAIL challenged the arbitral award before Hon'ble Delhi High Court under Section 34 of the Arbitration and Conciliation Act which were dismissed (May 2021) with a relief in rate of interest to six *per cent* per annum, in case SAIL settled the payments within four weeks from the judgement. SAIL, however, did not pay the amount within four weeks and released (September to December 2021) the withheld amount of ₹8.64 crore and paid ₹4.36 crore towards interest and litigation expenses.

In this connection, Audit observed the following:

1. SAIL entered (29 July 2017) into contract for supply of limestone with the Supplier subsequent to entering into (28 June 2017) Contract of Affreightment. As such, it was certain that the shipment could not commence from July 2017. SAIL, however, did not exercise its option for shipment holiday. Despite several reminders (July and August 2017) from the brokers on behalf of ship owners for intimating laycan⁴ for first shipment, no reply was given by SAIL, there was a possibility of action on the absence of clarity in respect of interpretation of the terms of commencement of contract. Further, there was no mutual agreement to defer the date of commencement of contract. Exercise by SAIL of option for shipment holiday and delivery extension judiciously, had the potential for utilisation of the leverage of extending the delivery period⁵ (upto 30 November 2018) in its favour.
2. Validity of SAIL's declaration (28 June 2018) for availing shipment holiday and delivery extension in July 2018 was doubtful as the same was to be exercised before one month i.e., by 31 May 2018 as per the terms of the Contract of Affreightment.
3. Despite a relief of reduction in rate of interest granted by Hon'ble Delhi High Court subject to settlement of claims within four weeks (from date of judgement i.e. 31 May 2021), SAIL released the withheld amount to the ship owning Company in September

⁴ *A window period in days during which a shipment can be picked up by a vessel from a loadport.*

⁵ *Extended by five months (two months for shipment holiday and delivery extension of three months) from July 2018.*

2021 as a result of which it had to pay interest amounting to ₹3.44 crore (USD 4,68,766) at 12 *per cent*. In addition, SAIL had to incur ₹ 0.92 crore (USD 1,21,750) towards arbitration/legal expenses.

Thus, not exercising the option for shipment holiday and delivery extension in time and settlement of the claim within prescribed time schedule resulted in extra expenditure of ₹12.88 crore⁶.

Management in its reply (March 2024) stated that:

- SAIL had entered into Contract of Affreightment with the ship owner for import of Limestone based on contract finalised by Corporate Materials Management Group (CMMG). SAIL makes shipping arrangements back to back as per supplier's commitments and agreements finalised by CMMG. In line with suppliers' supply commitment, the relevant term regarding shipment period of the Contract of Affreightment stating 'likely Commencement in July 2017 and completion in 12 months' was incorporated in Contract of Affreightment.
- SAIL exercised shipment holiday of one month in July 2018 followed by extension of Contract of Affreightment period from September 2018 till January 2019. These were undertaken under the consideration that Contract of Affreightment is valid upto October 2018 with respect to first shipment in October 2017. The crux of the dispute that arose was interpretation of commencement of Contract of Affreightment either from the date of Contract of Affreightment or laycan of first shipment.
- Due to adverse development in supply contract (in the instant case with suppliers where shipment commenced after three months of finalisation of shipping contract), SAIL became vulnerable to balance between supply and shipment schedule. It was due to the uncertainty arising due to the gap between Contract of Affreightment finalisation and Suppliers contract commencement that the commencement clause had the term 'likely' thereby provisioning flexibility on commencement of shipments by SAIL.
- As regards delay in release of payment to ship owners, Management stated that, an attempt was made for out of Court settlement with owners for some reduction, which did not fructify. The procedural delays in obtaining legal opinion led to late release of payment to ship owners.

Ministry in its reply stated (October 2024) that:

⁶ ₹8.52 crore towards additional freight + ₹4.36 crore towards interest and legal expenses { ₹1.86 crore (interest @ six per cent being the rate of interest as per relief granted by Delhi High Court subject to settlement of claims within four weeks from judgement) + ₹1.58 crore (excess interest beyond the relief granted by Delhi High Court) + ₹0.92 crore (arbitration/legal expenses)}.

- Contract of Affreightment is finalised based on Letter of Acceptance issued to supplier. Letter of Acceptance was issued (21 June 2017) to supplier and later Contract of Affreightment was awarded to ship owning Company.
- It was not feasible to have known the exact timeframe that would be taken for finalisation of the procurement contract and the start of the shipment process at the time the enquiry was floated for the Contract of Affreightment in early June 2017, SAIL indicated a likely commencement of July 2017 in the Contract of Affreightment. No concrete response could be given to the ship owner or the broker due to the uncertainty in the commencement of the shipments.
- Ministry further stated that in view of the issue with the instant case, SAIL management has taken steps to strengthen documentation to avoid recurrence of such incidents in its subsequent procurement processes.

The reply of Management/Ministry may be seen in the light of the fact that.

- The Contract of Affreightment with the ship owner was entered on 28 June 2017 whereas contract for supply of limestone got finalised with the supplier on 29 July 2017. SAIL was aware that the shipment would not commence from July 2017 (as stipulated in the schedule agreed in the Contract of Affreightment) as the supply agreement envisaged supply from August 2017. This fact, however, was not communicated to the ship owner or the broker.
- With respect to the fact that the crux of the dispute was interpretation of commencement of Contract of Affreightment either from the date of Contract of Affreightment or laycan of first shipment, it is noted that it was only after intimation from the ship owner on 13 June 2018 that the 19th vessel would be the last shipment, did SAIL exercise the shipment holiday on 28 June 2018. This was despite the fact that shipment holiday clause was to be exercised one month prior to the commencement of shipment holiday i.e. upto 31 May 2018. By including the term ‘likely Commencement in July 2017’ in Contract of Affreightment, SAIL unilaterally considered that Contract of Affreightment was valid upto October 2018 without any correspondence with the ship owner or his broker in this regard.

It is also noted that shipment was likely to commence from July 2017 but it actually commenced from October 2017 i.e. after delay of 3 months. During this period, there was lack of coordination between the Logistic & Infrastructure Department (responsible for finalisation of Contract of Affreightment) and Corporate Material Management Group (responsible for finalisation of procurement contract). L&I department continuously pursued (July, August and September 2017) with CMMG, SAIL to intimate the date of first laycan but CMMG neither communicated the date of first laycan nor advised L&I for exercising shipment holiday. SAIL at that juncture had

the option to exercise shipment holiday at beginning of the contract when there was delay of 3 months in scheduled first shipment and actual first shipment.

- Letter of Acceptance for procurement contract was finalised before the Contract of Affreightment but the agreement of the procurement contract was entered into after the Contract of Affreightment. Thus, the uncertainty in commencement of shipments was known to SAIL since the beginning. Accordingly SAIL included the term 'likely commencement in July 2017' in the Contract of Affreightment. Despite this aspect of uncertainty been known, SAIL remained unresponsive to the reminders from the brokers on behalf of ship owners during July 2017 and August 2017 for intimating laycan for first shipment. Although no concrete response could be given at that stage, if SAIL had responded to the reminders from the brokers, the interpretation of commencement of Contract of Affreightment could have been clearly established upfront.
- Additional Solicitor General had also opined (August 2021) that the cases were not fit to appeal against and advised SAIL to comply with the orders of the Hon'ble High Court.
- Despite the timeline given in the judgment for availing interest relief, there were procedural delays in each stage in taking decision to get legal opinion and interest payment which led to additional interest payment of ₹1.58 crore (beyond the relief granted by Delhi High Court subject to settlement of claims within four weeks from judgement).

Therefore, not exercising the option for shipment holiday and delivery extension in time as per the contract terms and delay in settlement of claim as per settlement order resulted in extra expenditure of ₹12.88 crore.

5.2 Avoidable expenditure of ₹9.21 crore

Avoidable expenditure of ₹9.21 crore due to lack of proper fixation of minimum guaranteed heats for converter lining refractory in Durgapur Steel Plant

The Steel Melting Shop⁷ of Durgapur Steel Plant has three Converters. Refractory for the lining of these Converter sets are procured from SAIL Refractory Unit through Inter Plant Transfer or from outside parties through open tender. The performance of the refractory procured from outside parties is fixed on a heat basis and the number of minimum guaranteed heats is specified in the purchase orders. Per heat cost is derived by dividing the cost of the refractory set by the number of minimum guaranteed heat and a bonus is paid to the supplier for each additional heat achieved above the minimum guaranteed heat.

⁷ *Hot metal produced from the Blast furnace is poured into the Convertors of Steel Melting Shop where oxygen is blown and steel is made.*

On account of permanent deformation due to prolonged use, SAIL Board granted (December 2016) in-principle approval for replacement of the converter shells. The project was tendered (January 2018), contracts were awarded (January 2019) and completed by August 2021. The minimum life of the converter lining was fixed at 2,500 heats. Audit observed that in three subsequent procurement cycles for refractory lining sets during April 2021 to November 2022, Durgapur Steel Plant continued with minimum guaranteed level of 2,500 heats, despite the following:

- Prior to the contract for replacement of converter shells (January 2019), the minimum guaranteed life of the converter refractory lining sets was 3,200 heats.
- During the period 2015-16 to 2023-24 (September 2023), the actual heats achieved were always higher than 3,200 heats and ranged between 3,620 heats and 7,388 heats.
- SAIL Board was apprised (December 2016) that the replacement of the converter shells and the new bottom stirring system would improve converter lining life. Rather, the minimum guaranteed life was reduced from the then existing 3,200 heats to 2,500 heats till August 2023.

Lack of proper fixing of the minimum guaranteed heats of the converter lining resulted in avoidable expenditure on account of higher payment of bonus of approximately ₹9.21 crore⁸ to three suppliers for the differential minimum guaranteed heats during the period April 2021 to November 2022. Audit further noticed that the minimum guaranteed life was increased to 3,500 heats in August 2023.

Management replied (February 2024) that:

- (i) The guaranteed life of the procurement of converter refractory set was considered 2,500 heats in line with contract clause of project contract and as stipulated by OEM.
- (ii) In the absence of data regarding the life of the converter set with bottom purging system and new design of refractory, the procurement was based on the guaranteed life of OEM.
- (iii) The guaranteed life was kept unchanged in anticipation that erosion of working lining would increase during stabilisation period.

Ministry added (August 2024) that:

- (i) While calculating the impact for fixation of minimum guaranteed heats on the lower side, the then prevailing minimum guaranteed life of 3,200 heats (PO no 4507000180 dated 17 April 2018) was not considered and the calculation was reworked keeping the terms of the respective purchase orders, the financial implication worked out to ₹1.70 crore.

⁸ *Calculated on the basis of bonus paid on differential minimum guaranteed heats (3,200 - 2,500) during the period April 2021 to November 2022*

- (ii) Enhancement of guaranteed heats from 2,500 heats to 3,200 heats would entail an increase in the set cost on account of higher risk and financial exposure for the supplier.

Replies of the Management and Ministry may be seen in the light of the following:

- (i) As apprised to the Board, the life of the converter refractory lining was expected to improve with the new design of refractory lining and with the bottom purging system. The technical specification of the tender also envisaged the refractory lining to be designed for optimum lining life as per existing trend, which was 3,200 heats. The actual experience of Management with respect to the lining life also was much higher than 2,500 heats.
- (ii) Although data about maturity of converter lining sets was not available, on the basis of the existing trend and its experience with the refractory lining sets over the years, Management decision to fix the minimum guaranteed heat at 2,500 heats lacked justification.
- (iii) The possibility of increase in erosion of working lining during stabilisation period was known to Management at the feasibility stage itself and had been considered at the time of execution of the project.
- (iv) With respect to the reply of Ministry regarding computation of loss, it is noted that Audit has calculated avoidable expenditure by comparing minimum guaranteed heats at 2,500 and 3,200 in line with the terms and conditions of the purchase orders placed on 24 December 2020 and 13 April 2021, which relate to post-project stage, whereas the avoidable expenditure mentioned in the Ministry reply has been calculated comparing the terms and conditions of the purchase orders with 2,500 heats (after completion of the project for replacement of the converter shells) with that of purchase order placed on 17 April 2018 (relating to pre-project stage) with 3,200 heats. Since terms and conditions of the purchase orders during pre-project and post-project stages were different, comparison should be carried out with the relevant purchase orders.
- (v) When the minimum guaranteed life was increased by the Management from 2,500 heats to 3,500 heats, the cost per set rather decreased from ₹8.50 crore to ₹7.80 crore.

Therefore, lack of proper fixing of minimum guaranteed heats resulted in avoidable expenditure of approximately ₹9.21 crore on account of higher payment of bonus for the differential minimum guaranteed heats on refractories during April 2021 to November 2022.

Chapter - VI

MINISTRY OF CIVIL AVIATION

CHAPTER VI: MINISTRY OF CIVIL AVIATION

Airports Authority of India

6.1 Non execution of lease agreement and lack of follow up to collect dues resulted in loss of ₹11.40 crore

Allotment of land without execution of lease agreement and lack of proactive action led to non-recovery of lease rent amounting to ₹11.40 crore.

Airports Authority of India (Authority) allotted (20 December 1994) land measuring 2000 square meters to the Transport Department, Government of West Bengal (Lessee) on lease basis for a period of 10 years for Bus Terminus. The terms and conditions of allotment *inter alia* included execution of formal lease agreement and payment of advance annual lease rent at ₹47.30 per square meter per annum subject to revision¹ of the same from time to time as decided by the Authority.

The Authority, however, intimated (August 2016) the lessee that no lease rent had been paid for the said leased land till date and their inability to allot the plot of land for lease. The lessee was again intimated (December 2017) that the said leased land was essentially required for capacity enhancement of runway project of Netaji Subhas Chandra Bose International Airport, Kolkata to meet the growth in passenger and aircrafts movements. Thereafter, since January 2018 the Authority continued to request the lessee to clear their outstanding lease dues as well as to vacate the plot of land and held several meetings to resolve the matter. The lessee, ultimately, vacated the above land on 1 August 2022 without paying outstanding lease rent of ₹11.40 crore accumulated upto 31 July 2022 (**Annexure-XXI**)

In this connection, Audit observed following:

- Authority neither executed any lease agreement as per terms of the allotment letter with the lessee nor signed any handing and taking over note for transfer of such land on license basis.
- The authority handed over land without getting advance payment of one year rent i.e. ₹94,600.
- The Authority raised (July 2002) the first bill towards lease rent for the period from 20 December 1994 to 31 March 2002 in violation of the condition of allotment letter which stipulated for payment of lease rent annually in advance.
- The Authority started pursuing for payment of outstanding lease rent since August 2016 only.

¹ *Rate of annual lease rent ranged between ₹47.30/Sqm/annum and ₹7285/Sqm/annum during the period 1994 to 2022.*

In reply, while accepting audit observation, the Management stated (June 2024) that the reason for not raising the land rental bills by them, on annual basis, was non-execution of the lease agreement with the Transport Department, Government of West Bengal. The reply of the Management may be viewed in light of the fact that non-execution of lease agreement was not only a violation of the conditions of the letter of allotment but also failure on the part of the Management to safeguard its own commercial and financial interest. Further, handing over the land prior to execution of the lease agreement also indicated lack of internal control in land management of the Authority. The matter of realisation of lease rent was being persuaded with the Transport Department, Government of West Bengal since August 2016 only although the land was allotted in December 1994. As the land has now been handed back on 1 August 2022 by the Authority, chances of recovery of such arrear lease rent seems to be remote. Thus, failure on the part of the Authority to safeguard its own financial and commercial interest on account of non-execution of lease agreement with the Transport Department, Government of West Bengal as well as lack of timely follow up to recover the outstanding lease rent resulted in loss of ₹11.40 crore.

Recommendation no. 27: Airport Authority of India may fix responsibility for non-execution of lease agreement with the Transport Department, Government of West Bengal and also may take up the matter with the Transport Department for early release of outstanding dues.

Chapter - VII

**MINISTRY OF PORTS, SHIPPING
AND WATERWAYS**

CHAPTER VII: MINISTRY OF PORTS, SHIPPING AND WATERWAYS

Dredging Corporation of India Limited

7.1 Operation and Maintenance of dredgers of Dredging Corporation of India Limited

7.1.1 Introduction

M/s Dredging Corporation of India Limited (DCIL/Company), with its Corporate Office situated on the east coast of India at Visakhapatnam, was established in March 1976. DCIL is the only Public Sector Undertaking in the field of dredging in India and it provides dredging services to the Major Ports of the country. DCIL provides capital dredging¹ and maintenance dredging² services for maintaining the desired depths in shipping channels of the Major and Minor Ports, Navy, Fishing Harbours and Other Maritime Organisations. DCIL's services are put to use for port development, reclamation of low-lying areas, beach nourishment, shallow water dredging, project management consultancy, and maritime construction. By March 2019, the Government of India (GoI) disinvested 26.53 per cent shares of DCIL to Public (21.39 per cent) and Insurance Companies (5.14 per cent) and 73.47 per cent to four Major Ports, viz., Visakhapatnam Port Authority (19.47 per cent), Jawaharlal Nehru Port Authority (18 per cent), Paradip Port Authority (18 per cent) and Deendayal Port Authority (18 per cent) along with transfer of Management and control to the above Ports.

As of 31 March 2024, DCIL possessed 13 dredgers (vessels) (*Annexure XXII*), which included two Cutter Suction Dredgers (CSDs³) for capital dredging, 10 Trailer Suction Hopper Dredgers (TSHDs⁴) for maintenance dredging and one Backhoe Dredger⁵ for dredging in tidal areas, ports and alongside jetties for the removal of debris from seabed.

¹ Capital dredging involves removal of the virgin soil up to the designed depth in the water bodies/ adjacent to water bodies for construction of new berths and expansion of existing berths. Virgin soil refers to the area which has not been dredged before.

² It involves removal of the accumulated material in ports for restoring port's channel depth.

³ Cutter Suction Dredgers (CSDs) - Suction tube has a cutting mechanism at the suction inlet. The cutting mechanism loosens the bed material and transports it to the suction mouth. The dredged material is usually sucked up by a wear – resistant centrifugal pump and discharged either through a pipeline or to a barge. CSDs are most often used in hard surfaces (for example gravel deposits or surface bed rock) where a standard suction dredger would be ineffective. CSDs are used for capital dredging for deepening and widening of navigational channels to accommodate larger vessels or for land reclamation.

⁴ Trailer Suction Hopper Dredger (TSHD) trails its suction pipe when working. The pipe, which is fitted with a dredge drag head, loads the dredged spoil into one or more hoppers in the vessel. When hoppers are full, the TSHD sails to a disposal area and either dumps the material through doors in the hull or pumps the material out of the hoppers. TSHDs are used for maintenance dredging/ beach nourishment/ land reclamation to maintain the depth of channels and berths.

⁵ Backhoe Dredger is equipped with a half-open shell. The shell is filled moving towards the machine. Usually, dredged material is loaded in barges. This machine is mainly used in harbors and other shallow waters, where TSHDs and CSDs cannot reach. It is capable to dredge clay, soft rock & blasted rock and navigate in the ports with assisted propulsion.

Details of individual and cumulative capacities of 13 dredgers as on 31 March 2024 are tabulated below:

Table 7.1 – Details of capacities of 13 dredgers as on 31 March 2024

Particulars	Capacity	Nos.	Individual capacity (in the range of)	Cumulative capacity	Age of the dredgers (as on 31 March 2024)
CSDs	Pumping capacity (in m ³ per hour)	2	500 and 2,000	2,500	7 to 13 years
TSHDs	Hopper (Carrying) capacity (in m ³)	10	4,500 to 7,400	58,700	10 to 48 years
Backhoe Dredger	Pumping capacity (in m ³ per hour)	1	370	370	12 years

TSHDs are self-propelled dredgers whereas CSDs and Backhoe dredgers are non-propelled dredgers. Age of the dredgers ranged between 7 years and 48 years, manufactured between the years 1976 and 2016. No new dredgers had been procured after the year 2016. At present, one TSHD with capacity of 12,000 m³ is under construction at Cochin Shipyard Limited (CSL).



Figure 7.1 – Cutter Suction Dredger (CSD)

Cutter is used for creating designed depths, expanding the draft of the water bodies, etc.

Figure 7.2 – Trailer Suction Hopper Dredgers (TSHD)

Hopper to carry the dredged material



**Figure 7.3–Backhoe Dredger**

← Used for removal of debris from seabed

7.1.1.1 Financial Performance

Financial Results of DCIL for the last five years ending 31 March 2024 are as follows:

Table 7.2: Financial performance of the Company for last 5 years ending 31 March 2024

(₹ in lakh)

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
INCOME					
Revenue from operations	74,969	76,376	80,103	1,16,501	94,550
Other Income	560	316	244	323	331
Total Income	75,529	76,692	80,347	1,16,824	94,881
EXPENSES					
Employee benefits expense	9,399	10,098	9,477	9,600	9,825
Finance costs	1,391	1,992	1,210	2,936	2,848
Depreciation and amortisation expenses	11,713	11,946	12,110	14,968	14,082
Sub-contract expenses	18,212	32,194	21,102
Other expenses	51,685	69,715	40,620	76,619	43,193
Total Expenses	74,188	93,751	81,539	1,36,317	91,049
Profit before exceptional items and tax	1,341	(17,059)	(1,192)	(19,492)	3,832
Exceptional items	0.00	0.00	1,669	.	79
Profit before tax	1,341	(17,059)	477	(19,492)	3,752
Tax expenses	790	182	120	128	184
Profit for the year	551	(17,241)	357	(19,620)	3,568
Retained Earnings as on 31 March	1,01,179	83,673	84,622	66,336	68,620

7.1.2 Organisational Set-up

DCIL is governed by its Board of Directors (BoD) headed by a Chairman. DCIL has a Managing Director & Chief Executive Officer (MD&CEO) to look after the day-to-day activities of DCIL who is assisted by the Chief General Manager (CGM), Chief Financial Officer (CFO) and Company Secretary (CS).

7.1.3 Audit Framework

The audit covered the operation and maintenance of the dredgers with specific emphasis on execution of dredging contracts, effective utilisation of dredging fleet, timely carrying out of dry dock repairs and maintenance of the dredgers during the period from 2019-20 to 2021-22. However, the facts have been updated up to 31 March 2024. Of the 25 operations contracts and 21 repair works undertaken by DCIL during 2019-2022, 17 operations contracts and 15 repair works were selected for review using stratified random sampling. The selected sample covered about 68 *per cent* of operations contracts in number and 95 *per cent* of the total value. Similarly, the sample for repair works constituted 71 *per cent* in number and 95 *per cent* of the total value. The list of contracts/ works selected for review by Audit has been presented in *Annexure XXIII*.

The audit commenced with an Entry Conference on 27 December 2022, wherein the audit approach was delineated. Audit Findings were discussed with the Management in the Exit Conference held on 19 July 2023. The draft report, incorporating Management response, was issued to the Ministry of Ports, Shipping and Waterways on 8 April 2024. Response of the Ministry, received on 15 May 2024, has been considered while finalising this report.

7.1.4 Follow-up Action on the Recommendations given in Para 14.1 of Audit Report No. 9 of 2017

The status of implementation of the recommendations of Comptroller & Auditor General (C&AG) given against Para 14.1 on ‘Operations and Maintenance of dredgers’ of the Audit Report No. 9 of 2017 are enclosed as *Annexure XXIV*.

7.1.5. Audit Findings

The observations noticed during the audit of Operation and Maintenance of dredgers are discussed in the succeeding paragraphs.

7.1.5.1 Operation of dredgers

Out of 13 dredgers in operation as on 31 March 2024, the number of dredgers DCIL earned profit ranged from one (2020-21) to eight (2019-20) during last five years ending 31 March 2024 and the balance dredgers in respective years sustained losses (*Annexure XXV*). Further, during the said five years, DCIL earned profit in the range of ₹0.68 crore (Dredge XXI during the year 2020-21) to ₹30.45 crore (Dredge XX during the year 2019-20) and sustained losses in the range of ₹1.23 crore (Dredge XVII during 2023-24) to ₹37.99 crore (Dredge XVIII during 2022.23).

In this regard, under Para 14.1.5.1 of C&AG’s Thematic Audit Report No. 9 of 2017 on ‘Operations and Maintenance of dredgers for the period from 2010-11 to 2014-15’, DCIL Management had assured that with the implementation of the Enterprise Resource Planning system, Project-wise cost data would be available from the year 2016-17 onwards. However, DCIL has not maintained any project wise profit & loss account till date (31 March 2024).

A. Improper preparation of cost estimates and incorrect decision making

It is prudent for a commercial organisation like DCIL to prepare the cost estimates duly considering the dredging site plan and conditions, availability of suitable dredgers, the age of the dredger to be deployed, past performance of the dredger and tender conditions along with actual dredging days required besides addition of expected profit margin. In DCIL, Marketing Department is responsible for preparation of cost estimates. Audit has observed that DCIL has not prepared cost estimates on realistic basis and there were discrepancies in four (4) out of 17 contracts selected for review. The detailed observations are discussed in succeeding paragraphs.

A.1. Paradip Port Authority (PPA) issued (August 2017) a work order to DCIL for the Capital Dredging of 4.0 million cubic metres (m³) at South BOT Dock Complex (SDC) and North BOT Dock Complex (NDC) of Paradip Port at a total value of ₹76.20 crore at the cost of ₹190.50 per m³ plus applicable taxes. The following are the details of work done:

Table 7.3: Details of Capital Dredging work at Paradip Port Authority (PPA)

Details	South Dock Complex (SDC)		North Dock Complex (NDC)	
	As per Contract/ Estimate	Actual	As per Contract/ Estimate	Actual
Start Date	18 June 2017	18 June 2017	After completion of SDC	21 March 2019
Completion Date	30 November 2017	11 November 2018	12 months from commencement	1 August 2023
Deployment	One CSD – Dredge Aquarius	2 CSDs – Dredge Aquarius and Dredge XVIII and One TSHD – Dredge XIX	One CSD – Dredge Aquarius	3 CSDs – Dredge Aquarius, Dredge XVIII and ID Ganga and outsourced 1.1 million m ³
Quantity to be dredged	1 million m ³	0.94 million m ³	3 million m ³	3.06 million m ³ (up to August 2023)
Completion time in dredging days (i.e., no. of hours worked divided by 24 hours)	60	244.88	180	850.59
Cost (₹ per m³)	190.50	548.48	190.50	620.88

In this regard, Audit observed that:

- (i) PPA requested DCIL initially for dredging of 1 million m³ at SDC only, for which DCIL conducted (February 2017) site visit and prepared cost estimates. The estimates were prepared assuming deployment of one CSD Dredge Aquarius for 0.80 million m³ and Backhoe Dredger for 0.20 million m³ and a price of ₹220.00 per m³ was offered (7 March 2017) to PPA. The price per m³ for CSD Dredge Aquarius was arrived on the assumption of dredging 12,000 m³ per day for 70 days. However, previously during the execution of works at Kandla and Ennore Ports during 2013-14 (no works were executed during 2014-15, 2015-16, and 2016-17) CSD Dredge Aquarius had dredged an average of 8,000 m³ per day only and required 103 days to dredge 0.80 million m³. Despite this past record, DCIL estimated the cost on the lower side as ₹220.00 per m³.
- (ii) After receipt of offer from DCIL on 7 March 2017 for SDC, PPA extended the dredging scope to cover NDC with a total dredging volume of 4 million m³ which included 1 million m³ for SDC, and requested (18 March 2017) DCIL to execute the works at ₹190.50 per m³ instead of ₹220.00 per m³, which was also agreed to by DCIL. As per the revised offer, the works at SDC were agreed to be executed within lesser period of 60 days assuming that CSD Dredge Aquarius would dredge a quantity of 14,000 m³ per day. DCIL did not consider the previous performance of CSD Dredge Aquarius and the cost of dredging while submitting the initial quote as well as at the time of accepting revised offer of PPA. In this regard, against the assumed quantity of 14,000 m³ per day to be dredged, DCIL could dredge only 3,651 m³ per day⁶ on an average.
- (iii) DCIL dredged 0.94 million m³ at SDC in 244.88 dredging days and incurred ₹51.40 crore against contracted price of ₹17.85 crore (i.e., 9,37,188 m³ x ₹190.50 per m³). Similarly, for the quantity of 3.06 million m³ dredged at NDC up to August 2023 in 850.59 dredging days, DCIL incurred ₹190.16 crore against contracted price of ₹64.29 crore (i.e., 30,62,812 m³ x ₹190.50 per m³=₹58.35 crore *plus* Fuel Cost Escalation- ₹5.94 crore).
- (iv) While preparing estimates, DCIL had planned to deploy one CSD dredger, viz., Dredge Aquarius throughout contract period (i.e., 18 June 2017 to 30 November 2017 in SDC and thereafter for 12 months in NDC) and had included ₹10.00 crore towards mobilisation (₹7.00 crore) and demobilisation (₹3.00 crore) of dredger. Dredge Aquarius, however, had to be discontinued due to repairs and had to be replaced with three other dredgers (viz., Dredge XVIII, XIX and ID Ganga) from time to time during the years 2017-18 to 2023-24 (up to August 2023) and mobilisation and demobilisation expenditure of ₹14.63 crore⁷ was incurred as against ₹10.00 crore

⁶ Quantity dredged – 40,00,000 m³ (9,37,188 m³ at SDC and 30,62,812 m³ at NDC) divided by Total No. of Dredging Days - 1095.47 (244.88 days for SDC and 850.59 days for NDC).

⁷ The mobilisation and demobilisation dates of Dredge XVIII and Dredge Aquarius at SDC are not available in the records produced to Audit. Hence, the expenditure incurred on deployment of those dredgers is not included in the total mobilisation and demobilisation charges.

included in the contract (demobilisation charges of ₹3.00 crore is yet to claimed as on 31 March 2024). Thus, DCIL incurred excess mobilisation and demobilisation charges of ₹4.63 crore (i.e., ₹14.63 crore – ₹10.00 crore) on this contract.

Thus, due to preparation of incorrect cost estimates coupled with poor performance of dredgers, DCIL suffered a loss of ₹159.42 crore⁸ (including loss of ₹4.63 crore towards excess mobilisation and demobilisation charges subsumed in the total loss of ₹159.42 crore) in execution of the capital dredging works at PPA.

Management stated (June 2023/ August 2023/ May 2024) that:

- (a) Production of CSDs vary with respect to the soil parameters, pumping distances, underwater obstructions, traffic in dredging area and other site conditions. Therefore, production of CSDs is generally less in clayey soils as compared to sandy soils. Based on past experience at Paradip Port, considering the sandy strata, the daily production was estimated to be 12,000 m³ and the unit rate of ₹220.00 per m³ was offered to PPA. However, on the request of PPA to reduce the unit rate to ₹190.50 per m³ and due to not having any suitable assignment for the CSDs at that juncture, it was proposed to take up the work at reduced rate at least to earn the marginal cost of the dredger. Accordingly, the Execution Department was suggested to ensure optimum production in order to have margin.
- (b) The contract price was inclusive of mobilisation and demobilisation charges. Dredge XIX was deployed while it was working at Paradip Port and hence, no additional cost was incurred on mobilisation and demobilisation charges. Further, due to dry dock vessels and to complete the work to the satisfaction of the customer, more dredgers were deployed.

The Ministry endorsed (May 2024) the reply of DCIL.

The reply of the Ministry/ Management may be viewed in the light of the fact that:

- (a) The rates were quoted considering the performance of the dredger as 12,000 m³ and later the same was increased to 14,000 m³ to match with the offer price of PPA without considering the actual performance of the planned dredger for deployment, which was about 8,000 m³ per day. Further, the reply that the order was accepted to earn at least the marginal cost of the dredgers is not supported by any documentation to show that the cost was compared with the marginal cost. Also, at the end of the contract, DCIL did not earn any margin and suffered an operational loss of ₹128.13 crore⁹.

⁸ *Loss on SDC work – ₹33.55 crore (cost of ₹51.40 crore minus amount claimed by DCIL ₹17.85 crore) plus Loss on NDC work – ₹125.87 crore (cost of ₹190.16 crore minus amount claimed by DCIL ₹64.29 crore).*

⁹ *(Total operational cost of the dredger/ No. of dredging days) X No. of days deployed.*

- (b) Mobilisation and demobilisation charges were separately included in the contract price in addition to rate per m³. The contract was meant for capital dredging and there was no maintenance dredging during the period 2017-18 at Paradip Port. The Dredge XIX was mobilised from Visakhapatnam to Paradip in September 2017 and diverted from Paradip to Haldia in October 2017. Hence, Management contention that no additional cost was incurred on mobilisation and demobilisation of Dredge XIX is factually incorrect.

A.2 On a request (13 January 2020) from Paradip Port Authority (PPA), DCIL submitted (12 March 2020) an offer for executing the Maintenance Dredging for the year 2020-21, on nomination basis, to dredge 7.0 million m³ at a total cost of ₹98.12 crore (including cost of deployment of Backhoe Dredger at ₹7.17 crore and a margin of 10 *per cent* at ₹8.92 crore). Subsequently, as per discussions between DCIL and PPA, revised cost estimates had been prepared considering deployment of two TSHDs, viz., Dredge XVI (7,400 m³) and Dredge XX (5,500 m³) at a cost of ₹80 crore (excluding Backhoe.1 and including a margin of 10 *per cent* at ₹7.27 crore). Accordingly, the work order was issued (30 April 2020) by PPA. To execute the work, DCIL was required to deploy above two TSHDs between 1 and 10 May up to 31 October 2020 and one TSHD with a capacity of 7,400 m³ subsequently from 15 November to 1 December 2020 so as to complete the work by 15 March 2021. Dredging work commenced from 4 May 2020 and a total quantity of 7.34 million m³ was dredged and DCIL claimed ₹85.76 crore.

Table 7.4: Details of deployment of dredgers at PPA for Maintenance Dredging for the year 2020-21

Particulars	Dredge XVI (7400 m ³)	Dredge XX (5500 m ³)
Estimated days of deployment of dredgers		
Period	from 10 May to 31 December 2020	from 10 May to 31 October 2020
Days	236 days	175 days
Actual days of deployment of dredgers		
Period	from 4 May to 24 November 2020 and from 10 February to 17 April 2021	from 7 May to 18 November 2020
Days	272 days	196 days

In this regard, Audit observed that the estimated cost was prepared based on the deployment days of dredgers. Hence, DCIL had to complete the work within the planned deployment days. If there were any excess deployment days, the additional cost was to be on the account of DCIL. During the review of contract records, it was noticed that DCIL deployed Dredge XVI for 272 days and Dredge XX for 196 days as against the estimated 236 and 175 days respectively. Thus, there was an excess deployment of 57 days and accordingly, DCIL incurred additional expenditure of ₹15.07 crore¹⁰ which constituted 19 *per cent* of the contract value.

¹⁰ Total expenditure of ₹100.83 crore minus actual amount realised ₹85.76 crore.

Management stated (June 2023/ May 2024) that cost estimates were prepared duly considering the past performance of the dredgers and the production estimates. Further, it was stated that the margin of 10 *per cent* over and above the estimated expenditure of dredgers includes contingencies and price escalations. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/Management may be viewed in the light of the fact that the cost estimates of 2020-21 were prepared based on the expenditure of 2019-20 (up to December 2019) without considering past performance of dredgers. Further, as per the Manual of Marketing Department, while preparing cost estimates, Management has to consider percentage of contingencies and profit separately. However, Management has not considered the contingencies in the estimates.

A.3 Paradip Port Authority (PPA) issued work orders (2 May 2019/ 30 April 2020/ 18 March 2021) to DCIL for executing Maintenance Dredging contract at Paradip Port. In this regard, following were observed:

- (i) DCIL was required to deploy two TSHDs with a capacity of 7,400 m³ and 5,500 m³ respectively for the years 2020-21 and 2021-22. The cost estimates were arrived considering deployment of two TSHDs at ₹98.12 crore and ₹119.94 crore for the years 2020-21 (March 2020) and 2021-22 (December 2020) respectively. In this regard, Audit observed that Dredge XVII was stationed at Jawaharlal Nehru Port Trust, Mumbai and Dredge XXI was stationed at Mumbai Naval Yard when the cost estimates for the year 2020-21 were prepared in March 2020. Similarly, Dredge XVI and Dredge XX were stationed at Syama Prasad Mukherjee Port, Kolkata and Southern Naval Command, Kochi respectively while the cost estimates for the year 2021-22 were prepared in December 2020. However, in cost estimates, DCIL did not consider the mobilisation and demobilisation charges for deploying these dredgers stationed at other ports for works at Paradip Port.

During the execution of the works, DCIL diverted Dredge XVI working at Jawaharlal Nehru Port Trust, Mumbai for works at Paradip Port for working along with Dredge XX, which was already at Paradip Port for execution of works during 2020-21. Similarly, DCIL diverted Dredge XX and Dredge XI working at Kamarajar Port Limited, Ennore and Southern Naval Command, Kochi respectively for execution of works during 2021-22. Dredge XVII also was diverted after dry dock repairs from Kochi directly for works at Paradip Port during 2021-22. Hence, due to non-inclusion of mobilisation and demobilisation charges in the cost estimates for the years 2020-21 and 2021-22, DCIL could not claim mobilisation and demobilisation charges from PPA amounting to ₹13.10 crore even though dredgers were deployed by mobilising them from other Ports.

Management, while mentioning that the mobilisation and demobilisation charges were specifically being considered in the estimates for the subsequent years, whether or not the

work is awarded on nomination basis or on open tender basis, stated (June 2023/ August 2023/ May 2024) that the project cost at Paradip Port is inclusive of mobilisation and demobilisation charges and hence, it may not be appropriate to conclude that 'DCIL lost the opportunity to claim mobilisation and demobilisation charges from PPA'. DCIL further stated that demobilization charges were applicable for maintenance dredging works of Visakhapatnam Port Authority and Kamarajar Port Limited, wherein the mobilization cost of dredgers proposed for deployment at Paradip was being compensated. The Ministry endorsed (May 2024) the reply of DCIL.

Reply of the Ministry/ Management may be viewed in the light of the fact that the cost estimates for PPA contracts were made considering the number of dredging days required for executing the work and no voyage days were considered to recover mobilisation and demobilisation charges.

- (ii) Maintenance Dredging contracts entered with PPA for the years 2019-20 to 2021-22 do not provide for idle time charges due to obstructions like shipping movement, instructions from Port Authorities, bad weather and unforeseen obstructions/ debris, etc., encountered during dredging work though those obstructions are inevitable and idle time is unavoidable and most importantly, are not controllable by DCIL. However, a similar clause for idle time was included in the Capital Dredging contract with PPA signed on 4 August 2017. Hence, due to absence of 'Idle Time Charges' clause, though dredgers were stopped for 390 hours while carrying out maintenance dredging at PPA due to various obstructions during 2019-20 to 2021-22, DCIL could not claim idle time charges and lost the opportunity to earn potential revenue amounting to ₹3.35 crore¹¹.

Management stated (June 2023/ May 2024) that the work was awarded to DCIL on the basis of the terms and conditions of their previous tender, wherein separate item was not incorporated for idle time charges and it was also indicated that the quoted rate shall be inclusive of idling charges. Further, PPA did not agree for inclusion of idle time charges in the contract as per the request made by DCIL in the pre-bid stage. DCIL further stated that Ports in most of the maintenance dredging contracts do not allow idle time charges, as the idle time of TSHDs towards shipping movement is very less except during force majeure conditions like severe cyclones. The Ministry endorsed (May 2024) the reply of the DCIL.

The replies of the Ministry/ Management may be viewed in the light of the fact that specific Clause for 'Idle Time Charges' was included in Capital Dredging contract of same Port (PPA). Further, in a scenario where the quoted rate shall be inclusive of idling charges, DCIL should have provided for the same in the estimates, which it failed to include. Further, maintenance dredging contracts taken up at Ports like Chennai Port, Kamarajar Port, Mormugao Port, Jawaharlal Nehru Port Authority, Gangavaram Port and Cochin

¹¹ 390 hours multiplied by ₹86,000 per hour (rate for the Capital Dredging Contract was considered) equals to ₹3.354 crore.

Shipyard Limited, had an 'Idle Time Charges' clause. Hence, Management's contention that Ports do not allow idle time charges is not acceptable.

A.4. New Mangalore Port Trust (NMPT) awarded (8 September 2020) a contract to DCIL for Post-Monsoon Maintenance Dredging for the years 2020-21 and 2021-22 at a total value of ₹74.14 crore (₹37.07 crore per year) to dredge 6.56 million m³ each year. The dredging work was to be commenced on 1 October, and completed within 120 days, i.e., by 28 January of next year. For 2020-21, the dredging work commenced on 31 October 2020 by deploying Dredge VIII and continued until 30 April 2021. Dredge XIX was also deployed from 17 December 2020 and the same was continued until 18 May 2021. The work was completed (May 2021) with a dredged quantity of 6.26 million m³ in 335 days (Dredge VIII-182 days and Dredge XIX – 153 days). DCIL incurred an expenditure of ₹78.03 crore against which DCIL realised a revenue of ₹36.76 crore. In this regard, Audit observed that:

- (i) The cost estimates were made considering deployment of 7,400 m³ capacity dredger which would take 11 loads with reported quantity¹² of 69,190 cubic metre¹³ and *in-situ*¹⁴ quantity of 62,271 m³ per day (90 *per cent* of 69,190 m³). Based on this *in-situ* quantity dredged per day, the quantity of 6.56 million m³ was proposed to be achieved in 105.40 days leaving 3.60 days for clearing and additional works and 8 days for mobilisation and demobilisation of dredger. DCIL, however, deployed dredgers with lower capacity, viz., Dredge VIII with capacity of 6,500 m³ during the period 31 October 2020 to 30 April 2021 and Dredge XIX with capacity of 5,500 m³ during the period 17 December 2020 to 18 May 2021 for completing the works. Further, during execution, Dredge VIII took 1 to 8 loads per day with reported quantity ranging between 4,382 m³ and 36,574 m³ only and Dredge XIX took 2 to 11 loads per day with reported quantity ranging between 7,740 m³ and 45,277 m³ per day only. The aggregate *in-situ* quantity of two dredgers was 6.19 million m³ out of the reported quantity of 9.17 million m³, due to which only 68 *per cent* work could be achieved as against estimate of 90 *per cent*.
- (ii) As per Clause 8.13 of Technical Specification of Tender, "*The measurement system proposed in this tender for annual maintenance dredging was on in-situ basis and, for assessment of quantity dredged, volume shall be calculated on the basis of joint pre-dredging and joint post-dredging sounding between the dredging limits. Siltation during the dredging period, if any, shall be on the account of contractor, the rate quoted shall be inclusive of such siltation*". Audit observed that the dredging area was divided into seven Zones, viz., Zone-I, II, III, IV, Zone-I Extension, Zone-IV Extension and Berth Face Dredging. Though DCIL dredged *in-situ* quantity of

¹² Reported quantity is the hopper quantity dumped at the designated area.

¹³ 69,190 m³ per day has been arrived at considered 85% of hopper capacity, i.e., 7,400 m³ x 85% = 6,290 m³ for 11 loads (6,290 m³ x 11 = 69,190 m³ per day).

¹⁴ *In-situ* basis means the quantity difference in depths between the pre-dredging survey and progressive/post-dredging survey.

20.45 lakh m³ in Zone-IV up to the 5th Running Account Bill (May 2021), the *in-situ* quantity in the final Running Account Bill (June 2021) was reduced to 18.59 lakh m³ due to siltation. NMPT refused (5 July 2021) to reimburse the differential quantity of 1.86 lakh m³ on the ground that loss due to siltation quantity during the dredging period was to the account of contractor and the same should have been loaded in the cost estimates while quoting the bid under Clause 8.13. Review of estimates revealed that the siltation quantity accumulated over the dredging period was not considered by DCIL. Hence, DCIL could not recover the cost of ₹0.99 crore¹⁵ towards dredging of the siltation quantity.

Thus, due to preparation of estimate in terms of *in-situ* quantity dredged and deployment of lesser capacity dredgers than that estimated, DCIL could not complete the works within stipulated period of 120 days. Further, DCIL was unable to dredge *in-situ* quantities and it took 289.52 dredging days against the stipulated period of 120 dredging days. Consequently, this resulted in loss of ₹41.27 crore¹⁶ on account of excess expenditure incurred for the additional 169.52 days.

Management stated (June 2023/ May 2024) that due to cascading effects of Covid-19 pandemic, DCIL dredgers deployment schedule, dry dock repairs and dredging operations were severely affected and caused delay in commencement of subject work on 30 October 2020 by Dredge VIII with hopper capacity of 6,500 m³, which was meeting the minimum hopper capacity of 6,000 m³ as per client's requirement. Dredge XIX with hopper capacity of 5,500 m³ was also deployed from 17 December 2020 to compensate the loss in dredging days. It was further stated that from the past many years, it has been observed and experienced about the evidence/ presence of very stiff and hard strata in North Side area of Zone III, which used to be tackled on daily rate basis earlier, resulting in drop in the expected production. Due to this, the design depths are not being achieved during many days and efforts are wasted in tackling this area. The cyclone 'Tauktae' caused further siltation in the channels. The delay in completion of works was also attributable to non-availability of dredgers and diversion of dredgers to Cochin Shipyard Limited for a national importance dredging project, which was not foreseen while preparing the estimates. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in light of the fact that though minimum hopper capacity as per client's requirement was 6,000 m³, DCIL had planned to deploy 7,400 m³ dredger and accordingly estimates were prepared to complete the project within 120 days by commencing the work from 1 October 2020. The work, however, was commenced with delay of 30 days from 31 October 2020. Further, the contractual quantity should have been achieved in 120 days by the end of February 2021, i.e., more than two months prior to cyclone 'Tauktae', which hit the coast in May 2021 at the fag-end of completion of the dredging work. Thus, incorrect production estimates and delayed

¹⁵ $1,86,281.33 \text{ m}^3 \times ₹53.25 \text{ per m}^3 = ₹99,19,480.82$. This is subsumed in the total loss of ₹41.27 crore.

¹⁶ Actual expenditure ₹78.03 crore minus DCIL's claim of ₹36.76 crore.

commencement of dredging work resulted in prolonged dredging for 290 days as against the estimated 120 days. Also, Management was aware of the fact that for the past many years, hard strata was encountered in the North Side area of Zone III and the same was clearly indicated in the tender documents. Hence, the estimates should have been prepared factoring the additional time required and effect of siltation to achieve the contractual quantities based on the past experience. In addition to the above, as per records made available to audit, no dredger was diverted from NMPT to CSL during 2020-21 and Dredge VIII and Dredge XIX were in continuous deployment at NMPT during October 2020 to May 2021. Further, the cascading effects of Covid pandemic which impacted the deployment of dredgers as stated by the Management were also mitigated by DCIL by deploying two dredgers for executing the works as against requirement of one dredger, but still DCIL could not complete the work.

A.5 In respect of work awarded (September 2020) by Southern Naval Command (SNC), Kochi towards Maintenance Dredging for the years 2020-21 and 2021-22, Audit noticed that DCIL did not include Fuel Price Escalation Clause in the bid submitted on 13 June 2020 even though the contract duration spanned across two years, i.e., 2020-21 and 2021-22 and fuel prices were dynamic and changed every fortnight. Audit worked out the loss of ₹8.18 crore due to fuel escalation considering the fuel cost prevailing on 1 June 2020 (i.e., last date of submission of bids) as base rate¹⁷ and fuel prices¹⁸ during the dredging period (i.e., December 2020 to June 2022). As there was no clause for the fuel escalation in the agreement with SNC, the loss of ₹8.18 crore had to be absorbed by DCIL.

Management stated (June 2023/ May 2024) that the work was awarded to DCIL on open tender basis. In pre-bid stage, DCIL had requested to incorporate price variation/ fuel escalation clause, however, the request was not considered by SNC. Further, prior to pandemic and war situations, the fuel prices were mostly stable except minor variations. DCIL also stated that 10 *per cent* provision was made for such variations in contingencies/ margin. However, after experiencing abnormal variations in recent years, suitable provision is being made in the estimates towards fuel price escalations in contracts which doesn't contain 'Price Variation Clause'. The Ministry endorsed (May 2024) the reply of DCIL.

Management has stated to have taken corrective action by making suitable provision in the estimates towards fuel price escalation in contracts which doesn't contain 'Price Variation Clause'. However, even though DCIL was aware of the fact that fuel prices change fortnightly and the contract with SNC was for a period of two years, DCIL failed to load the estimates submitted by it to SNC with 'Fuel Escalation' once their request for inclusion of a 'Price Variation Clause' was rejected by SNC during pre-bid stage discussion. Further, there were no contingencies provided in the estimates except profit margin of 10 *per cent*

¹⁷ *High Flash High Speed Diesel (HFHSD) at ₹79,742.04 per MT and Fuel Oil (FO) ₹22,628.42 per MT (Since the base price of Fuel Oil at Kochi was not available, Audit considered the base price of Fuel Oil at Kolkata/ Haldia as on 5 June 2020).*

¹⁸ *During the dredging period, fuel prices ranged between ₹30,064.20 per MT and ₹65,891.85 per MT for FO and ₹98,771.01 per MT to ₹1,54,400.09 per MT for HFHSD.*

and the loss on fuel escalation was about 16 per cent of the contract value. It is pertinent to mention here that the Fuel Prices of High Flash High Speed Diesel had fluctuated from ₹74,955 per MT to ₹84,820 during January 2019 to February 2020 during the pre-Covid and Russia – Ukraine War period indicating that the fuel prices were not stable.

Thus, Audit observed that the cost and time estimates for quoting the dredging rates were not made on the basis of the past performance of DCIL's dredgers planned for deployment in similar dredging conditions. This incorrect estimation has consequently resulted in loss of revenue of ₹240.39 crore¹⁹ in four out of 17 contracts selected for review.

Recommendation no. 28: *The cost and time estimates for quoting the dredging rates may be determined on the basis of past performance of dredgers deployed in similar dredging conditions realistically and duly considering mobilisation and demobilisation charges, if applicable. The Ministry/ Management assured (May 2024) that the issue will be dealt in future with utmost care.*

Recommendation no. 29: *DCIL may ensure inclusion of fuel cost escalation clause for neutralising the increase in fuel cost so as to safeguard its financial interests.*

The Ministry/ Management stated (May 2024) that the 'Fuel Escalation Clause' was being incorporated in all long term nomination works as well as in most of the works called on tenders. Whenever, such Clause doesn't exist in the tender, DCIL is taking up with clients in the pre-bid meeting and insisting them to incorporate the Clause. However, in such cases where the client is not agreeing to incorporate the Clause, DCIL is loading the probable escalation cost in the project estimates.

B. Planning and deployment of dredgers

Audit noticed issues in planning and deployment of dredgers in four (4) out of 17 contracts selected for review. Audit has noticed loss of revenue in one contract due to non-deployment of adequate number of dredgers as well as deployment of additional dredgers than planned. Audit has also noticed loss of revenue in two (2) contracts as DCIL did not deploy dredgers continuously, which led to formation of siltation for which DCIL did not get revenue despite dredging. Further, Audit also noticed discrepancies in mobilisation and demobilisation of dredgers due to deployment of additional dredgers than planned. In respect of one contract, DCIL incurred avoidable expenditure due to idling of dredger for want of bunkering. The observations noticed by Audit are discussed in the subsequent paragraphs:

B.1. Syama Prasad Mukherjee Port, Kolkata (SPMP) awarded (February 2017) a contract to DCIL for Maintenance Dredging in the shipping channel leading to Haldia Dock

¹⁹ ₹159.42 crore (A.1 of Para No. 7.1.5.1) plus ₹15.07 crore (A.2 of Para No. 7.1.5.1) plus ₹16.45 crore (A.3 of Para No. 7.1.5.1) plus ₹41.27 crore (A.4 of Para No. 7.1.5.1) plus ₹8.18 crore (A.5 of Para No. 7.1.5.1).

Complex in the Hooghly Estuary²⁰ for a period of five years at a cost of ₹1,119.19 crore for the calendar years 2017 to 2021. In this regard, Audit observed that:

- (i) The quantity to be dredged for the calendar year 2020 was 9.30 million cubic metre²¹ and the depth to be maintained was 4.2 metres at Jellingham and Haldia Anchorage and 4.7 metres at Eden Bar. DCIL commenced the dredging operations on 1 January 2020 by deploying five dredgers²² from time to time and upto December 2020 dredged 6.43 million m³ (i.e., 3.80 million m³ at Jellingham and Haldia Anchorage and 2.63 million m³ at Eden Bar), leaving a balance quantity of 2.87 million m³ and claimed an amount of ₹164.30 crore. In this regard, though estimates were made assuming deployment of three dredgers at Haldia throughout the year (2020), three dredgers were deployed for nine months (i.e., February to April, July to August and December) and two dredgers were deployed for three months during the year 2020 (i.e., January, June and October). Further, as against the norm of three (3) days for routine maintenance, DCIL took five to twenty days for routine maintenance. As a result, against 24 days, DCIL took 69 days for routine maintenance resulting in 45 excess non-operational days. Further, the dredgers were stopped frequently ranging from 10 to 81 hours for bunkering²³ and for want of fresh water as against normal requirement of 6 to 8 hours in a month, which aggregated to 10 non-operational days. Thus, the dredgers in all, were not operational for 55 days (i.e., 45 + 10) during January to December 2020, over and above the norm/ stipulated days. Thus, since DCIL did not deploy agreed number of dredgers throughout the year, coupled with frequent stoppage of dredgers for bunkering, for want of fresh water, repairs, routine maintenance, etc., DCIL suffered a loss of ₹44.52 crore (i.e., actual expenditure of ₹208.82 crore minus revenue claims of ₹164.30 crore) during the year 2020.
- (ii) As the existing contract period was to end by 31 December 2021, SPMP requested (10 November 2021) DCIL to continue dredging for a further period of three months with the same rates, terms and conditions, w.e.f. January 2022. DCIL, however, declined the proposal and offered (16 December 2021) revised rates for Jellingham and Haldia Anchorage and for Eden Bar. DCIL requested (27 December 2021) SPMP to conduct virtual meeting for discussions. In response, SPMP informed (29 December 2021) that proposed meeting would be conducted shortly due to pre-occupation of the concerned officials till 4 January 2022 and requested DCIL to continue the dredging operations beyond 31 December 2021. DCIL, however, did not accept the proposal and discontinued operations w.e.f. 1 January 2022. The virtual meeting was held on 6 January 2022 and both parties agreed to finalise the revised rates before

²⁰ *Estuary is the wide part (mouth) of a river where it joins in the sea.*

²¹ *The quantity bifurcation between Jellingham and Haldia Anchorage and Eden Bar was not available at Project Office, Haldia. Hence, Audit considered the combined total quantity of 9.30 million m³ for both areas.*

²² *Dredge XII, XIV, XVI, XIX and XXI.*

²³ *Bunkering is supplying of fuel to vessels/ ships and is the responsibility of DCIL.*

11 January 2022. DCIL commenced dredging operations from 6 January 2022 pending finalisation of rates which was done on 14 January 2022.

Despite no specific work planned for those three dredgers after 31 December 2021, DCIL discontinued the dredging work up to 5 January 2022. As DCIL did not continue the dredging works from 1 to 5 January 2022 despite the assurance from SPMP on 29 December 2021 to finalise the dredging rates, there was loss of ₹2.66 crore as worked out by the Management.

- (iii) In respect of Maintenance Dredging work awarded (February 2017) by SPMP for the year 2019, DCIL was to achieve 4.50 million m³ hopper quantity at shipping channel of Haldia Dock Complex at Jellingham and Haldia Anchorage by deploying three dredgers.

Audit observed that DCIL had achieved only 4.00 million m³ as against agreed contracted quantity of 4.50 million m³ leaving an unachieved balance quantity of 0.50 million m³ during the year 2019, despite deployment of required number of dredgers continuously. Non-achievement of the contracted quantity was mainly due to frequent stoppage of dredgers for bunkering, want of fresh water and excess number of days taken for routine maintenance. In all, dredgers were not operational for 68 days resulting in loss of opportunity to earn potential revenue of ₹12.97 crore (i.e., 0.50 million m³ x ₹259.47 per m³) towards the unachieved agreed quantity.

Thus, since DCIL did not deploy the agreed number of dredgers throughout the year, DCIL lost the opportunity to earn revenue of ₹12.97 crore for the year 2019 and suffered loss of ₹44.52 crore for the year 2020. Further, DCIL lost the opportunity to earn revenue of ₹2.66 crore during the year 2022 due to discontinuance of dredging work in the interim.

Management, while accepting during the Exit Conference that the decision to stop the work during 1 to 5 January 2022 was not correct, stated (June 2023/ July 2023 /May 2024) that desired depth was achieved and was maintained throughout the year by deploying dredgers at Jellingham and Haldia Anchorage. It was further stated that lockdown imposed by GoI due to Covid pandemic w.e.f. 25 March 2020 impacted operations due to deployment of minimum manpower with reduced working hours. Also, Port's Operating Procedure for Covid 19 also impacted timely crew changes, which were beyond DCIL's control. For the year 2019, Management stated (June 2023 / May 2024) that bunkering/ fresh water supply was solely dependent on favourable tidal timings and supply of bunker and fresh water to the dredgers were planned to optimise operational hours keeping in view tidal condition and dredging cycle. Ministry endorsed (May 2024) reply of DCIL.

The replies of the Ministry/ Management may be viewed in the light of the fact that the observation was on loss due to project execution by frequently changing the deployment of dredgers and stoppage of dredgers for repairs, bunkering and routine maintenance beyond normal requirement. As against three dredgers, DCIL deployed six dredgers at different

points of time during the calendar year 2020 and the dredgers cumulatively stopped for 136 days for breakdown/ repairs. Further, during Covid pandemic, the dredging work was in progress during the lockdown in the months of March, April and May 2020 and was also operational subsequently. As such, there was no impact of Covid-19 pandemic on dredging by DCIL at SPMP. Further, DCIL has past experience in carrying out the dredging operations at Haldia Dock Complex and as against 6 to 8 hours in a month for bunkering, etc., dredgers were stopped up to 40 hours which was beyond the hours set by DCIL²⁴ resulting in loss during operations.

B.2 Kamarajar Port Limited, Ennore (KPL) signed (8 July 2020) contract for Capital and Maintenance Dredging works at various areas on nomination basis, to dredge 5.70 million m³ (Capital Dredging- 0.90 million m³ and Maintenance Dredging - 4.80 million m³) at a total cost of ₹121.77 crore for 2020-21. As per the contract, the work was to commence on 8 July 2020 by deploying two TSHDs (combination of 7,400 m³ and 5,500/ 4,500 m³ hopper capacity) and was to be completed within eight months (i.e., on or before 7 March 2021). The quantity measurement methodology was *in-situ* basis. Prior to commencement of the dredging, DCIL, KPL and a Third Party (Project Management Consultant) conducted a Joint Pre-Dredging Survey and arrived at quantity to be dredged of 4.48 million m³ by deploying two TSHDs, which was afterwards reduced to 3.44 million m³. As against planned deployment of two dredgers, DCIL deployed three dredgers for carrying out the work as detailed below:

Table 7.5: Details of dredgers deployed at Kamarajar Port Limited, Ennore

Dredger Name	Deployment date	Withdrawal date	Remarks
Dredge XVII	20 July 2020	03 February 2021	--
Backhoe Dredger	30 January 2021	26 April 2021	BH-1 worked along with Dredge XVII up to 3 February 2021
Dredge XX	25 March 2021	26 April 2021	Dredge XX deployed after one and half months from withdrawal of Dredge XVII
Dredge XVI	28 February 2022	30 April 2022	Dredge XVI deployed after a gap of 8 months from the date of withdrawal of Dredge XX on 26 April 2021 owing to Fish Breeding Season up to 15 June 2021.

In this regard, Audit observed that.

²⁴ As part of response to queries during C&AG's Thematic Audit Report No. 9 of 2017 on "Operations and Maintenance of dredgers by DCIL for the period from 2010-11 to 2014-15", Management replied that supply of fuel oil needs six to eight hours' time.

- (i) Due to non-deployment of dredgers continuously, dredging was stretched for a period of 19 months (i.e., 21 months from 20th July 2020 to 30th April 2022 *minus* fish breeding season of about two months during 27 April 2021 to 14 June 2021) as against stipulated deployment for a continuous period of eight months and resulted in reduction of *in-situ* quantity dredged by 2.40 lakh m³ due to siltation over the period. Audit noticed that as against *in-situ* quantity of 4.69 lakh m³ up to 7th Running Account Bill (up to 3 February 2021) in respect of six areas, the billed *in-situ* quantity reduced by 1.67 lakh m³ to 3.02 lakh m³ upto 8th Running Account Bill (up to 26 April 2021) due to siltation. Further, as against *in-situ* quantity of 15.43 lakh m³ up to 8th RA Bill (up to 26 April 2021) in respect of other five areas, the final billed *in-situ* quantity dredged reduced by 0.73 lakh m³ and came down to 14.70 lakh m³ as per final Running Account Bill due to siltation.

Thus, *in-situ* quantity was reduced by 2.40 lakh m³ (1.67 lakh m³ *plus* 0.73 lakh m³) due to non-deployment of two dredgers continuously for a period of eight months resulting in loss of revenue of ₹3.96 crore.

- (ii) Backhoe Dredger was to be double handled²⁵ by deploying TSHD or through support of Barge, in order to transport the dredged material to the dumping ground. In this regard, though the Backhoe Dredger commenced dredging operations from 30 January 2021, Dredge XVII was withdrawn from 4 February 2021 (i.e., only after 5 days) and Dredge XX was deployed on 25 March 2021. Hence, due to delay in deployment of TSHD during the period 4 February to 24 March 2021, Backhoe Dredger was idle for 48 days and incurred an expenditure of ₹1.19 crore (i.e., 48 days x ₹2.48 lakh per day) on idling.
- (iii) DCIL incurred mobilisation and demobilisation expenditure of ₹8.19 crore as against the contractual provision of ₹5.32 crore. In this regard, due to non-completion of the dredging work till withdrawal of dredger XX on 26 April 2021, DCIL had to deploy dredge XVI on 28 February 2022 to complete the remaining work and consequently, incurred additional mobilisation and demobilisation charges of ₹2.32 crore.

Thus, due to non-deployment of dredgers continuously and non-deployment of TSHD along with Backhoe Dredger, the Project was concluded after dredging of 3.23 million m³ as against the target quantity of 3.44 million m³. DCIL took total 19 months (excluding fish breeding season from 27 April 2021 to 14 June 2021) against contractual completion period of 8 months. This resulted in avoidable expenditure of ₹3.51 crore (i.e., ₹1.19 crore + ₹2.32 crore) apart from loss of revenue of ₹3.96 crore.

Management stated (June 2023 / May 2024) that due to prior committed assignments, DCIL could deploy initially only one TSHD, i.e. Dredge XVII with 7,400 m³ hopper

²⁵ As Back-hoe Dredger is a non-propelled dredger, it needs another TSHD to carry and dump the dredged material at the designated area.

capacity. The target quantity was reduced to 34.49 lakh m³ from 48 lakh m³ and hence, it was planned to complete the dredging with Dredge XVII alone. However, due to encountering of hard bottom areas, dredging could not be completed by Dredge XVII before demobilising on 4 February 2021. DCIL had deployed Backhoe Dredger from 29 January 2021 and Dredge XX from 25 March 2021 to complete the balance work and continued dredging up to Fish Breeding Season. To complete the project, DCIL had deployed Dredge XVI on 28 February 2022 and completed the maintenance dredging work at Kamarajar Port on 30 April 2022. It was also stated that Backhoe Dredger was idle with no assignments and was deployed at Kamarajar Port to tackle hard bottom areas. Due to sudden Covid outbreak onboard Dredge XX, it had to be demobilised along with Backhoe Dredger. Further, Kamarajar Port had waived Liquidated Damages (LD) of ₹2.96 crore out of ₹4.365 crore levied for delays. The Ministry endorsed (May 2024) the reply of DCIL.

The replies of the Ministry/ Management may be viewed in the light of the fact that the dredging was not completed within the scheduled estimated time of 8 months fixed for dredging 4.8 million m³, despite the target quantity to be dredged was reduced to 3.4 million m³. Though Backhoe Dredger required the support of barge or had to be double handled by TSHD, no such arrangement was made to avoid idling of Backhoe Dredger while in deployment. Further, DCIL failed to resume dredging to complete the balancing work immediately after completion of Fish Breeding Season in June 2021 and the dredger was deployed from February 2022 with a delay of eight months. The Dredge XX was in operation until 20 April 2021 and had to stop dredging due to Fish Breeding season, which generally starts by 15 April and continues until 14 June every year and not due to outbreak of Covid pandemic onboard the Vessel as stated by the Management. Further, the levy and waiver of LD by Kamarajar Port has been discussed at Point D.2 of para 7.1.5.1

B.3 Southern Naval Command, Kochi (SNC) awarded (September 2020) Maintenance Dredging contract for the years 2020-21 and 2021-22 for ₹51.68 crore excluding taxes to dredge 18 lakh m³ each year (15.00 lakh m³ by deploying one TSHD and 3.00 lakh m³ by deploying CSD/ Grab Dredger²⁶). The designed depth was to be achieved within 16 weeks from date of commencement of dredging (i.e., 1 October of each year) and had to be maintained till end of February 2021 and February 2022 respectively. As per Joint Pre-Dredging Survey conducted by SNC and DCIL for each year 2020-21 and 2021-22, it was agreed to dredge a quantity of 15.56 lakh m³ and 12.95 lakh m³ against which DCIL dredged 10 lakh m³ and 7.52 lakh m³ respectively.

In this regard, Audit observed that:

²⁶ *A Grab Dredger picks up seabed material with a clam shell bucket, which hangs from an onboard crane or a crane barge, or is carried by a hydraulic arm, or is mounted like on a dragline. This technique is often used in execution of bay mud. Most of these dredges are crane barges with spuds, steel piles than can be lowered and raised to position the dredge.*

- (i) For the year 2020-21, the dredging work commenced on 3 December 2020 and continued up to 20 January 2021 and an *in-situ* quantity of 9.05 lakh m³ was achieved. Thereafter, the dredger was deployed on 9 May 2021 and dredging continued up to 14 June 2021, but the *in-situ* quantity achieved was only 0.95 lakh m³ i.e., about 11 per cent of the reported quantity of 8.46 lakh m³ due to siltation, as the dredger was redeployed after a gap of three and half months on 9 May 2021.

Figure 7.4 – Picture indicating the impact of siltation due to non-deployment of dredgers continuously

Pre-Dredging Survey	December 2020 to January 2021 – Dredger Deployed	Effect of Siltation	May 2021 to June 2021 – Dredger Deployed
Note- Quantity to be dredged indicated in 'Yellow' and Quantity dredged indicated in 'Green'. Not to Scale			

Similarly, for the year 2021-22, the dredging work commenced on 2 January 2022 and concluded on 21 July 2022, however, the dredgers were deployed continuously only from 26 February 2022 to 21 July 2022 and dredged reported quantity of 21.46 lakh m³. Hence, as against the contracted quantity of 12.95 lakh m³, despite dredging a reported quantity of 21.46 lakh m³, the *in-situ* quantity achieved was 7.52 lakh m³ due to siltation in view of three months delay in deployment of dredger on 2 January 2022 from the date of Pre-Dredging Survey (October 2021) as well as non-continuous deployment of dredgers during the period from 2 January to 25 February 2022.

Thus, non-deployment of dredgers as per contractual timelines and consequent siltation resulted in non-achievement of contractual *in-situ* quantity even after deployment of additional dredgers for a period over and above the contractual period, i.e., up to June 2021 and July 2022 as against February 2021 and February 2022 respectively.

- (ii) During 2020-21 and 2021-22, DCIL had included ₹2.45 crore towards mobilisation and demobilisation charges for deploying two dredgers, viz., Dredge XVI and Grab Dredger, for execution of works in the contract in its estimates. However, DCIL deployed five dredgers (i.e., XX, XV, VIII, XI and XIX) between 3 December 2020 and 14 June 2021 for the year 2020-21 and five dredgers (i.e., XIX, XVI, XI, XX and one Grab Dredger) between 2 January 2022 and 21 July 2022 for the year 2021-22 as against two dredgers to be deployed throughout the contract period. Thus, due to frequent changes in deployment of dredgers, DCIL incurred an expenditure of ₹8.39 crore towards mobilisation and demobilisation charges as against the agreed contractual provision of ₹2.45 crore, which resulted in extra expenditure of ₹5.94 crore.

All these factors contributed to loss of ₹19.09 crore²⁷.

Management stated (June 2023 / May 2024) that SNC did not levy any penalty on DCIL for delays in completion of the dredging work for the years 2020-21 and 2021-22 and DCIL could avoid a penalty of ₹3.02 crore and ₹3.07 crore respectively. Further, on mobilisation and demobilisation charges, Dredge XX was mobilised from Paradip, Dredge XIX from NMPT and Dredge XI from SNC in 2020-21. Similarly, Dredge XI from Hindustan Shipyard Limited, Dredge XVI from Cochin Port and Dredge XX were demobilised to Chennai in 2021-22 and hence, no additional charges had been incurred. It was also stated that due to cyclone 'Tauktae' at Kochi, there was huge siltation in SNC and depths already achieved were also considerably reduced as per check survey conducted after monsoons. Further, due to Covid pandemic and lockdowns, the work was delayed which was totally beyond control. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that the observation is on non-deployment of dredgers continuously resulting in loss in execution of the SNC project but not related to levy of penalties. The penalties, if any, would have been additional loss to DCIL. The mobilisation charges relating to Dredges XX and XIX and demobilisation charges of Dredges XI and XX were considered in the above *Sub-Para* for 2020-21 only. Similarly, mobilisation charges relating to Dredges XI and XVI and demobilisation of Dredge XX as applicable were only included in *Sub-Para* for 2021-22. Thus, mobilisation and demobilisation charges of excess dredgers deployed beyond the contractual number of dredgers resulted in extra expenditure. Further, the desired depths had to be achieved within 16 weeks, i.e., 112 days. Thus, even if required number of dredgers had been deployed effectively from 3 December 2020, the desired depth should have been achieved by March 2021, i.e., well before the onset of cyclone 'Tauktae' in May 2021 and Covid second wave in April 2021. The delayed commencement of dredging work in December 2020 as against October 2020 and subsequent stoppage of dredging in January

²⁷ *Actual Expenditure ₹51.44 crore minus Revenue Realised ₹24.17 crore (including mobilisation and demobilisation charges of ₹2.45 crore) minus Loss on Fuel Escalation of ₹8.18 crore (discussed in Para No. A.5 of 7.1.5.1).*

2021 upto May 2021 resulted in siltation and not due to bottlenecks as a consequence of Covid pandemic/ lockdown as stated by Management.

B.4 Against the contract entered (31 January 2020) by DCIL with Naval Dockyard, Mumbai, Dredge XXI, the latest dredger in the DCIL's fleet and earning higher revenue, was deployed for dredging. It was, however, observed that Dredge XXI was anchored awaiting bunkers from 4 April 2020 (9:20 hours) to 9 April 2020 (13:30 hours) for about 124 hours. This idling of Dredge XXI for want of bunkering resulted in avoidable expenditure of ₹0.91 crore²⁸ towards standing cost. Considering the financial implications involved due to idling the Dredge XXI for want of bunkering, DCIL should have planned and ensured timely supply of fuel.

Management / Ministry has not furnished any specific remarks to the audit observation.

Thus, due to improper planning in deployment of dredgers, DCIL had suffered a loss of ₹87.62 crore²⁹ in four out of 17 contracts selected for review.

Audit in Para No. 14.1 of Report No. 9 of 2017 had already recommended that DCIL should aim for enhancement of its dredgers' capability through better planning, efficient deployment and supervision to ensure completion of works within the stipulated period. However, Audit has still come across lacunae in planning and deployment of dredgers which consequently resulted in delays in completion of works. Hence, Audit recommends that:

Recommendation no. 30: Deployment of dredgers may be made in line with the planned capacities and contractual timelines to avoid delay in execution of the dredging works and corresponding extra avoidable expenditure.

The Ministry/ Management stated (May 2024) that the recommendation is noted and shall be complied.

Recommendation no. 31: DCIL may ensure issue of prompt directions for engagement of dredgers as well as timely arrangement of bunkering, logistics, etc. to avoid idling of dredgers with consequential avoidable expenditure.

The Ministry/ Management stated (May 2024) that due to lack of funds, the clearance from bunker suppliers got delayed and, further, non-availability of berths/ anchorages in time from clients, resulted in idling of dredgers.

Audit reiterates recommendation as the constraints indicated in the response were controllable through better planning.

C. Non-achievement of assured depths and required quantities

Audit has noticed loss in two (2) out of 17 contracts selected for review, as DCIL could not achieve designed depths/ contractual quantities.

²⁸ Revenue that could be generated from dredging at Naval Dockyard, Mumbai has not been considered.

²⁹ ₹60.15 crore (B.1 of Para 7.1.5.1) plus ₹7.47 crore (B.2 of Para 7.1.5.1) plus ₹19.09 crore (B.3 of Para 7.1.5.1) plus ₹0.91 (B.4 of Para 7.1.5.1).

C.1 Naval Dockyard, Mumbai entered (31 January 2020) into a contract with DCIL to carry out the Maintenance Dredging of Naval Sites, Mumbai for the year 2019-20 at a cost of ₹66.19 crore (including GST). Clause 1 of Part II of the contract stipulated that the assured depth shall be achieved and duly certified by User Manager, viz., Commodore of Yard, Naval Dockyard, Mumbai and the payments will be made accordingly. Dredging work was divided into 10 Zones and the payment of bills shall be made based on assured depth achieved in the respective Zones.

During Pre-monsoon dredging, work commenced in Zones 1, 2, 3, 4, 5, 6 and 8. Hard patches, boulders, etc., were encountered at Zones 1, 3, 6 and 8 and hence, design depths were not achieved. On the advice of Commodore of Yard to deploy grab dredger, DCIL carried out post monsoon dredging in Zones 7, 9 and 10 through a sub-contractor by deploying Grab Dredger. However, assured depths were not achieved even after deploying a Grab Dredger with two barges due to hard patches and boulders.

DCIL achieved about 96 *per cent* of the assured depths in Zone 1,3,6,8,9 and 10 and requested Commodore of Yard to make the payments by restricting to achieved depths. Commodore of Yard, however, admitted ₹43.04 crore as against DCIL's claim of ₹56.09 crore by disallowing ₹13.05 crore towards non-achievement of assured depths.

In this regard, Audit observed that the sub-contractor was engaged on 'm³ quantity' basis whereas the contract with Naval Dockyard, Mumbai was on 'assured depth' basis and hence, the disallowed amount of ₹1.80 crore relating to Zones 9 & 10, which was executed by the sub-contractor, could not be recovered.

Management stated (May 2024) that the work being maintenance dredging, hard patches were not envisaged. The contract was finalised for the year 2019-20 to execute the dredging work of Navy Mumbai on *in-situ* quantity basis for the corresponding year and extended for the 2nd year in view of paucity of time for inviting fresh tender. It was further stated that DCIL did not incur any loss but made a profit of ₹1.90 crore on sub-contracting the work. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that DCIL did not maintain the back-to-back arrangement with sub-contracting agency as the work awarded by Naval Dockyard, Mumbai was on '*assured depth*' basis and that was awarded to sub-contractor on '*in-situ*' basis. Sub-contracting on assured depth basis instead of *in-situ* quantity basis would have resulted in increase of profit by another ₹1.80 crore.

C.2 Gangavaram Port Limited (GPL), Visakhapatnam awarded (December 2020) the work of Beach Nourishment at Yarada Beach using TSHD at ₹400 per m³ of the quantity dredged. As per work order, DCIL was to deploy 5,500 m³ or 7,400 m³ capacity dredger to dredge an estimated quantity of about 1.00 lakh m³ with an allowable variation of (+/-) 20 *per cent*. The approximate duration of work was about 10-15 days. DCIL deployed Dredge XX with capacity of 5,500 m³ from 16 March 2021 and continued up to

23 March 2021 for a period of 7.49 dredging days and a quantity of 0.68 lakh m³ was dredged as against the estimated quantity of about 1.00 lakh m³. Dredge XX was released on 23 March 2021 for its deployment at Kamarajar Port Limited (KPL), Ennore and no dredger was deployed by DCIL to complete the remaining contractual quantity of 0.32 lakh m³. In this regard, DCIL claimed (26 March 2021) ₹3.60 crore including mobilisation (₹0.20 crore) and demobilisation (₹0.20 crore) charges. GPL admitted ₹3.40 crore by disallowing ₹0.20 crore for demobilisation charges due to non-adherence to contractual obligation.

In this regard, Audit observed that as per the terms of contracts with GPL and with KPL, quantities to be dredged were on *in-situ* quantity basis, but the rate at GPL (₹400 per m³) was higher than that of KPL (₹165 per m³). Hence, DCIL should have completed the work by continuing dredging for another 3 to 4 days for completing the contractual quantity at GPL and thereby, it could have earned ₹1.28 crore more as against the revenue that could have been earned at KPL (₹0.53 crore) for the same dredging period. Injudicious withdrawal of dredger from GPL resulted in loss of ₹0.95 crore on account of opportunity lost to earn potential revenue of ₹0.75 crore³⁰ and demobilisation charges of ₹0.20 crore.

Management stated (June 2023 / May 2024) that due to tremendous pressure from KPL for immediate deployment of dredger to complete the balance work, Dredge XX was demobilised with an assurance to GPL that, another TSHD will be deployed at Gangavaram Port in the first week of April without any additional cost such as mobilisation/ demobilisation charges to Gangavaram Port to complete the balance dredging work. It was also stated that deployment of Dredge XX at Kamarajar Port helped DCIL in getting waiver of liquidated damages for an amount of ₹2.96 crore. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management have not clarified why DCIL did not deploy another dredger as assured to GPL for completing the remaining quantity of work. In respect of LD, the same is discussed at Point D.2 of Para 7.1.5.1

Thus, DCIL had suffered a loss of ₹2.75 crore³¹ in two out of 17 contracts selected for review due to non-achievement of assured depths and required quantities.

Recommendation no. 32: DCIL may continuously monitor and review the progress of dredging works so as to ensure achievement of contractual quantities/ design depths within the agreed timelines to avoid loss of revenue.

The Ministry/ Management stated (May 2024) that the recommendation is well noted and DCIL is monitoring and reviewing the progress to achieve the contractual quantities/ design depths.

³⁰ Quantity (32,122.56 m³) x Difference in Rate per m³ (₹400 per m³ at Gangavaram minus ₹165 per m³ at Ennore).

³¹ ₹1.80 crore (point C.1 of para 7.1.5.1) plus ₹0.95 crore (point C.2 of para 7.1.5.1).

D. Levy of penalties and liquidated damages

As per the terms of the Agreements entered with customers, if dredging works were not completed within the scheduled time, Ports may levy Liquidated Damages (LDs) at percentages as mentioned in the Agreements. Audit noticed discrepancies on this behest in seven (7) out of 17 contracts selected for review. Audit noticed that in three (3) contracts due to non-completion of the works within the time schedule, Ports levied LDs. In one case, Naval Dockyard, Mumbai deducted excess LD. Further, in three (3) cases, penalty was levied for non-compliance of the contractual terms. The issues noticed are discussed below:

D.1. In respect of work awarded (8 September 2020) by New Mangalore Port Trust (NMPT) towards post-monsoon maintenance dredging for the years 2020-21, 2021-22 and 2022-23, as per Clause No- 7.2 (Vol. I) Part-II of the General Conditions of Contract, the dredging work was to be completed within 120 days from 1 October of preceding year. In case of DCIL failing to complete the work in all respects within the time specified, LD was to be levied at the rate of one *per cent* of the contract value per week of delay or part thereof, subject to a maximum of 10 *per cent* of the contract value. In this regard, Audit noticed that the dredging work for the year 2020-21 was commenced from 31 October 2020 by deploying Dredge VIII (6,500 m³) and Dredge XIX (5,500 m³) from 17 December 2020 and the work was completed on 18 May 2021 i.e., with a delay of 110 days. Consequently, NMPT recovered LD amounting to ₹3.71 crore for the year 2020-21.

Management stated (June 2023/ May 2024) that Dry Dock Repairs at Kochi in case of Dredge VIII got delayed by 30 days due to Covid pandemic restrictions. Further, due to extreme and severe cyclonic storm 'Tauktae', which caused heavy downpour, a backfill/siltation was noticed in the Zones of the dredging area. As a result, irrespective of the number of loads dredged alongside berths and zones which also included removal of cyclone siltation quantity, the number of dredging days has increased to achieve the designed depths. The Ministry endorsed (May 2024) the reply of DCIL.

The replies of the Ministry/ Management may be viewed in the light of the fact that as discussed at point A.4 of Para 7.1.5.1, DCIL had planned to complete the work within 120 days by deploying dredge with a capacity of 7,400 m³ from 1 October 2020. Hence, though the work was commenced with a delay of 30 days from 31 October 2020, the contractual quantity should have been achieved in 120 days by the end of February 2021, i.e., more than two months prior to cyclone 'Tauktae' which hit the coast in May 2021 at the fag-end of completion of the dredging work. Thus, prolonged dredging for 290 days as against the estimated 120 days caused levy of LD. Further, the cascading effects of Covid pandemic which impacted the deployment of dredgers as stated by the Management also got mitigated as DCIL deployed two dredgers for executing the works as against requirement of one dredger, but still could not complete the work.

D.2 As per Clause No. 28 of the Maintenance Dredging contract (8 July 2020) with Kamarajar Port Limited (KPL), Ennore for the year 2020-21, in case of delay in execution

of contract, LD was to be levied at the rate of 0.50 *per cent* of the contract value per week of delay or part thereof, subject to a maximum of five *per cent* of the contract value. Audit noticed that the dredging work for the year 2020-21 was completed on 30 April 2022 with a delay of 11 months (excluding two months for fish breeding season) against the contractual completion to be attained within eight months from 8 July 2020 (i.e., by 7 March 2021). Consequently, KPL recovered LD amounting to ₹1.40 crore for the year 2020-21 after waiving ₹2.96 crore.

Management stated (June 2023 / May 2024) that though two dredgers were proposed to be deployed as per the Agreement, it was planned to complete the work with one TSHD only, owing to reduction in target quantity to 34.45 lakh m³ from 48 lakh m³. However, due to non-availability of dredgers owing to cascading effect of dry docks of vessels during Covid pandemic, deployment of vessels for prior-committed works, fish breeding season during April-June (which was not mentioned in the Agreement) etc., the maintenance dredging work could not be completed in time. The Ministry endorsed (May 2024) the reply of DCIL.

The replies of the Ministry/ Management may be viewed in the light of the fact that though targeted quantity was reduced, KPL allowed the original contract period of eight months and hence, the work should have been completed within that time. As the scheduled contract period of eight months started from 8 July 2020 and completed by 7 March 2021, there is no relevance of mentioning of fish breeding season (April – June) in the contract. As such, non-deployment of dredgers continuously as per agreement resulted in delay of 11 months. Further, the remarks of Audit mentioned against Point B.2 of Para 7.1.5.1 may also be referred to.

D.3. Clause 11 (vii) of the Maintenance Dredging contract (29 November 2019) signed by DCIL with Paradip Port Authority (PPA) for the year 2019-20 stipulates that in case of sand trap dredging³², if the dredged quantity is less than 0.8 million m³ by 15 March 2020, then LD was applicable at the rate of dredging charge per m³ (₹124 per m³) for the shortfall amount to be dredged to achieve the quantity of 1.0 million m³.

Audit observed that DCIL had to make efforts in the sand trap area to ensure dredging of the minimum quantity of 0.8 million m³ by 15 March 2020. DCIL, however, deployed Dredge XVII from 1 December 2019 to 27 January 2020 and dredged a quantity of 7.53 lakh m³ with a short fall of 0.47 lakh m³ in achieving the minimum quantity of 8.00 lakh m³. Consequently, PPA recovered ₹3.06 crore towards LD on the shortfall of 2.47 lakh m³ with reference to total contract quantity of 1.00 million m³. Thus, DCIL lost 33 *per cent* of its revenue of ₹9.34 crore earned at sand trap area as against non-achievement of six *per cent* of the minimum quantity of 8.00 lakh m³.

Management stated (June 2023/ May 2024) that they had put their best efforts to dredge the sand trap by deploying Dredge XVII and dredged a quantity of 7.96 lakh m³ as per

³² *The particular chainage/ area where there is accumulation of sand due to tide/ current of water.*

check survey. However, due to delay in carrying post dredge survey, siltation took place and final quantity worked out to be 7.53 lakh m³. The Ministry endorsed (May 2024) the reply of DCIL.

The Ministry/ Management while accepting the fact, stated that shortfall in dredged quantity was due to delay in carrying out post dredge survey, which caused siltation. Further, the final quantity was worked out to 7.53 lakh m³ due to diversion of the dredger on 27 January 2020 to other areas before ensuring achievement of minimum required quantity of 8.00 lakh m³ by 15 March 2020.

D.4. Clause 8 of Part III of the Maintenance Dredging contract (31 January 2020) signed by DCIL with Naval Dockyard, Mumbai stipulated that in the event of DCIL failure to supply the stores/ goods and conduct trials, installation of equipment, training etc., as specified in the contract, Naval Dockyard, Mumbai will deduct LD at 0.5 *per cent* of the contract price of the delayed/ undelivered stores/ services mentioned above for every week of delay or part of a week, subject to the maximum value of the 10 *per cent* of the value of delayed stores. Audit noticed that there was a delay in completion of the work by 58 days, i.e., from 5 February 2021 to 3 April 2021 as against the scheduled completion date of 4 February 2021. Consequently, Naval Dockyard, Mumbai deducted LD of ₹0.50 crore.

Audit observed that Naval Dockyard, Mumbai deducted LD of ₹0.50 crore at rate of 10 *per cent* as against the LD recoverable (₹0.27 crore) at 4.5 *per cent* of the contract value (i.e., eight weeks and two days * 0.50 *per cent* per week). As DCIL did not verify the correctness of LD recovered, this resulted in excess recovery of LD of ₹0.23 crore by the Naval Dockyard, Mumbai.

Management stated (June/ August 2023/ May 2024) that the contract payments were based on "Assured Depth" basis. Hence, Naval Dockyard, Mumbai correctly imposed LD as per the contract at the rate of 10 *per cent* (maximum value), due to non-achievement of design depths. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that the LD was to be levied for the delayed/ undelivered services as per Clause 8 of Part III of the work order and not for the non-achievement of 'Assured Depth'. As such, in view of the fact that the delay in completion of the work was 58 days, i.e., eight weeks and two days, as per work order, the LD should be levied at 4.5 *per cent* only instead of 10 *per cent*.

D.5. Clause 2.47.2 of Special Conditions of Contract (SCC) for Maintenance Dredging works awarded to DCIL by Cochin Port Trust (CoPT), Kochi for the years 2019-20, 2020-21 and 2021-22 required that DCIL shall deploy dredgers with specified total capacity of 11,900 m³ in the Port's Channel/ Basin or any other location as directed, continuously throughout the contract period except 120 hours in a calendar month. Further, LD of ₹5.00 lakh per day was leviable, if both the dredgers deployed were not working beyond 24 hours at a time. Clause 2.6.3 of SCC also stipulated that breakdown beyond a period of

five days in a month for each dredger shall attract a penalty at the rate of ₹20,000 per day. Also, Clause 10.1 stipulated that failure of DCIL to conduct Joint Surveys fortnightly attracted penalty at the rate of ₹12.00 lakh per fortnightly survey.

Audit observed that during the years 2019-20, 2020-21 and 2021-22, CoPT recovered ₹0.84 crore towards shortfall in working/ deployment of dredgers (₹0.50 crore), both dredgers not working beyond 24 hours (₹0.10 crore) and not conducting fortnightly surveys and non-maintenance of machinery in working condition (₹0.24 crore).

Thus, non-compliance of the contractual conditions by DCIL resulted in penalty of ₹0.84 crore.

Management stated (June 2023 / May 2024) that delays were unavoidable and were beyond control due to diversion of Vessel at Cochin Shipyard Limited to meet the requirement of projects of national importance, inclement weather condition during monsoon for conducting surveys, etc. The Ministry endorsed (May 2024) the reply of DCIL.

The replies of the Ministry/Management may be viewed in light of the fact that the penalties were recovered for shortfall in working period/deployment of dredgers, stopping the deployed dredgers beyond 24 hours and breakdown beyond stipulated period and not for diversion of the dredger as mentioned by the Management. Further, non-conducting of fortnightly surveys, non-maintenance of machinery in working condition and dredging with single engine attracted penalty during January 2020, December 2021, March 2022 and May 2022, which were not monsoon seasons. Hence, the factors contributing to delays were controllable and avoidable.

Thus, DCIL had suffered a loss of ₹9.51 crore³³ in seven out of 17 contracts selected for review due to levy of penalty/ liquidated damages.

Recommendation no. 33: DCIL may execute the dredging works within the contractual schedules and as per contractual terms to avoid levy and recovery of penalties and liquidated damages by the customers.

The Ministry/ Management stated (May 2024) that the recommendation is well noted and shall be ensured to execute the dredging works within contractual schedules.

E. Issues on terms and conditions relating to quantum of work

The issues pertaining to tolerance in quantum of work and excess dredging noticed in four (4) out of 17 contracts selected for review are discussed below:

E.1. As per Clause 5 of the Special Conditions of Contract (SCC) entered (6 October 2020) with Southern Naval Command (SNC), Kochi for the Maintenance Dredging of Naval Channel at Ernakulam for the years 2020-21 and 2021-22, in case of over dredging by more

³³ ₹3.71 crore (D.1 of para 7.1.5.1) plus ₹1.40 crore (D.2 of para 7.1.5.1) plus ₹3.06 crore (D.3 of Para 7.1.5.1) plus ₹0.50 crore (D.4 of Para 7.1.5.1) plus ₹0.84 crore (D.5 of Para 7.1.5.1).

than 30 centimetre below the depth given in scope of work (i.e., 5.5 meters in Zones 1 to 5, 1.5 meters in zone 6 and 10.5 meters in respect of Zone 7 to 10), the quantity due to over dredging will be assessed on the basis of soundings and the same will be deducted from the overall dredged quantity for the purpose of payment. Clause No.10 of Technical Specifications stated that “*soundings will be taken up to an accuracy of 100 mm. Whatever material is dredged within the tolerance specified above depth wise and within 30 metres on either side of the dredging limits of particular zone shown in the sketch enclosed and the material dredged from the natural slopes, will be paid for*”.

In this regard, Audit observed that –

- (i) DCIL claimed a quantity of 16.90 lakh m³ by restricting dredging quantity up to design depth of 10.5 metres only as against the claimable tolerance depth of 10.8 metres (i.e. 10.5 meters *plus* 0.3 meters). Considering the claimable tolerance depth of 10.8 metres, the claimable dredging quantity worked out to 18.47 lakh m³ for the years 2020-21 and 2021-22 and hence, there was a short claim of quantity to the extent of 1.57 lakh m³ amounting to ₹1.90 crore.
- (ii) Further, as per Clause 24 of SCC, no payments shall be made for dredging beyond stipulated depth. The excess volume dredged will not count towards the overall contract volume and will not attract payment. In this regard, DCIL dredged a total quantity of 21.80 lakh m³, which was 3.33 lakh m³ over and above the claimable quantity of 18.47 lakh m³ due to absence of timely and continuous monitoring by DCIL to regulate the quantities within the claimable limits of the contract (i.e., maximum up to 10.8 metres). As DCIL took 192.49 days to dredge the quantity of 21.80 lakh m³, Audit worked out the excess of 29.34 dredging days³⁴ to dredge the excess quantity of 3.33 lakh m³, which resulted in avoidable expenditure of ₹7.32 crore (i.e., 29.34 days x ₹24.96 lakh per day as per P&L Accounts of 2020-21 & 2021-22).

Thus, as DCIL did not claim up to tolerable depth, there was loss of revenue of ₹1.90 crore and dredging beyond the permissible limits led to avoidable extra expenditure of ₹7.32 crore³⁵.

Management stated (June/ August 2023/ May 2024) that tolerance limits are for the purpose of work completion only and hence, quantity is calculated on 10.5 metres designed depth and not 10.8 metres. Hence, loss of revenue of ₹1.90 crore does not apply. It was further replied that there was over dredging of 3.32 lakhs m³. If this over dredging was considered and deducted from total quantity, there would have been loss of ₹4.05 crore (3.32 lakh m³ x ₹122 per m³) which SNC did not consider. It was also stated that in case of ‘*in-situ*’ quantity dredging, it is difficult to do a tailor cut dredging and there is unexpected erosion and deposition at channel area. So, to achieve design depth considering erosion quantity,

³⁴ (Excess quantity dredged x Actual No of Dredged days)/ Total Quantity dredged.

³⁵ This extra expenditure is subsumed in loss of ₹19.09 crore commented in B.3 of Para No. 7.1.5.1

over dredging has to be resorted to at certain patches. The Ministry endorsed (May 2024) the reply of the DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that DCIL did not claim the tolerance quantity in line with contractual terms as detailed at Clause No. 10 of Technical Specifications. With reference to over dredging quantity of 3.33 lakh m³ i.e., beyond the tolerable depth of 10.8 metres, the main reason for over dredging was absence of timely and continuous monitoring by the company. As it was difficult to carry out exact tailor cut dredging, a provision for tolerance of 0.30 metres was provided in the contract and hence, continuous monitoring and control could have limited the over dredging within the tolerable limits. DCIL dredged 3.33 lakh m³ over and above the designed depth including tolerance depth which constituted 18 *per cent* of the total claimable quantity (18.47 lakh m³).

E.2. Clause 2.5 of Special Conditions of Contract (SCC) in respect of Maintenance Dredging contracts entered (24 April 2019/ 11 May 2021) with Cochin Port Trust (CoPT), Kochi for the years 2019.20 to 2020.21 (18.50 lakh m³ per month) and for the year 2021-22 (20 lakh m³ per month), *inter-alia*, stipulated that over dredging in the channels and basins as well as in front of berths shall not be permitted. The dredging shall be done limiting to the stipulated depth in the channels, basins, and all respective berth frontages. The excess quantity of material dredged and removed beyond the maximum permissible depth evidenced from the fortnightly sounding charts of every month, shall be deducted from the actual monthly production achieved for the respective month and payment will be restricted to the revised quantity thus arrived at. Further, as per Clause 2.47.1 of SCC, DCIL has to dredge and dispose monthly quantity and recovery shall be made for the shortfalls on pro-rata basis. Hence, no compensation shall be payable for production over and above the stipulated monthly production.

In this regard, Audit observed that in 17 out of 36 months of dredging during 2019-20 to 2021-22, DCIL dredged the depths over and above the maximum permissible depth limits for which CoPT recovered ₹5.28 crore on account of over dredging. Though DCIL was well aware of the adjustment of dredged quantities to monthly production limits, it did not monitor the dredging to adhere to the permissible depths to avoid over dredging. Further, during 33 months, the actual quantity dredged was 72.64 million m³ against the claimable quantity of 68.40 million m³ and the excess quantity ranged from one *per cent* to 31 *per cent* over and above the monthly allowable dredging limits, resulting in excess dredged quantity of 4.24 million m³. Also, though excess dredging has been recorded since commencement, DCIL did not take precautionary measures to control the dredging quantities within the limits. Based on the performance of the dredgers at CoPT, the number of dredging days required for removal/ dredging of excess quantity of 4.24 million m³ worked out to 99 days with consequential additional expenditure of ₹20 crore.

Hence, in total, DCIL incurred a total loss of ₹25.28 crore (i.e., ₹5.28 crore plus ₹20 crore) due to excess dredging.

While confirming the observation, Management stated (June 2023/ May 2024) that they have alerted the vessels about penalty and dredging is being carried out and monitored without exceeding the permissible depths as far as possible. DCIL further stated that excess dredging is unavoidable, as there is natural erosion and deposition in dredging areas and DCIL has to maintain and achieve design depth during berthing of vessels. Further, DCIL has not put any extra efforts for the over dredging, which cannot be avoided at times, due to change in siltation patterns. There is no effect on revenue as per the contract. It was further stated that the excess dredging pertains to not only over dredging but also to natural flushing from the Channel. The matter has been taken up with CoPT and from future contract, no deductions shall be applicable anymore. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that CoPT recovered ₹5.28 crore for the period from 2019-20 to 2021-22 for over dredging. Hence, Management contention that there is no effect on revenue as per contract is not correct. In addition, DCIL incurred ₹20 crore towards excess dredging, which could have been avoided by closer monitoring/ supervision. As no payment is made by CoPT for over dredging, DCIL should have exercised due diligence and proper monitoring should have been in place. It is pertinent to mention here that natural flushing will be subsided by siltation.

Thus, DCIL had suffered a loss of ₹27.18 crore³⁶ in four out of 17 contracts selected for review due to issues pertaining to tolerance in quantum of work and excess dredging by DCIL.

Recommendation no. 34: Management may continuously monitor the dredging works to avoid excess and over dredging beyond the contractual quantities / designed depths and may ensure inclusion of a tolerance clause in the contract.
The Ministry/ Management stated (May 2024) that the recommendation is well noted and shall be complied with.

F. Other financial irregularities

Issues relating to other financial irregularities were noticed in five out of 17 contracts selected for review are as follows.

F.1. Jawaharlal Nehru Port Authority (JNPA) awarded (27 November 2019) a Maintenance Dredging contract for the Mumbai Harbour Channel and Jawaharlal Nehru Port Channel for three years from 2019-20 to 2021-22. The awarded value for the first year 2019-20 was ₹160.00 crore at m³ rate between ₹91.00 and ₹207.00 to dredge a quantity of 9.56 million m³. DCIL commenced dredging operations on 19 November 2019 by deploying Dredge XI. Due to its poor performance, DCIL outsourced a part of the work (i.e., 8.43 million m³) at a cost of ₹88.23 crore (m³ rate between ₹88.00 and ₹126.00) to a contractor, who

³⁶ ₹1.90 crore (E.1 of Para No. 7.1.5.1) plus ₹25.28 crore (E.2 of Para No. 7.1.5.1).

completed the entrusted work by 15 May 2020 with a dredged quantity of 7.02 million m³ and claimed ₹72.13 crore. DCIL completed the remaining work by June 2020. DCIL claimed ₹170.33 crore for the dredged quantity of 10.15 million m³ including sub-contracted quantity of 7.02 million m³. JNPT, however, paid ₹160.00 crore only. This included payment towards 2.91 lakh m³ dredged at Jawaharlal Nehru Port New Anchorage (Uran Anchorage), out of the estimated quantity of 4.80 lakh m³. Later, as against contractual rate of ₹198 per m³, JNPA agreed to pay only ₹121 per m³ (i.e., ₹110 per m³ plus 10 per cent supervision charges) on the ground that entire work was outsourced by DCIL. Further, JNPA unilaterally recovered ₹34.98 crore from the subsequent bills of DCIL stating that DCIL made savings during 2019-20 on carrying out the dredging work through outsourcing.

In this regard, Audit observed that out of total quantity of 4.18 lakh m³ in Uran Anchorage, DCIL had claimed ₹198 per m³ for 2.91 lakh m³. Subsequently, DCIL claimed difference quantity of 1.27 lakh m³ (i.e., 4.18 – 2.91) at ₹121 per m³ instead of ₹198 per m³, resulting in short claim of ₹0.98 crore (i.e., 1.27 lakh m³ x ₹77 per m³).

Management stated (June 2023/ May 2024) that JNPA agreed for payment of bill at sub-contracting rates only and hence, bill was claimed at ₹121 per m³. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that DCIL had claimed at the rate of ₹121 per m³, which has been paid by JNPA. Hence, the resultant short claim of ₹0.98 crore may not be realised as the same was not part of the disputed amount of ₹34.98 crore for which DCIL had sought (March 2023) the intervention of the Chairman, Conciliation and Settlement Committee of the Ministry of Ports, Shipping and Waterways.

F.2. DCIL has not claimed interest amounting to ₹0.43 crore on the delayed payments from two customers (viz. PPA and JNPT) against three contracts³⁷ despite having suitable clauses for claiming the interest on the delayed payments in the Agreements. Since DCIL is facing problems in arranging working capital for day-to-day transactions as noticed from the delays in supply of fuel/ bunkering to its dredgers for want of funds, it is prudent for DCIL to invoke the contractual provisions for the recovery of interest on the delayed payments from the customers. This resulted in loss of revenue of ₹0.43 crore.

Audit further noticed that there was no clause for recovery of interest on the delayed payments from the customers in one contract with Naval Dockyard, Mumbai and one Memorandum of Understanding with Cochin Shipyard Limited (CSL). The delay in realisation of bills in respect of Naval Dockyard, Mumbai and CSL ranged between 33 days to 256 days and 3 days to 256 days respectively during the Audit period of 2019-20 to

³⁷ (i) Capital Dredging Contract with Paradip Port Authority; (ii) Dredging Contract with Paradip Port Authority at Numaligarh Refinery Limited; and (iii) Maintenance dredging contract of Mumbai Harbour Channel with Jawaharlal Nehru Port Trust.

2021-22. Considering the interest at SBI Prime Lending Rate *plus 2 per cent*, the loss of interest on the delayed payments worked out to ₹3.05 crore.

Thus, DCIL suffered a total loss of revenue of ₹3.48 crore (i.e., ₹0.43 crore *plus* ₹3.05 crore) on this account.

Management stated (June 2023 / May 2024) that Ports did not agree for inclusion of interest clause in the agreements. It was further stated that all clients will be insisted to incorporate interest clause in their future agreements and DCIL will make its best efforts to resolve the disputes within the shortest possible time so as to realise the payments in a timely manner. The Ministry endorsed (May 2024) the reply of DCIL.

Though DCIL agreed to insist for inclusion of interest clause in their future contracts, the reply is silent on non-claim of interest where the contract clauses exist. As DCIL was suffering for arranging its day to day working capital requirements and keeping in view of its financial interests, Management should have impressed upon the existing customers also to include a clause for interest on delayed payments.

Thus, DCIL had suffered a loss of revenue of ₹4.46 crore (i.e., ₹0.98 crore *plus* ₹3.48 crore) in five out of 17 contracts selected for review due to issues pertaining to application of incorrect dredging rates and non-inclusion of recovery of interest clause/ not claiming of interest on delayed receipts from customers.

Recommendation no. 35: DCIL may ensure inclusion of a provision for interest on delayed receipts from customers and ensure realisation of claims for dredging works as per contractual rates.

The Ministry/ Management stated (May 2024) that as dredging contracts with clients are dealt by Business Development Department, the Department may insist to incorporate 'Interest' clause in their future agreements so as to realise the payments in timely manner.

7.1.5.2. Maintenance of dredgers

As per the circular (February 2011) issued by Directorate General of Shipping (DGS), Ministry of Ports, Shipping and Waterways (MoPSW), a dredger has to undergo at least two (2) Docking Surveys within five years and the interval between two consecutive Docking Surveys shall not exceed three years. In order to ensure timely completion of Docking Survey, DCIL made an arrangement with Cochin Shipyard Limited by entering (2 November 2015) into a Memorandum of Understanding (MoU) valid for a period of five (5) years up to 1 November 2020. After expiry of the MoU, another MoU was signed (8 January 2021) for a further period of five (5) years, which is valid up to 7 January 2026. The observations noticed in respect of the maintenance of dredgers are discussed in the succeeding paragraphs.

A. Memorandum of Understanding (MoU) with Cochin Shipyard Limited (CSL)

According to modalities of the MoU entered into with CSL, the repair program shall be drawn up by DCIL and CSL in such a way that none of the DCIL vessels will have their class suspended and/ or remain idle for lack of yard repair facility. All planned/ emergency dry dock repairs of DCIL shall fall under the purview of the MoU. By the end of a year, DCIL shall draw up a program for repairs for their vessels based on the docking plan for the next year which could be mutually agreed between the two organisations and may be altered on need basis.

During the period from 2019-20 to 2021-22, out of the 21 Dry Dock Repairs and Surveys carried out including emergency dry dockings, 15 Dry Dock repairs contracts (including one Emergency Dry Dock) were selected for review. Audit noticed the following:

- (i) As per the MoU, DCIL shall forward vessel-wise enquiry along with repair specifications, 60 days and 90 days in advance from the planned date of commencement of repairs, as per MoU entered in 2015 and in 2021 respectively. However, out of 15 dry dock surveys due³⁸ during 2019-20 to 2021-22, in 12 cases DCIL has not forwarded the enquiry for dry dock slot along with the repairs package to CSL in advance. Further, DCIL placed the work orders for only eight dry dock repairs with CSL under the MoU and remaining cases of seven dry dock repairs through tendering/ nomination.
- (ii) Out of 15 dry dock repair contracts selected for review, in 10 cases, DCIL obtained extensions from Directorate General of Shipping (DGS) postponing the dry docking due dates for three to six months citing non-availability of slots at CSL.
- (iii) Annual Plan for dry dock repairs was not prepared and forwarded to CSL as required under the MoU so as to ensure priority before expiry of docking survey or within extension period.

Despite having an MoU for getting priority for dry docking, DCIL did not approach CSL timely for dry dock repairs resulting in non-availability of slots at CSL forcing DCIL to float tenders in six cases. Floating of tenders, their evaluation and subsequent execution of dry dock repairs took considerable time resulting in idling of dredgers for want of repairs as discussed subsequently at Point B of Para No. 7.1.5.2.

Management stated (August 2023/ May 2024) that as per MoU, work package was forwarded to CSL i.e., 60/90 days in advance from the planned date of commencement of repairs. Due to operational requirement, DCIL has obtained extension of surveys of DCIL dredgers for a period of 3 months to 8 months from DGS. The dry dock repairs of DCIL vessels got hampered due to Covid-19 pandemic in the year 2020-21 and 2021-22 due to

³⁸ *Sample of 15 contracts includes one Emergency Dry Dock.*

restrictions. It has resulted in cascading effect on projects in pipeline. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management need to be viewed in the light of the fact that the work packages were not shared with CSL 60/90 days in advance in 12 out of 14 cases. Moreover, Management failed to ensure dry dock slots in line with the due dates or extended due dates prior to expiry of survey certificates to avoid delay in dry docking or idling of dredgers. Further, during Covid pandemic restrictions between March 2020 and May 2020, except in case of repair of Dredge XIX, no regular dry dock slot was rejected on account of Covid by CSL.

Recommendation no. 36: DCIL may review the arrangement with Cochin Shipyard Limited (CSL) for ensuring priority in allotment of slots.

The Ministry/ Management stated (May 2024) that DCIL is continuously coordinating with CSL for timely allotment of dock slot as per DCIL requirement. It was further stated that the arrangement with CSL will be reviewed for ensuring priority in allotment of slots. As CSL has expanded geographically having its Ship Repair Units in Kochi, Mumbai and Kolkata, it is advantageous to DCIL as sailing time and fuel expenses will be substantially low when compared to other yards.

B. Inordinate delay in Dry Dock repairs

Out of the 15 Dry Dock Repair (DDR) contracts reviewed, 13 contracts were not completed as per schedule. The prolonged dry dock period beyond the schedule ranged from 22 days to 154 days. Inordinate delays in carrying out the DDRs in respect of five (5) out of 15 contracts selected for review are discussed below:

B.1. Dredge XIV was outsourced (January 2019) to Manning Contractor for “Manning, Maintenance and Technical Management of DCIL Dredge XIV at various ports of India”. During dredging operations at Haldia Port, the Manning Contractor reported (26 February 2019) to DCIL that there was increase in leakage of oil from Stern Tube. Subsequently, the dredger encountered vital damage (May 2019) to Hull, Aft Stern Tube Seals³⁹, etc. and dredging operations were stopped on 27 June 2019 due to failure of the Seal and excessive ingress of sea water into engine room and the dredge was laid up awaiting dock assistance for rectification of underwater defect.

DCIL consulted (30 June 2019) Hindustan Shipyard Limited (HSL) for Emergency Dry Dock (EDD) repairs and HSL offered (2 July 2019) dry dock slot from 15 July 2019. The Vessel was docked at HSL on 23 July 2019 and repairs commenced from 25 July 2019. DCIL requested (8 August 2019) HSL to undertake other repairs and also take up dry dock

³⁹ *Aft Stern Tube is a metal tube welded to the hull of the ship connecting the engine chamber and the outside of the ship. The function of the stern tube seals is to prevent water entering the stern tube as well as to minimise the lubricant spillage to the marine environment and engine chamber. To increase the reliability of the system, a few sealing rings are mounted in line at both ends of the stern tube conforming the aft and forward stern tube seals packages.*

work package (main/ regular works for Surveys) of Dry Dock Survey, which was due on 18 September 2019. HSL responded (10 August 2019) that they would undertake only EDD work.

DCIL invited (17 September 2019) a Global Tender for DDRs and Work Order was issued (16 October 2019) to the L1 bidder. Meanwhile, as the Statutory Certificate for the dredger had expired on 18 September 2019, DCIL applied (10 October 2019) and obtained (9 November 2019) permission from Indian Register of Shipping (IRS) for voyage. Afterwards, Dredge XIV sailed from Visakhapatnam on 13 November 2019 and DDRs at Colombo commenced on 22 November 2019 and were completed by 15 January 2020. The dredge was put to operation at Haldia from 30 January 2020.

Audit observed that –

- (i) Though leakage of oil from stern tube was observed on 26 February 2019, DCIL did not take remedial measures for four months till dredge stopped operations on 27 June 2019 at Haldia.
- (ii) On 10 August 2019, HSL denied to carry out regular DDR. DCIL, however, invited Global Tender on 17 September 2019 for DDRs resulting in delay of 38 days on the part of DCIL.
- (iii) Though DDR contract was finalised on 9 October 2019, Dredge XIV sailed from Visakhapatnam to Colombo on 13 November 2019 after more than one month for want of voyage permission due to expiry of statutory certification on 18 September 2019. Thus, there was delay of 34 days (i.e., from 10 October 2019 to 13 November 2019) on the part of DCIL.
- (iv) The action taken for procedural delays by officials of DCIL in decision making and fixing responsibility as per directions (November 2019) of Board of Directors of DCIL were sought (January 2023), but the same were not provided to Audit.

Thus, failure of DCIL in taking prompt action for planning the DDRs immediately after noticing the leakage of oil from stern tube in February 2019 itself resulted in consuming 208 days (i.e., from 27 June 2019 to 21 January 2020) as against the normal period of 15 to 20 days for EDD and 45 to 60 days for regular DDR. Of the 208 days, there was undue delay of 72 days (i.e., 38 *plus* 34 days) which was solely attributable to DCIL's delayed decision making which resulted in loss of revenue of ₹10.80 crore (i.e., 72 days x Revenue of ₹15 lakh per day).

Management stated (August 2023 / May 2024) that Dredge XIV reported Port Forward Shaft Seals failure and excessive ingress of water into engine room on 27 June 2019 and hence, it ceased dredging operations and requested for EDD. It was noticed that the damages were not normal and beyond expectations, which necessitated the Design Engineering and OEM expert assistance for proper repairs. Global Tender Enquiry was

floated on 17 September 2019 for carrying out docking survey, reconditioning of Port Stern Tube & Shafting, and repairs of dredging equipment, etc. However, single voyage permission from DGS and short term certificates from IRS took considerable time till 10 November 2019. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management are silent on fixing the responsibility on the decision to continue dredging without taking proper remedial measures immediately in February 2019, which resulted in vital damage to dredger with consequential EDD and idling of dredge for prolonged period. Further, being aware of the expiry of the Statutory Certificate by 18 September 2019, DCIL failed to obtain permission/ extension in advance.

B.2. Dredge XX was due for Docking Survey by 23 September 2021 and DCIL obtained extension from DGS for Docking Survey upto 18 December 2021 on account of non-availability of dock slot at CSL till December 2021. DCIL placed (20 September 2021) work order on CSL as per MoU to carry out repairs as per the slot available in December 2021. Subsequently, based on Global Tender floated on 25 November 2021, DCIL awarded (17 December 2021) DDR works of the same dredge to HSL for ₹13.96 crore for 40 days. The dredge sailed from Paradip on 18 December 2021 and reached Visakhapatnam on 20 December 2021 and positioned at anchorage awaiting dry dock and Statutory Certificate, which expired on its way to Visakhapatnam on 18 December 2021. HSL stated (22 January 2022) that it will not undertake DDR works for the dredger unless DCIL released the previous outstanding dues to HSL.

In the meantime, DCIL had forwarded (10 January 2022) a Work Package to CSL for the dredger as per MoU rates and CSL quoted (13 January 2022) ₹21.69 crore and subsequently, reduced to ₹18.64 crore after reducing the quantum of work and Work Order was issued on 11 February 2022.

After obtaining single voyage permission, the dredger sailed from Visakhapatnam on 3 February 2022 and was docked at CSL on 18 February 2022 for DDRs. The dredger was deployed at Kochi for operations after completion of DDR on 12 May 2022.

Audit observed that –

- (i) Despite CSL's confirmation of the slot from 4th week of December 2021, the reasons for not carrying out DDRs at CSL, inviting Global Tenders for the works during November 2021 and sailing the vessel to Visakhapatnam on the date of expiry of mandatory certifications on 18 December 2021 were not available on record.
- (ii) As the dry dock slot was not made available by HSL in view of non-clearance of outstanding dues by DCIL, the dredger remained at Anchorage since 20 December 2021 up to 3 February 2022, when it started to CSL, Kochi for DDR. Thus, Dredge XX was kept idle at anchorage for 45 days.

(iii) Meanwhile, on a request (10 January 2022) by DCIL for dry docking of Dredge XX, CSL submitted its offer on 13 January 2022 as per MoU tariff, however, DCIL placed order on 11 February 2022 i.e., after a lapse of 29 days from date of offer. Further, the dredger was dry docked at CSL on 18 February 2022 after a lapse of another 8 days.

Thus, DCIL failed to ensure dry dock slot before 18 December 2021 and the dredger remained idle for 61 days (i.e., from 18 December 2021 to 18 February 2022), thereby resulting in loss of revenue of ₹14.97 crore⁴⁰.

Management stated (August 2023/ May 2024) that due to delay in completion of projects executed at CSL, it was decided to go for tendering. Further, HSL has not honoured the tender and dock slot was not provided to Dredge XX. Management also stated that the Vessel notation was changed to 'In-water Survey' which facilitated for undergoing docking in five years and this has enhanced availability of dredger for more period. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that initially, as per MoU, DCIL had placed work order on 20 September 2021 on CSL for DDR works, which was to be commenced from 4th week of December 2021. In case of any anticipated delays by CSL in completion of DDR works, DCIL could have initiated tendering well in advance, instead of on 25 November 2021, to ensure dry dock before expiry of statutory certifications on 18 December 2021 so that dredging days were not lost. Further, change in notation of the vessel to 'In-water Survey' is not relevant to the audit observation, which is on delay in dry dock.

B.3. Dredge XII ceased operations at Haldia Dock Complex from 8 May 2020 due to damage. DCIL requested (8/ 10 May 2020) CSL, HSL, and other contractors for EDD Repairs work. In response, CSL and a contractor offered dock slot on 15 May 2020 and 1st week of June 2020 respectively. DCIL placed work order for EDD repairs on CSL on 29 May 2020. Afterwards, DCIL on 15 June 2020 requested CSL for DDRs as the Statutory Certificate of Dredge XII expires on 1 August 2020. As CSL did not confirm dock slot, DCIL invited (26 June 2020) Global Tenders for DDRs and work order was placed on L1 Bidder. Dredge XII, after obtaining permission for towing the vessel, sailed from Haldia on 29 August 2020 and reached Colombo on 10 September 2020 and repairs were completed on 30 January 2021. After DDRs, Dredge XII was deployed at Haldia from 5 February 2021.

Audit observed that DCIL placed work order on CSL for EDD slot available in the month of June 2020 without considering regular dry docking survey which was due within 2 months i.e., on 1 August 2020. Later, DCIL on 15 June 2020 intended for regular DDRs and requested CSL for slot. Thus, DCIL took 36 days (i.e., from 9 May 2020 to

⁴⁰ *Total income (₹47.13 crore) divided by number of dredged days (192) multiplied by number of idle days (61).*

15 June 2020) for taking decision to carry out regular DDRs. Consequently, Dredge XII was unduly kept idle for 36 days due to managerial lapses in taking timely decisions and thereby, suffered loss of revenue of ₹10.22 crore⁴¹.

Management stated (August 2023 / May 2024) that in order to curtail multiple dockings within a short span and also to harmonise surveys, DCIL requested DGS to advance the surveys, which was accepted and this enhanced availability of dredger. Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in light of the fact that when advance survey was possible, DCIL should have decided to carry out DDRs immediately after knowing (09 May 2020) that EDD at CSL would be possible only in the month of June 2020 i.e. after idling the Dredge XII for a month's time (09 May 2020 to 1st week of June 2020).

B.4. On request from DCIL for dry dock slot for Dredge XIX, CSL informed (17 May 2021) that due to extension of lockdown in Kerala, dock slot will be provided only by end of June or early July 2021. DCIL obtained extension of Docking Survey from DGS up to 3 July 2021 on the ground of non-availability of dock slot with CSL. DCIL placed (7 July 2021) work order on CSL to carry out dry dock repairs in 30 days. Dredge XIX anchored at Kochi waters on 3 July 2021, was docked on 5 August 2021 and repairs were completed on 25 October 2021. After completion of dry dock repairs, Dredge XIX was deployed at Kochi from 30 October 2021.

Audit observed that CSL had offered (17 May 2021) dock slot by end of June 2021 or early July 2021. DCIL, however, did not place work order till 7 July 2021. The dredger also ceased operation and was anchored at Kochi waters as the Statutory Certification expired on 3 July 2021. This resulted in idling of the dredge for a period of 32 days (i.e., from 4 July 2021 to 5 August 2021) and consequent loss of revenue of ₹6.45 crore⁴².

Management stated (August 2023/ May 2024) that the DDRs were extended up to 3 July 2021 due to operational requirements and the dredger was anchored at CSL from 3 July 2021 for DDRs. Vessel had waited at CSL till undocking of Dredge XVI and dock slot was allotted to Dredge XIX on 5 August 2021. The delay in docking of Vessel was mainly due to force majeure owing to second wave of pandemic. Management also stated that the Vessel notation was changed to 'In-water Survey' which facilitates for undergoing docking in five years and this has enhanced availability of dredger for more period. The Ministry endorsed (May 2024) the reply of DCIL.

⁴¹ {Total income (₹24.12 crore)/ number of working days (85)} x number of idle days (36) = Loss of revenue of ₹10.22 crore

⁴² {Total income (₹42.90 crore)/ number of working days (213) x number of idle days (32)} = ₹6.45 crore.

Replies of the Ministry/ Management may be viewed in the light of the fact that DCIL was aware of fact that the Statutory Certificate of Dredge XIX was going to expire by 3 July 2021, however, it failed to take proactive steps to commence DDRs before 4 July 2021 to avoid idling of the dredger. Further, change in notation of the vessel to 'In-water Survey' is not relevant to the audit observation, which is on delay in dry docking.

B.5. Dredge XVII was due for Docking Survey by 11 August 2020. On a request (23 June 2020) of DCIL for DDRs, CSL confirmed (10 July 2020) the dock slot tentatively by mid-August 2020. However, DCIL placed (24 July 2020) work order on CSL based on its request (21 July 2020) for docking slot between 1 September 2020 and mid-October 2020 on the plea of operational requirement of the dredger. CSL offered (28 July 2020) tentative dry docking slot in October 2020 or early November 2020. In view of above, DCIL requested (28 July 2020) DGS for extension of the Docking Survey up to 11 November 2020. DGS granted extension on 21 August 2020 up to 11 November 2020.

Afterwards, DCIL requested (24 September 2020) CSL for change of slot and CSL offered tentative dock slot in mid-January 2021. DCIL obtained (8 November 2020) extension from DGS for further extension till 11 February 2021 and work order was placed on 28 September 2020. Finally, DDRs were commenced on 10 February 2021 and completed on 25 May 2021.

During sea trials on 26 May 2021, problem was noticed and the dredger required re-docking to rectify it by CSL. CSL did not provide any slot at Kochi and agreed to provide slot at its unit, Cochin Shipyard Mumbai Ship Repairs Unit (CMSRU), Mumbai. The dredger sailed to Mumbai on 22 June 2021 and reached on 26 June 2021. Dredge XVII was docked at Mumbai on 28 June 2021 and completed the repairs on 17 July 2021. After completion of repairs, the Vessel was operational from 27 July 2021 at Paradip Port. CSL claimed ₹18.34 crore towards the repairs and the bill is yet to be settled (30 June 2024).

Audit observed that –

- (i) In response to Audit query, DCIL stated that it needs to approach DGS three or four weeks before expiry of certificates for their renewal/ extension. In the instant case, however, DCIL approached DGS on 28 July 2020, i.e., two weeks before expiry of the validity of the certificates on 11 August 2020 and could obtain extension only on 21 August 2020. Thus, the dredger was kept idle at Ennore Port for 10 days for want of statutory certification. This has resulted in loss of potential revenue of ₹3.10 crore⁴³ due to stoppage of operations.
- (ii) The DDRs took 157 days as against the scheduled period of 60 days. This has resulted in avoidable expenditure of ₹6.98 crore⁴⁴ in view of standing/ idling cost for undue

⁴³ *Total income (₹59.00 crore) divided by number of days worked (190) multiplied by number of idle days (10).*

⁴⁴ *Estimated Standing Cost per day (i.e., ₹ 8.4 lakh) x 83 days.*

delay of 83 days (i.e., 157 – 60 – force majeure period of 14 days) in completion of repairs by CSL. Though DCIL incurred additional expenditure of ₹6.98 crore due to the failure of CSL to complete the repairs within the scheduled period of 60 days, DCIL has not recovered LD amounting to ₹1.83 crore from CSL in line with the terms of MoU as yet (30 June 2024).

- (iii) As per Clause 20 of MoU with CSL, upon completion of repairs and necessary trials, the vessel shall be delivered by CSL to DCIL. Since DDRs were to be completed in all respects at CSL's Cochin Yard, it was the responsibility of CSL to deliver the dredger to DCIL after completion of trials at Kochi. CSL, however, did not provide dock to Dredger XVII at Kochi and DCIL had to bear extra expenditure of ₹1.92 crore⁴⁵ towards mobilisation and demobilisation of the dredger for rectification of problems at CMSRU, Mumbai of CSL.

Thus, DCIL had to bear potential loss of revenue of ₹6.85 crore due to Dredge XVII remaining idle due to expiry of certificate (₹3.10 crore) and due to non-recovery of ₹3.75 crore towards LD (₹1.83 crore) and mobilisation charges (₹1.92 crore) from CSL.

Management stated (August 2023/ May 2024) that the encountered issue with the Vessel was completed by 20 August 2020 and thereafter, necessary extension was obtained and Vessel commenced commercial operations. Further, CSL had already docked set of vessels including Dredge XVI and repair works were under progress and therefore, it was mutually decided to dock vessel at CMSRU of CSL. Also, LD for delayed period of DDRs were conveyed to CSL, but CSL had not accepted the same and discussions were still in progress. Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that as per the Daily Utilisation Reports, the dredger was working till 25 August 2020 and in-between it was stopped from operations at Ennore from 11 to 21 August 2020 due to lack of valid certificates. Further, mobilisation/ sailing cost of ₹1.92 crore as worked out by DCIL was not communicated to CSL as per the records produced to Audit and the reply is silent on recovery of these costs. However, with reference to hub repairs and LD, the discussions are still in progress (30 June 2024).

Thus, DCIL had suffered a potential loss of revenue ₹45.54 crore⁴⁶ in five contracts out of 15 contracts selected for review due to delay on the part of DCIL in dry docking of the dredgers.

⁴⁵ *Estimated Expenditure per day (₹24 Lakh) multiplied by number of days (8 days: From 22 June 2021 to 26 June 2021(4 days) and return (4 days)).*

⁴⁶ *₹10.80 crore (Point No. B.1 of 7.1.5.2) plus ₹14.97 crore (Para No. B.2 of 7.1.5.2) plus ₹10.22 crore (Point No. B.3 of 7.1.5.2) plus ₹6.45 crore (Point No. B.4 of 7.1.5.2) plus ₹3.10 crore (Point No. B.5 of 7.1.5.2).*

Audit in Para No. 14.1 of Report No. 9 of 2017 had already recommended that – (i) DCIL may ensure revalidation of statutory certificates in time to avoid idling of dredgers; and (ii) DCIL may ensure that the Planned Maintenance Schedule is strictly adhered to avoid sudden breakdowns. In this regard, Audit has still come across cases of idling of dredgers as DCIL did not obtain revalidation of statutory certificates in time and also cases where DCIL has not adhered to Planned Maintenance Schedules to avoid sudden breakdowns as discussed at Para no. 7.1.5.2(B). Hence, Audit again recommends that:

Recommendation no. 37: DCIL may plan dry dock repairs and ensure dry docking of the dredgers prior to expiry of validity of mandatory certifications and also ensure optimum utilisation of the dry dock repair services of Cochin Shipyard Limited provided under MoU for completion of dry dock repairs as per scheduled timelines so as to avoid loss of revenue.

Ministry/Management stated (May 2024) that DCIL shall ensure dry docking of the dredgers prior to expiry of validity of mandatory certification and also ensure optimum utilisation of the dry dock repair services of Cochin Shipyard Limited provided under MoU for completion of dry dock repairs as per scheduled timelines so as to avoid loss of revenue

C. Dry docking without assessing the feasibility of improvement of working performance of dredgers

Audit has noticed in three out of the fifteen dry dock contracts selected for review that Dry Docking Repairs (DDRs) were carried out in respect of three dredgers without assessing the feasibility of improvement of their working performance as detailed in the table given below and the deficiencies noticed in this regard are discussed in the subsequent Paragraphs:

Table 7.6: Details of dry docking and cash losses suffered by dredgers

Details	Dredge Aquarius	Dredge XVIII	Dredge XI
Year of Built	1977	2010	1986
Period of previous dry docking	05.10.2015 to 18.08.2016	23.07.2014 to 30.12.2015	01.11.2018 to 29.12.2018
Dry dock Expenditure on previous dry docking (₹ in crore)	17.62	27.86	7.37
Subsequent operation period	2017-20	2016-21	2020-22
Cash losses on operation after dry docking (₹ in crore)	16.93	38.14	17.05
Subsequent due date for dry docking	17.10.2019	29.12.2019	29.05.2021
Period of dry docking	20.11.2019 to 20.07.2020	26.09.2020 to 15.01.2021	25.10.2021 to 17.02.2022
Expenditure on dry docking (₹ in crore)	6.27	12.21	14.91
Post dry dock operation period	2020-21	2021-24	2022-23
Cash loss on post dry dock operation (₹ in crore)	7.33	37.39	No cash loss

C.1. After completion of DDRs of Dredge Aquarius in August 2016, its performance did not improve and worked only for 180 days (i.e., 104 days in 2017-18 *plus* 45 days in 2018-19 *plus* 31 days in 2019-20) during three years from 2017-18 to 2019-20. The dredger generated a revenue of ₹13.14 crore as against the operating expenditure of ₹30.07 crore⁴⁷ and suffered cash loss of ₹16.93 crore for the years from 2017-18 to 2019-20. This was in addition to the expenditure of ₹17.62 crore incurred on the DDRs. Further, without assessing the cash loss of ₹34.55 crore (i.e., ₹17.62 crore + ₹16.93 crore) already suffered by DCIL, the feasibility of improving its performance, and the frequency of stoppage of the dredger, DCIL went ahead with Docking Survey (November 2019) and incurred an expenditure of ₹6.27 crore. After completion of DDRs, the dredger could earn only ₹1.29 crore for 20 days (between August 2020 and February 2021) and incurred revenue expenditure of ₹8.62 crore and suffered a cash loss of ₹7.33 crore on its deployment in 2020-21. The Dredge Aquarius stopped work for want of repairs and it was decommissioned and sold (10 November 2021) as scrap for ₹18.50 crore.

Thus, injudicious decision to carry out DDRs twice without assessing the feasibility of improvement of working condition of Dredge Aquarius resulted in cash loss of ₹48.15 crore⁴⁸.

Management stated (August 2023/ May 2024) that there was drastic reduction in the scope, owing to decision by Management for carrying out dry docking with bare minimum expenditure to meet statutory and capital dredging requirement till subsequent dry docking. The main reasons for under performance of the dredger were Shaft Alternators, Direct Current (DC) Generators, DC Motors, etc. which were interlinked for bringing up the vessel/ equipment to full performance levels and attracted a major upgradation with an estimated expenditure of approximately ₹160.00 crore as per OEM. Further, in order to grab capital dredging market, Management was of the opinion to maintain diversified fleet and to strengthen capital dredging fleet. Management further stated that their financial position was the reason for not going with the option of acquiring new dredger immediately and hence, a judicious decision was taken to retain the existing dredger with bare minimum repairs. The Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that as indicated by the Management, a major upgradation costing approx. ₹160.00 crore was required in order to bring the vessel up to its full performance level. Hence, incurring expenditure to meet statutory and capital dredging requirement, without any assured revenue through its deployment was imprudent decision on the part of DCIL.

C.2. After completion of DDRs in December 2015 with an expenditure of ₹27.86 crore, the Dredge XVIII generated a revenue of ₹25.30 crore from capital dredging works as against

⁴⁷ *Crew Wages (₹8.77 crore) + Fuel & Lubricants (₹18.22 crore) + Other Exp. (₹3.08 crore).*

⁴⁸ *Expenses on dry docking (₹17.62 crore) plus cash loss in 2017-20 (₹16.93 crore) plus expenses on dry docking (₹6.27 crore) plus cash loss in 2020-21 (₹7.33 crore).*

operating expenditure of ₹63.44 crore⁴⁹ and suffered a cash loss of ₹38.14 crore for the years from 2016-17 to 2020-21. Hence, without assessing the cash losses suffered by the Company since last DDRs, the feasibility of improving its performance and the frequency of stoppage of the dredger, DCIL again decided for the subsequent DDRs of the vessel in 2020-21 and incurred expenditure of ₹12.21 crore on its DDRs. After DDRs, during the years from 2021-22 to 2023-24, DCIL suffered a cash loss of ₹37.39 crore on the dredger as the income earned was ₹13.03 crore as against operating expenditure of ₹50.42 crore⁵⁰. It was also observed that DCIL did not recover even the fuel cost of ₹84.67 crore in the past seven years from 2017 to 2024 from the total income (₹38.33 crore) earned. Dredge XVIII ceased operation during 2022-23.

Thus, Management's injudicious decision for operating and carrying out DDRs of the Dredge XVIII without assessing its performance has resulted in abnormal cash loss of ₹75.53 crore⁵¹ on operation of the vessel in addition to the expenditure of ₹ 40.07 crore⁵² incurred on DDRs.

Management stated (August 2023/ May 2024) that there were inbuilt flaws in the construction of Dredge XVIII and due to the congested layout of pipelines and machinery, it became difficult for the crew to maintain it resulting in high maintenance costs during execution of dredging projects. In fact, the dredger was designed to operate on heavy oil which was abandoned due to the difficulty in maintaining the heavy fuel oil pipelines with insulation which were positioned below the other pipelines in a very congested area in the engine room. Operation of the vessel with diesel oil instead of heavy oil and poorly laid out piping and other machinery resulted in high operational and maintenance costs. Management also stated that as no other large dredging project has been available for Dredge XVIII, DCIL has finally opted for dispose-off/ chartering of the vessel to Third Party for recovering the costs at the earliest opportunity. Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management may be viewed in the light of the fact that DCIL was aware about the reasons for high maintenance costs of the Dredge XVIII during execution of dredging projects considering the inbuilt flaws in its construction and also due to its congested layout of pipelines and machinery leading to its improper maintenance by maintenance crew, besides operation of the vessel with diesel oil instead of its design to operate on heavy oil. Hence, DCIL should have reconsidered its decision to operate Dredge XVIII before taking up DDRs.

⁴⁹ Crew Wages (₹14.64 crore) plus Fuel & Lubricants (₹45.45 crore) + Other Exp (₹3.35 crore).

⁵⁰ Crew wages (₹8.11 crore) plus Fuel & Lubricants (₹41.21 crore) plus Other Exp. (₹1.10 crore) (Of the Expenditure (₹99.93 crore) for the years 2021-22 to 2023-24, Non-cash expenditure like Depreciation (₹39.82 crore), Overheads (₹3.56 crore), Spare and Stores (₹4.16 crore), etc. have not been included).

⁵¹ Cash loss on operation of Dredge XVIII from 2016 to 2021 (₹38.14 crore) plus cash loss on operations from 2021-22 to 2023-24 (₹37.39 crore).

⁵² ₹27.86 crore on dry docking during July 2014 to December 2015 and ₹12.21 crore on dry docking during 2020-21.

C.3. During the years 2020-21 and 2021-22, Dredge XI suffered cash loss of ₹17.05 crore (i.e., revenue earned ₹36.84 crore – operating expenditure of ₹53.89 crore) and did not recover even the fuel cost (₹44.34 crore) in both the years. Despite above, DCIL carried out DDRs of the Dredge XI during October 2021 to February 2022. Even after DDRs, during 2022-23, DCIL suffered a loss of ₹9.92 crore (i.e., income ₹36.36 crore – expenditure of ₹46.28 crore). The dredger was given on charter from December 2022 for dredging operations at Ramayyapatnam.

Management stated (August 2023/ May 2024) that the role of Technical Department is keeping the vessel in optimum operational condition by undertaking repairs and validation of certification till augmentation of fleet to meet the dredging demand in the market. Ministry endorsed (May 2024) the reply of DCIL.

Replies of the Ministry/ Management are silent on the reasons for going ahead once again for DDRs despite Dredge XI incurring cash losses. Further, validation of the certification and undertaking repairs should be a prudent decision based on operational profitability of the Dredger with cost benefit analysis.

Thus, DCIL incurred avoidable expenditure on DDRs amounting to ₹63.96 crore⁵³ despite incurring cash losses on operation amounting to ₹116.84 crore⁵⁴ in case of three dredgers.

Recommendation no. 38: DCIL may assess the performance of the dredgers, the possibility of improvement of dredger's performance, further expenditure to be incurred and revenue to be earned before going ahead for dry docking of any dredger.
The Ministry/ Management stated (May 2024) that DCIL will assess the performance of the dredgers and the possibility of improvement of dredger's performance and further expenditure to be incurred and revenue to be earned before going ahead for dry docking of any dredger.

D. Expiry of Statutory Certificates

As per the statutory requirements of Directorate General of Shipping (DGS), Ministry of Ports, Shipping and Waterways (MoPSW), till renewal of a vessel's certification, the vessel shall not be operated. In other words, any dredger, while in operation, shall possess a valid certification from the Shipping Authorities. In this regard, it was observed that:

D.1. The Docking Survey of Dredge ID Ganga was due by 20 September 2019 and DCIL had obtained time extension up to 4 May 2020. However, DCIL utilised Dredge ID Ganga for dredging operations at Paradip Port in the months of May 2020, June 2020, July 2020 and October 2020 without any valid statutory certificates. Operation of Dredger ID Ganga

⁵³ *Dry docking expenditure for two dry dockings are considered only for Dredge Aquarius (₹17.62 crore plus ₹6.27 crore) and Dredge XVIII (₹27.86 crore plus ₹12.21 crore) as these have been incurring continuous cash losses before and after dry docking.*

⁵⁴ *Cash Losses considered are – Dredge Aquarius (₹16.93 crore plus ₹7.33 crore) plus Dredge XVIII (₹38.14 crore plus ₹37.39 crore) plus Dredge XI (₹17.05 crore).*

between May 2020 and October 2020 without any valid certificate is violation of Shipping Laws and Rules. The Vessel went for dry docking in the month of November 2020.

Management stated (August 2023 / May 2024) that due to operational requirement and imminent pressure from Paradip Port Authority, dredger operations continued and revenue was earned even after expiry of certificates. However, due to Covid pandemic, DGS did not respond to DCIL's request for further extension from 5 May 2020. Ministry endorsed (May 2024) the reply of DCIL.

Continuing dredging operations without valid certificates of the Dredge ID Ganga was in violation of the DGS Laws and Rules.

Thus, DCIL operated the dredger without valid statutory certification in one contract out of 15 contracts selected for review.

Recommendation no. 39: DCIL may adhere to statutory obligations and carry out dry docking as per statutory timelines and obtain extensions/ certifications in time.

The Ministry/ Management stated (May 2024) that DCIL shall adhere to statutory obligations and carry out docking as per statutory timelines and obtain extensions/ certifications in time.

7.1.6 Conclusion

Despite recommendations of Audit vide Para No. 14.1 of Report No. 9 of 2017, Audit noticed lacunae in planning and non-deployment/ delayed deployment of dredgers coupled with non-deployment of dredgers with suitable capacity and idling of dredger for want of bunkering resulting in delay in completion of the dredging works. Lacunae in deployment of dredgers resulted in loss of ₹87.62 crore in four out of 17 contracts selected for review. Further, incorrect cost and time estimation, without considering past performance of the dredgers, resulted in loss of revenue of ₹240.39 crore in four contracts. DCIL suffered loss of ₹2.75 crore in two contracts due to non-achievement of contractually assured depths and required quantities. DCIL did not execute dredging works within the contractual scheduled timelines and did not adhere to the contractual stipulations, resulting in levy of penalties and liquidated damages by the customers to the tune of ₹9.51 crore in seven contracts. DCIL did not ensure inclusion of appropriate contractual provisions to safeguard its financial interests in terms of interest on delayed payments and tolerance for designed depths/ quantities, which resulted in loss of ₹31.64 crore in nine contracts. Despite having an agreed arrangement with Cochin Shipyard Limited (CSL) for getting priority for slots for dry docking, DCIL did not approach CSL in a timely manner for Dry Dock Repairs (DDRs), which coupled with delay by DCIL in taking timely decisions, resulted in non-availability of slots at CSL which forced DCIL to float tenders. Floating of tenders and evaluation and execution of DDRs took considerable time resulting in idling of dredgers for want of repairs, additional costs towards mobilisation and demobilisation, etc. DCIL suffered revenue loss of ₹45.54 crore in five such cases of DDRs. Dry docking of dredgers

without assessing possibility of improvement in performance of dredgers was noticed in three cases resulting in wasteful expenditure of ₹63.96 crore on dry docking with additional loss in terms of cash losses on operation amounting to ₹116.84 crore.

7.2 Lack of due diligence resulted in loss of revenue

Failure of Dredging Corporation of India Limited (i) to exercise due diligence while determining the scope for Conciliation; and (ii) to convey its protest/ disagreement to the inclusion of Security Deposit in the Conciliator Award, has resulted in loss of revenue to the Company to the extent of ₹5.59 crore.

The dredging work for maintenance of channels and basins at Cochin Port for the year 2017-18, involving maintaining a depth between (-)14.50 metre and (-)15.90 metre in areas designated under Part A on lump sum basis and a depth between (-) 8.50 metre and (-) 13.20 metre in areas designated under Part B on need/quantity basis, was awarded (January 2018) by the Cochin Port Authority (CoPA) to Dredging Corporation of India Limited (DCIL) at a total contract price of ₹88.51 crore (Part A: ₹75.04 crore on a lump sum basis and Part B: ₹13.47 crore on a need/quantity basis). As per Clause 2.31.1 of Special Conditions of Contract (SCC), recovery in the range of zero to four *per cent* of lump sum amount quoted under Part A will be made for ruling shortfall in depth ranging between zero to 1.2 metres. Also, as per Clause 10.8 of the General Conditions, Retention Money/ Security Deposit shall be deducted from each running bill at the rate of 5 *per cent* subject to a maximum accumulation of 5 *per cent* of contract price and shall be refunded within 14 days from date of payment of final bill. The work commenced from 5 March 2018 and was to be completed by 4 March 2019, which was extended up to 8 May 2019 on same terms and conditions by CoPA.

CoPA withheld ₹23.49 crore⁵⁵, being 25 *per cent* of lump sum bill amount under Part A for non-achievement of the desired depths by DCIL during the period from May 2018 to May 2019. In addition, CoPA had also deducted Security Deposit of ₹5.59 crore⁵⁶. In view of the non-settlement of the withheld amount, DCIL filed (January 2019) Claim Statement with Ministry of Ports, Shipping and Waterways (MoPSW) for amicable settlement through Administrative Mechanism for Resolution of Central Public Sector Enterprise (CPSEs) Disputes (AMRCD). However, the Empowered Committee under MoPSW to resolve the Intra Ministerial Disputes in connection with DCIL's outstanding dues against various ports concluded (October 2019) that DCIL was no more a CPSE as DCIL's major stakes have been disinvested by government in favour of four major Ports and hence, their issues/ matters may not be brought before the Empowered Committee. Further, it was

⁵⁵ 25 *per cent* of the Gross Billed Amount for lump sum amount under Part A of ₹76.71 crore during May 2018 to May 2019 amounting to ₹19.17 crore plus GST (18 *per cent*) of ₹3.45 crore totalling to ₹22.62 crore and Fuel Escalation bills withheld amounting to ₹0.87 crore (₹0.74 crore plus GST of ₹0.13 crore)

⁵⁶ 5 *per cent* of Total Billed Amount of ₹108.24 crore [₹88.58 crore billed under Part A and ₹19.66 crore billed under Part B] being ₹5.41 crore plus ₹0.18 crore from Fuel Escalation bills.

recommended for DCIL to resolve the issue by inviting CoPA Chairman and other Officials as special invitees to their Board meetings.

Accordingly, a delegation representing CoPA and DCIL along with the Project Consultant, namely, Indian Institute of Technology (IIT), Madras, held a meeting on 20 November 2019 to discuss the release of withheld amount by CoPA (₹23.49 crore) as well as Security Deposit withheld (₹5.59 crore) from each Running Account Bill. As the meeting was inconclusive, it was suggested by IIT, Madras to explore the possibility of engaging a Conciliator to settle the dispute. DCIL agreed to the proposal and requested (13 December 2019) CoPA for appointing the Conciliator as suggested by IIT, Madras. CoPA informed (23 December 2019) DCIL to provide specific consent for (i) appointment of Conciliator; (ii) sharing the expenditure equally; and (iii) that decision of the Conciliator shall be final and binding. DCIL provided consent (31 December 2019/ 2 January 2020) and the Conciliator was appointed (March 2020). After discussions and enquiries, the Conciliator recommended (June 2020) that CoPA, out of the withheld 25 *per cent* (₹23.49 crore), may withhold 10 *per cent* (₹9.40 crore) and Security Deposit (₹5.59 crore) and advised CoPA to release the remaining 15 *per cent* (₹14.09 crore). DCIL submitted the proceedings of the Conciliator Award in its Board Meeting (July 2020) and requested CoPA to release the withheld amount of ₹14.09 crore. In response, CoPA insisted for an 'Undertaking' that the Award is full and final settlement and that DCIL shall not make any further claims on the subject contract in any other forum. Accordingly, DCIL submitted an 'Undertaking' and CoPA reimbursed (September 2020) ₹14.09 crore to DCIL. Afterwards, DCIL approached (October 2021) CoPA for release of ₹5.59 crore, being the undisputed and legally earned money towards Security Deposit. CoPA, however, replied (November 2021) that DCIL is legally estopped from raising any dispute due to the 'Undertaking' given by DCIL in September 2020. Subsequent attempts of DCIL for perusal were also not accepted (June 2022) by CoPA.

In this regard, Audit observed that –

- a) The Security Deposit amounting to ₹5.59 crore was to be refunded within 14 days from the date of payment of final bill. During the correspondence with CoPA for the release of amounts withheld, CoPA also replied (September 2019) to DCIL that the Security Deposit amount shall be refunded within 14 days from the date of payment of final bill and may be considered on settlement of claims. However, in case of amount withheld for shortfall in depths, the amount was stated to be released only on settlement of dispute. As such, the amount withheld towards Security Deposit was never under dispute with CoPA.
- b) DCIL, while requesting (December 2019) CoPA for appointment of Conciliator, mentioned that the dispute was with reference to ₹23.49 crore withheld towards shortfall in depths. However, in response to Conciliator query about arbitration claim by DCIL, the total amount mentioned by DCIL was ₹29.09 crore, which also included Security Deposit of ₹5.59 crore.

- c) Moreover, CoPA continued to withhold 100 *per cent* of the monthly bill amount from third month (May 2018). Upon request from DCIL, CoPA replied that till the disputes were resolved through AMRCD, it would release 75 *per cent* against the gross bill amount under Part A-Lump sum basis and full payment for work done under Part B – Need/ Quantity basis. CoPA intimated (30 July 2018) DCIL that the amount was kept on hold in terms of Clause 2.31 of SCC. Audit, however, noticed that under Clause 2.31.1 of SCC relating to Liquidated Damages, maximum penalty was 4 *per cent* and as such total withheld amount was required to be maximum ₹3.76 crore instead of ₹23.49 crore being withheld at 25 *per cent*. Thus, CoPA withheld excess amount of ₹19.73 crore (i.e., ₹23.49 crore – ₹3.76 crore) from monthly bills of DCIL. In response to Audit query, DCIL replied (July 2024) that no information is available with DCIL with regard to the basis and calculation details of penalty withheld by CoPA.

DCIL stated (March 2024) that the Company and CoPA beforehand agreed to obey the decision of the Conciliator without any counter challenges and had to accept the Conciliator's award even though the withheld Security Deposit was not a disputed amount. Accordingly, DCIL, on the advice of CoPA, issued a full and final settlement undertaking to CoPA. The Management, further, stated (September 2024) that a legal opinion as to whether there is any scope for a legal remedy to get the unpaid Security Deposit from CoPA was obtained. The legal opinion provided indicated that there was a minimal scope for pursuing legal action regarding the recovery of the ₹5.59 crore Security Deposit as an undertaking was given after considering the recommendations issued by the Conciliator which addressed the aspect of Security Deposit of ₹5.59 crore. Ministry reiterated (January 2025) the reply of the Management.

The reply of Management / Ministry may be viewed in the light of the fact that the CoPA maintained in its correspondence (25 September 2019) as well as during the discussions held on 20 November 2019 that the Retention Money will be released only on settlement of bills/ conclusion of contract. As such, the Conciliator was appointed by DCIL and CoPA only to resolve the disputed amount withheld under Clause 2.31 of SCC regarding non-achievement of desired depths and DCIL should have objected to the inclusion of the Security Deposit as part of the Conciliation Award at the time of giving an 'Undertaking'. As such, due to the above stated reasons, DCIL is unable to prefer claim on CoPA for recovery of undisputed Security Deposit and, as a consequence, has suffered a loss of revenue of ₹5.59 crore.

As such, not exercising due diligence by DCIL at the time of settlement and conciliation of the disputed amount withheld by CoPA has resulted in loss of revenue to the extent of ₹5.59 crore to DCIL.

Chapter - VIII

**MINISTRY OF ROAD TRANSPORT
AND HIGHWAYS**

CHAPTER VIII: MINISTRY OF ROAD TRANSPORT AND HIGHWAYS

National Highways Authority of India

8.1 Implementation of One Time Fund Infusion Scheme

8.1.1 About NHAI

The National Highways Authority of India (NHAI) was constituted in the year 1988 by an Act of Parliament and became operational in the year 1995 with a mandate to develop, maintain and manage National Highways vested or entrusted to it by the Government of India. The National Highway projects are executed by NHAI under different modes of construction i.e., Build Operate & Transfer (BOT) (Toll/Annuity), Hybrid Annuity Mode (HAM) and Engineering Procurement & Construction (EPC) Mode.

- ❖ **BOT (Toll) Mode:** *The concessionaire (i.e., the private partner) is responsible to finance, construct, operate and maintain the road stretch entrusted to him. The concessionaire is entitled to collect and retain the toll collected during the concession period. In case the estimated toll collection falls short of the project costs including return on investment, NHAI provides finance to meet the gap in the form of Viability Gap Funding (VGF). In certain cases, the concessionaires may offer premium/ negative grant instead of getting VGF.*
- ❖ **BOT (Annuity) mode:** *The responsibility for construction, operation, finance and maintenance rests with the concessionaire and the toll collection responsibility rests with the NHAI. All construction and annual maintenance costs are initially borne by the concessionaire and the same are reimbursed by NHAI by way of annuity payments determined at the time of bidding.*
- ❖ **Hybrid Annuity Mode (HAM):** *Forty per cent of the project cost is to be provided by NHAI as construction support during the construction period and the balance 60 per cent as annuity payments over the operations period along with interest thereon to the concessionaire.*
- ❖ **EPC Mode:** *NHAI is responsible to finance, construct, operate and maintain the road stretch entrusted to it.*

8.1.2 Need, Formulation and Approval of the Scheme

NHAI realised (October 2014) that many of its BOT projects were stuck due to the inability of the concessionaires to raise the required levels of equity and the unwillingness of the bankers to disburse further loan to enable project completion. NHAI had the option of either terminating the contract or to get the project completed through infusion of funds in the languishing projects. Since, the option of terminating the projects was beset with many

problems, NHAI proposed for funding of the languishing projects which were completed at least 50 *per cent*, at an interest rate of two *per cent* more than the bank rate.

Accordingly, MoRTH circulated (16 December 2014), a draft Note to various departments (i.e. NITI Aayog, Department of Economic Affairs, Department of Expenditure, Department of Financial Services and Department of Legal affairs) for their views.

Based on the inputs received, MoRTH prepared the draft note and put up (10 February 2015) for approval of Cabinet Committee on Economic Affairs (CCEA). Thereafter, supplementary notes were submitted on 23 February 2015 and 24 April 2015 by MoRTH after incorporating the comments of Department of Legal affairs and comments of Ministry of Finance respectively.

CCEA approved (13 May 2015) the following under the proposed One Time Fund Infusion Scheme (OTFIS):

- For any languishing highway project in BOT (Toll) mode that has achieved at least 50 *per cent* physical completion and it is also established that infusion of moderate funding can quickly bring this project to completion, NHAI will provide financial assistance to such a project from the corpus earmarked for this purpose. This assistance (say bridge fund) will be provided on a loan basis at Bank Rate plus 2 *per cent* drawing a parallel with the provisions of Article 28¹ of the Model Concession Agreement. A robust third-party evaluation mechanism would be developed by NHAI to determine a) the eligibility of the concerned project and b) the extent of bridge fund required to complete the project in a time-bound manner.
- After completion of construction of such projects, the first charge on the toll receivables of these projects would be ensured for NHAI through execution of tripartite agreement between the senior lender, concessionaire and the Authority.
- This is proposed to be a one-time dispensation for all such projects that are languishing as on 01 November 2014.
- All such cases and the amount of bridge fund would be required to be approved by NHAI Board.

MoRTH communicated the CCEA approval to NHAI on 20 May 2015. NHAI circulated (09 June 2015) the decision of OTFIS for implementation and detailed the procedure to be followed for seeking relief under the scheme. Subsequently, considering suggestions made by National Highway Builder Federation and Concessionaires, MoRTH put up (06 October 2015) a draft CCEA Note for extension of benefits of OTFIS in case of

¹ *Article 28 of concession agreement contains provision of Revenue Shortfall Loan. It states that if the Realisable Fee in any accounting year falls short of the Subsistence Revenue due to any event or NHAI default, NHAI upon request of the Concessionaire, provide a loan for meeting such shortfall at an interest rate equal to two per cent above the Bank Rate.*

BOT-Annuity Projects also. The following was approved by CCEA in its meeting held on 14 October 2015:

- Provisions of the policy circular of NHAI dated 09 June 2015 be extended and made applicable in case of languishing projects on BOT-Annuity mode subject to the condition that after completion of construction of such projects, such loan is to be recovered along with interest at the rate of bank rate plus two *per cent* by NHAI from the Annuities payable, bi-annually, through execution of a tripartite agreement between the senior lender, concessionaire and the Authority.
- This infusion of fund would be a one-time dispensation for all such projects that are languishing as on 01 November 2014.
- All such cases and the amount of bridge fund required in each case shall be approved by the Authority, on a case to case basis.

NHAI Board approved the scheme of OTFIS in 11 projects², however, the funds were disbursed and spent in the eight projects (**Annexure XXVI**). NHAI sanctioned OTFIS funds of ₹1,926.99 crore (up to November 2019) in eight projects, against which NHAI had disbursed and spent ₹1,730.65 crore ranging from ₹12.91 crore to ₹540 crore (up to November 2024). No payments on account of OTFIS were released by NHAI since October 2021.

8.1.3 Scope of Audit and Audit Methodology

The scope of audit was to review the formulation of scheme, disbursement and utilisation of funds and monitoring of the eight projects selected under OTFIS since inception of the Scheme to 31 March 2024. An Entry Meeting with NHAI management was held on 16 June 2022, wherein the Audit objectives, criteria, scope etc., were explained to the auditee and cooperation for conducting the Audit was solicited. Subsequently, examination of records of NHAI and MoRTH was taken up. After completion of field audit, draft Compliance Audit Report was issued to NHAI and MoRTH on 25 February 2023 and 28 February 2023 respectively. Replies of NHAI and MoRTH were received on 14 July 2023 and 03 June 2024 /11 November 2024 respectively. The Exit Meeting with NHAI was held on 27 July 2023 and with MoRTH on 13 November 2024. The replies of NHAI/MoRTH were duly considered while finalising this Compliance Audit Paragraph.

8.1.4 Audit Findings:

8.1.4.1 Formulation and Approval of the Scheme

Audit reviewed the scheme to assess whether due diligence was observed while formulating and approving the OTFIS and the scheme was supported with sufficient preliminary analysis and noticed the following:

² Including three projects viz. Haridwar-Dehradun, Ranchi-Jamshedpur and Cuddupah-Kurnool, where funds under OTFIS were approved but were not disbursed.

A. Inconsistencies in formulation and approval of OTFIS

For revival of languishing BOT projects, NHAI proposed (October 2014) for funding of the languishing projects which were completed up to 50 *per cent*, at an interest rate of two *per cent* more than the bank rate. As the above proposal was outside the provisions of the concession agreement, approval of the Government was required. CCEA approved (13 May 2015) One Time Fund Infusion Scheme (OTFIS) for revival of projects that were languishing as on 01 November 2014. In this connection, Audit observed the following:

- (i) Department of Financial Services (DFS) had expressed concern (January 2015) about the possibility of the project not being completed even after release of fund under OTFIS by NHAI and enquired, whether such projects would be terminated, or the concessionaire would be substituted.

In response to the same, MoRTH in the draft CCEA Note for BOT (Toll) projects stated that since such fund infusion is stipulated on physical milestones, this situation may not arise. However, it was observed that out of the eight projects under OTFIS, four³ BOT (Toll) projects were terminated before completion of entire work. Further, there were instances of disbursement of OTFIS funds on advance basis without assessment of work done in two projects {refer point A.3(c) para 8.1.4.3}. This substantiates the fact that while disbursing funds the criteria of physical milestone was not adhered to by NHAI.

Ministry replied (June 2024) that whole exercise of One Time Fund Infusion Scheme was to get the project completed and termination of any such project was not expected at that stage.

Ministry in its reply stated that the termination of projects was not expected. Audit is of the view that NHAI should have safeguarded its interest by incorporating clause in the tripartite agreement in case of non-completion of project, to act as a deterrent towards loan defaults of ₹977.48 crore by the defaulting concessionaires. Thus, MoRTH while formulating the policy did not incorporate any action plan for recovery of outstanding dues in cases where projects could not be completed even after availing OTFIS.

- (ii) Department of Financial Services (DFS) while conveying its comments on the draft CCEA Note for extension of OTFIS to BOT Annuity projects addressed (September 2015) to Department of Expenditure (DoE) stated that the draft CCEA Note did not bring out as to how NHAI would recover its loan in case of non-completion of projects and whether any bank guarantee was contemplated for such loans. It was, further,

³ Four projects i.e. Ludhiana-Talwandi (09 November 2021), Panvel-Indapur (17 November 2021), Gurgaon-Jaipur (June 2022) and Raebareli-Allahabad (December 2023).

observed that in case of ‘rationalisation/deferment of premium scheme’⁴ for BOT (Toll) projects, MoRTH had included condition of obtaining collateral security from concessionaires, however, the same condition was not incorporated in case of OTFIS.

Ministry replied (June 2024) that since the projects where the OTFIS was provided were already under stress, therefore, the concessionaires were not in a position to arrange the bank guarantee for the said projects as a result of which the provision of Bank Guarantee was not proposed in the policy of OTFIS.

The reply may be viewed in light of the fact that inclusion of clause relating to bank guarantee under OTFIS under tripartite agreement was never emphasised by MoRTH and no comments of concessionaires showing their inability to provide bank guarantee were found on records provided to Audit. A proportionate Bank Guarantee could have safeguarded the recovery of OTFIS loan in case of concessionaire default which can be substantiated from the fact that out of OTFIS fund of ₹1,730.65 crore disbursed by NHAI, ₹ 977.48 crore is still pending to be recovered as on November 2024.

(iii) Department of Economic Affairs (DEA) while conveying its comments on the draft CCEA Note for extension of OTFIS to BOT Annuity projects had stated (17 September 2015) that the scheme may be opened for a defined period say three months. In response to the same, MoRTH in the draft CCEA note had replied that only projects languishing as on 01 November 2014 and having achieved 50 *per cent* physical progress would be considered for OTFIS.

Audit observed that benefit of OTFIS was granted to the languishing projects from July 2016 to November 2019 i.e. one year to four years after approval of scheme (May /October 2015), though the projects were languishing as on 1 November 2014.

Ministry replied (June 2024) that though benefits are extended to these projects after a period of time, however, these projects were identified as languishing project as on 1 November 2014.

The reply may be viewed in light of the fact that the objective of the scheme was quick completion of languishing project by way of moderate funding by NHAI. Thus, even after projects were identified as languishing project as on 1 November 2014, the funds under OTFIS were approved one year to four years after approval of scheme, which resulted in delayed fulfillment of scheme objective.

(iv) Department of Legal Affairs (DoLA) while conveying its comments on the draft CCEA Note for OTFIS had stated (20 February 2015) that if the concessionaire is liable to certain obligations for delay in execution of projects, appropriate action needs

⁴ *As per the CCEA approved (8 October 2013) scheme on ‘Rationalization/deferment of premium’, concessionaires who were finding it difficult to pay the premiums quoted upfront, were allowed to reschedule their premium payments over the concession period keeping the Net Present Value (NPV) of the total premium payable as the same.*

to be taken under Concession Agreement and change in policy to provide financial assistance would not absolve the concessionaire from his obligations. MoRTH in the draft CCEA note had replied that the loan repayment would have first charge on toll, Government carries no risk by affording such infusion. This was factually incorrect, as repayment of principal amount of OTFIS was to be made after interest repayment to the lenders under the waterfall mechanism⁵, instead of having first charge on the toll revenue.

Ministry did not furnish any reply to the audit observation. However, Ministry while submitting Impact Assessment of OTFIS (2 July 2024) to CCEA had stated that the first charge on the toll receivables of these projects would be ensured after completion of projects. Audit observed that in case of two projects i.e., Indore-Gujarat/MP Border and Raebareli-Allahabad, NHAI could not recover any portion of the OTFIS principal amount of ₹121.63 crore and ₹119.91 crore, despite collection of toll revenue of ₹496.42 crore and ₹104.89 crore respectively. Further, in case of two projects i.e. Panvel-Indapur (OTFIS fund disbursed ₹540 crore) and Chhapra-Hajipur (OTFIS fund disbursed ₹174.97 crore), interest as well as principal repayment of OTFIS is yet to be commenced even after passage of three years since disbursement of OTFIS, as the work was under progress upto November 2024.

8.1.4.2 Implementation of the Scheme

For implementation of the OTFIS, it was envisaged that a tripartite agreement would be signed amongst NHAI, the concessionaire and the senior lenders along with a Supplementary Agreement to the existing Concession Agreement between NHAI and the Concessionaire. Project Implementing Units (PIUs) and Regional Offices (ROs) of NHAI were designated as responsible units for executing and monitoring of the scheme.

Audit reviewed the scheme with respect to implementation of the scheme i.e. the methodology adopted for implementation of the OTFIS was proper and the scheme was implemented efficiently and noticed the following:

A. Development of robust Third-party evaluation mechanism for OTFIS

As per the directions (May 2015/ October 2015) given in CCEA note, a robust third-party evaluation mechanism was to be developed by NHAI to determine (a) the eligibility of the concerned projects and (b) the extent of bridge fund required to complete the project in a time bound manner. The above decisions/directions of CCEA were further communicated (May 2015/ October 2015) by MoRTH to NHAI for ensuring that the same be followed in letter and spirit.

⁵ *The order of payments to be made from sub escrow account under OTFIS till the due repayment and discharge of entire outstanding under the NHAI OTFIS facility as defined under tripartite agreement.*

However, Audit observed that no such robust third-party evaluation mechanism for determining the eligibility under the scheme was developed by NHAI and benefit under OTFIS was granted to the concessionaires on the basis of cost of balance work required for completion of these languished projects as certified by the Independent Engineer (IE)⁶.

Ministry replied (November 2024) that the Independent Engineer is the third party for project supervision, monitoring the project implementation and certifying all payments payable to the concessionaires. Thus, reference of third party in CCEA proposal/approval may be referred to IE.

The reply of the Ministry may be viewed in light of the fact that as IE was already appointed as per the provisions of the respective Concession Agreement, where the remuneration of IE was equally shared by NHAI and the concessionaire. Further, as per NHAI circular (9 June 2015) relating to procedure to be followed for seeking relief/benefit under the OTFIS, the role of IE was only to assess the balance expenditure requirement for completion of the project and not the eligibility of the project. Therefore, it was indispensable on the part of NHAI to develop a robust third-party evaluation mechanism by engaging a third-party agency in addition to the existing internal monitoring system, keeping in view the amount of funds (i.e., ₹1,730.65 crore) disbursed under OTFIS.

Recommendation no. 40: A robust third-party mechanism may be developed for determining the eligibility of projects for extension of benefits under such scheme of NHAI in future.

B. Charging of interest on OTFIS fund at lower rate

The Concession Agreement (CA) of BOT projects included various articles under which concessionaire was liable to pay interest on loans/ funds payable to NHAI at fixed rates. Some example are given as under:

- Clause 28.1.1 relating to Revenue Shortfall Loan: It stated that if the Realisable Fee in any accounting year falls short of the Subsistence Revenue ⁷due to any event or NHAI default, NHAI upon request of the Concessionaire, provide a loan for meeting such shortfall at an interest rate equal to two *per cent* above the Bank Rate.
- Clause 47.5 on delayed payments: It stated that payments due from one party to the other party under the provisions of this agreement shall be made within the period. In the event of delay beyond such period, the defaulting Party shall pay interest for the period of delay calculated at a rate equal to five *per cent* above the Bank Rate.

⁶ *The IE of the project was appointed to review, inspect and monitor the construction works, conduct tests and issue completion/ provisional completion certificate along with inspection and monitoring of the operation and maintenance of the project.*

⁷ *Subsistence Revenue means the total amount of fee revenue required for meeting the O&M expenses and debt service.*

Under OTFIS, NHAI was authorised to charge interest on the funds provided to concessionaire at bank rate plus two *per cent* drawing a parallel with provisions of above Article-28 of CA.

Audit observed that the Supplementary Agreement (SA) of OTFIS stated that provisions of SA shall not alter article 1 to 48 of CA and provisions of articles 1 to 48 shall apply as stated in the CA. Further, clause 1.4 of CA relating to priority of agreements stipulated that in the event of any conflict between them, all other agreements would follow the CA.

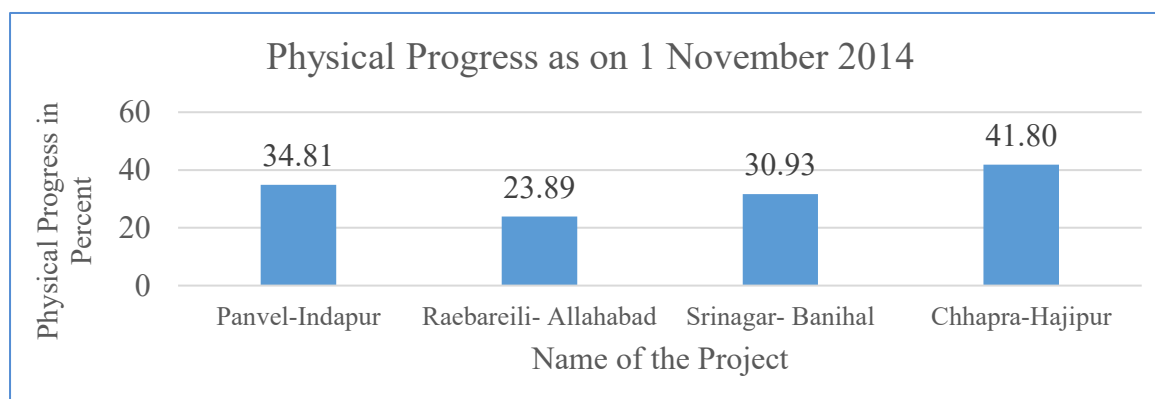
In this regard, interest on OTFIS fund was to be charged as contained in Tripartite Agreement i.e., bank rate plus two *per cent*, however, as the project completion was delayed, resultantly, repayment of OTFIS loan was also delayed and clause 47.5 of CA would be applicable wherein interest chargeable on delayed payment was bank rate plus five *per cent*. However, NHAI continued to charge same interest rate of bank rate plus two *per cent* even on delayed payments and extended undue favour of ₹179.46 crore to the concessionaires by allowing lower interest rate on delayed repayment of OTFIS funds in respect of seven projects. At the time of formulation of the scheme, DLA & DEA had also raised their comments for inclusion of penal clause under OTFIS to deter concessionaires from delaying construction just to avail the benefit of such a financial assistance.

The Ministry in its reply while accepting the audit observation stated (11 November 2024) that position has been reviewed in NHAI and guidelines have been issued to concerned PIUs that interest for any delayed payment be calculated at bank rate plus five *per cent* as per clause 47.5 of the Concession Agreement.

C. Release of funds under OTFIS

C.1 Extending the benefits of OTFIS to the concessionaire

As per the criteria of OTFIS, BOT (Toll/ Annuity) project that was languishing as on 01 November 2014 and had achieved at least 50 *per cent* physical completion was eligible for availing OTFIS.



Source: MPRs of Independent Engineer

In this regard, MoRTH had prepared (March 2016) a draft note for relaxing the criteria of physical completion of project below 50 *per cent* and circulated (1 April 2016) to various departments/Ministries for inter-departmental consultation before submitting to CCEA.

However, the same was not supported by consulted departments (DEA, NITI Aayog) and the draft note was finally withdrawn. Audit observed that despite this, NHAI granted OTFIS benefits of ₹936.90 crore⁸ (from July 2016 to November 2017) to the concessionaire of above-mentioned four projects, where the physical progress was less than 50 *per cent* as on 01 November 2014.

Thus, infusing funds under OTFIS in projects below 50 *per cent* completion led to extending undue benefits of OTFIS to ineligible projects in violation of the approval of CCEA.

Ministry replied (November 2024) that the issue of 50 *per cent* completion as on 1 November 2014 was clarified by MoRTH while submitting the proposal for CCEA approval as per Appendix IV of note for CCEA dated 6 October 2015. The Ministry of Finance had suggested that the scheme may be opened for a defined period, say three months, within which all necessary clearances may be accorded by the Authority and tripartite agreements executed. MoRTH had replied that the scheme for BOT (Toll), approved by CCEA had been linked to cut off date of 1 November 2014 i.e. projects languishing as on 01 November 2014 and who have achieved 50 *per cent* physical progress as on 1 November 2014. This is a very restrictive condition, and the entire scheme should be open ended i.e. projects where 50 *per cent* physical progress has been achieved at any time should be covered under the scheme. Accordingly, NHAI Board has approved the OTFIS for such project which were covered under both the above criteria for fund infusion i.e. languishing as on 01 November 2014 and achieved 50 *per cent* completion at the time of consideration of proposal of OTFIS by the NHAI Board.

Ministry in its reply has accepted that the scheme for BOT (Toll), approved by CCEA was linked to cut off date of 01 November 2014 i.e. projects languishing as on 01 November 2014 and who have achieved 50 *per cent* physical progress as on 01 November 2014. Further, this condition of 50 *per cent* physical completion as on 01 November 2014 being restrictive was mentioned only in the Annexure to the CCEA Note for extending the benefit of OTFIS to BOT Annuity projects, but at the time of approval, the CCEA extended (October 2015) the provisions applicable for BOT Toll to the BOT Annuity projects. This can also be substantiated from the fact that Chairman NHAI letter addressed (08 January 2016) to Secretary MoRTH stated that financial assistance under OTFIS was to be provided to projects which have achieved at least 50 *per cent* completion as on 01 November 2014.

Further, Deputy Secretary, MoRTH apprised (28 February 2016) to the Secretary MoRTH that the eligibility criteria of 50 *per cent* physical completion of project as of 01 November 2014 under OTFIS. Accordingly, a draft CCEA note was circulated (01 April 2016) to various Ministries/Department for inter-departmental consultation by MoRTH proposing a relaxation in the eligibility criteria of physical completion below 50 *per cent* under OTFIS.

⁸ ₹540 crore in Panvel-Indapur project, ₹119.91 crore in Raebareli-Allahabad project, ₹102.02 crore in Srinagar Banihal project and ₹174.97 crore in Chhapra-hajipur project.

However, the same was not supported by three consulted Ministries/ departments and was finally withdrawn from the CCEA note. Thus, it is indicative of the fact that both NHAI and MoRTH were aware of the provisions outlined in the CCEA approval for eligibility of projects under OTFIS.

This issue was also discussed in the Exit Meeting with Ministry (13 November 2024), wherein it was emphasised by the Ministry that CCEA note should be prepared meticulously.

Recommendation no. 41: NHAI/MoRTH should ensure the adherence to the criteria approved by CCEA in true spirit and fix responsibility on erring officials of NHAI for approving OTFIS fund to four ineligible projects.

C.2 Deduction of Interest during Construction (IDC) of ₹50.71 crore in violation of Tripartite Agreement

Clause 3.1 of the tripartite agreement signed for Krishnanagar Baharampore project stipulated that Interest during Construction (IDC) of the senior lenders, would be serviced from lenders funds and not from NHAI-OTFIS facility.

Further clause 6(g) of the tripartite agreement signed for Krishnanagar Baharampore and Chhapra Hajipur projects stipulated that no withdrawal of interest by senior lenders would be permitted by NHAI beyond what is agreed as per the waterfall mechanism included in the tripartite agreement.

Audit observed that IDC of ₹50.71 crore⁹ was deducted by lenders from the funds infused by the concessionaire which was meant only for the completion of balance works of the languishing projects in violation of the aforesaid provisions.

MoRTH in its reply stated (November 2024) that monitoring mechanism of Escrow Accounts have now further been strengthened to minimise such audit defaults (i.e., deduction of interest during construction from concessionaire funds) on part of Concessionaire/ lenders.

Further, during Exit Meeting (13 November 2024) MoRTH agreed that the review mechanism would be strengthened to prevent such occurrences in future.

MoRTH reply substantiates the fact that there were defaults in review and monitoring mechanism by NHAI resulting in deduction of IDC by lenders, which were not to be deducted before recovery of interest on OTFIS fund as per waterfall mechanism prescribed in tripartite agreement. NHAI in review committee meetings has raised the issue of crediting back amount of IDC deducted by lenders into escrow account, however, the same

⁹ Krishnanagar Baharampore (₹33.95 crore), Chhapra Hajipur (₹16.76 crore).

was not complied by the lenders. Ministry has now assured to strengthen the review mechanism in future.

C.3 Investment of funds in Fixed Deposits by the concessionaires

Clause 6(h) of tripartite agreement relating to waterfall mechanism stated that under OTFIS the funds would first be utilised for payment of taxes due and payable by the concessionaire and thereafter in the following order (i) construction of the project (ii) payment of O&M expenses (iii) premium payable (negative grant) to NHAI (iv) interest payment on OTFIS loan (v) interest payment on banker loan (vi) repayment of NHAI loan under OTFIS (vii) repayment of principal loan of banker (viii) all payment and damages due and payable to NHAI by the concessionaire and (ix) Balance , if any shall be retained in sub-escrow account and utilised for the payment to be made in the succeeding months.

Audit observed that during the construction period, the concessionaire of two projects namely Srinagar Banihal and Chhapra Hajipur invested the funds of ₹54.50 crore¹⁰ in the Fixed Deposits during February 2017 to January 2018. As per waterfall mechanism, the amount should have been utilised for construction of project and thereafter for repayment of OTFIS while investment in FD was not in accordance with the terms of Tripartite Agreement.

The Ministry replied (June 2024) that the concessionaire of Chhapra Hajipur project has submitted that no investment in Fixed Deposits has been made.

The reply of the Ministry may be viewed in light of the fact that the Ministry has only reiterated the concessionaire's submission without any review/investigation of its own. Further, this issue was also reported to higher management by the concurrent auditor appointed by NHAI. The reply of the Ministry is silent on the issue of placing the funds in FDRs by the concessionaire of Srinagar-Banihal project.

This issue was also discussed in the Exit Meeting with the Ministry (13 November 2024) wherein NHAI accepted that concessionaries had invested funds in Fixed Deposits and stated that bankers do not provide escrow bank statements. Moreover, Ministry also recommended to reinforce the monitoring mechanism to ensure that deducted amounts are utilised towards project completion only.

MoRTH and NHAI's submission in the Exit Meeting substantiates the fact that concessionaries had invested funds in Fixed Deposits instead of project completion. Further, Ministry has now assured to reinforce monitoring mechanism to ensure that such amounts are directed toward completion of projects.

¹⁰ ₹53 crore in Srinagar Banihal project and ₹1.5 crore in Chhapra Hajipur.

D. Project specific deficiencies and status of completion of projects after OTFIS

NHAI disbursed OTFIS funds to eight projects. Out of these projects, Provisional Completion Certificates (PCC) were issued in five projects¹¹, four projects¹² (including two projects terminated after issuance of PCC) were terminated and final completion certificates are yet to be issued in any of the projects, as the complete work is not done by the concessionaire/EPC contractor¹³ after termination of the concession agreement. The project wise implementation of OTFIS is mentioned in the subsequent paras.

D.1 Gurgaon Jaipur Project

NHAI entered into Concession Agreement (06 June 2008) with concessionaire for augmenting/widening the existing four lane road to six lane road on the Gurgaon-Kotputli-Jaipur Section of NH-48 (earlier NH-8) in the State of Haryana and Rajasthan on BOT (Toll-Revenue Sharing) mode with the concession period of 12 years including construction period of 2.5 years from the appointed date (03 April 2009). The scheduled completion date was 2 October 2011. The project could not be completed by the concessionaire within the due date of completion and extended date of completion even after deletion/delinking of 26 structures. Considering financial constraint/crunch of concessionaire to infuse funds for construction, NHAI Board approved (September 2016) OTFIS of ₹352 crore in the project for completion of pending works.

Audit observed the following:

(i) Non-completion of project despite availing OTFIS funds of ₹345.67 crore:

Despite availing funds amounting to ₹345.67 crore (from May 2017 to June 2018) under OTFIS, the project could not be completed even after lapse of entire concession period of 12 years plus extended concession period of 14 months (i.e., upto 02 June 2022). The works of ₹201.12 crore are still pending for completion as on June 2022.

The Tripartite Agreement mentioned the date of provisional completion of work as December 2017 and it was also stated the concessionaire shall submit work plan duly vetted by IE to the review committee. However, no work plan/schedule for completion of pending work was submitted by the concessionaire till disbursement of entire OTFIS fund of ₹345.67 crore.

¹¹ Five projects i.e. Ludhiana-Talwandi, Krishnanagar-baharampore, Srinagar-Banihal, Raebareli Allahabad and Indore-Gujarat/M.P border

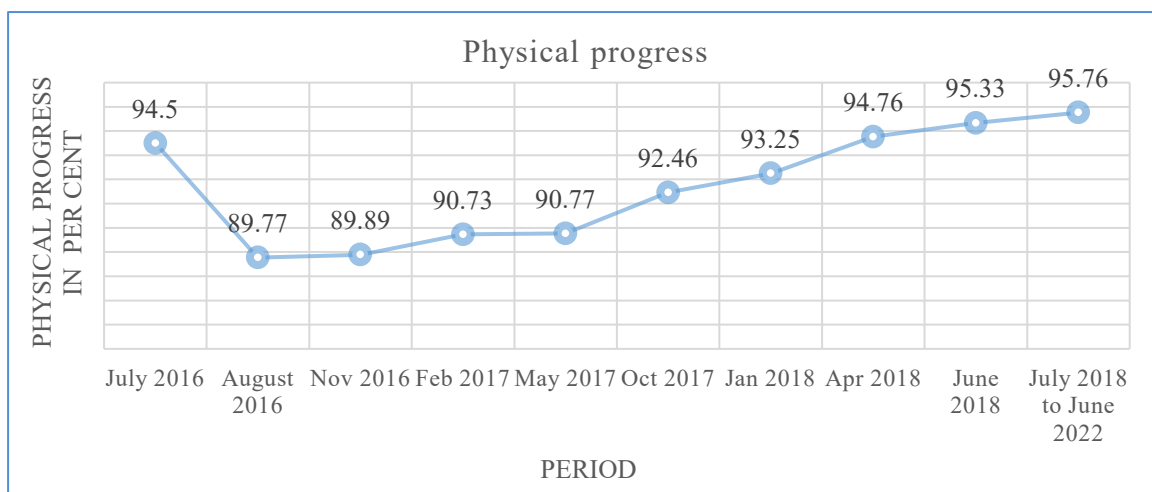
¹² Four projects i.e., Panvel Indapur; Raebareli Allahabad, Ludhiana- Talwandi and Gurgaon-Jaipur

¹³ In case of 3 projects i.e., Panvel-Indapur, Gurgaon-Jaipur and Ludhiana-Talwandi, after termination of concessionaire, the balance works has been re-awarded by NHAI on EPC mode to the contractors.

(iii) Misreporting of physical progress by Independent Engineer (IE) and incommensurate progress of works *vis a vis* funds disbursed:

The physical progress of the project as per the Monthly Progress Report (MPR) for the month of July 2016 was shown as 94.50 *per cent*, which was considered (12 September 2016) by NHAI Board at the time of sanctioning of OTFIS funds of ₹352 crore. However, in the MPR for the month of August 2016, the physical progress was shown as 89.77 *per cent* by the IE without any justification available on record. Further, till July 2018, after disbursement of OTFIS fund of ₹345.67 crore (from May 2017 to June 2018) physical progress increased only to 95.76 *per cent* i.e., increase of only 1.26 *per cent* since sanctioning of funds under OTFIS (as given in the below mentioned chart) with no further progress upto end of the extended concession period i.e., 02 June 2022.

Thus, physical progress achieved was not commensurate (i.e., 95.76 *per cent* against 100 *per cent* as per tripartite agreement signed for OTFIS) with the funds disbursed under OTFIS, defeating the core objective of the scheme.



Source: MPRs submitted by Independent Engineer

(iii) Non-maintenance of existing road project: As per clause 17 of CA, the concessionaire was to maintain the project highway during the construction and operation period. However, despite issuance of cure period notices¹⁴ (September 2018 and February 2021) for fulfilling the maintenance obligations as per CA, the concessionaire did not undertake maintenance work (including major maintenance work). As a result, NHAI had undertaken the maintenance work amounting to ₹308.27 crore¹⁵ on the project highway (at risk and cost of concessionaire) through other agencies during the year 2019-20 and 2022-23, which is in addition to the amount of ₹345.67 crore disbursed under OTFIS.

Further, as per tripartite agreement, the funds infused under OTFIS along with interest were to be recovered from the toll revenue of the project and in any case, no later than 31 March

¹⁴ Cure Period means the period specified in Concession Agreement for curing any breach or default of any provision of the Agreement by the Party responsible for such breach or default.

¹⁵ ₹70.10 crore in 2019-20 and ₹238.17 crore in 2022-23.

2020. However, as on November 2024, principal amount of OTFIS of ₹20.97 crore is still pending for recovery in the project.

The Ministry replied (June 2024) that an amount of ₹352 crore was broadly assessed as the fund requirement for balance work completion in 2016 but this amount was not final & fixed. The matter of completion of balance project works was many times discussed by the NHAI with Lenders & the Concessionaire. However, the Concessionaire did not mobilise additional funds required for completion. As the Concessionaire has not re-paid the principal and interest of OTFIS as per the agreement, therefore, Authority decided not to extend their Concession period beyond 02 June 2022 and took over the project to meet out the balance dues of OTFIS. Further, balance work including strengthening/overlay of the project highway was awarded to another contractor at the risk and cost of the concessionaire and the same is under progress.

Ministry in its further reply (November 2024) stated counter claims were raised by NHAI in Arbitration for various defaults of the Concessionaire including recovery of the entire balance amount of OTFIS along with interest.

During the Exit Meeting (November 2024), NHAI assured that the matter of inconsistent physical progress in the project would be reviewed.

The reply of the Ministry may be seen in light of the fact that the cost of completion of balance works was worked out (September 2016) by IE as ₹352.14 crore and the same was considered by the NHAI Board at the time of sanctioning of funds under OTFIS. Therefore, NHAI contention that OTFIS of ₹352 crore was not final & fixed is not correct. Ministry has accepted that the concessionaire did not make payment of interest on OTFIS fund and repayment of principle amount of OTFIS fund. Ministry further accepted that the project could not be completed even after availing OTFIS and the project was taken over by NHAI on 3 June 2022.

Thus, the concessionaire did not complete the project in its entire concession period (including extended concession period) even after reduction in scope of work and availing fund under OTFIS. The concessionaire agreement was terminated (03 June 2024) and the balance work as well as overlaying/strengthening work on risk and cost of the concessionaire is being executed by another contractor under EPC mode, which resulted in inconvenience to users.

D.2 Chhapra Hajipur Project

NHAI entered into a Concession Agreement (CA) (July 2010) with the concessionaire for rehabilitation and up-grading to four lane Chhapra-Hajipur section of NH-31 (earlier NH-19) in the State of Bihar on BOT (Annuity) mode. The Total Project Cost (TPC) was ₹575 crore with the concession period of 15 years. The appointed date was 27 January 2011 and scheduled completion date was 24 July 2013.

However, the project could not be completed as per scheduled completion date due to delay in handing over of encumbrance free land and financial problems faced by the concessionaire. The IE assessed the cost of balance work to complete the project as ₹386.94 crore (including banker's undisbursed debt of ₹172 crore, NHAI's share under OTFIS of ₹175 crore and concessionaire's equity of ₹39.94 crore). Accordingly, NHAI Board in its special meeting (July 2016) approved OTFIS fund of ₹175 crore for completion of balance work of Chhapra-Hajipur project. NHAI disbursed OTFIS funds of ₹174.97 crore in 21 instalments during the period from December 2016 to June 2021.

As per the tripartite agreement, the Provisional Commercial Operation Date (PCOD) was to be achieved by April 2017. The recovery of principle amount of OTFIS along with interest was to be repaid/adjusted from the Annuity payment to be made by NHAI to concessionaire after PCC. As the project is under construction as on 11 November 2024 and PCC has not been issued, therefore repayment of OTFIS is pending.

In this regard, Audit observed the following:

(i) Non completion of project despite infusion of ₹174.97 crore under OTFIS: As the project was severely languishing since 2013, NHAI issued cure period notice (April 2015) and intention to issue termination notice (November 2015) to the concessionaire. Further as per meeting held (January 2016) with the promoters and lenders, it was decided that, if promoter did not bring the requisite equity and start the work within 15 days, then the project may be terminated. However, the concessionaire did not bring the equity share upto March 2016 in project. Thereafter, NHAI Board approved (July 2016) OTFIS of ₹175 crore for completion of project.

However, there was no work plan/ schedule for achievement of provisional completion of work by April 2017 as mentioned in the tripartite agreement signed for this purpose. Subsequently, even after infusing the funds of ₹383.97 crore¹⁶ into the project, the project remained incomplete with physical progress of only 81.69 *per cent* up to March 2024 against the target of completion of the project. It is also pertinent to mention that prior to implementation of OTFIS, 52.70 *per cent* project work was reported to the NHAI Board, thus the concessionaire could only complete 28.99 *per cent*¹⁷ work after availing funds of ₹174.97 crore under OTFIS from NHAI, ₹172 crore from lenders and ₹37 crore from promoter contribution/equity itself. Furthermore, the concessionaire also raised a further demand of ₹321 crore for completion of pending works, however, the Executive Committee of NHAI in the meeting dated 14 March 2022 did not approve the concessionaire's proposal and rather directed NHAI to explore the possibility of amicable settlement through Conciliation Committee of Independent Experts¹⁸ (CCIE).

¹⁶ It includes ₹174.97 crore by NHAI under OTFIS, ₹172 crore from lenders's debt and ₹37 crore from promoter's equity.

¹⁷ i.e., 81.69 *per cent* - 52.70 *per cent*.

¹⁸ A panel of Independent Experts for conciliation of disputes.

In view of persistent defaults, NHAI has again issued Cure notice period (May 2022) to the concessionaire, which was followed with Intention to Termination notice (August 2022) in line with Clause 37.1.2 of CA.

Ministry replied (November 2024) that with OTFIS loan of ₹174.97 crore, 82 *per cent* completion has been achieved, however the balance work is still under progress.

Ministry reply substantiates the fact that the project completion was delayed and even after infusion of OTFIS funds of ₹174.97 crore, substantial work is still pending for execution. Thus, the concessionaire failed to complete the work even after availing the benefits under OTFIS leading to inconvenience to the road users as well as foregoing toll revenue from this BOT (Annuity) project.

(ii) Inflated physical progress of Chhapra-Hajipur project

NHAI entered (September 2011) into contract with consultant (Independent Engineer) for consultancy services of Chhapra-Hajipur project. After completion of contract period on 31 December 2020, a new contract was entered (June 2021) with another consultant.

Audit observed that IE in the Monthly Progress Report (MPR) for the month of July 2013 submitted that the physical progress of the project was not more than 60 *per cent*. Thereafter, in the MPR of September 2014, IE stated that the physical progress in August 2013 was 60.19 *per cent* and the same has been reduced to 41.20 *per cent* in September 2014. However, no reasons for this variation in reporting of physical progress was mentioned in the MPR of September 2014.

Further, CGM (Finance), NHAI while furnishing details of languishing BOT (Annuity) projects to Deputy Secretary, MoRTH stated (4 September 2015) that the physical progress of Chhapra-Hajipur project as on 31 August 2015 was 22.77 *per cent*.

During field visit, Audit further noticed that the physical progress of 71.88 *per cent* up to September 2022 was mentioned in the letter addressed to Project Director, PIU Chhapra-However, the physical progress of 87.54 *per cent* was mentioned in the MPR for the month of September 2022. Thus, the reporting of IE in MPR was not consistent with the actual physical progress of work.

Ministry replied (June 2024) that the fault of the previous IE has already been established, a punitive action in the form of termination of its services and forfeiting the Performance BG have already been taken. The physical progress as may be inflated by the previous IE has been reviewed and actual physical progress has been reported. The Physical progress of project as on July 2023 was 77 *per cent*.

Further, during the Exit meeting (13 November 2024), NHAI assured to review the matter and take appropriate action to address the issue of such misreporting.

Ministry reply substantiates the audit contention that there was misreporting by IE on continuous basis, yet NHAI failed to gauge the same despite continuous review/ monitoring of MPR/ project progress at various levels of NHAI.

Recommendation no. 42: NHAI should devise a mechanism to review the physical progress of the project itself on random/test check basis rather than solely depending on the monthly progress reports submitted by the Independent Engineer to have proper monitoring of work done by the concessionaire.

D.3 Srinagar-Banihal

NHAI entered the CA (28 October 2010) with the concessionaire for four laning of Srinagar Banihal section of NH-44 (earlier NH-1A) in the state of Jammu & Kashmir on BOT (Annuity) basis with concession period of 20 years including construction period of three years. The appointed date of the project was 27 June 2011 with scheduled completion date as 25 June 2014.

However, the project could not be completed upto scheduled date of completion due to slow progress, delay in land acquisition, shifting of utilities, climatic conditions of the project area along with poor planning of construction work and insufficient cash flow of the concessionaire.

IE evaluated (October 2016) the cost of balance work as ₹376 crore (including construction of Banihal bypass having length of 2.35 km) and stated (November 2016) that current physical progress of the project was only 68 *per cent*, the project would be expected to achieve PCOD by June 2017 and balance work was expected to be completed by December 2017. NHAI Board in its 111th Meeting approved (April 2017) OTFIS fund of ₹200 crore. Besides this, lenders were to provide funds of ₹176 crore in the project for completion of balance work.

NHAI infused ₹102.02 crore out of ₹200 crore in the project in five instalments from August 2017 to June 2018 and IE issued (27 March 2018) Provisional Completion Certificate for 52.75 km out of 67.76 km (i.e. 77.84 *per cent*) project length in March 2018.

Though, the actual fund disbursed till PCOD was ₹219.59 crore (₹102.02 crore by NHAI and ₹ 117.57 crore by Banker), the work of Banihal Bypass of length of 2.35 km¹⁹ was not taken up by the concessionaire and the same was de-scoped by the Executive Committee of NHAI in its 342nd Meeting held on 11 April 2018 i.e. within 15 days of issuance of PCOD.

In this regard, Audit observed the following:

¹⁹ comprising of three Major Bridges, two Minor Bridges, one VUPs and eight Culverts as per Schedule-B of CA.

(i) Non-completion of Project after infusion of one-time fund of ₹102 crore by NHAI and extra financial burden on NHAI amounting to ₹64.06 crore:

As per CA, the cost of Banihal bypass was ₹78.64 crore, but after considering the revised design (including alternate proposal) additional financial implication of ₹97.47 crore was assessed by IE. The work of Banihal Bypass was re-awarded (29 May 2020) to a new contractor on EPC mode at the project cost of ₹224.44 crore with scheduled completion date of 04 January 2024 and the physical progress of the new project was 69.32 *per cent* up to March 2024. NHAI has recovered ₹62.91 crore (i.e., 80 *per cent* of cost of Banihal bypass as per CA) towards negative scope from annuity payment resulting into additional financial burden of ₹64.06 crore²⁰ to NHAI.

Ministry replied (June 2024) that due to land issue at Banihal, NHAI had decided to de-scope the Banihal bypass section from the concessionaire and awarded the work to new contractor (with modification in works) for executing the same at a cost of ₹224.44 crore.

Ministry further replied (November 2024) that 97 *per cent* of project completion has been achieved and balance 3 *per cent* is due to other reasons mainly non-availability of land. Entire OTFIS loan with interest has been recovered.

Ministry reply may be viewed in the light of the fact that three CGM Committee of NHAI in January 2017 stated that 96.15 *per cent* of encumbrance free land (including Banihal Bypass) had been acquired in the project. Further, under OTFIS, the cost of balance works included the work of Banihal Bypass. However, the work of Banihal Bypass was never taken up by the concessionaire despite infusing OTFIS funds and the same was later on de-scoped by NHAI from the project.

Thus, due to non-taking of Banihal Bypass work by the concessionaire, there was additional financial burden on NHAI amounting to ₹64.06 crore as well as inconvenience to the road users as the Banihal bypass work is yet to be completed.

D.4 Krishnanagar - Baharampore

NHAI entered into CA (June 2011) with the concessionaire for four laning of Krishnanagar Baharampore section of NH-12 (earlier NH-34) in the State of West Bengal on BOT (Annuity) basis with concession period of 15 years including construction period of 2.5 years. The appointed date of the project was 10 January 2012 with scheduled completion date as 07 July 2014.

The project was not completed as per schedule date due to delay in handing over of encumbrance free land, slow progress and financial problems of the concessionaire. Till schedule date, the concessionaire could achieve physical progress of 49.73 *per cent* only.

²⁰ ₹64.06 crore = ₹224.44 crore (i.e., awarded cost) - ₹62.91 crore (i.e., amount recovered by NHAI) - ₹97.47 crore (i.e., additional financial implication assessed by IE due to revised design)

Concessionaire stated (June 2015) that estimated cost of balance works in the project was ₹476 crore and requested for infusion of funds under OTFIS. On the request of the concessionaire, IE assessed (11 September 2015) ₹476 crore for completing the balance work of project highway (comprising OTFIS fund of ₹404.10 crore, promoters' equity of ₹40 crore and balance amount from the undisbursed debt from lenders). NHAI Board in its special meeting (July 2016) approved OTFIS of ₹404.10 crore to complete balance work. NHAI infused ₹313.54 crore in 12 instalments from February 2017 to January 2021.

In this regard, Audit observed the following:

(i) Non-completion of project after infusion of ₹313.54 crore by NHAI

As per the tripartite agreement, the concessionaire undertook to complete the balance work by July 2017, however even after availing funds amounting to ₹398.44 crore (₹313.54 crore by NHAI OTFIS and ₹84.90 crore by Banker), the physical progress of the project did not meet the committed targets. As against scheduled completion date of July 2017 as mentioned in the tripartite agreement, the concessionaire could only achieve further progress of 13.27 *per cent* with overall physical progress of 63 *per cent*.

The work of four laning of 9.5 Km (3.96 Km in Nadia district and 5.54 Km in Murshidabad district) was not taken up by the concessionaire due to non-availability of encumbrance free land and the same was de-scoped (July 2020/April 2022) by NHAI from the project. However, it was observed that three CGMs committee constituted for determining the delays on the part of NHAI and grant of rationalisation compensation to the concessionaire in its meeting held on 26 May 2016 had apprised that NHAI handed over the 100 *per cent* Right of Way to the concessionaire in January 2016 itself.

Provisional commercial operation date was achieved in February 2020 for 65.02 Km (83.36 *per cent*) out of total length of 78 Km. However, the project could not be completed and physical progress of only 89.15 *per cent* was achieved up to March 2024. Moreover, the project length of 9.5 Km was de-scoped from the scope of the concessionaire.

Ministry in its reply (November 2024) stated that 89 *per cent* of project completion has been achieved and balance was de-scoped due to other reasons mainly non-availability of land. Entire OTFIS loan with interest has been recovered.

The reply of Ministry may be viewed in light of fact that three CGMs committee of NHAI in its meeting (May 2016) had stated that 100 *per cent* land was available with the Concessionaire by January 2016. Further, MoRTH in response to the suggestion/comment of Ministry of Finance on draft CCEA note had stated that only projects wherein Authority delays have been fully addressed would be eligible for OTFIS. However, the same was not adhered to and the project could not be completed even after availing OTFIS of ₹313.54 crore, which resulted in inconvenience to the road users as well as foregoing toll revenue on the incomplete stretch of 9.5 km to NHAI.

(ii) Incorrect issuance of Provisional Completion Certificate and pre-mature release of annuity payment of ₹535.18 crore to the concessionaire

As per clause²¹ 14.3.2 of CA, Provisional Completion Certificate (PCC) was to be issued only after completion of at least 90 *per cent* of project highway. However, IE issued PCC in February 2020 for 83.35 *per cent completion* of project highway in violation of above mentioned clause of CA. NHAI released to the concessionaire annuities of ₹535.18 crore from August 2020 to March 2024 after issuance of PCC. Since, issuance of PCC was itself irregular, hence, the payment of annuities of ₹535.18 crore to the concessionaire was tantamount to extension of undue benefit to the concessionaire.

Ministry replied (June 2024) that in view of the abnormal delays and status of land encumbrances on balance project lengths, the Competent Authority had decided to issue PCC. Due to the delay in PCC declaration, NHAI was losing Toll revenue and accordingly NHAI accepted the PCC as the delay is mostly due to LA issues which was a responsibility of NHAI and further delay in PCC would have resulted in more losses to NHAI.

During the Exit Meeting (13 November 2024), Ministry accepted that annuity amount should be recovered, and steps should be taken to recover the interest as well. NHAI also assured that the recovery of the annuity amount would be carried out.

Ministry reply substantiates the audit contention that PCC was issued without achieving completion of 90 *per cent* of project length. Granting PCC before 90 *per cent* of works was beyond the preview of CA and needed to be approved by the competent authority as done by the NHAI for obtaining approval of OTFIS. However, no such approval was obtained by NHAI resulting into premature payment of annuities to the concessionaire. The total toll collection for the period from 2019-20 to 2023-24 on this road section was ₹300.68 crore, whereas payment made towards semi annuities to the concessionaire was ₹535.18 crore upto March 2024. Moreover, during the Exit Meeting, Ministry and NHAI have assured to recover the annuity amount from the concessionaire.

Thus, the project could not be completed even after the lapse of 11 years from award of work and six years after giving OTFIS with total physical progress of 89 *per cent* as of November 2024.

Recommendation no. 43: NHAI should adhere to the terms and conditions of the concession agreement in letter and spirit and fix responsibility for violation of provisions of concession agreement in approving PCC and releasing annuities prematurely.

²¹ As per clause 14.3.2 of CA, upon request of the concessionaire Provisional Certificate under this clause be issued for operating part of the project highway, if at least 90 *per cent* of total length of the project highway has been completed.

D.5 Panvel-Indapur

NHAI entered into CA with the concessionaire for widening of existing two-lane road to four lane of Panvel-Indapur section of NH-66 (earlier NH-17) in the State of Maharashtra on BOT (Toll) basis with concession period of 21 years including construction period of 2.5 years. The appointed date of the project was 19 December 2011 with scheduled completion date as 18 June 2014.

The project was not completed as per scheduled date due to delay in handing over of encumbrance free land and fund crunch faced by the concessionaire resulting in physical progress of only 34.48 *per cent* up to June 2014 and as on 31 October 2016, the physical progress of the project was 43.31 *per cent* i.e., date considered for computation of balance cost for availing the benefit of OTFIS. The concessionaire requested (22 April 2016) NHAI to infuse OTFIS fund of ₹540 crore to complete the project before 2017. IE also assessed (22 April 2016) the cost of balance work of ₹540 crore. NHAI Board in its special meeting held in July 2016 deliberated that the physical progress of the project is only 43.15 *per cent*, bankers are ready to provide the funds of ₹139 crore to bring the project to 50 *per cent*. Thereafter, the benefit of the scheme will be extended, accordingly NHAI Board had approved (July 2016) the fund infusion of ₹540 crore under OTFIS.

In this regard, Audit observed the following:

(i) Undue benefit to concessionaire by excess infusion of ₹139 crore in Panvel Indapur project

Under OTFIS, NHAI was to provide bridge funds for completion of pending works in languishing projects. In the case of Panvel Indapur project, total cost of balance work was assessed as ₹540 crore by the IE, but while approving the proposal of OTFIS, NHAI has not considered the undisbursed debt of ₹139 crore for calculation of balance work and approved the entire cost of balance work of ₹540 crore under OTFIS. However, at the time of communicating (12 August 2016) the OTFIS fund approval to concessionaire and lenders it was stated that fund under OTFIS was approved as ₹401 crore and ₹139 crore were to be provided by the concessionaire/banker. However, the NHAI has disbursed entire ₹540 crore during the period from June 2017 to March 2021 in the project, which resulted in excess infusion of ₹139 crore of OTFIS funds in the project.

Moreover, after utilising both funds (i.e., OTFIS funds and undisbursed debt) for completion of pending works, the project is yet to be completed.

Ministry in its reply, (June 2024) stated that due to substantial delay there was cost escalation and the cost of balance works was worked out as ₹679 crore. NHAI Board accorded approval for OTFIS of ₹540 crore for completion of 50 *per cent* work.

Reply of the Ministry needs to be viewed in the light of the fact that the cost of completion of balance works for Panvel-Indapur project was ₹540 crore as certified by IE (April 2016),

out of which ₹139 crore was to be disbursed by the lenders and balance amount of ₹401 crore by NHAI. However, OTFIS of entire amount of ₹540 crore was approved in the project instead of ₹401 crore leading to undue benefits to the concessionaire. Further, the Ministry did not furnish the supporting documents for computation of balance work amounting to ₹679 crore.

Recommendation no. 44: NHAI should assess the funds requirement for completion of work with due diligence to avoid excess sanction of funds to the concessionaires.

(ii) Non-completion of project despite infusion of ₹540 crore

NHAI Board in its special meeting (July 2016) approved the fund infusion of ₹540 crore under OTFIS for completion of balance works. NHAI infused ₹540 crore in the project from June 2017 to March 2021. The concessionaire undertook to complete the balance work of the project highway by 31 March 2018. However, there was no work plan/ schedule for achievement of provisional completion of work by 31 March 2018 as mentioned in the tripartite agreement signed for this purpose. Further, after infusion of funds under OTFIS, the physical progress of the project could not meet the committed targets and the concessionaire further demanded (April 2020) additional ₹230 crore for completion of balance work, which was not accepted by NHAI. The project could achieve 88.08 *per cent* progress up to November 2021 and the project was finally terminated in November 2021. The balance works of the project have now been re-awarded under two packages on EPC mode at cost of ₹483.26 crore, which is under progress as on November 2024.

Ministry replied (November 2024) that with OTFIS loan of ₹540 crore, 88 *per cent* of the project has been completed. However, due to the failure of the concessionaire to complete the project, the contract has been terminated. Balance work is being completed at the risk and cost of the Concessionaire. Dispute has been referred in Arbitration and counter claims of NHAI include total principal amount of ₹540 crore plus interest.

Reply substantiates the fact that even after infusion of OTFIS funds of ₹540 crore concessionaire failed to complete the project.

D.6 Ludhiana-Talwandi

NHAI entered into a CA (January 2011) with the concessionaire for four laning of Ludhiana to Talwandi section of NH-5 (earlier NH-95) in State of Punjab on BOT (Toll) with concession period of 29 years. The appointed date was 26 March 2012 along with scheduled completion date of 21 September 2014. NHAI had provided 100 *per cent* Right of Way to the concessionaire upto June 2013. The concessionaire (December 2013) had started demobilising the plant & machinery and further stopped the work due to financial constraints and the project was languishing since 2013. NHAI issued cure period notices (December 2013 and February 2016) and show cause notices (February 2014 and December 2015) to the concessionaire to cure the defects. Accordingly, NHAI issued

(June 2016) intention to terminate the CA, however, CA was not terminated despite slow progress. The physical progress of project upto November 2019 was 91.92 *per cent* with funds amounting to ₹453.80 crore expended in the project.

The concessionaire requested (November 2019) NHAI to infuse ₹13.50 crore under OTFIS for completing the balance works for completion of minimum 75 *per cent* project length. Accordingly, NHAI disbursed ₹12.91 crore out of ₹13.50 crore in the project. IE issued PCOD for 59 km out of 78 km of project length (28 September 2020) i.e. 75 *per cent* length for commencement of tolling.

In this regard, Audit observed the following:

(i) Granting of OTFIS for completion of pending work in 75 *per cent* stretch instead of 100 *per cent* completion.

As per CCEA approval, OTFIS was introduced for completion of the languished projects. However, in case of Ludhiana Talwandi project, NHAI has approved the bare minimum OTFIS fund to complete balance work in 75 *per cent* of total length of project highway i.e., required for issuance of PCC/commencement of toll operation instead of entire completion of work. Further, in remaining seven languished projects, who have availed benefits under OTFIS, the OTFIS was granted for completion of entire project and not for issuance of Provisional Completion Certificate (PCC).

The overall physical progress of the project prior to approval of OTFIS was 91.98 *per cent* (November 2019). As the concessionaire stopped the work due to financial constraints, the estimated cost of all pending balance work was assessed as ₹54 crore. However, instead of OTFIS of ₹54 crore, only ₹13.50 crore was approved by NHAI for completion of balance work required for issuance of PCC i.e., 75 *per cent* of total length of project highway. After issuance of PCC, the balance work was to be completed from toll funds.

Before issuance of PCC in September 2020, NHAI assessed (31 August 2020) the expected toll collection from project was of ₹4 crore per month, out of which ₹0.90 crore was required for operation and maintenance expenses and other repair works and considering dependency on toll funds would push the project completion by further two years. Therefore, it was deliberated that additional fund of ₹30 crore may be released under the OTFIS. However, the same was not approved by the NHAI.

Due to the financial crunch, the concessionaire did not complete the balance work and requested (July 2021) NHAI to terminate CA, which was later terminated (November 2021) by NHAI having overall physical progress of 93.20 *per cent*. The balance works in the project were re-awarded at a cost of ₹82.20 crore.

Thus, due to imprudent decision of NHAI to provide bare minimum cost for 75 *per cent* work completion, the balance work was hampered for two more years with cost escalating to ₹82.20 crore resulting in cost overrun of ₹41.70 crore (₹82.20 crore - ₹40.50 crore).

Ministry replied (June 2024) that OTFIS of ₹13.50 crore was approved by competent authority to achieve the PCC of the project so that tolling operation can be commenced successfully and balance works were to be completed by the revenue generated from tolling. Ministry in its further reply (November 2024) stated that the project could not be fully completed by the concessionaire even after OTFIS, hence terminated. Toll is being collected by NHAI, and with this, the outstanding OTFIS with interest is being adjusted.

During Exit meeting (13 November 2024), NHAI accepted that the scheme was not uniformly applied.

Ministry reply substantiates the audit contention that OTFIS was approved in project for achieving PCC instead of entire completion of project. Moreover, within a short span of one year it was estimated that revenue generated from toll collection would not be sufficient to complete the balance works in time and would take around two years. NHAI should have considered completion of entire project under OTFIS rather for declaration of PCC.

D.7 Indore – Gujarat/ Madhya Pradesh border

NHAI entered into CA (22 February 2010) with the concessionaire for four laning of Indore Gujarat/MP Border section of NH-47 (earlier NH-59) in the State of Madhya Pradesh on BOT (Toll) basis with the concession period of 25 years including construction period of 2.5 years from the appointed date (20 August 2010) having the scheduled completion date of 14 February 2013. However, the project was not completed by scheduled date (February 2013) due to stopping of disbursement of funds by lender banks.

In this regard, Audit observed the following:

(i) Non-completion of project despite granting of OTFIS funds by NHAI: The total project length was 155.15 Km out of which 16.09 Km stretch was in forest/ wildlife affected zone. The concessionaire achieved physical progress of 85 *per cent* by June 2012 but thereafter work came to halt and intention to termination notice was issued to the concessionaire in February 2014. Out of 16.09 Km of forest/ wildlife zone, clearance for 7.04 Km of forest land was granted in August 2015 and for balance 9.05 Km passing through Sardarpur Wildlife Sanctuary National Board for Wildlife, clearance was granted in November 2015.

Due to financial constraint, the concessionaire requested (11 August 2016) NHAI to provide funds under OTFIS for completion of balance work. Accordingly, IE assessed (16 August 2016) the cost of balance work as ₹122.48 crore. Till January 2017, lenders reported that fund of ₹1,846.85 crore was disbursed in the project and the concessionaire achieved physical progress of 89.91 *per cent*. NHAI Board in its 110th Meeting (February 2017) deliberated that since project was delayed and one time fund of ₹122.48 crore was to be infused for completion of balance works for PCOD and additional funds required for completion of remaining 16.09 Km of stretch to the tune of

₹123.24 crore were to be arranged by concessionaire after achievement of PCOD. Accordingly, a tripartite agreement was executed (April 2017) and the concessionaire undertook to complete the balance work by December 2017 and remaining 16.09 km within a reasonable time agreed to by NHAI. The PCOD for 138.110 Km out of 155 Km of project length was issued in November 2018.

In this regard, it was observed that necessary forest and wildlife clearances for affected stretch of 16.09 Km was obtained (August 2015/November 2015) prior to the approval of OTFIS (February 2017). However, NHAI granted OTFIS for completion of balance works of project excluding above stretch even though land was already available with NHAI. The main objective of OTFIS was to achieve completion of entire project, however, OTFIS of ₹122.48 crore did not include cost of construction of 16.09 Km of project stretch which led to non-achievement of objective of OTFIS i.e., completion of work. The cost of pending works of 16.09 Km stretch at the time of OTFIS approval was ₹123.24 crore which was de-scoped (November 2019) by NHAI and re-awarded (January 2021) to another contractor at a cost of ₹210 crore, which was completed in December 2023.

Ministry replied (June 2024) that since as per conditions of Forest Department, all trees in Forest & Sanctuary portion are to be cut by Forest Department only, the final handing over of land was not materialised till OTFIS proposal submission. The concessionaire had submitted its request for OTFIS in January 2016. After estimate approval and banker's consent, proposal was approved and after finalisation of draft for Tripartite Agreement with Bankers consent, the TPA was executed in May 2017. In view of the above explained position, the Forest & Sanctuary portion was not included in OTFIS proposal.

Ministry in its further reply (November 2024) stated that the concessionaire is referred in National Company Law Tribunal²² (NCLT), tolling proceeds are being deposited in a separate Escrow Account without any access to the concessionaire. Claims are referred in Arbitration with total NHAI claim of ₹627.83 crore including claims towards OTFIS loan and interest of ₹162.25 crore.

Ministry reply may be viewed in the light of the fact that the forest and wildlife clearances of 16.09 Km stretch was finally obtained in November 2015 yet this stretch was not included in the scope of OTFIS. Moreover, in the tripartite agreement, the concessionaire undertook to arrange the additional funds required for completion of this 16.09 Km stretch at the time of approval of OTFIS. However, the concessionaire did not take up the work on this 16.09 km road section and the work was finally de-scoped from the project. Further, even after commencement of tolling in November 2018, OTFIS of ₹121.63 crore is yet to be recovered and project is currently under arbitration/ conciliation process.

²² *NCLT is a quasi-judicial authority incorporated for dealing with corporate disputes that are of civil nature arising under the Companies Act.*

D.8 Raebareli Allahabad

NHAI entered a CA (31 March 2011) with concessionaire for two laning with paved shoulders of Raebareli-Allahabad section of NH-30 (earlier NH-24 B) in the State of Uttar Pradesh on BOT(Toll) basis with concession period of 16 years including construction period of 1.5 year. The appointed date of the project was 18 July 2012 with scheduled completion date as 9 January 2014.

However, the project could not be completed as per scheduled date due to delay in handing over of encumbrance free land, fund crunch faced by the concessionaire and improper planning on part of the concessionaire. As a result, the concessionaire could achieve physical progress of 17.82 *per cent* only by the schedule date. Hundred *per cent* encumbrance free land was handed over to the concessionaire upto July 2014.

By December 2016, the concessionaire could achieve physical progress of 67.22 *per cent* only after spending ₹356.75 crore. Further, the concessionaire requested (August 2017) NHAI for fund infusion of ₹119.90 crore under OTFIS for completion of the project. IE examined the said proposal and assessed (August 2017) the cost of balance works to ₹119.91 crore [₹45.85 crore for Provisional Completion Certificate (PCC) and ₹74.06 crore for achievement of Commercial Operation Date (COD)] which was approved (November 2017) by NHAI Board. IE assessed that PCOD could be achieved in three months and COD in nine months from the start of funding. NHAI released OTFIS funds of ₹104.14 crore from February 2018 to November 2019 in the project. The concessionaire achieved overall physical progress of 93.79 *per cent* upto November 2019. PCC for 80 Km of stretch was issued in December 2019. NHAI infused balance OTFIS funds of ₹15.77 crore from December 2019 to October 2021 and PCC for balance stretch of 25 Km was issued in December 2021.

In this regard, Audit observed that after availing funds of ₹119.91 crore, provisional completion was achieved in project in parts i.e. for 80 Km stretch on 24 December 2019 (i.e., with a delay of 389 days from the scheduled date of completion as mentioned in the tripartite agreement) and for remaining 25 km stretch on 18 December 2021 (i.e., with a delay of 1,120 days from the scheduled date of completion as mention in the tripartite agreement). Moreover, final Commercial Operation Date could not be achieved till date despite collection of toll of ₹104.89 crore by the concessionaire from December 2019 to June 2023, while punch list works²³ of ₹11.50 crore was pending at the time of termination i.e., December 2023.

Ministry replied (November 2024) that due to delays attributable to the Concessionaire in executing the construction work at site, Competent Authority vide letter dated 15.06.2023 has suspended the Concessionaire and presently, the project is terminated in the month of

²³ *Punch List is a list of outstanding items of work that need to be completed by the concessionaire within 90 days of date of issuance of provisional completion certificate.*

December 2023 by NHAI due to non-completion of Punch List items. Further, the funds disbursed by NHAI under OTFIS are being recovered from the toll collection as toll is being collected by NHAI.

Ministry reply substantiates the fact that objective of OTFIS for early completion of project was not achieved despite granting OTFIS funds. Moreover, it was the responsibility of NHAI to ensure timely completion of project under OTFIS but there was delay of 1,120 days in achieving PCOD of project and finally NHAI had to terminate the project.

E. Forgoing of revenue of ₹740.63 crore due to delay in completion of project

(i) Forgoing of toll revenue of ₹552.09 crore due to delay in completion of project within scheduled completion date

Out of eight OTFIS projects, three projects namely Srinagar Banihal, Krishnanagar Baharampore and Chhapra Hajipur were on BOT (Annuity) mode. Under BOT (Annuity) projects, the responsibility of toll collection vests with NHAI and any delay in project completion would further delay the commencement of toll collection.

Audit observed that delays in issuance of provisional completion certificate as against the stipulated date of project completion as mentioned in Tripartite Agreement were noticed in above three projects and resultantly, NHAI had forgone the toll revenue of ₹552.09 crore (**Annexure XXVII**).

The Ministry replied (June 2024) that there was delay in acquisition of land, unavailability of physical possession in some stretches, adverse weather conditions resulting in delay in declaration of PCOD.

Reply substantiates the fact that though it was prerequisite of the concession agreement to fulfill all conditions precedent within the stipulated time frame yet non availability of Right of Way led to forgoing of toll revenue to NHAI. Thus, despite grant of relief under OTFI Scheme, there was delay in issuance of provisional completion certificate resulting in forgoing of toll revenue to the tune of ₹552.09 crore.

(ii) Forgoing of toll revenue of ₹25.86 crore due to delay in commencement of toll from Commercial Operation Date in Srinagar Banihal.

NH Fee Rules (2008) stipulates that user fee collection should be commenced within 45 days from the date of completion of NH. Further, as per NHAI Policy circular (November 2014), if tolling of completed length is delayed due to pending construction of toll plaza building, then tolling can be started through temporary arrangement, immediately to avoid loss of revenue.

Audit observed that PCC for Srinagar Banihal Project was issued on 27 March 2018. However, commencement of user fee was delayed due to delay in issuance of toll

notification and pending construction of toll plaza building, which was completed in May 2019 and toll collection could be started since then only. As such, NHAI had forgone toll revenue of ₹25.86 crore²⁴ due to delay of 360 days²⁵ in tolling from 45 days from the date of issuance of PCC.

Ministry in its reply (June 2024) stated that PCOD of the project was declared on 27 March 2018. PIU initiated proposal in March 2018 for publication of toll fee Gazette notification. However, toll notification could be issued on 16 April 2019 i.e. much later point in time due to reasons such as addressing observations raised by NHAI HQ & MoRTH and subsequent restrictions due to Model Code of Conduct during General Elections 2019.

Ministry reply may be viewed in light of the fact that as per NHAI policy circular (21 April 2003) on advance planning for levy of toll fee, proposal of levy of user fee was to be submitted at least 120 days prior to likely completion of project. In this regard, though provisional completion was issued in March 2018, the proposal of publication of user fee notification was only initiated in March 2018, depicting lack of advance planning on part of NHAI for publication of fee notification. Thus, the delay in issuance of fee notification and subsequent commencement of toll was attributable to NHAI which led to forgoing of toll revenue of ₹25.86 crore to the exchequer.

(iii) Forgoing of premium of ₹162.68 crore due to delay in completion of project within scheduled completion date

Out of eight projects, three projects namely Indore-Gujarat/ MP Border, Panvel-Indapur and Ludhiana-Talwandi were awarded on Premium in which the concessionaire was required to pay a pre-determined amount (i.e., premium / negative grant) to NHAI after achievement of PCOD and this premium was to be increased by five *per cent* for succeeding year.

As per concession agreement of three projects namely Indore-Gujarat/ MP Border, Panvel-Indapur and Ludhiana-Talwandi, the concessionaire was to pay to NHAI an annual premium of ₹23 crore, ₹33.95 crore and ₹1.08 crore respectively from the date of PCC. Any delay in issuance of PCC would lead to loss of annual premium to NHAI.

Audit observed that there was delay in issuance of Provisional Completion Certificate (PCC) in these three projects as against the stipulated date of project completion mentioned in Tripartite Agreement and resultantly, NHAI could not recover the premium of ₹162.68 crore for the delayed construction period (**Annexure XXVIII**). Moreover, two out of these three projects (Panvel-Indapur and Ludhiana Talwandi) were terminated by NHAI in November 2021.

The Ministry replied (June 2024) that:

²⁴ 324 days x ₹ 7,05,125.00 + 36 days x ₹8,37,594.

²⁵ 405 days minus 45 days.

- (i) Panvel-Indapur- Land and cash flow issue resulted in increase in cost of project and substantial delay due to which PCOD could not be issued and consequently, premium could not be recovered. Concession Agreement was terminated on 17 November 2021 and the matter has been referred to Arbitral Tribunal, NHAI has counter claimed for ₹1,733.46 crore against concessionaire to Arbitral Tribunal including recovery of OTFIS and the premium due with interest
- (ii) Indore Gujarat/ MP Border - Loss of Premium as pointed out by Audit is not correct to the extent that Premium quoted by the Concessionaire is payable to the Authority during entire Concession Period. However, delay which has occurred during Project Completion would diminish overall returns from the Project. Moreover, this point was appraised to the CCEA in the form of proposal for OTFIS for PPP Projects by listing down languishing PPP Projects as on 01 November 2014.
- (iii) Ludhiana Talwandi - Concessionaire has been notified against the delay in completion of the project and non-payment of premium to NHAI. Same shall be recovered from Termination Payment in accordance with the provisions of Concession Agreement.

Ministry stated to recover premium in respect of Ludhiana Talwandi and Panvel-Indapur projects from termination payment and counter claims respectively.

Reply in respect of Indore Gujarat project may be viewed in light of the fact that as per clause 26.2 of CA, concessionaire was to pay to NHAI yearly Premium from the date of PCC till remaining concession period and not entire concession period. Due to delay in achievement of PCC beyond the stipulated date of completion mentioned in Tripartite Agreement, NHAI had forgone premium payable by concessionaire.

Thus, it was observed that there were several deficiencies in the implementation of the scheme such as non-development of robust third-party mechanism, granting OTFIS to ineligible parties, project specific deficiencies and forgoing of revenue of ₹740.63 crore which have been highlighted in preceding paragraphs. These deficiencies in the implementation of OTFIS by NHAI led to delay in completion of all above projects including four²⁶ BOT (Toll) projects which were terminated before entire completion of work.

8.1.4.3 Monitoring mechanism and financial management

As per tripartite agreement, a Review Committee comprising representatives of Senior Lenders, CGM, NHAI and Project Director, NHAI was to discuss and deliberate upon the work plan submitted by the concessionaire and vetted by IE, disbursement under OTFIS facility, payments to be made out of sub escrow account under OTFIS and monitoring

²⁶ Four projects i.e. Ludhiana-Talwandi (09 November 2021), Panvel Indapur (17 November 2021), Gurgaon-Jaipur (03 June 2022) and Raebareli Allahabad (December 2023).

mechanism including appointment of additional monitoring agencies (i.e., project management consultant, concurrent auditors etc.). In respect of monitoring for OTFIS funds, a separate OTFIS Sub-Escrow Account was also required to be maintained for all deposits/withdrawal of OTFIS funds.

Audit reviewed the OTFIS with respect to monitoring mechanism and financial management and observed the following:

A. Monitoring Mechanism

A.1 Appointment of the concurrent auditor

As per clause 3.1 of tripartite agreement, to ensure regular audit/monitoring of the project, NHAI and lenders were given the right to appoint a concurrent auditor/ any other agencies of their choice.

Audit observed that NHAI did not appoint the concurrent auditor in one project i.e., Ludhiana Talwandi, while the same was appointed in other seven OTFIS projects.

Ministry replied (November 2024) that the escrow account monitoring mechanism has been further strengthened and concurrent Auditors have been engaged in each PIU particularly having BOT Projects. The shortcomings pointed out, are being taken up with the concessionaires.

Ministry accepted the audit observation and stated to engage concurrent Auditors in each PIU particularly having BOT Projects.

A.2 Monitoring of Escrow statement

As per clause 6 of tripartite agreement, the concessionaire was to open a new sub account of the Escrow Account²⁷ under OTFIS for completion of balance work of the project. Entire receivable of NHAI OTFIS, concessionaire equity and debt from senior lenders and any other receivables of the concessionaire were to be first deposited in the Escrow Account and then to be directly transferred to said sub Escrow Account under OTFIS till the complete repayment of the outstanding principal amount of the NHAI OTFIS and interest thereon.

Further, para 7.1.1 of NHAI circular (September 2009) regarding duties and responsibilities of Regional Officers of NHAI, stipulated that NHAI should “obtain the monthly statements of Escrow Account/ user fee collected, examine the same and send the comments to the concessionaire/ IE for further action”.

Audit observed that comments of NHAI, on monitoring/examination of Escrow Statements furnished in line with the NHAI circular (09 September 2009) were not produced to Audit.

²⁷ i.e. Sub-Escrow Construction and Operation Account.

Further, monitoring of the escrow account would ensure that deposits and withdrawals are made in compliance with the terms of the tripartite agreement.

As per tripartite agreement, concessionaire was required to open a Sub Escrow Account under OTFIS specifically related to the funds received under OTFIS facility, however in case of Krishnanagar-Baharampore project, the concessionaire was operating Current Account other than prescribed main Escrow/ Sub Escrow Bank Accounts up to March 2018 in non-compliance of clause 6(b) of the tripartite agreement.

Thus, NHAI did not ensure effective mechanism for monitoring of funds flow (inflow/outflow) from the escrow account opened for the project.

Ministry replied (June 2024) that monthly monitoring of Escrow Account has further been streamlined to ensure that all escrow transactions are as per the provisions of the escrow agreement.

During Exit meeting NHAI stated (13 November 2024) that an Audit Committee has been set up and monitoring at PIU and RO level has been strengthened. Moreover, PIUs have been instructed to obtain and analyse the escrow statements of the projects.

Ministry accepted the audit observation and assured to streamline the monitoring of Escrow Account along with setting up of an Audit committee for the same.

A.3 Monitoring by Review Committee

As per the NHAI circular (9 June 2015) detailing the procedure to be followed for seeking relief under the OTFIS, NHAI was to sign a tripartite agreement with the concessionaires and senior lenders for implementation for OTFIS. Further, as per tripartite agreement, the Review Committee was to review the progress of the project, variance with the planned progress and based on IE's progress report, take corrective actions. Further, the Review Committee was also to discuss the monthly disbursement request by the concessionaire, recommended by IE/ monitoring agency and take decisions for disbursement of funds along with monthly payments to be made out of Sub Escrow Account under OTFIS.

Out of eight OTFIS projects, Audit observed the shortcoming in four projects which are detailed below:

- a) In case of Chhapra-Hajipur project, funds of ₹47.86 crore under OTFIS were disbursed to the concessionaire without the recommendations of the senior lenders, which were part of Review Committee.
- b) In case of Raebareli Allahabad, the tripartite agreement did not contain any clause with respect to formulation of Review Committee as in the case of other seven projects. This has resulted into disbursal of funds amounting to ₹119.91 crore under OTFIS without appraisal by the senior lenders, which were part of Review Committee.

- c) In case of Jaipur-Gurgaon and Krishnanagar-Baharampore projects, funds of ₹246.63 crore²⁸ were disbursed without assessment of work done at site by the Review Committee.

Ministry replied (11 November 2024) that corrective measures have been taken by NHAI. The concerned CGMs have been asked to conduct a Review Committee Meeting covering all the aspects of released amount under OTFIS as per procedure prescribed to verify that the funds were infused in the projects as per the actual requirement and within the eligibility as per criteria prescribed in tripartite agreement.

Ministry has now initiated corrective action and convened review committee meeting as per criteria of tripartite agreement. However, there was non-compliance of provisions of review and monitoring mechanism before releasing of funds under OTFIS in the instances pointed out above.

B. Financial Management

Various shortcomings relating to financial management as observed by Audit are as under:

B.1 Additional burden on NHAI due to bearing entire remuneration paid to IE for delayed period of completion of work

As per the concession agreement, the Independent Engineer²⁹ were appointed by NHAI for monitoring the execution of work during the construction and operation period. Further, IE remuneration not exceeding two *per cent* of total project cost was to be equally shared between NHAI and the concessionaire.

Further, as per NHAI policy circular (09 May 2014), if Extension of Time (EOT) is only on account of delay on the part of concessionaire, each EOT case was to be examined by RO office in detail as per provisions of the agreement/ CA, so that the entire cost of the extended period shall be borne by the concessionaire.

However, due to delay in completion of projects, NHAI extended the consultancy contracts beyond the stipulated period and bore the entire financial burden on account of IE remuneration paid during this extended period.

In this regard, Audit observed that instead of bearing the entire IE remuneration paid during this extended period, NHAI should have worked out the delay in completion of project on the part of concessionaire and the same should have been recovered from the concessionaire.

Ministry in its reply (November 2024) stated that the additional amount of IE remuneration has been worked out and is being recovered from the concessionaire.

²⁸ Jaipur Gurgaon ₹109.10 crore, Krishnanagar Baharampore ₹137.53 crore.

²⁹ consultancy firm.

The Ministry in its reply has agreed to recover the additional expenses incurred on IE from concessionaire, the progress of which would be watched.

B.2 Extending of OTFIS benefits despite having allegation of financial irregularities.

As per the Parliamentary Standing Committee (PSC) on Transport, Tourism and Culture Report number 236 on 'Infrastructure lending in road sector' (August 2016), the banker/ Financial Institutions (FIs) had raised the issue with PSC about awarding the projects without ensuring minimum 90 *per cent* of land, insufficient equity available with promoters, the promoters forming their equity based on the loan taken from FIs which results in failure of the projects, bids floated without proper study and the high premium for bidding in many cases resulting in failure of the project. The Parliamentary Standing Committee recommended that Government should thoroughly inquire into all the 77 projects which were languishing in 2014 to understand the quantum of money siphoned away by the unscrupulous contractors in connivance with various agencies of the Government and financial institutions. Action should be taken to recover the lost money and a report to this effect may be submitted to the Committee.

MoRTH informed the committee that many projects were awarded without fulfilling the criteria of pre-construction activities including non-availability of required land. The problem was compounded when the concessionaires were permitted to seek appointed date much earlier than what should have been provided. After appointed date, the lenders are free to provide borrowed money into escrow account. So, there was tendency to draw money from the escrow account as soon as it is available and divert it to the group company. In 2014, there were 77 languishing projects, out of which 34 were terminated and 18 projects were remaining to be re-awarded.

In this regard, Audit observed that on recommendation of enquiring into such projects where money was diverted/siphoned away, MoRTH replied (December 2019) that the same can be taken up wherever evidence points in this direction. It is pertinent to mention here that NHAI had also informed (February 2016) to MoRTH about suspected fund diversion in Chhapra-Hajipur and Panvel-Indapur projects. However, documents with respect to conducting an enquiry/ investigation by NHAI/ MoRTH were not found available on records/ provided to Audit on the basis of which it could not be concluded, whether any action was taken by NHAI/ MoRTH on the recommendations of the Parliamentary Committee before releasing funds under OTFIS.

The Ministry replied (03 June 2024) that:

- (i) **Chhapra-Hajipur project:** As per the Common Loan Agreement executed by the Concessionaire with the lenders within the provisions of Tripartite Escrow Agreement, the Concessionaire is allowed to invest in short term investments. As such, there has been no diversion of funds. Further, Ministry submitted that neither the Statutory Auditor nor the Concurrent Auditor appointed as per Tripartite

Agreement have pointed out any diversion of funds by the concessionaire beyond the provisions of the Common Loan Agreement.

- (ii) **Panvel-Indapur project:** At present the project has been terminated since November 2021 and balance work is being executed by EPC contractor. Further, the dispute with the Concessionaire is in Conciliation Committee of Independent Experts (CCIE)³⁰.

Ministry's reply may be viewed in light of the fact that:

- (i) **Chhapra-Hajipur project:** The fund diversion suspected by NHAI apprised (February 2016) to the Ministry pertains to the period prior to approval (July 2016) of OTFIS, whereas concurrent auditor reported for the subsequent period covered under OTFIS. Moreover, reply in connection to short term investments out of escrow account is not relevant to above issue.
- (ii) **Panvel-Indapur project:** No specific reply to the observation has been offered and only current project status has been stated.

Ministry reply is silent on conducting any enquiry/ investigation on the suspected fund diversion in the said projects and from the available records action taken by NHAI in this regard, could not be confirmed.

B.3 Irregularities pointed out by Independent Engineer

As per tripartite agreement, OTFIS funds were to be utilised for completion of balance project works. Audit observed that Independent Engineer (IE) had pointed out irregularities to the tune of ₹74.49 crore (**Annexure XXIX**) in Gurgaon- Jaipur and Krishnanagar - Baharampore projects where funds were utilised for purpose other than completion of balance works in contravention of the provisions of tripartite agreement which resulted into delay in completion of these projects.

Ministry replied (June 2024) that in Krishnanagar Baharampore project, RO Kolkata had accorded concurrence (December 2019) for releasing GST amounting to ₹17.53 crore under OTFIS to the concessionaire and the same has been recovered from the payable annuities of the concessionaire. During Exit meeting (13 November 2024) MoRTH emphasised the corrective steps taken by NHAI to ensure compliance in this matter.

Reply of Ministry needs to be viewed in light of condition of tripartite agreement that funds were to be disbursed to the concessionaire only for completion of balance works of project. However, NHAI deviated from this condition and disburse the funds for other purposes. MoRTH has now emphasised for ensuring compliances to the irregularities pointed out by IE.

³⁰ A panel of Independent Experts for conciliation of disputes.

B.4 Incomplete narration regarding transactions in escrow accounts of projects

Audit observed that statements of escrow accounts contained incomplete narration regarding nature of transfer of funds. Further, complete bank statements with respect to the Escrow accounts were also not made available to Audit. In the absence of such information, Audit could not review the transactions indicated in the bank statements.

The Ministry admitted (03 June 2024) difficulty in identifying deficiencies in monitoring of escrow accounts of BOT Projects as the concessionaires/ escrow bankers are reluctant to provide the complete escrow statements on regular basis. As a remedial measure, new provisions have been added in the MCA for BOT projects, enabling NHAI for online viewing and downloading the account statement of Escrow Account at all times during the Concession Period. With this, entire process of verifying transactions of escrow account will be streamlined.

Ministry reply substantiates the fact that there were deficiencies in monitoring of escrow accounts of BOT Projects. Remedial measures stated to have been introduced would be verified in future audits.

B.5 Pending recovery towards OTFIS and other contractual obligations

NHAI disbursed total OTFIS funds of ₹1,730.65 crore in eight projects³¹ during 2016-17 to October 2021. However, none of the projects could be fully completed even after availing benefits under OTFIS and as on November 2024, ₹977.48 crore towards principal OTFIS amount is still pending for recovery in respect of these projects. Besides, other contractual dues of ₹1,636.33 crore³² is also pending for recovery as on March 2023.

In this regard, Audit observed that:

(a) As per the tripartite agreements of Raebareli-Allahabad and Srinagar-Banihal projects, any amount found due on account of penalty/damages would be recovered from the payment due to the concessionaire on account of toll revenue/ annuity. However, this clause was not included in the tripartite agreements of other six projects.

(b) In case of Indore-Gujarat/M.P. Border project, the monthly interest payment on outstanding lender's loan was ₹10.47 crore, whereas monthly toll revenue was ₹9.31 crore only, which was insufficient to cover even interest on banker loan. Similarly, in case of Raebareli-Allahabad project, yearly interest payment on outstanding lender's loan and OTFIS fund was ₹33.90 crore, whereas annual toll revenue collection was ₹34.34 crore for

³¹ Gurgaon-Jaipur, Srinagar-Banihal, Ludhiana-Talwandi, Chhapra-Hajipur, Panvel-Indapur, Krishnanagar-Baharampore, Raebareli-Allahabad and Indore-Gujarat/MP Border projects.

³² Other contractual dues include recoveries other than OTFIS i.e. recovery of premium payable to NHAI (₹427.19 crore), works executed at risk and cost of concessionaire (₹277.38 crore), negative change of scope (₹503.31 crore), damages for non-fulfillment of maintenance obligations (₹88.12 crore), damages for non-completion of punch list items (₹70.94 crore), recovery of damages for non-achievement of project milestones (₹190.24 crore), recovery of 50 per cent share of IE remuneration (₹75.13 crore) and miscellaneous recoveries (₹4.02 crore).

2022-23, which is just sufficient to cover interest on OTFIS and banker loan. As under waterfall mechanism, the repayment of interest on lender's loan is having priority over the repayment of principal loan under OTFIS, therefore, there are bleak chances of recovery of principal amount of OTFIS.

Ministry, in its reply (November 2024), stated that as the concessionaire of Indore-Gujarat/M.P. Border project is referred in NCLT, toll collections are being deposited in a separate escrow account without any access to the concessionaire. Claims are referred in arbitration with total NHAI claims of ₹627.83 crore (including claims towards OTFIS loan and interest of ₹162.25 crore). For Raebareli-Allahabad project, Ministry stated that the concessionaire has been suspended in June 2023 and the project terminated in December 2023, further an arbitration case is also under progress.

Thus, the reply of the Ministry substantiates the fact that NHAI could not recover the amount of ₹2,613.81 crore³³ from the concessionaires which are pending for recovery. Further the recovery matter has been referred to Arbitral Tribunals/ conciliation in case of four projects³⁴, which are in process, while four projects³⁵ have already been terminated by NHAI.

Recommendation no. 45: To safeguard the Government interest, NHAI should devise a suitable mechanism, viz., reasonable amount of bank guarantee, etc., for timely recovery of funds disbursed under the scheme and other contractual dues to cover the risk of non-repayment of funds disbursed under the scheme by concessionaires.

8.1.4.4 Conclusion:

NHAI Board approved the scheme of OTFIS in 11 projects, however, the funds were disbursed in the eight projects only amounting to ₹1,730.65 crore during the period from December 2016 to October 2021. OTFIS was approved and disbursed in four projects³⁶ with less than 50 *per cent* physical progress as on 01 November 2014, in violation of the CCEA approval. Further, none of the eight projects in which funds were disbursed under OTFIS, could be fully completed till November 2024. A brief outcome of OTFIS in each of the following projects is as under:

³³ ₹977.48 crore towards OTFIS principle and ₹1,636.33 crore towards various contractual claims like damages, penalties, etc.

³⁴ Jaipur-Gurgaon, Panvel-Indapur, Raebareli-Allahabad and Indore-Gujarat/MP border projects.

³⁵ Ludhiana-Talwandi, Raebareli-Allahabad, Jaipur-Gurgaon and Panvel-Indapur.

³⁶ Panvel-Indapur, Raebareli-Allahabad, Srinagar Banihal and Chhapra Hajipur.

Chhapra-Hajipur	<p>The physical progress of the project prior to approval of OTFIS was 52.70 <i>per cent</i>. NHAI approved (15 July 2016) OTFIS of ₹175 crore in the project to achieve provisional completion by April 2017. After availing funds of ₹174.97 crore under the scheme, the physical progress of project could reach 81.69 <i>per cent</i> as on March 2024 but project is still pending for completion.</p>
Jaipur Gurgaon	<p>The physical progress of the project prior to approval of OTFIS was 94.50 <i>per cent</i>. NHAI approved (12 September 2016) OTFIS of ₹352 crore in the project to achieve provisional completion by December 2017. After availing ₹345.67 crore under the scheme, the project could achieve a total physical progress of 95.76 <i>per cent</i> as on May 2022. The concession period (including extension of 14 months) was terminated in June 2022 and at the time of termination, the works of ₹201.12 crore were pending for completion.</p>
Panvel Indapur	<p>The physical progress of the project prior to approval of OTFIS was 43.15 <i>per cent</i>. NHAI approved (15 July 2016) OTFIS of ₹540 crore in the project to achieve provisional completion by March 2018. After availing ₹540 crore under the scheme, the project could achieve a total physical progress of 88.08 <i>per cent</i> as on November 2021 and the concession agreement was terminated on 17 November 2021. The balance works have been re-awarded by NHAI at cost of ₹ 483.26 crore.</p>
Srinagar Banihal	<p>Physical Progress of the project prior to approval of OTFIS was 68 <i>per cent</i> and OTFIS of ₹200 crore was approved (10 April 2017) for completion of pending works by September 2017. However, only ₹102.02 crore was infused in the project as work of Banihal Bypass of ₹78.64 crore was not taken up by concessionaire and later on the work of Banihal bypass was de-scoped (11 April 2018). Provisional completion on remaining stretch was achieved on 27 March 2018. The work of Banihal bypass was re-awarded (29 May 2020) at a cost of ₹224.44 crore, which is under progress as on 31 March 2024.</p>

Indore Gujarat/ MP Border	Physical Progress of the project prior to approval of OTFIS was 89.91 <i>per cent</i> and OTFIS of ₹122.48 crore was approved (15 February 2017) for completion of pending works by December 2017. However, works of 16 Km stretch were not included in OTFIS. Resultantly, after availing funds of ₹121.63 crore, provisional completion was achieved for 138.11 km length (excluding 16 km road length, which was later on de-scoped in November 2019) in November 2018. The de-scoped works were re-awarded by NHAI at cost of ₹ 210 crore, which was completed in December 2023.
Krishnanagar Baharampore	Physical Progress of the project prior to approval of OTFIS was 51.20 <i>per cent</i> . OTFIS of ₹404.10 crore was approved (15 July 2016) in the project for completion of balance works by July 2017. However, even after disbursement of ₹313.54 crore in project, provisional completion could be achieved only in February 2020. Further, 9.50 km of stretch under OTFIS were not executed by concessionaire due to non-availability of encumbrance free land and the same was de-scoped from project. The cumulative physical progress as on March 2024 is 89.15 <i>per cent</i> .
Ludhiana Talwandi	Physical Progress of project prior to approval of OTFIS was 91.98 <i>per cent</i> and works of ₹54 crore were pending for completion. However, OTFIS of ₹13.50 crore was approved (November 2019) for achieving provisional completion by 25 May 2020. Further, the concession agreement was terminated on 07 November 2021 and the balance works was re-awarded (October 2022) by NHAI at cost of ₹82.20 crore, which is under progress as on 31 March 2024.
Raebareli Allahabad	Physical Progress of project prior to approval of OTFIS was 67.22 <i>per cent</i> . NHAI approved (16 November 2017) OTFIS of ₹119.91 crore was for achieving provisional completion by May 2018 and completion by November 2018. However, even after availing funds of ₹119.91 crore, provisional completion was achieved in project in two parts i.e. for 80 Km stretch in December 2019 and for remaining 25 km stretch in December 2021. Further, the concession agreement was terminated in December 2023 and Punch List works of ₹11.50 crore were pending at the time of termination.

MoRTH in response to comments of Ministry of Finance on Draft CCEA note had stated that only projects wherein Authority delays have been fully addressed would be eligible for infusion of funds under OTFIS. However, contrary to the same, it was observed that financial assistance under OTFIS was extended to even those projects where conditions precedent relating to providing of encumbrance free land to concessionaire was yet to be fulfilled by NHAI.

Though NHAI disbursed OTFIS in eight projects, however, none of the project could be completed thereby defeating the objective of OTFIS i.e., quick completion of languishing projects by moderate funding. Further, due to delay in completion of project within prescribed timeline there was forgoing of revenue of ₹740.63 crore (i.e. forgoing of toll revenue of ₹577.95 crore and forgoing of premium/negative grant of ₹162.68 crore). The amount of ₹2,613.81 crore (including ₹977.48 crore towards OTFIS principal and ₹1,636.33 crore towards other contractual obligations) was also pending for recovery.

8.2 Undue benefit to concessionaire amounting to ₹41.65 crore

Short levy of damages on concessionaire led to undue benefit of ₹41.65 crore and equivalent loss to NHAI.

The Bodhre to Dhule Section (67.231 kms.) of NH-211 in Maharashtra is monitored by NHAI's Project Implementation Unit (PIU) Dhule. NHAI proposed to widen the existing two-lane Bodhre to Dhule Section to four-lane³⁷ on Hybrid Annuity Mode (HAM³⁸). NHAI awarded (March 2017) the work to a contractor (successful bidder), at the quoted project cost of ₹982 crore. A bid-security in the form of a bank guarantee of ₹7.45 crore was deposited, validity of which expired in August 2017. The bid-documents³⁹ published by NHAI for the project contained, *inter alia*, provisions which required the successful bidder to submit Performance Security to NHAI for ensuring that the bidder completed the awarded works.

The successful bidder incorporated (March 2017) a company (concessionaire) to execute the project. NHAI and the concessionaire entered (July 2017) into a Concession Agreement setting out mutual terms and conditions. The concessionaire deposited (August 2017) Performance Security of ₹49.10 crore in the form of bank guarantee whose validity expired on 16 November 2019.

The Concession Agreement specified obligations, called 'Conditions Precedent' (Clause 4), which both the parties should fulfil within 150 days of the Concession

³⁷ This is basically a 2 to 4-lane project, except the structures (like bridges) and approaches to these structures which are to be built on 6-lane configuration.

³⁸ HAM projects are financed by both the concessionaire and NHAI. The concessionaire finances the project and during construction period, NHAI pays 40 per cent of the project cost. NHAI pays the concessionaire the remaining 60 per cent in the form of annuities over a period of 15 years following the construction period.

³⁹ For performance of concessionaire's obligations, it should, within 30 days of entering into Concession Agreement, provide NHAI with performance security.

Agreement as per Clause 4.1 of the Agreement. NHAI's Conditions Precedent included procuring right of way, Government approvals etc. One of the Conditions Precedent of NHAI was to provide access to at least 80 *per cent* of length of the project. For this project, 3 D Notification for 83.41 *per cent* of land was already declared at the bidding stage in December 2016. The conditions precedent to be fulfilled by the parties to the Concession Agreement and their status (August 2019) is given in **Annexure XXX**.

Concessionaire's Conditions Precedents specified in Clause 4.1.3, *inter alia* included:

- i. execution of escrow agreement⁴⁰,
- ii. execution of financing agreements and delivery of its three copies to NHAI, and
- iii. delivery to NHAI of three copies of the Financial Package and the Financial Model duly attested by a Director of the concessionaire.

Clauses 4.2 and 4.3 of the Concession Agreement provided for damages on NHAI and the Concessionaire respectively for delay in fulfilling their conditions precedent after the initial 150 days from the date of the Concession Agreement. As per Clause 4.3, in the event that Concessionaire does not fulfil any or all of the conditions precedent set forth in Clause 4.1.3, the Concessionaire shall pay to the Authority damages calculated @0.3 *per cent* of the performance security for each day's delay until the fulfilment of such conditions precedent subject to the maximum limit of the amount of the bid security and, upon reaching such limit, Authority may terminate the agreement. Further, as per Clause 4.5 of the Concession Agreement, in the event the "Appointed Date" does not occur before the first anniversary of the date of the Agreement or the extended period provided in accordance with this agreement, the Concession Agreement shall be deemed to have been terminated. In the event the non-occurrence of the Appointed Date is for reasons attributable to the concessionaire, the performance security of the concessionaire shall be encashed and appropriated by the Authority.

Clause 42.1 of the Concession Agreement defined "Appointed Date"⁴¹ as the date on which 'Financial Close'⁴² was achieved and every Conditions Precedent was satisfied, from which

⁴⁰ *Agreement for an escrow bank account into which all moneys for the project would be deposited and spent. The Bank would hold the escrow account in trust for NHAI who could monitor the cash-flows for the project.*

⁴¹ *The date on which financial close is achieved and every condition precedent is satisfied in accordance with the provisions of the agreement and such date shall be the date of commencement of the concession period.*

⁴² *As per clause 42.1 on Definitions, "Financial Close" means the fulfilment of all "conditions precedent" to the initial availability of funds under the "Financing Agreements" which shall be communicated by the Lender's Representative to the Authority in writing. Such Communication from the "Lender's Representative" shall be treated as date on which the "Financial Close" is achieved. The Concessionaire is expected to achieve financial close by arranging funds (equity capital plus borrowings) required for the project.*

the concession period (construction period of 910 days, followed by operation period of 15 years) would commence.

The Concession Agreement also contained Clause 22 pertaining to “Financial Close”. According to Clause 22.1.1, concessionaire shall achieve Financial Close within 150 days from the date of the Agreement. In the event of delay in achieving the Financial Close, the concessionaire shall be entitled to a further period not exceeding 120 days, subject to weekly advance payment of damages to the Authority calculated @0.05 *per cent* of the Performance security for each day of delay, and for further delays in achieving Financial Close beyond 270 days of the Agreement, the concessionaire shall be entitled for a further period not exceeding 95 days, subject to weekly advance payment of damages calculated @0.1 *per cent* of the Performance security for each day of delay. The damages payable under Clause 22.1.1 were to be in addition to the damages payable under the Clause 4.3 of the Concession Agreement. Further, as per Clause 22.2.1, in the event that Financial Close does not occur within the period set forth in Clause 22.1.1 or the extended period provided thereunder, the Concession Agreement shall be deemed to have been terminated. Upon termination under clause 22.2.1, the Authority shall be entitled to either encash the bid Security or encash from performance security an amount equal to the bid security and appropriate the proceeds thereof as damages.

NHAI on 28 August 2019 invoked the Clause 22.2.1 of the Concession Agreement regarding deemed termination on account of various defaults of the concessionaire, *viz.* failure to achieve ‘financial close’, non-fulfilment of conditions precedents provided for in clauses 4.1.3 (b), (c) and (d)⁴³ within the stipulated time period. While terminating the Concession Agreement, NHAI also recovered (October 2019) ₹7.45 crore as damages, an amount equal to the bid security, from the performance security bank guarantee of ₹49.10 crore in accordance with the provisions of Clause 22.2.1.

Audit observed the following in regard to termination of Concession Agreement and recovery of damages from the concessionaire by NHAI:

- As per Clause 4.5, the maximum period allowable for declaration of Appointed Date was one year from the Concession Agreement in July 2017. The Appointed Date, however, did not occur by July 2018. If the Appointed Date did not occur within one year of the Concession Agreement, unless extended in accordance with the provisions of the Concession Agreement, it would be deemed to be terminated. This clause further provided that if the non-occurrence of Appointed Date was attributable to the concessionaire, the performance security would be encashed as damages. Though NHAI in the termination letter referred to concessionaire’s default as per clause 4.5, however the damages specified in clause 4.5 of the Concession Agreement for failing to achieve the Appointed Date within one year from the date of Concession Agreement,

⁴³ *Clause 4.1.3(b),(c) and (d) are respectively as follows-execution of escrow agreement, execution of substitution agreement and procurement of all applicable permits specified in Part-I of Schedule-E.*

due to concessionaire's default, which required encashment of performance security of ₹49.10 crore, were not applied. NHAI, instead, chose to apply much lesser damages limited to the bid security amount of ₹7.45 crore under Clause 22.2.2, more than a year later in August 2019.

- The Project Director of PIU Dhule also had relied on clause 4.5 in his letter (May 2019) to the Regional Officer Nagpur, requesting action to be taken against the concessionaire in default.
- Concessionaire not only defaulted on the financial close, but also did not comply with other conditions precedent provided for. NHAI had mentioned (August 2019) these defaults in the termination notice. So, limiting the damages only to the extent of failure in fulfilment of Financial Close was misplaced.
- Fundamentally, recovery of damages as per clause 22.2.2 was incomplete and incorrect as NHAI did not provide extension to the concessionaire as per clause 22.1.1, which would be available only if concessionaire made weekly advance payments of damages mentioned therein. Even if such extensions had been granted, the maximum period for achieving Appointed Date was limited to one year from the date of the Concession Agreement. In any case, neither the NHAI granted extension, nor, as consequence, did the concessionaire pay the damages.

Hence, the recovery of only the amount equal to the bid security instead of the performance security by NHAI resulted in an undue benefit of ₹41.65 crore to the concessionaire, and equivalent loss to NHAI.

Ministry of Road Transport & Highways replied (March 2022) that:

- The Concession Agreement was executed in July 2017. The concessionaire sought (August 2018) replacement of the existing financial sponsor to which NHAI granted approval in November 2018.
- At that time, only few Bankers were financing the HAM projects. This was highlighted in NHAI's 131st Meeting (20 November 2018). NHAI in the same meeting directed that if it was not in a position to handover the Right of Way, no penalty should be imposed for delays in submission of Performance Security Bank Guarantee or achieving the financial close.
- The Concessionaire was in default for non-achievement of financial close and considering genuine difficulties faced by the concessionaire, applicable damages as per clause 22.2.1 of the Concession Agreement were imposed and not as per clause 4.5 since non-declaration of appointed date was consequence of non-achievement of financial close.
- The reply needs to be viewed in the context of the following:

- The stated delay on account of problems faced by the concessionaire are normal business risks which the bidders are expected to be familiar with before bidding for the project.
- The relevant directions of the NHAI in its 131st Meeting were “*If the Authority was not in a position to handover Right of Way, no penalty should be imposed for delays in submission of the performance security Bank Guarantee or achieving the financial close*”. These directions are irrelevant to the issue at hand because PIU Dhule had communicated to NHAI Regional Office that the Authority (NHAI) had fulfilled its obligations under conditions precedent vide clause 4.1.2 of the Concession Agreement and holds possession of land for taking up 4-laning work by the concessionaire.
- Ministry have justified imposition of damages limited to forfeiture of amount equal to earnest money deposit/bid security, prescribed for non-achievement of “financial close”, as against quantum of damages prescribed in the Concession Agreement to the extent of performance security, for non-declaration of “appointed date”. But the fact is that concessionaire not only defaulted on the financial close, but also did not comply with other conditions precedent required to be satisfied for “appointed date” to kick in. Since the “appointed date” did not occur before the first anniversary of the date of the Agreement, the Concession Agreement was deemed to have been terminated for reasons attributable to the concessionaire and, therefore, Performance Security of ₹49.10 crore should have been encashed as damages in terms of Clause 4.5 of Concession Agreement.
- The reply is silent on the aspect of extension to the Concession Agreement, which was subject to advance weekly payment of damages as provided for in the Clause 22.1.1 of Concession Agreement. The imposition of damages limited to bid security would have been justifiable only if extensions were granted by NHAI after collecting the advance weekly damages prescribed, which was not done, and the only conditions precedent achieved by the concessionaire was that relating to submission of Performance Security to NHAI and all other six conditions precedent by the concessionaire remained unfulfilled.

Thus, the recovery of only the amount equal to the bid security instead of the performance security by NHAI resulted in an undue benefit of ₹41.65 crore to the concessionaire, and equivalent loss to NHAI.

8.3 Undue favours to Contractor through mutual foreclosure rendering NHAI unable to impose damages of ₹19.42 crore

NHAI extended undue favours to Contractor by accepting the Contractor's request for mutual foreclosure of the contract despite NHAI not being defaulting party, leading to NHAI being unable to impose damages of ₹19.42 crore.

NHAI invited Request for Proposals (RFP) for the work of upgradation of the existing road from Savali Vihar to start of the Ahmednagar Bypass Section of NH 160 (the Project) to four lanes with paved shoulder configuration, on Engineering Procurement and Construction (EPC) mode. Thereafter, NHAI entered (22 July 2021) agreement with contractor A in JV with contractor B. The agreed contract value was ₹313.21 crore. The Contractor submitted⁴⁴ ₹9.35 crore Performance Security⁴⁵ Bank Guarantee (BG). The Appointed Date⁴⁶ for the project was 31 August 2021. For proper monitoring and supervising the project, NHAI entered into an agreement (25 June 2021) with private company for Authority Engineer⁴⁷ (AE) services.

The Contractor failed to achieve the first Project Milestone⁴⁸ and by March 2022, had only accomplished five *per cent* financial progress. NHAI disbursed payments of ₹23.57 crore in February and March 2022 for civil works executed, as claimed through three running bills by the Contractor. Instead of imposing damages for non-achievement of the first milestone, NHAI based on the Contractor's request (25 March 2022) and the Authority Engineer's recommendation (22 April 2022), approved (29 April 2022) merger of the first and second milestones.

Soon after merging of Project Milestones, contractor A requested (2 May 2022) NHAI to foreclose the Contract. The main contention in contractor A's foreclosure request was that National Green Tribunal (NGT) issued orders for obtaining environmental permission even for extracting temporary earth/ stone for construction.

RO Mumbai proposed (16 June 2022) that the matter of termination of the contract or mutual foreclosure be referred to NHAI's Conciliation Committee of Independent Experts (CCIE). NHAI subsequently granted (13 July 2022) in-principle approval for the foreclosure of the agreement, with the condition that the matter be referred to the

⁴⁴ Performance security of total ₹9.35 crore was submitted on three dates. ₹4,69,80,916 on 1 July 2021, ₹1,88,31,027 on 14 July 2021 and ₹2,81,49,889 on 15 July 2021.

⁴⁵ Clause 7.1 of the Agreement provided for the Contractor to submit Performance Security BG for due and faithful performance of Contractor's obligations in accordance with the Agreement during the construction period and in the Defect Liability/ Maintenance periods.

⁴⁶ Appointed Date is the project commencement date mutually declared by NHAI.

⁴⁷ Consulting Engineer firm appointed by NHAI to supervise the project.

⁴⁸ Project is divided into 4 milestones each denoted by achievement of specified financial progress. The 1st milestone was to be achieved by 193rd day after appointment date i.e. 11 March 2022 (10 per cent financial progress) and 2nd milestone by 330th day after appointment date i.e. 26 July 2022 (35 per cent financial progress), etc.

Conciliation Committee and that the performance security remain alive till the Conciliation Committee took a decision.

AE proposed (30 August 2022) damages⁴⁹ of ₹19.42 crore (according to Clause 10.3 of agreement) for the period from 11 March 2022 to 13 July 2022 on the Contractor for non-achievement of first and second milestones.

Audit observed the following.

- i. Non-levy of damages for the non-achievement of project milestone was not in accordance with the provisions of the Agreement. Further, the merger of milestones was not in accordance with NHAI HQ Policy Circular of 17 January 2020, according to which merger was allowable only on the conditions of availability of land *viz-a-viz* land handed over on appointed date and based on pending determination and approval of Extension of Time (EOT).
- ii. According to clause 23.9 of the Agreement, Mutual foreclosure was applicable only in circumstances which did not constitute either party's default and without any liability. Hence, mutual foreclosure of the agreement was not acceptable as the Contractor was already in default in achieving project milestones. Further, NHAI was not in default of any clause of the Agreement.
- iii. The proposal (August 2022) of Authority Engineer for imposing damages of ₹19.42 crore was submitted only after NHAI agreed for mutual foreclosure (July 2022). Also, NHAI did not hold sufficient performance BG or other recoverable from the Contractor to recover the damage imposed.

NHAI in its reply (May 2024) stated the following

- a. NHAI allowed merger of milestones as per Policy Circular of 17 January 2020 and based on the recommendations of the AE. The non-maintenance of road by PWD before handing over the road to NHAI which required the Contractor to repair the road in the initial three months of construction period was considered. Also, the NGT issues affected the work.
- b. NHAI was holding a total recoverable of ₹23.86 crore from the Contractor, comprising performance BG of ₹9.40 crore, mobilisation advance BG of ₹5 crore, ₹8.62 crore of road maintenance work payable, and ₹0.84 crore⁵⁰ being amount payable for works

⁴⁹ Clause 10.3 of agreement provided for the damages at the rate of 0.05 per cent of contract price to be imposed on the Contractor for delay or non-achievement of project milestones within grace period of 30 days till the achievement of project milestones.

⁵⁰ ₹0.84 crore is composed of three items- a) ₹0.19 crore for construction of box conduit at Chainage 72/220, b) ₹0.30 crore being 4th IPC payable, and c) ₹0.35 crore being the amounts withheld from 1st, 2nd and 3rd IPC.

done by the Contractor. Hence, NHAI would be able to recover damages imposed on erstwhile EPC Contractor on receipt of orders passed by the CCIE.

MoRTH in its reply (March 2025) stated the following:

- a. MoRTH reiterated NHAI's reply that regarding merger of milestones and non-maintenance of road by PWD before handing over the road and NGT issues affecting the work.
- b. MoRTH reiterated NHAI's reply total recoverable from the Contractor was ₹23.86 crore. MoRTH also stated that Mobilization Advance BG was part of the Agreement and was withheld till finalisation of ongoing conciliation process. NHAI could recover damages from the EPC Contractor through the ongoing conciliation process under the CCIE. If unsuccessful, NHAI would proceed with arbitration as per the Agreement.
- c. The dispute is under review of the CCIE, with an outcome expected soon. The second meeting of CCIE was held on 19 August 2024, where documents on contract foreclosure were requested, which NHAI provided on 18 September 2024. NHAI did not give undue favours and recovery made through the CE mechanism would be intimated to Audit.

The replies need to be viewed in the context of the following facts:

- A. Clause 10.4 of the Agreement required the Contractor to maintain the road in traffic worthy condition at its own cost during construction period, which starts from the Appointed Date. The stated maintenance work was done by the Contractor after the declaration of Appointed Date.

The reply that the NGT issues affected the work is not acceptable as the orders of NGT were commonly applicable to all the Contractors working in the area. It is to be seen that RO Mumbai had called for (28 May 2022) reasons from contractor A as to why only it was unable to execute the project unlike the other contractors.

Also, NHAI was aware of the slow progress of work from the Appointed Date in August 2021. Policy circular of January 2020 provided for the provisional rescheduling of intermediate project milestones pending approval of final Extension of Time (EOT) for smooth contract administration. In this case, the Contractor did not request for any EOT. So, stating that the merger of milestones was as per the Policy Circular of January 2020 was factually incorrect.

- B. The contention that NHAI was holding a total recoverable of ₹23.86 crore was not correct as there was a shortfall of ₹9.18 crore. The provisions of the BG of ₹5 crore submitted against the mobilisation advance stated that the BG could only be encashed in the event of the Contractor's default for repayment of the mobilisation advance.

Hence, NHAI would not be able to recover any damages from the BG of ₹5 crore for mobilisation advance. Further, reply that damages could be recovered from ₹8.62 crore, being road maintenance work payment withheld is not admissible as the relevant work was done during the construction period which the Contractor was liable to maintain at its own cost as per clause 10.4 of Agreement⁵¹.

- C. Also, Audit had called for documents relating to referring the matter to the CCIE as was mentioned by the Regional Officer in June 2022. No document was shared which limited Audit from verifying if the conciliation procedures were as per the provisions of the Agreement. MoRTH's reply (March 2025) confirms that no progress was achieved in the conciliation proceedings started in June 2022. Further, shortfall of ₹9.18 crore in the recoverable confirms the fact that NHAI would not be able to recover the damages of ₹19.42 crore.

Thus, NHAI, extended various undue favours to the Contractor which resulted in not imposing damages of ₹19.42 crore on account of not achieving project milestones as per CA. Further, the project still remains incomplete (March 2025), not only causing blockage of NHAI's funds amounting to ₹77.26 crore (₹24.80 crore paid by NHAI to contractor A and ₹52.45 crore paid by NHAI to a new EPC Contractor) but also causing inconvenience to public.

8.4 Avoidable investment burden of ₹17.52 crore due to acquisition of additional land

Acquisition of land by NHAI beyond the boundaries of land required as per EPC agreement resulted in avoidable investment burden of ₹17.52 crore towards acquisition of additional land.

NHAI acquires land for the construction of roads and ensures that the road is constructed only on the land acquired for the purpose. The process of land acquisition for National Highways involves various agencies. It starts with the Central Government⁵², by notification in the Official Gazette, authorising (under section 3 (a) of the National Highways Act, 1956) a Competent authority for Land Acquisition (CALA). Normally, CALAs so authorised would be State Government Authorities like the Sub Divisional Magistrate, Deputy Collector, etc. Based on the powers given in the National Highways Act, 1956, CALA determines the compensation payable to land losers. The Officials of Detail Project Report (DPR) Consultant, NHAI, MoRTH and CALA are involved in the processes.

⁵¹ *Clause 10.4 of agreement stated that the Contractor would be liable to maintain the existing road at its own cost during construction period commencing from the Appointed Date.*

⁵² *The Project Implementation Unit (PIU) concerned requests the District Collector concerned to appoint CALA, and based on the approvals received, appropriate Notification is published in the Official Gazette by MoRTH.*

NHAI is developing the Amritsar-Bhatinda-Jamnagar Economic Corridor⁵³, which includes the Sannchore-Tharad-Radhanpur stretch as a Greenfield project. It involves constructing a new road alignment, requiring the acquisition of all necessary land. NHAI and DPR Consultant entered (February 2018) into an agreement to prepare DPR for this stretch⁵⁴. The DPR Consultant's scope of work *inter alia* included preparing a Land Acquisition Plan (LAP), submitting DPR, and drafting bid documents. Payment to the DPR Consultant was based on completing various stages mentioned in the agreement.

The DPR Consultant prepared (July 2018/ February 2019) the Land Acquisition Plan. The Officials of NHAI, CALA & DILR⁵⁵ and the DPR Consultant conducted (December 2018 to October 2019) Joint Measurement Survey (JMS⁵⁶) in the various villages. The JMS Report contains all the details of the exact land planned to be acquired, which was signed by all the parties involved in the Survey.

After following the bidding procedures, NHAI issued (30 June 2020) Letter of Award to EPC Contractor for construction of Package No. 4 of Sannchore to Santalpur section of National Highway-754K⁵⁷ Km 99.000 km 130.073 (31.07 km). NHAI and the EPC Contractor entered (10 February 2021) into an Engineering Procurement and Construction (EPC) agreement for constructing Package No. 4 for ₹558.88 crore

The EPC Contractor and NHAI verified the site on ground and signed (4 March 2021) a Handing Over Memorandum as per clause 8.2 of the EPC Agreement. While construction was in progress, certain landowners raised (2021) complaints about non-receipt of compensation for the whole area of their land acquired. Also, the EPC Contractor reported (August 2020) that the alignment of the road and land acquired were different, i.e., the construction of road was progressing not along the land acquired, but along the alignment as given in the EPC Agreement (coordinates). This resulted in a mismatch of 5 to 25 meters along the entire length of the project.

The normal width (right of way⁵⁸) of the project highway was 70 meters. It includes 33 meters of road and the remaining 37 meters were meant for slope of road, utility corridor etc. The construction of road which deviated 5 to 25 meters from the land that was acquired

⁵³ *The 1106 km long Amritsar-Bhatinda-Jamnagar (Corridor Code # 403), was included under High Priority in the Bharatmala Pariyojana (MoRTH Office Memorandum of 30 November 2018). The expected induced traffic was more than 25,000 Passenger Car Unit.*

⁵⁴ *Along with four other stretches, for a fee of ₹15.43 crore.*

⁵⁵ *DILR- District Inspector of Land Records. It is the Gujarat State Government Authority which possess the land record details.*

⁵⁶ *JMS is conducted after publication of Section 3A Notifications (September 2018) in the Official Gazette. In the 3A Notification, survey/ plot number, type (Government or otherwise)/ nature (Agricultural or otherwise) of land and area of land is notified. It declares Government's intention to acquire the specified land.*

⁵⁷ *six-lane access-controlled Greenfield highway from km 99+000 to km 130+073; total length 31.073 km.*

⁵⁸ *70 meters was the normal ROW for 6 lane. It would increase at certain areas like toll booth location, where service roads were provided.*

(December 2019 to July 2020) resulted in land acquired on one side lying idle and construction of road on the land which was not acquired at all.

The Project Director of PIU Palanpur submitted (November 2022)⁵⁹ a proposal to NHAI's Regional Office Gandhinagar for acquiring additional land of 17.30 hectares at an estimated cost of ₹8.63 crore. The PIU submitted (March 2013) a revised proposal for acquiring 86.313 hectares. However, RO directed PIU to optimise the proposal and thereafter approval was sought (January 2024) of NHAI HQ for acquiring additional land of 31.45 hectares in Package 4 at a cost of ₹16.41 crore.

The same issue existed in Package 3 of Sanchore to Santalpur section km 67.000 km 99.000 of NH-754K (32 km). For this project NHAI and another Joint Venture (JV) company entered into (June 2021) an EPC Agreement. Though the same issue was there in this project, it was to a lesser extent and the area of additional land acquisition was 8.95 hectares for which additional cost was ₹1.11 crore.

Audit observed that the total cost of additional land acquisition for Package 3 and Package⁶⁰ 4 was ₹17.52 crore.

NHAI replied (February 2024) that this occurred due to the negligence of the DPR consultant. As the land acquired was different from the ROW coordinates provided by DPR Consultant, it became necessary for NHAI to acquire additional land to synchronise the alignment of the project. NHAI issued (November 2022) show cause notice to the DPR Consultant for its negligence. NHAI further stated that as the project was Greenfield, EPC Contractors started the construction along the coordinates given in agreement. The idle land would be utilised for plantation and for future upgradation of the road.

MoRTH replied (June 2024) the following:

- a. Being a Greenfield project, land was handed over to the Contractor as per 3G declaration⁶¹ and possession slips given by CALA. EPC Contractor constructed the road as per ROW coordinates provided in Schedule A of the EPC Agreement. Also, during the initial stages of the construction, the landowners did not raise objections. As soon as the issue came to the notice of NHAI, the matter was taken up and wherever construction was yet to be done, possible changes were made to save additional land acquisition.

⁵⁹ when the progress of construction was 68.15 per cent.

⁶⁰ Package 3, km 67+000 to km 99+000. Contract value ₹462.00 crore. Handing Over Memorandum signed in August 2021. Physical progress in January 2024 was 98.06 per cent. For Package 4, physical progress in January 2024 was 94.04 per cent.

⁶¹ This relates to Section 3G of the National Highways Act, 1956. It deals with the process of determination (including arbitration process in case of dispute in the value determined) of the amount payable as compensation for land acquired for constructing national highways.

- b. Alignment for all four packages of Sanchore -Santalpur was set as a single alignment and test check of the co-ordinates done in the Banaskantha District was found correct. NHAI engages DPR consultant as it possesses specialised knowledge in land acquisition and other DPR works.
- c. NHAI took proactive measures to address the failure of the DPR Consultant. Show cause notice to DPR Consultant was issued (7 November 2022) to which the DPR Consultant replied (22 December 2022) that the default was of the contractor by not adhering to its instructions.
- d. NHAI intends to strategically utilise the extra land for plantation and future road upgrades, aligning with environmental sustainability goals.

The Management/Ministry response may be viewed in light of the following facts:

- i. NHAI cannot absolve itself from its responsibilities by engaging a DPR Consultant, who is a consultant engaged for carrying out works on behalf of NHAI. The documents required for land acquisition (like 3A, 3D Notifications etc.) prepared by the DPR Consultant were approved by NHAI as well. Officials of NHAI were part of the Joint Measurement Survey (December 2018 to October 2019) conducted along with the DPR Consultant and CALA & DILR. These clarify that the negligence was not solely attributable to the DPR Consultant. Further, to the extent of the failure of DPR Consultant in its work, NHAI is entitled to initiate actions against the DPR consultant.
- ii. NHAI's statement that the idle land would be utilised for plantation and for future upgradation of the road, confirms the fact of incorrect acquisition and consequent idle investment of ₹17.52 crore.

Acquisition of land by NHAI beyond the boundaries of land required as per EPC agreement resulted in avoidable investment burden of ₹17.52 crore towards acquisition of additional land.

Chapter - IX

**RECOVERIES AND CORRECTIONS/
RECTIFICATIONS BY CPSEs
AT THE INSTANCE OF AUDIT**

CHAPTER IX: RECOVERIES AND CORRECTIONS/RECTIFICATIONS BY CPSEs AT THE INSTANCE OF AUDIT

9.1 Recoveries at the instance of Audit

In eight cases pertaining to seven CPSEs, the Management had recovered an amount of ₹37.45 crore at the instance of Audit during the year 2022-23 as detailed in **Annexure XXXI**.

9.2 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 one case where corrective action was taken or changes were made by the Management at the instance of Audit during the year 2022-23 is given in **Annexure XXXII**.

Chapter - X

FOLLOW-UP ON AUDIT REPORTS

(COMMERCIAL)

CHAPTER X

10.1 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 25 transaction audit/compliance audit paragraphs contained in the last five years' Audit

Reports (Commercial), five (5) audit paragraphs included in two Standalone Compliance Audit Reports and two (2) Performance Audit Reports relating to the PSUs under the administrative control of various Ministries, as detailed in **Annexure-XXXIII**, were not received by Audit for vetting.



New Delhi
Dated: 13 August 2025

(Anand Mohan Bajaj)
Deputy Comptroller and Auditor General
(Commercial & CRA) and Chairman, Audit Board

Countersigned



New Delhi
Dated: 14 August 2025

(K. Sanjay Murthy)
Comptroller and Auditor General of India

Annexures

Annexure-I
(Referred to in Para 1.1.3.4)

Statement showing of loss of additional revenue due to supply of raw coal to other consumers keeping Patherdih-I washery idle during July 2020 to March 2023

Row No.	Particulars	Period of raw coal supply to Patherdih Washery			
		July 2020 to March 2021	2021-22	2022-23	Total
A	Revenue earned by BCCL by supplying raw coal to outside consumers				
	Raw coal feeding capacity of washeries (in tonne) during period of operation (July 2020 to March 2023)	37,50,000	50,00,000	50,00,000	1,37,50,000
B	Actual Raw coal supplied to the washery during the period of operation (in tonne) (during July 2020 to March 2023)	5,40,698	10,63,978	14,41,375	30,46,051
c = (a-b)	Idle capacity of washery (in tonne)	32,09,302	39,36,022	35,58,625	1,07,03,949
d	Raw coal despatched to outsider consumers (other than washery) (in tonne)	37,23,480	75,43,107	85,90,647	1,98,57,234
e	Average rate of raw coal despatched to outsiders (₹ / tonne)	2,372.74	2,524.63	2,648.02	
f = (c*e)	Revenue fetched on raw coal supplied to outsiders in lieu of supplying to the washery (₹)	7,61,48,39,227	9,93,69,99,222	9,42,33,10,173	26,97,51,48,622
	Total revenue (₹ in crore)	761.48	993.70	942.33	2,697.51
	Revenue could have earned by BCCL by supplying to Patherdih-I washery to the extent of its full capacity utilization instead of supplying to outside consumers				
g	Average percentage of yield of washed coking coal by feeding raw coal in the washery (in per cent)	12.02%	11.66%	10.32%	
h = (c*g)	Washed coking coal could have been produced by feeding idle quantity of raw coal in the washery as assessed under row 'c' above in tonne	3,85,758	4,58,940	3,67,250	12,11,948
i	Rate of washed coking coal (₹/tonne)	6,235.83	6,781.17	10,977.11	
j = (i*h)	Expected Sale value of washed coking coal (₹)	2,40,55,21,309	3,11,21,50,160	4,03,13,43,648	9,54,90,15,117
k	Average percentage of yield of washed coal power by feeding raw coal in the washery (in per cent)	60.17%	59.97%	66.82%	
l = (c*k)	Washed coal power could have been produced by feeding idle quantity of raw coal in the washery as assessed under row 'c' above in tonne	19,31,037	23,60,432	23,77,873	66,69,342
m	Rate of washed coal power (₹/tonne)	3,189.41	3,077.38	3,245.19	
n = (l*m)	Expected Sale value of washed coal power (₹)	6,15,88,68,718	7,26,39,46,228	7,71,66,49,681	21,13,94,64,627
o = (j+ n)	Total revenue could have been earned by producing washed coking coal and washed coal power (in ₹)	8,56,43,90,027	10,37,60,96,388	11,74,79,93,329	30,68,84,79,744
	Total revenue (₹ in crore)	856.44	1,037.61	1,174.80	3,068.85
p = (o - f)	Loss of revenue (₹ in crore)	94.96	43.91	232.47	371.33

Annexure II
(Referred to in Para 1.1.3.5)
Production and Dispatch of Rejects upto March 2024

Particulars		Dahibari								Patherdih-I				Maduband	Grand Total
		2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Total	2020-21	2021-22	2022-23	2023-24	Total		
(a)		(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)=(h)+(m)+(n)
Production	in lakh tonne	1.01	0.86	1.71	1.7	1.31	1.72	8.31	1.59	3.33	3.81	3.12	11.85	0.96	21.12
		0	0.15	0	0.99	1.83	1.46	4.43	0	2.08	1.96	3.12	7.16	0.03	11.62
Balance lying in stock		1.01	0.71	1.71	0.71	-0.52	0.26	3.88	1.59	1.25	1.85	0	4.69	0.93	9.50
% of dispatch to production	in %	0	17.44	0	58.23	139.6	84.88	53.31	0	62.46	48.55	100.00	60.42	3.13	55.02

Annexure -III
(Referred to in Para 1.1.3.6)

Statement showing loss of additional revenue due to supply of raw coal to other consumers keeping Dahibari washery idle during August 2018 to March 2023

Row No.	Particulars	Period of raw coal supply to Dahibari Washery					
		August 2018 to March 2019	2019-20	2020-21	2021-22	2022-23	Total
	Revenue earned by BCCL by supplying raw coal to outside consumers						
a	Raw coal feeding capacity of washeries (tonne) during period of operation	9,81,918	16,00,000	16,00,000	16,00,000	16,00,000	73,81,918
b	Actual Raw coal feed during the period of operation (tonne)	2,89,504	2,06,102	4,47,544	4,71,027	4,56,962	18,71,139
c = (a-b)	Idle feeding capacity of washeries (tonne)	6,92,414	13,93,898	11,52,456	11,28,973	11,43,038	55,10,779
d	Raw coal despatched to outsider consumers (other than washery) (tonne)	9,22,221	7,96,536	1,78,656	5,45,988	77,105	25,20,506
e	Raw coal could have fed to washery instead of despatch to outsider	6,92,414	7,96,536	1,78,656	5,45,988	77,105	22,90,699
f	Average rate of raw coal despatched to outsiders (₹/tonne)	2,118.57	1,535.08	1,806.17	2,211.25	3,603.82	
g = (e*f)	Revenue fetched on raw coal supplied to outsiders in lieu of fulfilling washery requirement (₹)	1,46,69,27,528	1,22,27,46,483	32,26,83,108	1,20,73,15,965	27,78,72,541	4,49,75,45,625
h	Total revenue (₹ in crore)	146.69	122.27	32.27	120.73	27.79	449.75
	Revenue could have earned by BCCL by supplying raw coal to Dahibari Washery to the extent of available capacity utilization instead of supplying to outside consumers.						
i	Average percentage of yield of washed coking coal by feeding raw coal in the washery (in per cent)	17.76%	11.51%	8.10%	14.63%	12.97%	
j = (e*i)	Washed coking coal that could have been produced in the washery by supplying raw coal that was dispatched to outside consumers (row 'e' above) in tonne	1,22,973	91,681	14,471	79,878	10,001	3,19,004
k	Rate of washed coking coal (₹/ tonne)	6,415.00	6,402.01	6,389.26	6,765.09	9,475.84	
l = (j*k)	Sale value of washed coking coal (₹)	78,88,71,795	58,69,42,679	9,24,58,981	54,03,81,859	9,47,67,876	2,10,34,23,190

Row No.	Particulars	Period of raw coal supply to Dahibari Washery					
m	Average percentage of yield of washed coal power by feeding raw coal in the washery (in per cent)	42.08%	47.11%	49.57%	45.24%	53.85%	
n = (e*m)	Washed coal power that could have been produced by feeding idle quantity of raw coal in the washery as assessed under row 'e' above (in tonne)	2,91,368	3,75,248	88,560	2,47,005	41,521	10,43,702
o	Rate of washed coal power (₹/ tonne)	3,550.00	3,362.24	3,187.82	3,199.09	3,823.64	
p = (n*o)	Sale value of washed coal power (₹)	1,03,43,56,400	1,26,16,73,836	28,23,13,339	79,01,91,225	15,87,61,356	3,52,72,96,156
q = (l+o)	Total revenue that could have been earned by producing washed coking coal and washed coal power (in ₹)	1,82,32,28,195	1,84,86,16,515	37,47,72,320	1,33,05,73,084	25,35,29,232	5,63,07,19,346
r	Total revenue (₹ in crore)	182.32	184.86	37.48	133.06	25.35	563.07
s = (r-h)	Loss of revenue (₹ in crore)	35.63	62.59	5.21	12.33	-2.43	113.32

Annexure -IV
(Referred to in Para 1.2.3)

Audit recommendations/ observations of the Performance Audit Report (No. 12 of 2019) where appropriate action has been taken

Sl. No.	Para No. of PA Report	Gist of recommendations/observations <i>vis-à-vis</i> action taken
1.	3.1.1 & 3.1.2	Comprehensive Environment Policy (CEP) of CIL was not formulated/ adopted in six subsidiaries of CIL as mandated by MoEF&CC. CEP was approved by CIL in December 2018 and the same was adopted by all the subsidiaries after approval of their Board.
2.	3.1.3	Guidelines containing the responsibility and delegation at different levels in Environment discipline were formulated by CIL, but the same were not dovetailed in their operating manual by the subsidiaries. Guidelines is also displayed on the website of CIL.
3.	4.1.1	EC was not revised to reflect the reduced requirement of monitoring stations due to overlapping of core and buffer zones. Required number of stations are monitored for each mine as per conditions of EC.
4.	4.2	Out of 28 sampled mines, 12 mines of four subsidiaries did not comply with the directives of State Pollution Control Board (SPCB) and the requisite number of CAAQMS were not installed. Installation process of CAAQMS in compliance to the directives of SPCBs was completed.
5.	4.3	In the mines of MCL i.e. Hingula, Jagannath, Basundhara (W) and IB Valley mines, proposal for setting up of four washeries as early as in March 2008 have not been commissioned (November 2018). As per directives (May 2020) issued by Govt. of India, for supply of coal having less than ash content of 34 <i>per cent</i> to power plant was not required. Accordingly, MCL withdrew the proposal of construction of washeries.
6.	4.4.1, 4.4.2 and 4.4.3	The monitoring of air quality as per the National Ambient Air Quality Standards (NAAQS) 2009 were not adhered to. The level of pollutants in core zones of different coalfields have been complied with prescribed limits.
7.	4.6.2	Non-operation of Mist blower. MCL had commissioned the mist blowers at the requisite places.
8.	4.7.1	Environment Clearance for the expansion of Piparwar Mine of CCL, stipulated that a Rapid Loading System (RLS) to be constructed in a time bound manner. RLS system was now operational w.e.f 18 October 2023
9.	4.8.1	Delay in firming tender for capacity augmentation of CHP at Jayant project of NCL from 10 MTY to 15 MTY, which has been completed.
10.	4.9.1	Silo was belatedly completed in February 2016 and works of railway siding was incomplete, which led to transportation of coal by road. Railway Siding was constructed and commissioned and dispatch of coal through railway siding commenced.
11.	4.9.2	SILO which were to be completed by December 2016 (Lingaraj mine) and December 2017 (Lakhanpur Mine), were not completed till November 2018

Sl. No.	Para No. of PA Report	Gist of recommendations/observations <i>vis-à-vis</i> action taken
		Construction was completed at Lingaraj (April 2020) and at Lakhanpur (December 2023).
12.	4.9.3	CHP could not be utilised due to absence of rail connectivity and hence coal continued to be transported by road. Rail connectivity has been commissioned and loading of rakes started since June 2021.
13.	5.1	In eight mines across three subsidiaries, <i>viz.</i> , BCCL (1), CCL (4) and MCL (3) the pollutants exceeded the prescribed limits. BCCL, MCL and CCL had taken the corrective actions to maintain the permissible limit of pollutant.
14.	5.2.1	Untreated water was discharged in nearby water bodies. Mine water is stored in mine sump/ worked out quarry and used for industrial purposes and no mine water is discharged outside.
15.	5.3	Treatment of acidic mine water. In view of instruction issued by MoEF&CC in December 2021 through which utilisation of fly ash has become mandatory and the necessary studies has undertaken by the NTPC before filling up the mine void with fly ash, NCL had allowed to NTPC to filling up mine void.
16.	5.4	Drainage of excess mine water. MCL had taken corrective action and supplied treated mine water of 52 lakh Kilo Litre per year in the near villages.
17.	5.5.1	Existence of weeds/choked in HEMM washing facility at the workshop of Dabor and Sonapur Bazari mines. Regular maintenance is being carried out at HEMM washing facility.
18.	5.7.1 and 5.7.2	Due to spillage from overloaded trucks, coal accumulated along the sides of the bridge of Safi River at Piparwar OCM and rejects of Kathara washery contaminating Damodar River. To avoid the pollution in nearby water bodies, CCL built up crash barrier at Safi river in Piparwar OCM and bricks wall around Kathara washery rejects.
19.	5.7.3	Environment Clearance relating to Dahi Bari project of BCCL, stipulated that no overburden (OB) was to be dumped near water bodies and rivers. A safety barrier of, at least, 60 metres be maintained along the water bodies to avoid contamination with mine waste. OB was dumped on the banks of Khudia river without maintaining the stipulated minimum distance, thereby contaminating the river Construction of toe/stone wall was completed in June 2023.
20.	5.8.1	Non-adherence to guidelines of Central Ground Water Authority (CGWA). Corrective action has been taken and NOC was obtained from CGWA.
21.	6.1.3	Out of 9.69 lakh cum of topsoil generated during 2013-18 by three mines (Nigahi, Jayant and Block B) of NCL, topsoil actually used was 5.79 lakh cum (60 <i>per cent</i>). NCL utilized the entire quantity of topsoil generated during 2018-19 to 2021-22 and topsoil generated prior to 2018-19 and complied the EC condition regarding

Sl. No.	Para No. of PA Report	Gist of recommendations/observations <i>vis-à-vis</i> action taken
		utilization of top soil.
22.	6.2.1	Non-adherence to norms relating to maintenance of height of benches of coal seam which caused fatal accident. Necessary benching was being maintained as per Coal Mines Regulation 2017
23.	7.1.1	Non preparation of Mine Closure Status Report for closed/abandoned/discontinued mines. Subsequent to the issuance of Mine Closure Guidelines (October 2022) by MoC, for the mines closed/abandoned/discontinued before 2009, mine closure plans have to be prepared instead of MCSR. Accordingly, mine closure plans of the identified mines have been prepared and adopted by the Boards of the concerned Subsidiaries.
24.	7.1.2	Subsidiaries are not claiming reimbursement of mine closure expenses from CCO. Subsidiary coal companies are now claiming the amount from CCO towards reimbursement of mine closure expenses.
25.	7.1.2.1	No action was initiated by NCL for closure of the mine. Necessary action has been taken.
26.	7.1.2.2	NCL did not update the Mine Closure Plan (MCP) relating to Kakri project. MCP was updated and was duly approved in July 2019.
27.	7.1.2.3	NCL could not formulate the MOU for utilizing the fly ash dumping. MoU was signed (January 2019) with NTPC for filling of fly ash and 145848 MT of fly ash was filled up till March 2022.
28.	7.1.2.4	MCP certified claim amount was yet to be forwarded to CCO. MCP were forwarded and no certified claim was pending before CCO.
29.	7.1.3.1	Delay in signing of MOU for dumping of fly ash. MOU was signed in January 2019.
30.	7.1.3.4	Fly ash dumped in open space at Kathara. Fly ash of Kathara Captive Power Plant is disposed at low lying area and covered with soil for plantation. Further, the Kathara CPP was closed since July 2018 and no fly ash was generated since then.
31.	7.2.1.1	Production in excess of quantities of coal than permitted in Sonepur Bazari. Actual production was within the prescribed limit of EC/CTO.
32.	7.2.1.2	Production in excess of quantities of coal than permitted in MCL. MCL take corrective action to avoid production of excess quantities permitted in CTO/CTE.
33.	7.2.2	Production in excess of mining plan was resorted to off-set shortfall in production in other mines. No such recurrence has happened.
34.	7.2.3	16 mines of two subsidiaries i.e. CCL and BCCL were operating without Consent to Establish (CTE)/ Consent to Operate (CTO)/EC. Necessary EC/CTE/CTO has been obtained by the two subsidiaries.
35.	7.3.1.1	Storage of hazardous waste like burnt/used oil.

Sl. No.	Para No. of PA Report	Gist of recommendations/observations <i>vis-à-vis</i> action taken
		Bharatpur mines of MCL obtained authorization for keeping burnt oil and the burnt oil is kept within authorization limit.
36.	7.3.3	Payment of water cess at higher rates. Water cess has been abolished after implementation of GST in July 2017.
37.	7.4	Shortfall in CSR expenses at specific mines mandated by MoEF&CC. The new EC has been granted by MoEF&CC incorporating the clause for the CSR provision as per Companies Act'2013. No deficiency noticed during follow up audit.

Annexure -V
(Referred to in Para 2.1)

Details of idle cost incurred by BPCL towards underutilisation of Time Chartered vessels hired for LPG and for Products during the period from 2019-20 to 2022-23

(₹ in crore)

Particulars	2019-20	2020-21	2021-22	2022-23	Total
Idle cost on time charter vessels hired for LPG	146.36	208.59	174.50	401.36	930.81
Idle cost on time charter vessels hired for Products	47.62	56.19	46.44	11.20	161.45
Total Idle Cost	193.98	264.78	220.94	412.56	1,092.26

Detailed breakup of idle cost incurred for the period from 2019-20 to 2022-23 due to controllable factor

(₹ in crore)

Financial year	LPG vessels	Product vessels	Total
2019-20	81.37	1.43	82.80
2020-21	82.58	1.69	84.27
2021-22	82.11	1.39	83.50
2022-23	219.77	0.22	219.99
Total	465.83	4.73	470.56

Annexure -VI
{Referred to in Para 2.2.6.4 (B)}
Summary of cost escalation in construction of strategic storage facilities

Particulars	Visakhapatnam		Mangalore		Padur		Total estimated cost	Total revised cost	% increase
	Initial Cost (Sep. 2005)	Revised cost (Aug. 2014)	Initial Cost (Sep. 2005)	Revised Cost (Nov. 2013)	Initial Cost (Sep 2005)	Revised Cost (Nov. 2013)			
Land	0	30.00	4.00	128.00	7.00	66.00	11.00	224.00	1,936.36
Construction site facilities, rock cavern storage, pipeline & pump station	579.48	988.37	668.00	954.00	892.00	1451.00	2,139.48	3,393.37	58.61
Basic Engg. & Back-up consultant, detailed engineering, PMC	43.21	127.98	51	125	85	154	179.21	406.98	127.10
Owner cost	8.25	15	9	20	9	22	26.25	57.00	117.14
Start up, commissioning & other contingency	40.89	17.00					40.89	17.00	-58.43
Total	671.83	1,178.35	732	1,227	993	1,693	2,396.83	4,098.35	71.00

Annexure -VII

{Referred to in Para 2.2.6.5 (B)}

Details of extra O&M expenditure incurred in Visakhapatnam cavern

Year	O&M expenditure on manpower (Visakhapatnam)			O&M expenditure on manpower (Mangalore)	Difference between Vishakhapatnam and Mangalore (D-E)	O&M expenditure on manpower (Padur)	Difference between Vishakhapatnam and Padur (D-G)
	O&M expenditure for the year	HPCL share (for 0.30 MMT)	ISPRL share (for 3.03 MMT)				
A	B	C	D	E	F	G	H
2019-20	17,67,09,595.00	3,98,59,307.00	13,68,50,288.00	4,74,04,354.00	8,94,45,934.00	7,37,80,000.00	6,30,70,288.00
2020-21	16,97,94,465.00	3,82,99,503.00	13,14,94,962.00	4,03,76,575.00	9,11,18,387.00	6,61,42,250.00	6,53,52,712.00
2021-22	16,73,51,669.00	3,77,48,497.00	12,96,03,172.00	4,42,51,948.00	8,54,38,695.00	7,03,24,758.00	6,04,15,963.00
Total	51,38,55,729.00	11,59,07,307.00	39,79,48,422.00	13,20,32,877.00	26,60,03,016.00	21,02,47,008.00	18,88,38,963.00
Comparison of O&M expenditure incurred was made between Visakhapatnam project and Padur project (being higher O&M expenditure incurred than Mangalore project).							

Annexure -VIII
{Referred to in Para 3.1.4.1 (D)}

(A) Cases of surveyor data without license number and PAN number or the same captured as zero out of 13,986 active individual surveyors' data

Sl. No.	Description of issues noticed	No. of cases
1.	Licence number not captured	925
2.	Licence number captured as zero	16
3.	PAN number of surveyor not captured	1,701
4.	PAN captured as zero even though TDS applicable	144

(B) In respect of 29 surveyors, 445 claims were assigned pertaining to departments other than the departments in which they were granted licence by IRDA. The total outgo of these claims were ₹1.31 Crore and survey fee paid was ₹ 0.11 Crore as under:

Description of the issue	No. of surveyors	No. of claims handled	Claim amount settled	Survey fee paid (Amount in ₹)
Surveyors licenced in motor department only but handled claims of other departments	14	52	44,55,705	1,76,533
Surveyors licenced in Engineering department only but handled claims of other departments	3	335	59,48,571	7,01,494
Fire department claims handled by surveyors who don't have licence for fire department	12	58	27,26,107	2,40,405
Total	29	445	1,31,30,383	11,18,432

Annexure -IX
{Referred to in Para 3.1.4.1 (J)}

Change of business type and vehicle class code in motor policies

	Particulars	
1.	Motor policies underwritten during the period 2019-22	3,80,94,917
2.	Motor policies underwritten with change of business type and vehicle class code	20,792
3.	Test check of cases with VAHAN data	50
4.	Third-party premium under charged	₹0.03 crore

Annexure -X
(Referred to in Para 4.1.2)

List of Projects selected for review in Audit (BHEL)

Sl. No.	Name of the Project	Capacity (MW)	Type	Scheduled date of Completion	Actual Date of Completion	Contract Value (₹ in crore)
1	NTPC Ltd., Mandsaur, Madhya Pradesh	50	Ground Mounted	31-03-2017	02-06-2017	282.03
2	Bharat Electronics Limited, Medak, Telangana	15	Ground Mounted	16-11-2016	30-10-2017	93.81
3	BEL, Medak, Telangana	1	Ground Mounted	25-08-2017	30-04-2018	6.74
4	NLC Ltd., Neyveli, Tamil Nadu	65	Ground Mounted	04-06-2017	03-05-2018	341.00
5	Gujarat Industries Power Company Ltd., Charanka, Gujarat	75	Ground Mounted	18-03-2019	04-06-2019	310.10
6	West Bengal State Electricity Distribution Company Ltd., Santaldih, West Bengal	10	Ground Mounted	06-04-2018	03-10-2019	55.00
7	WBSEDCL Charrah, West Bengal	10	Ground Mounted	30-04-2017	10-02-2020	51.89
8	Singareni Collieries Company Ltd., Manuguru, Telangana	30	Ground Mounted	29-09-2019	01-08-2020	108.13
9	West Bengal Power Development Corporation Ltd., Sagardighi, West Bengal	5	Floating ¹	31-08-2019	02-12-2020	23.28
10	Gujarat State Electricity Corporation Ltd., Dhuvaran, Gujarat	75	Ground Mounted	22-12-2020	15-04-2021	264.44
11	NTPC Ltd., Kayamkulam, Kerala	22	Floating	23-04-2021	23-03-2022	110.11
12	NTPC Ltd., Ramagundam, Telangana	100	Floating	24-04-2021	30-06-2022	423.63
13	GSECL, Raghnesda I, Gujarat	100	Ground Mounted	07-11-2020	18-10-2022	395.57
14	GSECL, Raghnesda II, Gujarat	100	Ground Mounted	03-05-2021	1-06-2023	391.60
15	SCCL Ramagundam, Telangana	50	Ground Mounted	04-10-2019	February 2023	184.00
						3,041.33

¹ *Floating Solar are solar panels mounted on a structure that floats on a body of water, typically a reservoir or a lake such as drinking water reservoirs, quarry lakes, irrigation canals or tailing ponds.*

Annexure -XI
{Referred to in Para 4.1.3.5 (D)}

Table indicating the warranty period extended by BHEL vis-à-vis warranty period agreed by Original Equipment Manufacturer (OEM)

Project Name	Warranty provided by	Warranty starts from	String Monitoring Box	DC/AC cables	Inverter Transformer	ACDB/DCDB	UPS	Battery	Lighting System	Control and relay panel	Switchyard equipment	Lightning Arrest system	Weather monitoring
NTPC Ramagundam	BHEL to customer	Completion of Trial Run	3 Year	3 Year	5 Year	3 Year	3 Year	3 Year	3 Year	NA	NA	3 Year	3 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	5 Year	1 Year	1 Year	1 Year	1 Year	NA	NA	1 Year	1 Year
GSECL Raghnesda I	BHEL to customer	Start of O&M	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	NA	NA	10 Year	10 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	NA	NA	1 Year	1 Year
GSECL Raghnesda II	BHEL to customer	Start of O&M	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	NA	NA	10 Year	10 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	NA	NA	1 Year	1 Year
GPCL Charankha	BHEL to customer	Start of O&M	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
GSECL Dhuvanan	BHEL to customer	Start of O&M	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year	10 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
NLC Neyveli	BHEL to customer	PAC	5 Year	5 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
	OEM to BHEL	Date of commissioning/ supply which is earlier	5 Year	1 Year	1.5/2 year	1.5/2 year	1.5/2 year	1.5/2 year	1.5/2 year	1.5/2 year	1.5/2 year	1.5/2 year	1 Year
SCCL Ramagundam	BHEL to customer	Completion of OAT	5 Year	1 Year	5 Year	1 Year	5 Year	2 Year	2 Year	5 Year	5 Year	1 Year	1 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	3 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
NTPC Kayamkulam	BHEL to customer	Completion of Trial Run	3 Year	3 Year	5 Year	3 Year	3 Year	3 Year	3 Year	NA	NA	3 Year	3 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	5 Year	1 Year	1 Year	1 Year	1 Year	NA	NA	1 Year	1 Year
SCCL	BHEL to	Completion of	5 Year	1 Year	5 Year	1 Year	5 Year	2 Year	2 Year	5 Year	5 Year	1 Year	1 Year

Project Name	Warranty provided by	Warranty starts from	String Monitoring Box	DC/AC cables	Inverter Transformer	ACDB/DCDB	UPS	Battery	Lighting System	Control and relay panel	Switchyard equipment	Lightning Arrest system	Weather monitoring
Manuguru	customer	OAT											
	OEM to BHEL	Date of Supply	1 Year	1 Year	3 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
WBSEDCL Santaldih	BHEL to customer	Commissioning date	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	5 Year	5 Year	1 Year	1 Year
WBSEDCL Charrah	BHEL to customer	Commissioning date	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	5 Year	5 Year	1 Year	1 Year
WBPDCS Sagardighi	BHEL to customer	Issuance of takeover certificate	5 year	5 year	5 year	5 year	5 year	5 year	5 year	5 year	5 year	5 year	5 year
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
BEL Medak 1 MW	BHEL to customer	Date of completion of facilities	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	NA	NA	5 Year	NA
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	NA	NA	1 Year	NA
NTPC Mandsaur	BHEL to customer	Completion of Trial Run	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	NA	5 Year	5 Year
	OEM to BHEL	Date of commissioning/ supply which is earlier	5 Year	1 Year	1.5/ 2 year	1.5/ 2 year	1.5/ 2 year	1.5/ 2 year	1.5/ 2 year	1.5/ 2 year	NA	1.5/ 2 year	1 Year
BEL Medak 15 MW	BHEL to customer	Date of completion of facilities	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year	5 Year
	OEM to BHEL	Date of Supply	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year

Annexure -XII
{Referred to in Para 4.1.3.5 –E.1(a)}

Table indicating the Delay in Drawing submission

Name of the Project	Drawing submission Delay Analysis (in no. of drawings)									
	Capacity (MW)	Total no. of Drawings	On or before schedule	Delay 1-15 days	Delay 15-45 days	Delay 45-90 days	Delay 90-180 days	Delay 180-365 days	Delay more than 365 days	Drawing pending for final submission
NTPC Ramagundam	100	187	4	8	5	14	31	46	63	16
GSECL Raghnesda I	100	95	12	10	11	13	12	11	26	Nil
GSECL Raghnesda II	100	79	2	11	7	25	7	25	2	Nil
GIPCL Charankha	75	123	9	10	43	35	22	4	Nil	Nil
GSECL Dhuvaran	75	124	29	12	6	33	20	23	1	Nil
NLC Neyveli	65	113	12	20	27	15	26	13	0	Nil
SCCL Ramagundam	50	126	16	4	9	40	44	11	2	Nil
NTPC Kayamkulam	22	118	6	4	11	7	29	29	23	9
SCCL Mannuguru	30	124	7	1	22	33	51	10	0	Nil
WBSEDCL - Santaldih	10	8	4	0	0	4	0	0	0	Nil
WBSEDCL - Charrah	10	15	14	0	0	1	0	0	0	Nil
WBPDCCL Sagardighi	5	54	13	22	5	1	12	Nil	1	Nil
BEL Medak	1	Drawings for 1 MW were modified in earlier 15 MW project drawings, no separate drawing created.								
NTPC Mandsaur	50	306	66	27	56	35	72	50	0	Nil
BEL Medak	15	124	33	10	30	48	3	0	0	Nil
TOTAL	708	1,596	227	139	232	304	329	222	118	25

Annexure -XIII
{Referred to in Para 4.1.3.5 E.1 (b)}
Table indicating Revision in Drawings

Name of the Project	Capacity (MW)	Total no. of Drawings	Final approval received on Revision No.										Drawing pending for final submission
			0	1	2	3	4	5	6	7	8	9	
NTPC Ramagundam	100	187	67	46	33	15	3	6	0	1	0	0	16
GSECL Raghnesda I	100	95	26	19	29	7	9	3	1	1	0		0
GSECL Raghnesda II	100	79	24	27	21	5	2	0	0	0	0	0	0
GIPCL Charankha	75	123	28	41	31	15	3	3	2	0	0	0	0
GSECL Dhuvaran	75	124	17	44	29	15	10	4	2	1	0	2	
NLC Neyveli	65	113	49	36	16	9	2	1	0	0	0	0	0
SCCL Ramagundam	50	126	49	37	18	12	4	2	1	1		2	0
NTPC Kayamkulam	22	118	45	26	24	7	4	1	1	1	0	0	9
SCCL Mannuguru	30	124	55	40	18	6	4	1	0	0	0	0	0
WBSEDCL - Santaldih	10	8	8	0	0	0	0	0	0	0	0	0	0
WBSEDCL - Charrah	10	15	5	6	3	1	0	0	0	0	0	0	0
WBPDCS Sagardighi	5	54	35	11	6	0	2	0	0	0	0	0	0
BEL Medak	1	Drawings for 1 MW were modified in earlier 15 MW project drawings, no separate drawing created.											
NTPC Mandsaur	50	306	70	114	70	33	10	4	5	0	0	0	0
BEL Medak	15	124	41	30	20	8	5	12	8	0	0	0	0
Total	708	1,596	519	477	318	133	58	37	20	5	0	4	25

Annexure -XIV

{Referred to in Para 4.1.3.5 E.2(A)}

Table indicating delay in days in placement of Purchase Orders

Sr	Project Name	MMS Columns / Floater	MMS Super Structures	PV Module	Inverters (PCU)	SMU	SCADA	HT Switchgear	Inverter Transformer	DC cable	AC cable	Balance of Systems Package	Switchyard Package
1	NTPC Ramagundam	110	NA	458	208	105	-146	24	152	843	107	228	NA
2	GSECL Raghnesda - I	500	618	913	132	150	NA	NA	106	106	583	66	NA
3	GSECL Raghnesda - II	232	390	933	19	339	NA	NA	284	346	342	342	NA
4	GIPL Charankha	-12	7	54	20	30	NA	8	12	32	77	43	48
5	GSECL Dhuvran	131	315	175	160	178	NA	NA	163	175	318	115	95
6	NLC Neyveli	83	179	33	94	214	-56	HEP	207	235	64	89	149
7	SCCL Ramagundam	11	305	113	135	78	10	207	58	103	122	107	87
8	NTPC Kayamkulam	86	N.A.	30	92	28	-138	-11	55	29	21	150	NA
9	SCCL Mannuguru	11	58	38	-8	84	16	213	64	109	128	133	99
10	WBSEDCL - Santaldih							--					
11	WBSEDCL - Charrah							--					
12	WBPDCL Sagardighi	35	NA	NA	-64	NA	NA	NA	138	84	138	91	NA
13	BEL Medak (1MW)						Same as 15 MW						
14	NTPC Mandsaur	85	96	-34	31	44	-43	HEP	163	44	53	92	110
15	BEL Medak (15MW)	38	46	30	17	13	NA	0	15	37	27	63	NA

Note: In case of WBSEDCL Santaldih and Charrah, data was not prepared as it was not required in the contract. Figures in minus (-) indicate advance action. NA means Not Applicable. HEP means that the procurement was dealt through Heavy Electrical Plant, Bhopal of BHEL.

Annexure -XV

{Referred to in Para 4.1.3.5 E.2 (B)}

Table indicating delay in days in supply of material at site

Sr.	Project Name	MMS Columns / Floater	MMS Super Structures	PV Module	Inverters (PCU)	SMU	SCADA	HT Switchgear	Inverter Transformer	DC cable	AC cable	Balance of System Package	Switchyard Package
1	NTPC Ramagundam	810	N.A.	740	202	39	419	451	404	684	311	815	NA
2	GSECL Raghnesda - I	880	1044	196	326	337	600	301	233	513	536	803	NA
3	GSECL Raghnesda - II	426	833	844	510	505	429	535	670	557	277	737	NA
4	GIPCL Charankha	35	59	175	76	(-)16	37	116	146	28	35	72	123
5	GSECL Dhuvanan	277	501	203	264	207	265	167	264	329	306	424	448
6	NLC Neyveli	102	200	357	91	196	140	NA	182	258	108	339	389
7	SCCL Ramagundam	186	372	48	536	65	163	167	113	221	335	560	600
8	NTPC Kayamkulam	460	NA	532	298	175	NA	365	432	112	131	660	NA
9	SCCL Mannuguru	127	212	53	352	91	194	173	77	221	341	931	956
10	WBSEDCL - Santaldih												
11	WBSEDCL - Charrah												
12	WBPDCL Sagardighi	449	N.A.	75	176	NA	321	145	163	134	174	581	NA
13	BEL Medak (1 MW)	NA	62	131	NA	NA	NA	82	32	24	NA	NA	NA
14	NTPC Mandsaur	119	(-)7	94	114	136	124	HEP	100	298	130	351	171
15	BEL Medak (15 MW)	159	199	197	61	27	195	117	155	119	137	529	NA

Note: In case of WBSEDCL Santaldih and Charrah, data was not prepared as it was not required in the contract. Figures in minus (-) indicate advance action. NA means Not Applicable. HEP means that the procurement was dealt through Heavy Electrical Plant, Bhopal of BHEL.

Annexure -XVI
{Referred to in Para 4.1.3.5 E.3(A)}

Table indicating delay in days in placement of work order for works executed at site

Sr No.	Project Name	Topography Survey / Bathmetry Survey	Geotechnical Investigation	MMS Foundation, Erection Modules	Inverter Room/ Foundation Yard	Road and Drain
1	NTPC Ramagundam	21	21	NA	87	NA
2	GSECL Raghnesda - I	94	94	64	218	345
3	GSECL Raghnesda - II	0	0	174	268	392
4	GIPCL Charankha	0	0	14	(-) 51	421
5	GSECL Dhuvaran	20	20	113	247	345
6	NLC Neyveli	2	6	59	-10	19
7	SCCL Ramagundam	1	9	148	21	255
8	NTPC Kayamkulam	42	42	NA	201	NA
9	SCCL Mannuguru	7	23	178	93	270
10	WBSEDCL - Santaldih	--				
11	WBSEDCL - Charrah	--				
12	WBPDCCL Sagardighi	NA	NA	31	99	NA
13	BEL Medak (1MW)	Same as 15 MW				
14	NTPC Mandsaur	(-) 3	(-) 3	129	67	145
15	BEL Medak (15MW)	35	35	83	55	252

Note: In case of WBSEDCL Santaldih and Charrah, data was not prepared as it was not required in the contract. Figures in minus (-) indicate advance action. NA means Not Applicable. HEP means that the procurement was dealt through Heavy Electrical Plant, Bhopal of BHEL.

Annexure -XVII

{Referred to in Para 4.1.3.5 E.3 (B)}

Table indicating delay in days in completion of works at site

Sr no.	Project Name	Topography Survey / Bathmetry Survey	Geotechnical Investigation	MMS Foundation, Erection Modules	Inverter Room/ Foundation Yard	Road and Drain
1	NTPC Ramagundam	27	NA	775	1001	NA
2	GSECL Raghnesda - I	132	134	968	646	720
3	GSECL Raghnesda - II	0	0	1019	555	1116
4	GIPCL Charankha	4	5	362	44	491
5	GSECL Dhuvaran	44	44	405	186	570
6	NLC Neyveli	17	11	70	358	41
7	SCCL Ramagundam	35	32	570	615	933
8	NTPC Kayamkulam	43	43	501	582	NA
9	SCCL Mannuguru	35	38	329	374	785
10	WBSEDCL - Santaldih	--				
11	WBSEDCL - Charrah	--				
12	WBPDCCL Sagardighi	NA	NA	497	387	NA
13	BEL Medak (1MW)	NA	NA	119	221	NA
14	NTPC Mandsaur	13	19	89	143	60
15	BEL Medak (15 MW)	280	267	538	279	338

Note: In case of WBSEDCL Santaldih and Charrah, data was not prepared as it was not required in the contract. NA means Not Applicable.

Annexure -XVIII

{Referred to in Para 4.1.3.5 (F)}

Table indicating variation in quantities at various stages of execution
Module Mounting Structures (only for Ground Mounted Projects)

Comparison of MMS estimates and utilisation at different stages of project execution cycle

Name of the project	Capacity (MW)	Quantity estimated at Bidding stage (MT)	Quantity estimated initially at procurement stage (MT)	Per cent of increase or decrease $E = (C-D)/C$	'C' compared with 'D'	Quantity utilised at site (MT)	per cent of increase or decrease $H = (D-G)/D$	'D' compared with 'G'
A	B	C	D	E = (C-D)/C	F	G	H = (D-G)/D	I
GSECL Raghnesda I	100	5600	5805	4	Increase	5011.47	-14	Decrease
GSECL Raghnesda II	100	5600	5125	-8	Decrease	4376.64	-15	Decrease
GIPCL Charankha	75	Lump sum	3908	NA	NA	3018	-23	Decrease
GSECL Dhuvaran	75	3600	3782	5	Increase	3067.2	-19	Decrease
NLC Neyveli	65	3789.5	2561.98	-32	Decrease	2606.31	2	Increase
SCCL Ramagundam	50	3025	2522.55	-17	Decrease	3219.8	28	Increase
SCCL Mannuguru	30	1815	1513.93	-17	Decrease	1898.69	25	Increase
WBSEDCL - Santaldih	10	488	440.94	-10	Decrease	440.94	0	Same
WBSEDCL - Charrah	10	488	440.97	-10	Decrease	421.649	-4	Decrease
BEL Medak	1	54	54	0	Same	54	0	Same
NTPC Mandsaur	50	2859	2650	-7	Decrease	3235	22	Increase
BEL Medak	15	783.77	832	6	Increase	832	0	Same

Annexure -XIX

{Referred to in Para 4.1.3.5 (F)}

Cables Comparison of Cables estimates and utilisation at different stages of project execution cycle

Project Name	Capacity (MW)	Quantity estimated at Bidding stage (Km)	Estimation at procurement at initial stage (Km)	Per cent of increase or decrease $E = (D-C)/C$	'C' compared with 'D'	Quantity utilised at site (Km)	Per cent of increase or decrease $H = (G-D)/D$	'D' compared with 'G'
A	B	C	D	E = (D-C)/ C	F	G	H = (G-D)/ D	I
NTPC Ramagundam	100	1688.96	960	-43	Decrease	1292.18	35	Increase
GSECL Raghanesda I	100	1562	759.25	-51	Decrease	740.25	-3	Decrease
GSECL Raghanesda II	100	1562	770.25	-51	Decrease	692.25	-10	Decrease
GSECL Charanka	75	1250.75	999.5	-20	Decrease	1170.5	17	Increase
GSECL Dhuvanan	75	846.72	484	-43	Decrease	466.1	-4	Decrease
NLC Neyveli	65	1453	1036.5	-29	Decrease	1037.5	0	Same
SCCL Ramagundam	50	856.1	502	-41	Decrease	705.25	40	Increase
NTPC Kayamkulam	22	421.98	195	-54	Decrease	252	29	Increase
SCCL Manuguru	30	513.66	291.7	-43	Decrease	297.7	2	Increase
WBSEDCL Sanatldih	10	203.64	147	-28	Decrease	147	0	Same
WBSEDCL Charrah	10	203.82	140.85	-31	Decrease	140.85	0	Same
WBPDCL Sagardighi	5	81.16	139.3	72	Increase	139.3	0	Same
BEL Medak	1	-	22.5	-	-	22.5	0	same
NTPC Mandsaur	50	531.1	1076.2	103	Increase	1146.01	6	Increase
BEL Medak	15	295.6	294	-1	Decrease	215.09	-27	Decrease

Annexure -XX
{Referred to in Para 4.1.3.6 (A)}
Table indicating the cost of O&M per MW per Annum
(Amount in ₹ crore)

Sl. No	Name of the project	Capacity MW	Cost of O&M per MW per annum			Excess cost of outsourced contract (in per cent)	
			As per estimate (₹)	As per awarded contract (₹)	As per outsourced contract (₹)	w.r.t. estimate G=F-D/D%	w.r.t. awarded contract H=F-E/E%
A	B	C	D	E	F	G=F-D/D%	H=F-E/E%
1	NTPC Ramagundam	100	0.37	1.91	3.92	971	105
2	GSECL Raghnesda I	100	0.27	1.53	2.03	656	33
3	GSECL Raghnesda II	100	0.27	1.19	2.13	689	79
4	GIPCL Charankha	75	0.31	0.5	1.8	484	260
5	GSECL Dhuvaran	75	0.35	1.58	1.95	462	23
6	NLC-Neyveli	65	4.40	3.57	4.65	6	30
7	SCCL Ramagundam	50	1.70	2.11	1.94	14	-8
8	NTPC Kayamkulam	22	1.65	2.48	8.27	400	233
9	SCCL Manuguru	30	1.70	2.11	3.37	98	60
10	WBSEDCL Santaldih	10	1.91	11.16	4.07	113	-64
11	WBSEDCL Charrah	10	1.91	11.05	1.96	3	-82
12	WBPDCCL Sagardighi	5	4.81	6.1	7.59	58	24
13	BEL Medak	1	-	2		Covered in Sl. No. 15	
14	NTPC Mandsaur	50	1.14	4.72	2.91	156	-38
15	BEL Medak	15	2.06	2.36	3.19	54	35

Annexure XXI
{Referred to in Para 6.1}
Table calculation of Lease Rent

Period of billing	Land Area (in Square Meter)	Rate (per Square Meter)	Basic Amount (in ₹)	Tax amount (in ₹)	Lease rent as per Invoices (in ₹)
20.12.1994 to 30.09.1995	2000	47.30	73,865.75	0.00	73,865.75
01.10.1995 to 30.09.1996	2000	52.03	1,04,060.00	0.00	1,04,060.00
01.10.1996 to 30.09.1997	2000	57.23	1,14,460.00	0.00	1,14,460.00
01.10.1997 to 30.09.1998	2000	62.95	1,25,900.00	0.00	1,25,900.00
01.10.1998 to 30.09.1999	2000	69.25	1,38,500.00	0.00	1,38,500.00
01.10.1999 to 30.09.2000	2000	76.18	1,52,360.00	0.00	1,52,360.00
01.10.2000 to 30.09.2001	2000	83.80	1,67,600.00	0.00	1,67,600.00
01.10.2001 to 31.03.2002	2000	92.18	92,180.00	0.00	92,180.00
01-04-2003 to 31-03-2004	2000	106.47	2,12,940.00	0.00	2,12,940.00
01-04-2004 to 31-03-2005	2000	101.40	2,02,800.00	0.00	2,02,800.00
01-04-2005 to 31-03-2006	2000	117.15	2,34,300.00	0.00	2,34,300.00
01-10-2003 to 31-03-2004 (arrear lease rent)	2000	108.95	7,550.00	0.00	7,550.00
01-04-2004 to 31-03-2005 (arrear lease rent)	2000	117.15	31,500.00	0.00	31,500.00
01-04-2006 to 31-03-2007	2000	125.97	2,51,940.00	30,599.00	2,82,539.00
01-04-2006 to 30-09-2006 (arrear lease rent)	2000	145.80	19,670.00	2,399.00	22,069.00
01-10-2006- to 31-03-2007 (arrear lease rent)	2000	145.80	9,440.00	1,155.00	10,595.00
01-04-2008 to 31-03-2009	2000	1,035.00	20,70,000.00	2,55,852.00	23,25,852.00
01-04-2009 to 31-03-2010	2000	1,112.62	22,25,240.00	2,29,200.00	24,54,440.00
01-04-2010 to 31-03-2011	2000	1,196.07	23,92,140.00	2,46,390.00	26,38,530.00
01-04-2011 to 31-03-2012	2000	1,285.78	25,71,560.00	2,64,871.00	28,36,431.00
01-04-2012 to 31-03-2013	2000	1,382.00	27,64,000.00	3,41,630.00	31,05,630.00
01-04-2013 to 31-03-2014	2000	1,494.00	29,88,000.00	3,69,317.00	33,57,317.00
01-04-2014 to 31-03-2015	2000	1,610.00	32,20,000.00	3,97,992.00	36,17,992.00
01-10-2014 to 31-03-2015 (arrear lease rent)	2000	4,690.00	46,77,151.00	5,78,096.00	52,55,247.00
01-04-2015 to 31-03-2016	2000	6,775.00	1,35,50,000.00	18,97,000.00	1,54,47,000.00
01-04-2016 to 31-03-2017	2000	7,285.00	1,45,70,000.00	21,85,500.00	1,67,55,500.00
01-04-2017 to 31-03-2018	2000	7,285.00	1,45,70,000.00	21,85,500.00	1,67,55,500.00
01-04-2018 to 31-03-2019	2000	3,643.00	72,86,000.00	13,11,480.00	85,97,480.00

Period of billing	Land Area (in Square Meter)	Rate (per Square Meter)	Basic Amount (in ₹)	Tax amount (in ₹)	Lease rent as per Invoices (in ₹)
01-04-2019 to 31-03-2020	2000	3,643.00	72,86,000.00	13,11,480.00	85,97,480.00
01-04-2020 to 31-03-2021	2000	3,643.00	72,86,000.00	13,11,480.00	85,97,480.00
01-04-2021 to 31-03-2022	2000	3,643.00	72,86,000.00	13,11,480.00	85,97,480.00
01-04-2022 to 31-07-2022	2000	4,005.00	26,70,000.00	4,80,600.00	31,50,600.00
Total					11,40,63,177.75

Annexure -XXII
(Referred to in Para 7.1.1)
Details of the fleet available at Dredging Corporation of India Limited as on 31 March 2024

Sl. No.	Craft	Cost of Acquisition (₹ in crore)	Useful Life	Year of Built	Date of Acquisition	Age of Vessel (in years)	Remaining Life (in years)	Type of Vessel	Maximum Dredging Depth (Mfts.)	Hooper Capacity (m³)	Pumping Capacity (m³/hr)
1	DCI Dredge VIII	16.93	25	1976	10.05.1976	48	--	Self-Propelled Trailer Suction Hopper Dredger (TSHD)	25	6,500	--
2	DCI Dredge XI	27.33	25	1986	1.01.1986	38	--		25	4,500	--
3	DCI Dredge XII	88.72	25	1990	5.10.1990	34	--		20	4,500	--
4	DCI Dredge XIV	89.11	25	1991	10.01.1991	33	--		20	4,500	--
5	DCI Dredge XV	94.55	25	1999	24.04.1999	25	--		25	7,400	--
6	DCI Dredge XVI	207.30	25	2000	1.04.2000	24	1		25	7,400	--
7	DCI Dredge XVII	182.01	25	2001	1.08.2001	23	2		25	7,400	--
8	DCI Dredge XIX	619.78	25	2012	21.12.2012	12	13		25	5,500	--
9	DCI Dredge XX	586.46	25	2013	24.07.2013	11	14		25	5,500	--
10	DCI Dredge XXI	623.22	25	2013	10.03.2014	10	15		25	5,500	--
Total capacity of TSHDs									58,700		
11	DCI Dredge XVIII	273.74	25	2009	21.01.2011	13	12	Non-Propelled Cutter Suction Dredger (CSD)	25	--	2,000
12	DCI ID Ganga	17.87	25	2016	6.12.2016	7	18		14	--	500
Total capacity of CSDs									2,500		
13	DCI Dredge BH-I	129.54	25	2011	22.11.2011	12	13	Non-Propelled Backhoe Dredger	21.5	--	370

Annexure -XXIII
(Referred to in Para 7.1.3)

List of Operation and Maintenance Contracts selected for review by Audit

Sl. No.	Description
Operation Contracts	
1	Maintenance dredging contract at Gangavaram Port for the year 2019-20
2	Maintenance dredging contract at Dabhol for the year 2019-20
3	Transportation and Pumping of dredged material from Paradip Port Authority (PPA) sand trap to NRL Crude Oil Import Terminal Plot for reclamation for the year 2021-22
4	Maintenance dredging contract at Cochin Shipyard Limited for the period 2019-20 and 2020-21
5	Maintenance dredging contract at New Mangalore Port Trust for the year 2019-20
6	Maintenance dredging contract at Kamarajar Port Limited (Ennore) for the year 2019-20
7	Maintenance dredging contract at Southern Naval Command, Cochin for the period 2020-21 to 2021-22
8	Maintenance dredging contract at Naval Dockyard, Mumbai for the year 2019-20
9	Maintenance dredging contract at New Mangalore Port Trust for the period from 2020-21 to 2021-22
10	Capital dredging at Paradip Port Authority
11	Maintenance dredging contract at Cochin Port Authority for the year 2019-2020
12	Maintenance dredging contract at Cochin Port Authority for the year 2020-2021
13	Maintenance dredging contract at Kamarajar Port Limited (Ennore) at SIOTL berth for the year 2020-21
14	Maintenance dredging contract at Cochin Port Authority for the year 2021-2022
15	Maintenance dredging contract at Paradip Port Authority for the period 2019-20 to 2021-22
16	Maintenance dredging contract at Jawaharlal Nehru Port Trust for the period 2019-20 to 2021-22
17	Maintenance dredging contract at Haldia Dock Complex (Kolkata) for the period from 2019-20 to 2021-22
Maintenance Contracts	
1	Dry dock repairs contract of Dredge Multicat
2	Dry dock repairs contract of Dredge XIV (Emergency Dry Dock)
3	Dry dock repairs contract of Dredge XXI
4	Dry dock repairs contract of Dredge XVI

Sl. No.	Description
5	Dry dock repairs contract of Dredge Aquarius
6	Dry dock repairs contract of Dredge VIII
7	Dry dock repairs contract of Dredge XI
8	Dry dock repairs contract of Dredge XVIII
9	Dry dock repairs contract of Dredge XIX
10	Dry dock repairs contract of Dredge XIV
11	Dry dock repairs contract of Dredge XVII
12	Dry dock repairs contract of Dredge XVI
13	Dry dock repairs contract of Dredge XX
14	Dry dock repairs contract of Dredge XV
15	Dry dock repairs contract of Dredge XII

Annexure -XXIV
(Referred to in Para 7.1.4)

**Status of implementation of recommendations of C&AG given against Para 14.1 on
‘Operations and Maintenance of Dredgers’ -Audit Report No. 9 of 2017:**

Sl. No.	Recommendation of Audit	Present status
1.	DCIL should aim for enhancement of its dredgers’ capability through better planning, efficient deployment and supervision to ensure completion of work within the stipulated period.	Audit has come across lacunae in planning and deployment of dredgers and delays in completion of dredging works. The observations in this regard are discussed at Para No. 7.1.5.1 (B) .
2.	DCIL may also ensure revalidation of statutory certificates in time to avoid idling of dredgers.	Audit has come across cases of idling of dredgers as DCIL did not obtain revalidation of statutory certificates in time and the same are discussed at Para No. 7.1.5.2 (B) .
3.	Delivery of dredgers should be taken after successful trial runs.	No new dredgers were procured by DCIL during the review period and hence, the implementation of recommendation could not be examined.
4.	DCIL may ensure that the Planned Maintenance Schedule is strictly adhered to avoid sudden breakdowns.	Audit has noticed that DCIL has not adhered to the Planned Maintenance Schedules to avoid sudden breakdowns and the same are discussed at Para No. 7.1.5.2 (B) .

Annexure -XXV
(Referred to in Para 7.1.5.1)

Operational efficiency of the fleet available at Dredging Corporation of India Limited for the last five years ended 31 March 2024

(₹ in Lakh)

Sl. No.	DCIL Dredge Name	Year of Built	Age	Hooper/ Pumping Capacity	2019-20				2020-21				2021-22			
					Profit / Loss	Dredging Days	Cost per day	Income per day	Profit / Loss	Dredging Days	Cost per day	Income per day	Profit / Loss	Dredging Days	Cost per day	Income per day
1	VIII	1976	48	6,500	847	280	10.26	13.29	-3,377	220	28.96	13.61	723	303	13.05	15.43
2	XI	1986	38	4,500	3,038	250	13.16	25.31	-2,113	254	18.45	10.13	-1,630	106	25.85	10.47
3	XII	1990	34	4,500	1,318	289	15.91	20.47	-2,726	85	60.45	28.38	2,610	311	20.42	28.81
4	XIV	1991	33	4,500	-3,459	121	43.54	14.95	-614	322	18.13	16.22	719	272	19.15	21.79
5	XV	1999	25	7,400	-357	277	18.26	16.97	-393	282	23.34	21.95	1,955	221	19.07	27.91
6	XVI	2000	24	7,400	1,193	216	23.95	29.48	-440	286	29.19	27.65	-2,077	171	33.74	21.60
7	XVII	2001	23	7,400	-586	247	21.68	19.31	-151	190	31.85	31.05	1,976	173	33.08	44.50
8	XIX	2012	12	5,500	1,256	295	23.71	27.97	-1,886	295	25.20	18.80	-2,122	213	30.10	20.14
9	XX	2013	11	5,500	3,045	277	19.06	30.06	-949	268	25.06	21.52	-945	192	29.47	24.55
10	XXI	2013	10	5,500	-2,190	238	28.95	19.74	68	302	26.57	26.79	1,206	292	28.56	32.69
11	XVIII	2009	13	2,000	-2,290	221	16.63	6.27	-2,646	24	115.88	5.63	-3,303	165	25.72	5.70
12	ID Ganga	2016	7	500	157	67	3.00	5.00	-196	54	7.15	3.52	-240	85	6.18	3.35
13	BH-I	2011	12	370	1,341	163	6.20	14.43	-1,182	35	28.31	-5.46	-712	53	23.58	10.15

Annexure -XXV (Contd.)

(Referred to in Para 7.1.5.1)

Operational efficiency of the fleet available at Dredging Corporation of India Limited for the last five years ended 31 March 2024

(₹ in Lakh)

Sl. No.	DCIL Dredge Name	Year of Built	Age	Hooper/ Pumping Capacity	2022-23			2023-24				
					Profit / Loss	Dredging Days	Cost per day	Income per day	Profit / Loss	Dredging Days	Cost per day	Income per day
1	VIII	1976	48	6,500	573	238	17.82	20.23	320	304	19.67	20.72
2	XI	1986	38	4,500	-992	234	19.78	15.54	906	290	7.81	10.93
3	XII	1990	34	4,500	751	325	26.75	29.06	-1,149	174	29.67	23.07
4	XIV	1991	33	4,500	-889	312	27.49	24.64	-841	106	33.41	25.48
5	XV	1999	25	7,400	1,533	233	29.90	36.48	944	301	26.62	29.75
6	XVI	2000	24	7,400	-1,247	294	34.19	29.95	517	284	30.39	32.21
7	XVII	2001	23	7,400	279	267	38.30	39.35	-123	228	29.25	28.71
8	XIX	2012	12	5,500	307	293	27.91	28.96	1,890	316	30.89	36.87
9	XX	2013	11	5,500	657	272	29.00	31.42	-1,021	300	27.13	23.72
10	XXI	2013	10	5,500	1,559	217	35.84	43.02	1,409	333	30.54	34.77
11	XVIII	2009	13	2,000	-3,799	91	45.73	3.98	-1,588	0	--	--
12	ID Ganga	2016	7	500	-226	198	2.81	1.67	-189	0	--	--
13	BH-I	2011	12	370	-844	NA	--	--	0	0	--	--

Annexure -XXVI
(Referred to in Para 8.1.2)
Details of projects in which OTFIS was disbursed as on 31 March 2024

Sl No	Project Name	Mode of execution	State/ Implementing Unit	Date of approval of OTFIS	Date Disbursement of OTFIS	Amount sanctioned under OTFIS (₹ in Crore)	Amount under OTFIS (₹ in Crore)	disbursed
1.	Gurgaon-Jaipur	BOT(Toll)/ Revenue Sharing	Rajasthan/ Jaipur	12 September 2016	May 2017 to June 2018	352	345.67	
2.	Panvel-Indapur	BOT(Toll)/ Negative grant	Maharashtra/ Panvel	15 July 2016	June 2017 to March 2021	540	540	
3.	Indore-Gujarat/ MP Border		Madhya Pradesh/ Indore	15 February 2017	January 2017 to February 2019	122.48	121.63	
4.	Ludhiana-Talwandi		Punjab/ Ludhiana	25 November 2019	May 2020 to October 2020	13.50	12.91	
5.	Raebareli- Allahabad	BOT(Toll)/ Positive grant	Uttar Pradesh/ Raebareli	16 November 2017	February 2018 to October 2021	119.91	119.91	
6.	Krishnanagar – Baharampore	BOT (Annuity)	West Bengal/ Krishnanagar	15 July 2016	February 2017 to January 2021	404.10	313.54	
7.	Srinagar- Banihal		J&K/ Srinagar	10 April 2017	August 2017 to June 2018	200	102.02	
8.	Chhapra-Hajipur		Bihar/ Chhapra	15 July 2016	December 2016 to June 2021	175	174.97	
					Total	1,926.99	1,730.65	

Source: Data provided by NHAI

Annexure -XXVII

{Referred to in Para 8.1.4.2 (E)(i)}

Statement showing foregoing of toll revenue by NHAI in three BOT (Annuity) projects

Name of Project	Scheduled date of project completion as per tripartite agreement	Actual date of issuance of Provisional Completion Certificate	Delay in project completion after OTFIS (in days) beyond 45 days as per NH Fee Rules 2008	Forgoing of Toll Revenue after OTFIS (₹ in crore)
Srinagar-Banihal	30 September 2017	27 March 2018	133	9.38
Krishnanagar-Baharampore	31 July 2017	10 February 2020	879	210.83
Chhapra-Hajipur	30 April 2017	PCC not issued upto March 2024	2,482	331.88
Total				552.09

Source: Tripartite Agreement and Data provided by NHAI

Annexure -XXVIII

({Referred to in Para 8.1.4.2 (E)(iii)})

Statement showing foregoing of Premium/negative grant by NHAI in three BOT (Toll) projects

Name of Project	Annual Premium Payable (₹ in crore)	Scheduled date of project completion as per tripartite agreement	Actual date of issuance of provisional completion certificate/ termination	Delay in project completion after OTFIS (in days)	Forgoing/Loss of Premium after OTFIS (₹ in crore)
Indore - Gujarat/ MP Border	23	28 February 2017	07 November 2018	617	38.88
Panvel-Indapur	33.95	31 March 2018	17 November 2021 (date of termination as PCC not issued)	1327	123.43
Ludhiana-Talwandi	1.08	25 May 2020	28 September 2020	126	0.37
Total					162.68

Source: Tripartite Agreement, Concession Agreement and Data provided by NHAI

Annexure -XXIX

{Referred to in Para 8.1.4.3 (B.3)}

Statement showing irregularities pointed out by the Independent Engineer

Sr. No.	Name of the project	Amount (₹ in crore)	Remarks of Independent Engineer
1	Krishnagar-Baharampore	17.53	An amount of ₹17.53 crore from OTFIS funds was released for payment of accrued GST liability of the Concessionaire. However, the payment for GST liability was not permitted under OTFIS and no approval from the Review Committee was obtained prior to release of amount. The IE stated (18 November 2019) that the amount including applicable interest would be recovered from first annuity payment by NHAI.
		12.35	The total funds disbursed to the concessionaire for completion of balance works was ₹ 380.91 crore while the value of work done in the project was ₹ 368.56 crore i.e. an amount of ₹ 12.35 crore excess utilized by the concessionaire.
2	Jaipur - Gurgaon	44.61	NHAI infused OTFIS of ₹ 345.68 crore up to December 2019 out of which only ₹ 301.07 crore were utilized for completion of works under OTFIS, hence ₹ 44.61 crore were utilized on works other than pending under OTFIS.
	Total	74.49	

Source: Records provided by NHAI

Annexure -XXX
(Referred to in Para 8.2)

Conditions precedent to be fulfilled by the parties to the Concession Agreement (clause 4) and their status as on 28 August 2019 when NHAI terminated the Concession Agreement

Conditions precedent of NHAI		
Sl. No.	Particulars	Whether fulfilled? Status
1	Procuring for the Concessionaire the right of way to the site in accordance with the provisions of clauses 10.3.1 and 10.3.2	Yes
2	Procuring all applicable permits relating to environmental protection and conservation in respect of land forming part of the right or way under clauses 10.3.1 and 10.3.2	Yes
3	Procuring forest clearance for and in respect of land forming part of the right or way under clauses 10.3.1 and 10.3.2	Yes
4	Procuring approval of the general arrangement drawings for the road over bridges/ under-bridges at level crossings on the project	Yes

Conditions precedents of Concessionaire		
Sl. No.	Particulars	Whether fulfilled? Status
1	Provide Performance Security to NHAI along with the additional performance security, if required in terms of clause 9.1 and clause 9.7 of CA	Yes
2	Execute Escrow Agreement	No
3	Execute Substitution Agreement	No
4	Procure all the Applicable Permits specified in Schedule-E unconditionally or if subject to conditions, then all such conditions required to be fulfilled by the date specified therein shall have been satisfied in full and such Applicable Permits are in full force and effect	No
5	Execute the Financing Agreements and deliver to NHAI three true copies thereof, duly attested by a Director of the Concessionaire	No
6	Deliver to NHAI three true copies of the Financial Package and the Financial Model, duly attested by a Director of the Concessionaire, along with three soft copies of the Financial Model in MS Excel version or any substitute thereof, which is acceptable to the Senior Lenders	No
7	Deliver to NHAI, from the Consortium Members their respective confirmation of the correctness of representations and warranties set forth in sub clause (k), (l) and (m) of clause 7.1 of the Concession Agreement	No

Annexure -XXXI
(Referred to in Para 9.1)
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
Petroleum & Natural Gas	Oil and Natural Corporation Limited	Gas	82.34
Petroleum & Natural Gas	Oil and Natural Corporation Limited	Gas	165.20
Petroleum and Natural Gas	Indian Oil Corporation Limited	Non-recovery of penalty from customers/ distributors on account of shortages of LPG cylinder caps.	25.35
Power	Damodar Valley Corporation	Excess deduction of ₹3.93 crore on account of Bank Guarantee charges remained unnoticed due to poor internal control.	60.00
Power	THDC	Non-recovery of mandatory workers' welfare cess from the contractor.	102.00
Power	NTPC Tamil Nadu Energy Company Limited	Non-recovery of unloading charges from TANGEDCO on account of utilization of Coal Berth-2 for unloading coal.	3,183.68
Road Transport & Highways	National Highways Authority of India	Short-recovery of mandatory Workers' Welfare Cess from the contractors.	124.74
Steel	Steel Authority of India Limited	Extra payment made to the contractor on account of procurement of diesel at higher rate.	1.67
Total			3,744.98
Say			₹37.45 crore

Annexure -XXXII
(Referred to in Para 9.2)
Corrections/ rectifications at the instance of Audit

Name of the Ministry	Name of the PSU	Audit observation in brief	Action taken by the Management
Ministry of Housing and Urban Affairs	Bangalore Metro Corporation Limited	<p>As part of the Tripartite Agreement signed (December 2010) between BMRCL, Government of Karnataka and the Government of India, all the state/ local taxes and duties/ levies paid as part of the execution of the Bangalore Metro Rail Project are reimbursed by Government of Karnataka. The Company was not entitled for reimbursement of central taxes.</p> <p>However, Audit noticed that the GST TDS amounting to ₹677.69 lakh, deducted from the contractor bills for the period from October 2018 to January 2019, was erroneously included in the claims (February 2019) submitted to Government of Karnataka and the same was received in March 2019.</p>	Based on the audit observation, BMRCL informed (March 2023) that it has rectified the claim in January 2023 by deducting this amount from other claims receivable from the Government of Karnataka.

Annexure -XXXIII
(Referred to in Para 10.1)

Statement showing the details of Audit Reports (Commercial) for last five years upto 2022 for which first Action Taken Notes were pending

Audit Report number and year of the Audit Report		Para No.
Ministry of Civil Aviation		
15 of 2023	Standalone Compliance Audit	Chapter I
Ministry of Finance (Department of Financial Services)		
12 of 2024	Compliance Audit	4.1
12 of 2024	Compliance Audit	4.2
12 of 2024	Compliance Audit	4.3
12 of 2024	Compliance Audit	4.4
12 of 2024	Compliance Audit	4.5
12 of 2024	Compliance Audit	4.6
Ministry of Finance (Department of Investment and Public Asset Management)		
12 of 2024	Compliance Audit	4.7
Ministry of Heavy Industries		
15 of 2023	Standalone Compliance Audit	Chapter II
12 of 2024	Compliance Audit	5.1
Ministry of Housing & Urban Affairs		
12 of 2024	Compliance Audit	7.1
Ministry of Mines		
12 of 2023	Performance Audit	Entire Report
Ministry of Petroleum and Natural Gas		
13 of 2022	Performance Audit	Entire Report
2 of 2024	Standalone Compliance Audit	Chapter I
2 of 2024	Standalone Compliance Audit	Chapter II
12 of 2024	Compliance Audit	2.1
12 of 2024	Compliance Audit	2.2
12 of 2024	Compliance Audit	2.3
12 of 2024	Compliance Audit	2.4
12 of 2024	Compliance Audit	2.5
Ministry of Power		
12 of 2024	Compliance Audit	3.1
12 of 2024	Compliance Audit	3.2
12 of 2024	Compliance Audit	3.3

Audit Report number and year of the Audit Report		Para No.
Ministry of Road Transport and Highways		
12 of 2024	Compliance Audit	8.1
12 of 2024	Compliance Audit	8.2
12 of 2024	Compliance Audit	8.3
12 of 2024	Compliance Audit	8.4
12 of 2024	Compliance Audit	8.5
12 of 2024	Compliance Audit	8.6
12 of 2024	Compliance Audit	8.7
12 of 2024	Compliance Audit	8.8
Ministry of Steel		
15 of 2023	Standalone Compliance Audit	Chapter III

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