

CHAPTER II

Performance Audit on Construction and Improvement of Roads and Bridges under Road Development Programme

CHAPTER II

WORKS DEPARTMENT

2. Performance Audit on Construction and Improvement of Roads and Bridges under Road Development Programme

Executive Summary

The Works Department, Government of Odisha, is responsible for construction, improvement and maintenance of national highways, State highways, major district roads and other district roads and bridges. The Department implements schemes for construction and maintenance works with funds provided by the Government of India, the State Government through budgetary support and loan assistance from National Bank for Agriculture and Rural Development. Under the Road Development Programme (State Plan), the Department undertakes construction of railway over bridges (ROB), flyovers, underpasses, ring roads, projects for improvement of urban roads, land acquisition for projects etc. An expenditure of ₹7,440.51 crore was incurred under RDP during the last five years (from 2018-19 to 2022-23).

This Performance Audit was conducted for the period 2018-23, to assess planning, financial management, contract management, execution of works, monitoring and internal control mechanism for construction and maintenance of roads under RDP. The audit was conducted in 15 of 49 Roads and Building Divisions, test-checked through stratified random sampling method.

The audit conclusions are as follows:

Planning

Guidelines for systematic planning, allocation, release and utilisation of funds, besides criteria, norms and procedure for selection of projects were not framed by the Works Department.

A Master Plan was not prepared, and projects were executed on pick and choose basis which resulted in taking up of road works in a piecemeal manner. This led to non-completion of continuous chainage of roads, revision in Detailed Project Reports (DPRs) post commencement of works and absence of quality control and monitoring mechanism.

Out of 544 works whose stipulated date of completion was already over as of November 2023, only 74 works were completed within the stipulated period. Time overrun was noticed in 184 completed works and 286 works in progress.

Due to non-acquisition of required land, not shifting of utility services and non-accordance of forest clearance, works could not be completed and were closed midway, leading to unfruitful expenditure.

Improper planning coupled with inadequate survey for road construction and improvement projects, led to wasteful expenditure.

Financial management

Against budgetary allocation of ₹8,395.70 crore for construction of Roads, Bridges and ROBs during the year 2018-23, ₹7,440.52 crore was spent, and the balance of ₹955.18 crore was surrendered, due to non-utilisation of funds.

An advance of ₹8.04 crore was provided to Odisha Bridge Construction Corporation (OBCC) against work value of ₹9.63 crore. Out of the above, only ₹5.52 crore had been adjusted and balance ₹2.52 crore along with interest of ₹2.02 crore had not yet been deposited back by OBCC.

Contract management and project implementation

Though there was delay in execution of works due to negligence of contractors, the Department did not impose penalties on defaulting contractors.

Estimates were prepared in deviation to Indian Road Congress (IRC) Specifications, schedule of rates and analysis of rates prescribed by the Department, which led to extra cost and undue benefit to the contractors.

Quality Control, Monitoring and Internal Control Mechanism

Against the sanctioned strength of 660 posts in various cadres, there were 245 (37 per cent) vacancies in 15 test-checked R&B divisions. Further, 62 per cent vacancies in six Quality Control Divisions were noticed as of March 2023.

In the absence of specific instructions for quality assurance, quality control tests were not conducted as per requirement. In test-checked divisions, out of 573 works executed under RDP, quality control tests were conducted only in 86 works (15 per cent) by QC Divisions during 2018-2023.

Recommendations:

- 1. The Government may prepare guidelines and develop a long-term Master Plan for RDP, outlining norms for project selection, fund allocation and utilisation, to avoid execution of works on pick and choose basis.*
- 2. The Government may ensure completion of works within the stipulated period and fix responsibilities for the delays due to frequent changes in design, unwarranted delays in land acquisition, and negligence of contractors etc.*
- 3. In order to guarantee completion of projects on time and provide benefits of seamless road transport to the public, the Government should put in place systems to ensure timely acquisition of all the land required and provide encumbrance free sites for road projects.*
- 4. The Government may ensure that detailed field surveys/ investigations are carried out before finalisation of designs to minimise the need for revision in the scope of work during execution and limit the risk of time and cost overruns.*

5. *The Government should ensure better planning to guarantee continuous chainage and not repairs of road reaches in patches.*
6. *The Government should ensure effective utilisation of budgetary allocations.*
7. *The Government must consider using fly ash in the construction of roads and bridges both for economical execution of works and environmental protection.*
8. *The Government may strictly follow State's Analysis of Rate and Schedule of Rate in preparation of estimate for execution of work economically.*
9. *In cases where the reasons are not justified and EoT is not granted, the Government must impose penalties on contractors in accordance with the agreement clause for non-completion of works within the stipulated time frame.*
10. *The Government may enforce the DLP of three years in each work, as per the standards prescribed by the MoRT&H.*
11. *The Government may obtain additional performance securities within seven days of issue of letter of acceptance and should release them only on successful completion of the works.*
12. *The Government may take necessary steps to fill up vacant posts to ensure timely completion, monitoring and quality control of works.*
13. *The Government may take steps for quality check of all works as per IRC & MoRT&H specifications and improve the monitoring and internal control mechanism to guarantee better quality of works execution.*

2.1 Introduction

The Works Department (Department), Government of Odisha (GoO), looks after construction, improvement, widening and maintenance of roads and bridges across the State. The Department maintains 31,317 kms of roads, which includes 5,753 kms of National Highways (NHs), 4,124 kms of State Highways (SHs), 2,631 kms of Major District Roads (MDRs) and 18,809 kms of Other District Roads (ODRs). Improvement/widening of roads and construction of bridges were taken up by the Department under various schemes funded under the State Plan (SP), Centrally Sponsored Plan (CSP) and loan assistance from Rural Infrastructure Development Fund (RIDF), operationalised by the National Bank for Agriculture and Rural Development (NABARD).

The State Government has been providing funds under the Road Development Programme (State Plan) since 2006-07 for construction of flyovers, underpass, ring roads, bypasses, bridges, improvement of urban and important roads, land acquisition, quality control and planning research, formulation of Detailed Project Reports (DPRs) and capacity building *etc.* GoO also provides funds for

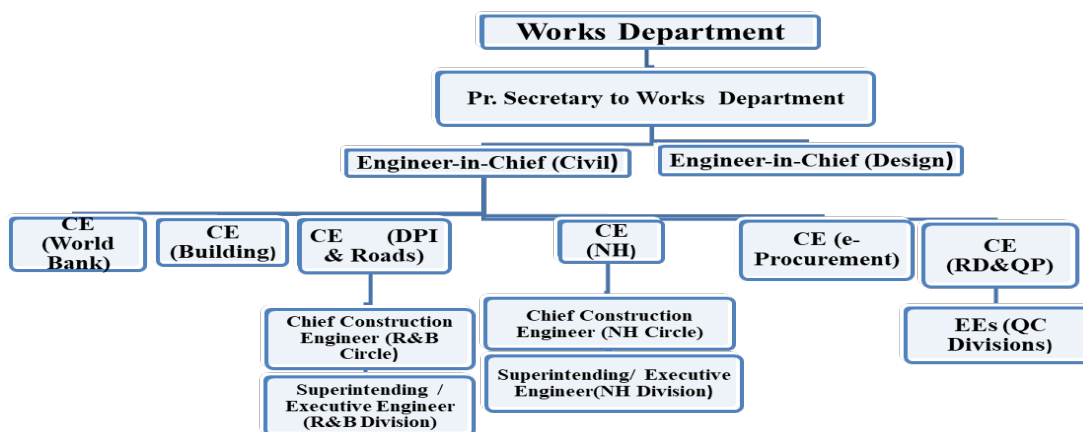
construction of railway over bridges (ROBs) on 50:50 sharing basis with the Ministry of Railways.



2.2 Organisational Structure

At the State level, the Principal Secretary, Works Department is the administrative head, while the field formation includes two Engineers-in-Chief (EICs), six Chief Engineers (CEs), 20 Chief Construction Engineers (CCEs) responsible for the administration and control of public works of the Department within their circles. Besides this, there are 80 Superintending Engineers (SEs)/ Executive Engineers (EEs) in-charge of Public Works Divisions in the State. The organisational structure of the Department is depicted in **Chart 1.1**.

Chart 1.1 Organisational structure of Works Department



2.3 Audit Objectives

The Performance Audit was conducted to assess whether the:

- planning process for construction and maintenance of roads and bridges was effective;
- financial management was efficient and effective;

- contract management and execution of works were carried out economically and efficiently;
- maintenance of roads and bridges was adequate; and
- quality control, monitoring and internal control mechanism were adequate and effective.

2.4 Audit Scope and Methodology

The Performance Audit was conducted from May to November 2023 covering the five-year period from April 2018 to March 2023. Out of 49 Divisions executing works under RDP, 15⁵ Roads and Building (R&B) divisions were test-checked through stratified random sampling method. Besides, the records and data of the offices of the Principal Secretary, Works Department, EIC (Civil), two CEs, and six Regional Laboratories⁶ were also checked during Audit.

Audit methodology involved scrutiny of records/ files including collection and analysis of data/ information through examination of records, issuing of audit observations, conducting joint physical verification of roads and gathering evidence such as photographs of sites, *etc.*

An Entry Conference was held on 25 May 2023, with the Principal Secretary, Works Department (WD) and Heads of the Departments where the audit objectives, criteria, scope and methodology were discussed. Audit findings were discussed in the Exit Conference held on 28 June 2024 and replies received were incorporated in the corresponding paragraphs.

2.5 Audit Criteria

Audit Criteria were sourced from the following:

- Guidelines, Orders, Circulars and Instructions of Government of India (GoI)/ GoO issued from time to time;
- DPRs, Standard Specifications and Contract Conditions;
- Indian Road Congress (IRC) guidelines, Ministry of Road Transport and Highways (MoRT&H) specifications, State Schedule of Rates (SoRs) and Analysis of Rates (AoRs);
- Odisha Public Works Department (OPWD) Code, Odisha Budget Manual and Financial Rules, 1963;
- Inspection Notes of relevant authorities and minutes of various meetings.

⁵ Balangir, Panikoili, Bhubaneswar-II, Kantabanji, Boudh, Balasore-II, Bhanjanagar, Ghatagaon, Khordha, Nabarangpur, Rairangpur, Mayurbhanj, Rourkela, Jharsuguda and Cuttack-II R & B Divisions

⁶ The role of Regional Laboratories is to check the quality of different construction works in the state of Odisha

2.6 Acknowledgement

Audit acknowledges the cooperation and assistance extended by the Works Department, EIC (Civil), SEs and EEs of test-checked divisions in the conduct of the Performance Audit.

2.7 Audit Findings

2.7.1 Planning

Comprehensive planning for expansion and upgradation of road network is essential as the road transport system contributes towards better transportation of agricultural/industrial products, smoother movement of passenger traffic, growth of industries and supports socio-economic growth. Hence, infrastructure facilities should be developed in such a way that they cater to the needs of end users.

Audit findings in this regard are as discussed below:

2.7.1.1 Non-preparation of Guidelines and Master Plan under RDP

For effective and well-organised implementation of any scheme or programme, specific guidelines and a master plan should be prepared. These guidelines *etc.*, should outline the planning process, norms and criteria for project selection, fund allocation and utilisation, standard specifications for execution, as well as targets and achievements *etc.*

The Road Development Programme (as part of the State Plan) had been under implementation since 2006-07. Audit observed that 1,877 road and bridge works were taken up by the Department for construction/ improvement at an estimated cost of ₹7,441 crore under RDP during 2018-23. However, no Scheme Guidelines and Master Plan had been framed for proper identification/ selection and prioritization of works under RDP, despite more than 17 years having elapsed since the implementation of the Scheme, which resulted in taking up of road works in a piecemeal manner. This led to non-completion of continuous chainage of roads, revision in Detailed Project Reports (DPRs) post commencement of works and absence of quality control and monitoring mechanism as detailed in the subsequent paragraphs.

The Government stated (July 2024) that preparation of Guidelines for RDP is under consideration and noted the audit observation regarding Master Plan, without specifying further action.

Recommendation:

- 1. The Government may prepare guidelines and develop a long-term Master Plan for RDP, outlining norms for project selection, fund allocation and utilisation, to avoid execution of works on pick and choose basis.***

2.7.1.2 Delay in completion of work

As per Clause 2(a) of ‘Conditions of Contract’, of the various works related agreement, the time allowed for carrying out the work as entered in the tender, shall be strictly observed by the contractor. As such, work should be completed within the stipulated agreement period.

There was no overall database being maintained by the State for monitoring projects under RDP. However, scrutiny of records of 15 test-checked divisions revealed that 573 Road and Bridge works had been taken up during 2018-2023 and the physical progress of those works is given in **Table 2.1**:

Table- 2.1: Physical progress of works during 2018-2023

Year	No. of works taken up	No. of works completed		No. of works in progress
		Within stipulated period	With delay	
2018-19	287	36	153	98
2019-20	35	02	13	20
2020-21	46	22	07	17
2021-22	30	01	02	27
2022-23	175	13	09	153
Total	573	74	184	315

(Source: Information furnished by the divisions to Audit)

The above table reveals that out of 573 works taken up during 2018-2023, 74 (12.91 *per cent*) had been completed within the stipulated period, while 184 works were completed with delays ranging between 10 to 1,927 days. Out of 315 works still in progress (as of November 2023), 286 works were delayed for periods ranging between five to 1,951 days, while 29 works were progressing within the stipulated timeframe. Non-acquisition or delayed acquisition of land, not shifting of utility services, delay in obtaining mandatory clearances as well as changes in drawings and designs post tendering, were the main reasons for delay in road construction and improvement projects under RDP. Specific cases illustrating delays under RDP, as noticed during audit, are discussed in subsequent paragraphs.

The Government accepted (July 2024) that while some projects were completed within the stipulated timeframe, others were not. However, no specific reply was furnished by the Department.

Recommendation:

2. *The Government may ensure completion of works within the stipulated period and fix responsibilities for the delays due to frequent changes in design, unwarranted delays in land acquisition and negligence of contractors etc.*

2.7.1.3 Avoidable extra expenditure of ₹39.65 crore due to widening of ODRs to Intermediate Lane and Double Lane

Paragraph 2.6.4 of IRC-SP:20-2002 for Rural Roads stipulated that the carriage width of Other District Road (ODR) should be 3.75 m. Further, Paragraph 11.1 of IRC-64-1990 recommended traffic volume for Intermediate Lane (IL) in plain terrain as 5,800 to 6,000 Passenger Car Units (PCUs) per day and in rolling terrain as 5,600 to 5,700 PCUs per day. For Double Lane (DL) in plain terrain the recommended traffic volume was 12,500 to 15,000 PCUs per day and in rolling terrain it was 10,000 to 11,000 PCUs per day. Paragraph 4.3.1 of IRC 37-2018 also prescribed a design life of 15 years for the ODR.

Scrutiny of records revealed that the estimates for 24 ODRs in nine divisions⁷ were technically sanctioned and awarded (between April 2018 and December 2022) at a cost of ₹115.46 crore, with a stipulated date of completion between May 2019 and November 2023.

Audit observed that carriageway of 18 ODRs with PCUs ranging from 458 to 1,671 were taken up for widening from single lane (SL) to IL and six ODRs with PCUs between 758 to 3,138 were taken up for widening from SL to DL as given in **Table 2.2**:

Table -2.2: Roads taken up from single lane to intermediate lane and from intermediate lane to double lane

Sl. No.	Lane status of the roads	No. of roads	Applicable minimum PCU	PCU range for the roads	Range of Projected PCU after 15 years
1	SL to IL	18	5,600	458 to 1,671	953 to 3,613
2	SL to DL	06	10,000	758 to 3,138	1,577 to 6,527

The PCUs for the projects were worked out by the concerned divisions, based on traffic surveys carried out during December 2017 to August 2022, as per Paragraph 4.1 of IRC 9-1972.

The table above shows that in case of these 24 roads, even though the existing PCU was much lower than the applicable minimum PCU, these roads were taken up for widening from single to intermediate or double lane, resulting in excess expenditure of ₹39.65 crore, as detailed in *Appendix-II*.

The Government stated (July 2024) that the above roads were widened to accommodate anticipated significant traffic growth. The reply is not acceptable as these roads taken up for widening would not achieve the minimum prescribed PCU even in the next 15 years of the proposed structural design period of ODR, considering the traffic growth of five *per cent* per annum as prescribed under IRC-SP:37-2018.

⁷ Bhanjanagar, Cuttack-II, Ghatagaon, Jharsuguda, Khordha, Mayurbhanj, Nabarangpur, Rairangpur and Rourkela R&B Divisions

2.7.1.4 Unfruitful expenditure of ₹101.41 crore due to non-completion of works and closure of contract

Paragraph 3.7.4 of OPWD Code Vol-I stipulates that no work should be taken up on a land which has not been duly made over by a responsible civil officer. Further, OPWD Code, Para 3.2.3 regarding process of administrative approval states that after receipt of the DPR, steps should be taken for land acquisition, forest clearance, preparation of detailed estimate *etc.*

Scrutiny of records revealed that in six⁸ test-checked divisions, the works for improvement and widening of seven roads and construction of three bridge/ROBs were awarded between December 2016 and December 2021, for completion between December 2017 and September 2023 at a cost of ₹140.95 crore. However, due to non-acquisition of land and not shifting of utility services, before commencement of work, the works remained incomplete and were stopped midway. As a result, an entire stretch of a particular road/bridge project could not be taken up and the work was completed in patches leading to missing links. During the course of audit, such cases of missing links were noticed in 10 roads of six divisions during the period 2018-23.

Due to missing links and non-completion of projects in their entirety, the beneficiaries were denied the advantages of seamless road transportation links. Further, the non-completion of these ten road/bridge projects also resulted in unfruitful expenditure of ₹101.41 crore as detailed in **Table 2.3**:

Table -2.3: Details of non-completion/closure of works

Sl. No.	Name of the Division	Name of the Work	Date of Commencement/ Stipulated date of completion	Agreement Value/ Upto date expenditure (₹ in crore)	Land required/ Land acquired (in acre)	Status (percentage of completion)
1	Panikoili (R&B) Division	Improvement of road from NH-5 to Ardalua from 3/000 to 13/000 km	03.12.2018 02.12.2019	17.32 12.63	4.31 3.56	Partially completed (93)
		Improvement of road from NH-5 to Ardalua from 13/000 to 18/200 km	07.01.2019 06.01.2021	19.38 21.43		
		Construction of Jajpur Bye pass road from 0/400 to 6/390 km	26.12.2016 25.12.2017	9.69 8.89	3.38 1.78	Partially completed (71)
		Bridge in Jajpur Bye-pass Road	26.08.2021 25.08.2023	20.96 12.84		
		Improvement of road from Central Warehouse to Sai Mandir Level crossing	05.02.2019 04.07.2019	2.35 1.02	Non-shifting of utility services	Incomplete and the contract closed (43)

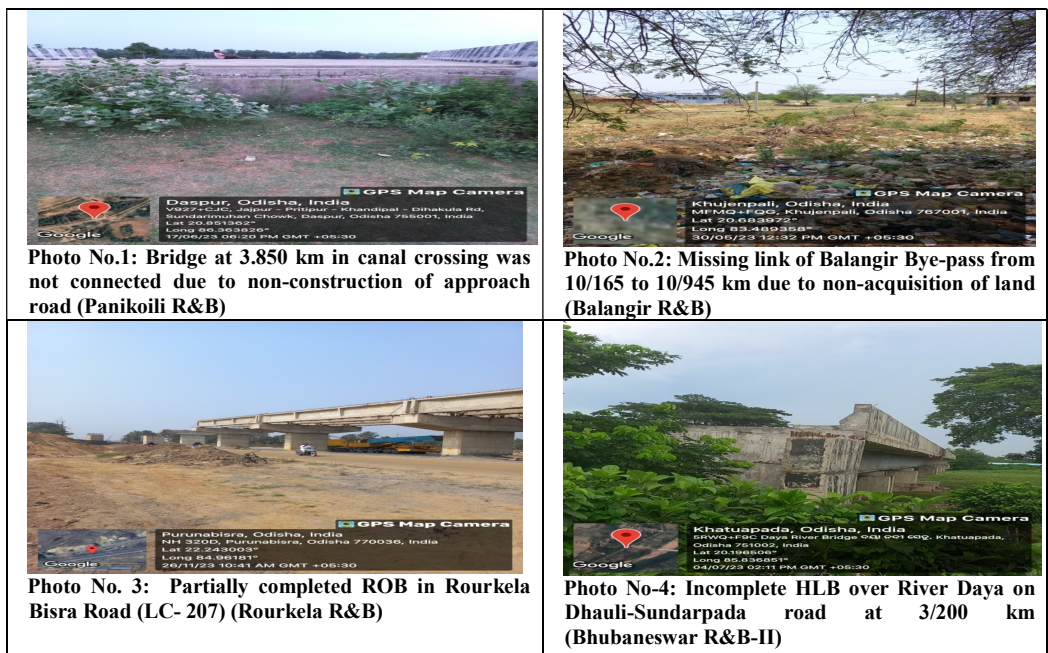
⁸ Panikoili, Balangir, Rourkela, Bhubaneswar-II, Balasor II and Jharsuguda R&B Division

Sl. No.	Name of the Division	Name of the Work	Date of Commencement/ Stipulated date of completion	Agreement Value/ Upto date expenditure (₹ in crore)	Land required/ Land acquired (in acre)	Status (percentage of completion)
2	Balangir (R&B) Division	Balangir Bypass Road of 11.575 km (Reach-I)	05.04.2017 04.03.2018	11.22 10.39	18.45 16.20	Partially completed (77)
		Reach-II	23.12.2021 22.09.2022	7.74 2.47		
		Reach-III	18.12.2018 17.09.2019	2.34 3.55		
3	Rourkela (R&B) Division	Construction of ROB in Rourkela / Bisra Road in lieu of existing LC 207.	17.03.2021 16.09.2023	19.98 4.53	1.43 0.00	Partially completed (23)
4	Bhubaneswar (R&B) Division II	Construction of HLB at 7/140 km of Kapilaprasad-Jatni Road	22.02.2019 21.11.2019	2.90 2.43	Bridge which is to be connected with a new road in not yet started	Partially completed (84)
		Construction of HLB over River Daya on Dhauli-Sundarpada road at 3/200 km	09.12.2016 08.06.2018	15.65 14.87	0.003 0.000	Incomplete and the contract closed (95)
5	Balasore (R&B) Division II	Improvement of old NH-60 Jaleswar Bypass Road (MDR) for widening to four Lane from 8/500 to 10/500 km	06.03.2019 05.08.2019	4.20 2.38	Non-shifting of utility services	Partially completed (57)
6	Jharsuguda (R&B) Division	Improvement of road from SH-10 to Saletikra via Talpatia and old Talpatia from 0/000 to 8/000 km.	11.02.2019 10.11.2019	3.21 1.86	No Forest clearance	Partially completed (58)
		Improvement of road from Niktimal to Bandhakani via Kudoguda Road from 0/000 to 7/070 km	08.03.2019 07.09.2019	4.01 2.12	2.32 0.00	Partially completed (53)



QR Code 1
<https://www.youtube.com/watch?v=CWhyLEvWonE>
 Courtesy: OTV
 Report on Road
 Accident at
 Balangir on 14
 June 2023

Thus, in six divisions, out of the above 10 cases, the projects remained partially complete due to non-acquisition of the entire stretch of land required in six cases, non-shifting of utility services (two cases) and in the remaining two cases both non-acquisition of required land and non-shifting of utility services. Due to the Department's failure in ensuring land availability and providing encumbrance free sites before commencement of work, only between 23 to 95 per cent of the work was completed. As a result, the works remained incomplete and were stopped midway (as shown in Photo No. 1 to 4), rendering the intended objectives unfulfilled despite incurring an expenditure of ₹101.41 crore.



The Government stated (July 2024) that the work could not be completed due to non-acquisition of land and action is being taken to resolve the land issue. The reply is not acceptable as it violates the extant provisions that prohibit undertaking work on land that has not been duly made available.

Recommendation:

3. *In order to guarantee completion of projects on time and provide benefits of seamless road transport to the public, the Government should put in place systems to ensure timely acquisition of all the land required and provide encumbrance free sites for road projects.*

2.7.1.5 Excess expenditure of ₹69.29 crore due to revision of scope of work

Paragraph 2.2.66 of the OPWD code envisages that timely and careful field survey and investigation should be undertaken before preparation of plans and estimates for any works.

Scrutiny of records revealed that in four⁹ divisions, the work of construction of one bridge and five ROBs was awarded between July 2018 and July 2019, at a cost of ₹211.90 crore. The stipulated dates for completion of these projects were between March 2020 and July 2021. However, due to improper survey and investigation before taking up the work, the designs of bridge/ROBs underwent changes during execution, resulting in a change in the scope of works. This revision led to an additional expenditure of ₹69.29 core as detailed in **Table 2.4**:

Table – 2.4: Time and cost overrun due to revision of scope of work
(₹ in crore)

Sl. No.	Name of Division / Name of work	Original Scope	Revised Scope	Agreement value	Up-to-date Expenditure	Excess expenditure (Percentage)
1	Balasure (R&B) Division II Construction of ROB in lieu of LC-52 at km 198/19-23 between Jaleswar-Amarda Road Railway Station of South Eastern Railway	Three spans of 37.28 m each of Railway portion and 27 spans of 19.25 m each with 1,000 mm dia RCC pile foundation of depth of 25 m. with Pier Shaft and Pile Cap.	Depth of the pile foundation was increased to 44 m and the size of Pile Cap, Pier Shaft and Pier Caps was changed. For service road, rough stone dry pitching over gravel backing for 320 m with stone masonry toe wall was added.	35.65	54.81	19.16 (54)
2	Balasure (R&B) Division II Construction of ROB in lieu of LC-45 between Jaleswar and Laxmannath Railway Station	Laxmannath Side		35.62	54.81	19.16 (54)
		One span of 37.28 m and one span of 31.28 m at Railway portion and 14 spans of 19.25 m.	11 spans of 19.25 m, one span of 28.25 m, 1,000 mm diameter (dia) 10 piles in a group in Pier and 12 piles in a group of abutments for a length of 43 m.			
		Jaleswar side				
	15 spans of 19.25 m in Jaleswar side with 1,000 mm RCC pile foundation, approach road of 393.19 m and service road of 1,351.78 m.	12 spans of 19.25 m, one span of 10 m, one span of 12.90 m and one span of 15.60 m C/C				
3	Boudh (R&B) division Construction of HighLevel Bridge (HLB) over river Mahanadi connecting Boudh to Ward No.13 and 14 of Marzakud of Boudh NAC	Construction of bridge of 37 spans of 25.36 m and approach road at Boudh side for a length of 297 m and one CD of three meter and Marzakud Side for 82 m of flexible pavement with provision of RCC retaining wall to discharge the water in drainage channel	Approach road at Boudh side was changed to 25 span of 10.76 m, 269 m solid slab bridge and 31 m flexible pavement.	38.21	63.84	25.63 (67)

⁹ Balasure, Boudh, Cuttack-II and Jharsuguda R&B Division

**Chapter-II: Performance Audit on Construction and Improvement of Roads and Bridges
under Road Development Programme**

Sl. No.	Name of Division / Name of work	Original Scope	Revised Scope	Agreement value	Up-to-date Expenditure	Excess expenditure (Percentage)
		of Water Resources Department as there was a provision of Box culvert of size 2/33/0 m in Boudh side approach road.				
4	Cuttack (R&B) Division II Construction of ROB in lieu of LC-CP-2 at Ch 412/3-5 on Puruna Jagannath Sadak (Nayabazar to Madhupatna road) including railway portion	Open foundation and 29 spans of 19 m each and one span in railway portion.	Pile foundation and 25 span of 19 m and one span in railway portion.	31.49	40.59	9.10 (29)
5	Cuttack (R&B) Division No. II Construction of ROB in lieu of LC-178 on Cuttack-Govindpur-Banki-Simor Road at Railway Chainage 413.432 km between Cuttack and Baranga	26 pile foundations provided for a length of service road of 382 m in two sides	29 pile foundations provided for a length of service road which had been increased to 475 m and 360 m i.e. total 835 m on both sides.	43.53	50.19	6.66 (15)
6	Jharsuguda (R&B) Division Construction of ROB in lieu of JT-1 and JT-2 near Sarbahal' in Jharsuguda Town	Pile foundation, approach slab length 3.5 m	Open foundation, approach slab length 2.7 m, sand filling in open foundation included, extra item of excavation of DI rock and RCC M-35 for footing, metalising of steel girder.	27.40	30.12	2.72 (10)

In all these cases it was noted that post tendering and finalisation of agreements, revisions in the scope of work had to be carried out due to improper initial surveys. This not only led to cost overruns as pointed out but also increased the risk of time overruns. While the original timeline for these projects ranged between March 2020 and July 2021, there were time overruns ranging between 2.4 years and 3.8 years.

The Government stated (July 2024) that load test for required design was done after finalisation of the agreement with the contractor. The reply is not acceptable, as due to inadequate survey and investigation, designs of bridge/ROBs had been changed during execution which increased the cost of

the projects substantially and project completion was delayed, defeating its very objectives.

Recommendation:

- The Government may ensure that detailed field surveys/investigations are carried out before finalisation of designs to minimize the need for revision in scope of work during execution and limit the risk of time and cost overruns.***

2.7.1.6 Wasteful expenditure of ₹26.74 crore

Paragraph 2.2.66 of the OPWD code envisages that timely and careful field survey and investigation should be undertaken before preparation of any plans and estimates for any works.

During scrutiny of records in Rourkela R&B Division, Audit observed that the work for “improvement to Koida-Dengla-Tensa-Barsuan-Kaleiposh Road from 15/000 to 24/000 km” had been technically sanctioned (August 2014) for ₹21.59 crore and awarded (April 2015) at ₹23.54 crore for construction of BT road, with May 2016 as the date of completion and the work was completed in March 2017, at an expenditure of ₹23.61 crore.

Although the road was designed for a lifespan of 10 years, the same could not survive for more than 1¹/₂ years of completion. Repairs were carried out (September 2018) and completed (March 2019) at an additional cost of ₹3.13 crore. Further, the road was severely damaged due to movement of heavy loaded vehicles in the mining area. In view of this, the District Magistrate Sundargarh decided (August 2020) to construct a concrete road, which could withstand for the next 20 years. Accordingly, the work for construction of concrete road was awarded (July 2021) at a cost of ₹48.60 crore with July 2023 as the date of completion. As of November 2023, it was noted that the work was in progress and the contractor had executed work valuing ₹49.04 crore.

Audit observed that had the Department constructed the concrete road in 2015 itself, considering the traffic load in the mining area, the periodical repair and reconstruction could have been avoided. Therefore, inadequate survey and investigation resulted in wasteful expenditure of ₹26.74 crore (construction cost of road ₹23.61 crore and repair cost ₹3.13 crore).

The Government stated (July 2024) that the wheel load stress from excessive movement of heavy vehicles resulted in severe cracking of the road. To maintain smooth flow of mineral transport, the road was developed into Pavement Quality Concrete Road. The reply is not acceptable, as repair and reconstruction could have been avoided if the concrete road had been built at an earlier stage itself since the Department was well aware of this being a mining area with heavy vehicular traffic movement.

2.7.1.7 Not taking up of improvement works in continuous chainage of roads

Scrutiny of records of test-checked divisions revealed that in three¹⁰ of 15 test-checked divisions, improvement/widening of three roads had been taken up either in different reaches during different periods or some reaches had not been taken up despite improvement being required in the continuous chainage of the road. Due to this, continuous, uninterrupted road connectivity could not be provided, leading to non-achievement of objectives even after incurring an expenditure of ₹36.71 crore, as discussed below:

- In Balasore R&B Division II, out of 14.721 kms of the Jaleswar-Paschimbad Road (ODR), widening from SL to IL/DL from 1/900 km to 14/721 km (12.821 kms) was taken up under four reaches¹¹ between December 2016 and March 2023 at ₹19.28 crore, with August 2017 to September 2023, being the due date of completion. Out of these four reaches, two were completed (December 2021 and December 2022) at a cost of ₹7.39 crore and the other two reaches had not been completed (August 2023), despite incurring an expenditure of ₹4.99 crore. It was noted that the entry point of the road from 0/000 km to 1/900 kms had not been taken up (since December 2016) and remained as SL road in distressed condition, affecting flow of traffic to the district headquarters of Balasore. Thus, widening and improvement of continuous chainage of the road from 0.000 km to 14.721 kms for smooth traffic could not be achieved as the entry point of the road was not taken up, despite an expenditure of ₹12.38 crore.



Photo No-5: Existence of SL road in the entry point of Jaleswar to Paschimabad from 0/000 to 1/900 km due to non-improvement /widening of road (Balasore R&B-II)

- In Khordha R&B Division, out of 21.200 kms (from 13/000 to 34/200 kms) of Pattanaikia-Delanga-Khordha road, improvement and widening of 5.900 kms from IL to DL was executed (February 2019) in two reaches (from 22/200 to 27/400 km and 32/800 to 33/500 km), with stipulated completion in August 2019 and November 2019. Both the reaches were completed (October 2020 and June 2021) at a cost of ₹4.83 crore.

¹⁰ Balasore, Khordha, and Mayurbhanj R&B Divisions

¹¹ Chainage 1.900 km to 5.000 km taken up in December 2016, 5.000 km to 8.200 km in February 2019, 8.200 km to 12.290 km in May 2022 and 12.290 km to 14.721 km in March 2023

However, the balance portion of the road¹² was neither taken up for improvement nor was periodic maintenance work carried out by the Division during April 2018 to October 2023. The road remained in dilapidated condition with potholes (October 2023). In absence of improvement and periodic maintenance of this road which connects NH 316 (in Puri district) to NH 16 (in Khordha district), smooth traffic movement could not be achieved even after incurring an expenditure of ₹4.83 crore.



Photo No-6: Non-executed portion of Pattanaikia-Delang-Khordha road with big potholes (Khordha R&B)

- In Mayurbhanj R&B Division, construction work of two bridges on Baripada-Patrapur-Badasahi-Manitri road at 14/900 kms and 15/300 kms was awarded in July 2018 and September 2018. These works were awarded at a total cost of ₹24.03 crore for completion by October 2019 and March 2020. However, both the bridges could not be completed (as of November 2023) as the required land was not made available by the State. Thus, due to the non-completion of two bridges more than five years from the scheduled date of completion, the continuous chainage for the purpose of smooth traffic in the road could not be achieved, despite incurring an expenditure of ₹15.23 crore (as of November 2023).



Photo No-7: Incomplete H.L Bridge over Budhabalanga river (Mayurbhanj R&B)

The Government accepting the fact stated (July 2024) that the improvement in continuous chainage of the road was not achieved due to non-availability of required land and negligence of the contractors in completion of works. The reply is not acceptable as no step had been taken for land acquisition, and penalty was also not imposed on defaulting contractors.

Recommendation:

5. The Government should ensure better planning to guarantee continuous chainage and not repairs of road reaches in patches.

¹² From 13/000 km to 22.200 km, 27/400 km to 32/800 km and 33/500 km to 34/200 km

2.7.2 Financial Management

GoO provides funds under the Road Development Programme (State Plan) for the construction of roads and bridges, through State budgetary support.

2.7.2.1 Non-utilisation of Budget under RDP

Rule 46 of Odisha Budget Manual, 1963, stipulates that while preparing budget estimates the aim must be to prepare the estimates as accurately as possible, as well as to not overestimate and show large savings at the end of the year. Hence, budget estimates must be prepared on a realistic basis.

Audit observed that against the budget provision of ₹8,385.70 crore under RDP, for construction of Roads, Bridges and ROBs during 2018-2023, an amount of ₹7,430.52 crore was spent. The balance of ₹955.18 crore was surrendered by the Department due to non-utilisation of funds. The allotment and expenditure under RDP during 2018-23 are given in **Table 2.5**:

Table-2.5: Allotment and Expenditure in the State under RDP during 2018-2023

(₹ in crore)

Year	Allotment	Expenditure	Surrender	Percentage of surrender
2018-19	1,161.65	1,161.65	0	0
2019-20	1,786.68	1,786.68	0	0
2020-21	1,761.22	1,595.27	165.95	9.42
2021-22	1,786.15	1,131.43	654.72	36.66
2022-23	1,890.00	1,755.49	134.51	7.12
Total	8,385.70	7,430.52	955.18	11.39

[Source: EIC (Civil), Odisha, Bhubaneswar]

Out of the ₹955.18 crore *i.e.*, 17.57 *per cent* of allotment during FYs 2020 to 2023 that was surrendered, ₹654.72 crore *i.e.*, 36.66 *per cent* of the allotment was surrendered in the FY 2021-22.

Further, Audit observed that in the 15 test-checked divisions, a budget provision of ₹2,528.93 crore was made during 2018-23 under RDP. Against this the divisions incurred an expenditure of ₹2,477.60 crore and surrendered ₹51.33 crore to the Department. Substantial amounts had been surrendered by Nabrangpur R&B Division (₹16.86 crore), followed by Boudh R&B Division (₹10.61 crore) and Bhanjanagar R&B Division (₹10.00 crore). The delay in execution of road and bridge works resulted in surrendering of funds by these divisions.

The Government stated (July 2024) that the funds allotted from the year 2020-21 onwards could not be fully utilised due to COVID. However, all efforts are being made to fully utilise the funds provided.

Recommendation:

- The Government should ensure effective utilisation of budgetary allocations.**

2.7.2.2 Non-realisation of advances with interest from Odisha Bridge Construction Corporation

Paragraph 3.7.21 of OPWD Code prohibits the payment of advances to contractors as a rule and states that every endeavor should be made to maintain a system under which no payment is made except for work actually done. When the issue of such advances is indispensable, sanction of the Government should be obtained in exceptional circumstances, and such advances should carry interest at the rate of 18 *per cent* per annum.

Audit observed that in violation of the above codal provision, works advance of ₹8.04 crore was released (between May 2018 and August 2019) to Odisha Bridge Construction Corporation (OBCC) against work value of ₹9.63 crore by two divisions¹³, based on approval of the Works Department, GoO. Out of the above advance, only ₹5.52 crore was adjusted and balance of ₹2.52 crore along with interest of ₹2.02 crore had not been recovered (November 2023), as detailed in *Appendix-III*.

The Government stated (July 2024) that letter has been issued to OBCC to utilise the funds or return the advance.

2.7.3 Project Implementation

Indian Roads Congress has prescribed standards and code of practices for construction of roads and bridges which were to be followed in preparation of estimates and execution of works. Apart from this, the Department was to follow the OPWD Code, Schedule of Rates (SoR) and Analysis of Rates (AoR) in course of execution of projects.

Further, paragraph 3.4.10 of OPWD Code stipulated that estimates should be prepared in the most economical manner, as per actual requirements. For this purpose, the Divisional Officer has to certify that they have personally visited the site and prepared the estimates by using the sanctioned SoR, thus providing for the most economical and safe way of executing the work.

Scrutiny of sanctioned estimates of test-checked R&B divisions revealed that there were deviations from the provisions of OPWD Code, SoR, AoR and IRC Specification. The deviations noticed in the 15 test-checked divisions are discussed in the succeeding paragraphs.

2.7.3.1 Avoidable extra cost of ₹24.27 crore due to non-utilization of fly ash for construction of embankment of roads

The Ministry of Environment and Forests (MoEF), Government of India (GoI) had issued notification¹⁴ for utilisation of fly ash for construction of roads and flyovers. Accordingly, the MoRT&H, issued (August 2018) directions that it is mandatory to use fly ash in the construction of roads or flyover embankments within a radius of 300 km of a Thermal Power Plant (TPP).

¹³ Jharsuguda and Mayurbhanj R&B Divisions

¹⁴ Notification No. 24028/14/2018-H, dated 27/08/2018

This would protect the environment and prevent dumping and disposal of fly ash discharged from coal and lignite based TPP.

Scrutiny of records revealed that in test-checked R&B Divisions, estimates of 130 works had been prepared and technically sanctioned for ₹1,336.72 crore by adopting borrow earth¹⁵ instead of fly ash. The works had been awarded between April 2018 and March 2023 at a cost of ₹1,190.80 crore. Out of the above works, 31 had been completed and 99 works were still in progress (as of November 2023).

Further, it was revealed that though 13 TPPs are within 300 km of the 15 test-checked divisions, the EEs/SEs without ensuring the availability of fly ash, provisioned for borrow earth at rates ranging between ₹126.52 and ₹140.14 per cubic mt. in the estimates/ agreements, instead of fly ash at the rate of ₹68 per cubic mt., leading to inflated cost estimates between ₹58.52 and ₹72.14 per cubic mt. Thus, construction of road embankment with 44.99 lakh cubic mt. of earth without considering the use of fly ash, inflated the costs in 130 works of 15 divisions by ₹24.27 crore as detailed in *Appendix-IV*.

No specific reply (July 2024) had been furnished by the Government relating to non-utilisation of fly ash in construction of road embankment.

Recommendation:

7. ***The Government must consider using fly ash in the construction of roads and bridges both for economical execution of works and environmental protection.***

2.7.3.2 Avoidable expenditure of ₹41.56 crore

Paragraph 4.6.1 of IS 12094: 2000 issued by Bureau of Indian Standard (BIS) stipulates that slope of road embankment should be protected by stone packing, where embankment is upto the height of six meters.

Scrutiny of records of Panikoili R&B Division revealed that to safeguard road embankment with height three meters from floods of River Baitarani, estimates of three works¹⁶ had been technically sanctioned between December 2019 and December 2020 for ₹65.04 crore. The works were awarded (between July 2022 and March 2023) for ₹63.81 crore with stipulated date of completion being between March 2023 and November 2023. The works were in progress with an expenditure of ₹18.31 crore (November 2023).

The works, *inter alia*, provided for construction of RCC retaining wall of 0.26 lakh cubic mt. and sand filling of 11.13 lakh cubic mt. for protection of road embankment from flood at a cost of ₹44.20 crore, instead of stone packing in

¹⁵ Borrow earth refers to soil or earth material obtained from Borrow area (an excavated pit) and used to provide material for road/bridge construction.

¹⁶ Construction of RCC retaining wall along with sand filling'' from NH-5 to Ardalua from 3/250 to 5/940 km, 5/940 to 8/910 km and 8/910 to 10/200 km.

the slope of the embankment for ₹2.64 crore¹⁷. No justification was provided for the construction of RCC retaining wall with sand filling instead of by using stone packing for embankment protection. Consequently, this led to avoidable extra expenditure of ₹41.56 crore, as detailed in the *Appendix-V*.

No specific reply was furnished by the Government (July 2024).

2.7.3.3 Avoidable extra cost of ₹6.48 crore due to non-deduction of existing crust in the estimates

As per IRC-37-2018, pavement thickness for roads should consist of Granular Sub Base (GSB)¹⁸, Base Course (BC) and Bituminous surfacing. This pavement thickness or design depends on the load bearing capacity of soil expressed in terms of California Bearing Ratio (CBR)¹⁹, based on the projected number of commercial vehicles plying on the road, calculated as MSA²⁰.

Audit observed that eight works in six divisions²¹ had been technically sanctioned for ₹104.20 crore and awarded between December 2018 and February 2023 at a cost of ₹89.59 crore. These works were to be completed between July 2019 and September 2023. Out of the above, two works had been completed, and six works were in progress (as of November 2023).

The estimates of these works had been taken up for widening of existing SL roads to IL and DL roads with provision of GSB, Wet Mix Macadam (WMM)²², Bituminous Macadam (BM)²³ and SDBC in both overlaying and widening portions. Though the existing roads had crust thickness comprising GSB of 75 to 200 mm and WMM of 75 to 250 mm, the divisions had further provisioned them (GSB and WMM layers) for the existing roads while preparing the estimates, without deducting the already present layers.

Thus, due to non-deduction of existing crust, excess provision of 0.44 lakh cum GSB and WMM was made in eight works, leading to extra cost of ₹6.48 crore, of which 0.42 lakh cum GSB and WMM was executed in excess leading to an excess expenditure of ₹6.22 crore as detailed in the *Appendix-VI*.

The Government stated (July 2024) that as the roads were completely damaged and the crusts were disturbed due to large depression and potholes,

¹⁷ Calculated on the basis of rate mentioned in the estimate itself for stone packing.

¹⁸ Granular Sub Base is a layer in the road foundation just above the compacted sub-grade layer. GSB prevents capillary water from rising, its particle size is so designed that the capillary action stops and cannot go beyond the GSB layer.

¹⁹ California Bearing Ratio (CBR) is a standardised test that measures the strength of the soil.

²⁰ Million Standard Axles is a unit of measurement used to calculate the cumulative number of standard axles in a lane that carries the most traffic over the design life of a road.

²¹ R&B Divisions: Balasore-II, Cuttack-II, Mayurbhanj, Nabarangpur, Panikoili and Rourkela

²² Wet Mix Macadam is a type of road construction material that is used for base and sub-base layers. It is composed of crushed aggregates, including gravel and stone dust, mixed with water and a binding agent such as bitumen emulsion or cement.

²³ Bituminous Macadam (BM) is a material consists of multiple course of compacted crushed aggregates premixed with a bituminous binder

the existing crust was not technically acceptable as part of the proposed improvement and as such was not taken into consideration. The reply is not acceptable, as it was specified in the estimates that the existing roads had crust thickness comprising sub-base of 75 to 200 mm and base of 75 to 250 mm.

2.7.3.4 Avoidable extra cost of ₹14.39 crore due to provision of excess thickness of SDBC and GSB/WMM/BM in deviation to IRC Specifications

As per Paragraphs 10 of IRC:37-2012 and 12.3 of IRC:37-2018, the thickness of SDBC and GSB/WMM/BM should be provided as per the catalogue for design of flexible pavement, considering the CBR and MSA of the road.

Audit observed that the estimates of 74 road works in 14²⁴ divisions had been technically sanctioned for ₹697.20 crore and awarded (between April 2018 and March 2023) for ₹614.56 crore, for completion between December 2018 and July 2025.

Scrutiny of sanctioned estimates revealed that these roads had CBR between four and eight *per cent* and MSA between two and 10, for which the thickness of SDBC should be between 20 mm and 40 mm as per IRC specifications. However, the divisions provided excess thickness, exceeding the required pavements, ranging between 1.8 and 10 mm in 74 works as detailed in **Table 2.6:**

Table -2.6: Details of excess thickness of SDBC

No. of Works	Thickness Provided (in mm)	Thickness required (in mm)	Excess thickness (in mm)
46	25	20.00	5.00
1	25	21.25	3.75
15	25	21.60	3.40
7	25	21.66	3.34
2	25	22.50	2.50
2	25	23.20	1.80
1	50	40.00	10.00

Against the requirement of 0.76 lakh cum of SDBC, the divisions had therefore provided 0.94 lakh cum, which led to excess provision of 0.17 lakh cum of SDBC, inflating the estimates by ₹11.83 crore, as detailed in **Appendix-VII.**

Further scrutiny of estimates of 17 works in 10²⁵ test-checked divisions, revealed that works had been technically sanctioned for ₹168.05 crore and awarded (between May 2018 and March 2023) for ₹149.98 crore, for completion between November 2018 and November 2024.

²⁴ R&B Divisions: Rourkela, Rairangpur, Panikoili, Nabarangpur, Mayurbhanj, Khordha, Kantabanji, Ghatagaon, Boudh, Bhanjanagar, Balangir, Bhubaneswar-II, Balasore-II, Cuttack-II

²⁵ R&B Divisions: Balasore-II, Mayurbhanj, Boudh, Kantabanji, Khordha, Nabarangpur, Panikoili, Rairangpur, Rourkela, Cuttack-II

In the sanctioned estimates of these works, the CBR value of the roads was between four and eight *per cent* and MSA was between two and 10. Considering these parameters, the required pavement thickness was worked out as follows: GSB: 100-230 mm, WMM: 235-240 mm and BM: 50-60 mm. However, the divisions provided excess thickness, exceeding the required pavements by: GSB: 5-135 mm, WMM: 10-15 mm, and BM: 15-25 mm, against the actual requirement. Thus, excess provision of 0.15 lakh cum of GSB/WMM/BM, resulted in avoidable extra cost of ₹2.56 crore as detailed in *Appendix-VIII*.

The Government stated (July 2024) that to ensure durability, excess thickness was provided in the road. The reply is not acceptable, since the estimates were to be prepared as per IRC specifications, and therefore the thickness of GSB/WMM/BM should have been as per IRC recommendations.

2.7.3.5 Extra cost of ₹8.28 crore due to excess provision of GSB

Paragraph 11.6 of IRC-37-2012 stipulates that GSB of 0.3 meter to 0.4 meter has to be provided in addition to excess width required for widening in the existing road.

Audit observed that in four divisions²⁶ estimates of 12 works had been technically sanctioned for ₹124.13 crore and awarded between May 2022 and March 2023 for ₹107.58 crore. These works were to be completed between January 2023 and February 2024. Out of the above works, while one work was completed, 11 were in progress (as of November 2023).

All the roads in the above mentioned projects, were existing roads with pavement width ranging between 3.000 m to 5.500 m. These roads were proposed for widening between 5.500 m / 7.000 m from their existing width. Since the roads were existing roads, GSB should have been provided in the widening portion with excess of 0.3 m only, to obtain the design width of 5.80 m/7.30 m. However, against the requirement, an excess width of GSB ranging from 0.70 m to 7.95 m had been provided, leading to an extra cost of ₹8.28 crore, as detailed in the *Appendix-IX*.

The Government stated (July 2024) that it is necessary to extend both drainage and filter layers to full width up to the slope of the embankment to have sufficient drainage. The reply is not acceptable as extension of the GSB upto the slope of the embankment should be provided where the filter and drainage layer was designed as per IRC:SP:42 and 50. However, there was no drainage provision in these roads and thus excess width of GSB in deviation to IRC specification led to extra cost.

²⁶ R&B Divisions: Boudh, Cuttack-II, Kantabanji and Mayurbhanj

2.7.3.6 Non-utilisation of excavated earth led to avoidable extra cost of ₹2.78 crore

Audit observed that in eight²⁷ divisions, estimates of 25 works had been technically sanctioned for ₹337.30 crore and awarded between January 2019 and March 2023 for ₹298.71 crore.

Further, Audit observed that for formation of road embankments in the above mentioned works, 15.96 lakh cubic mt. earth filling was required. Out of this, 10.77 lakh cubic mt earth was available from cutting of the roadways and quantity of GSB, WMM, BM SDBC, DLC PQC and moorum *etc.*, was to be deducted from the required earth filling and the balance quantity of earth had to be obtained from borrow area²⁸. Thus, balance 5.19 lakh cubic mt of borrow earth had to be obtained from borrow area. However, 7.60 lakh cubic mt of borrow earth at rates ranging between ₹127.67 and ₹162.38 per cubic mt had been obtained from the borrow pits, resulting in excess use of borrow earth of 2.41 lakh cubic mt, which led to avoidable extra cost of ₹2.78 crore, as detailed in the *Appendix-X*.

The Government stated (July 2024) that as works were in progress, the excavated earth would either be utilised at the time of construction or payment would be made as per final measurement. The reply is not acceptable, as due to non-deduction of available earth, excess borrow earth was obtained and led to extra burden to the State exchequer.

2.7.3.7 Extra cost of ₹1.58 crore due to provision of excess lead charge

As per Note 4 below Description- xiii – Road Work of AoR, 2006, for transportation of WMM/ BM/ SDBC, if lead distance is 65 km, transportation cost would be calculated for the first five km from quarry to plant and for the balance 60 kms from plant to work site. If the lead distance is more than 65 km, transportation cost for first 60 km is to be calculated from plant to work site and for the balance distance from quarry to plant.

- Audit observed that in two²⁹ test-checked divisions, estimates of five works had been technically sanctioned for ₹41.57 crore and awarded between January 2021 and January 2023 at ₹36.04 crore. Out of the above, two works had been completed and three were in progress as of November 2023.

Further, scrutiny of records revealed that the works, *inter-alia* provided laying and compacting stone aggregates of WMM, BM and SDBC with hot mix plant using crushed aggregates and the higher lead distance had been adopted for calculation of transportation charges, resulting in an extra cost of ₹1.18 crore as detailed in the *Appendix-XI*.

No specific reply was furnished by the Government (July 2024).

²⁷ Boudh, Bhanjanagar, Ghatagaon, Nabarangpur, Rairangpur, Mayurbhanj, Rourkela and Kantabanji R&B Divisions

²⁸ Borrow area is a place where the earth is to be excavated to provide fill material for road construction

²⁹ Panikoili and Mayurbhanj R&B Divisions

- Similarly, another work “Improvement such as widening and strengthening to Karanjia-Khiching road from 2/350 to 25/840 km” under Rairangpur R&B Division, had been technically sanctioned for ₹29.08 crore and awarded (April 2023) for ₹25.31 crore with February 2025 as the date of completion.

Scrutiny of records revealed that for transportation of stone products, lead distance had been provided for 67 km from the Gopalpur quarry. However, Audit noticed that for transportation of construction materials (stone aggregates), there was a shorter route (of 57 kms) available from the work site. Despite this, the division had adopted a longer distance of 67 kms, which led to an excess lead distance of 10 kms. Thus, for transportation of 0.51 lakh cum of stone products, the transportation cost had been inflated between ₹72.26 and ₹260.06 per cum, which led to undue benefit of ₹0.40 crore to the contractor.

No specific reply was furnished by the Government (July 2024).

Recommendation:

8. ***The Government may strictly follow State’s Analysis of Rate and Schedule of Rate in preparation of estimate for execution of work economically.***

2.7.4 Contract Management

2.7.4.1 Non-imposition of liquidated damages of ₹76.38 crore for delay in completion of works

As per Clause 2(a) of ‘Conditions of Contract’, the time allowed for carrying out the work as entered in the tender shall be strictly adhered to by the contractor. If the contractor fails to comply with the condition, he shall be liable to pay a penalty equal to $\frac{1}{2}$ per cent of the total estimated project cost for each day of the work remaining uncommenced, or unfinished beyond the scheduled dates, provided that the entire amount of compensation not exceed 10 per cent of the total estimated cost of the work. Further, as per Paragraph 3.5.30 of Odisha Public Works Department Code Vol. I, Extension of Time (EoT) will be allowed to the contractor, provided he applies for the same with valid reasons.

Audit observed that in test-checked divisions³⁰, out of 499 test-checked works for the period between April 2018 and March 2023, 95 works had been awarded (between August 2018 and March 2023) at a cost of ₹693.51 crore, for completion between July 2019 and November 2023. In these 95 works, although the stipulated date of completion had elapsed by 18 to 1,609 days (as of November 2023), the contractors had neither completed the works, nor had they applied for EoT. These works were still in progress as of November 2023,

³⁰ R&B Divisions: Rourkela, Rairangpur, Panikoili, Nabarangpur, Mayurbhanj, Khordha, Kantabanji, Ghatagaon, Boudh, Balangir, Bhanjanagar, Bhubaneswar-II, Balasore-II and Cuttack-II

with financial progress ranging from 0 to 97 *per cent* and expenditure of ₹385.97 crore. Despite the delays, the concerned SEs neither issued show cause notices nor did they impose penalty of ₹76.38 crore (10 *per cent* of estimated cost of ₹763.84 crore) for delayed/ disproportionate execution of 95 works, as detailed in the *Appendix-XII*. The delay in completion of works eventually deprived the beneficiaries of the benefits of a well-connected road network.

The Government stated (July 2024) that liquidated damages would be imposed after analysing the reasons for the delay in project completion. The reply of the Government is not acceptable as in 95 works despite a considerable lapse of time, the contractors had not even applied to the EEs/SEs for an EoT.

Recommendation:

9. ***In cases where the reasons are not justified and EoT is not granted, the Government must impose penalties on contractors in accordance with the agreement clause for non-completion of works within the stipulated time frame.***

2.7.4.2 Provision of less Defect Liability Period in agreement

To avoid sub-standard execution of works by the contractors, MoRT&H had prescribed (November 2010 and April 2012) that in cases where the bituminous thickness of the road is equal to or more than 40 mm, the Defect Liability Period (DLP)³¹ under the Standard Bidding Document should be three years from the date of completion of work.

Scrutiny of records in 15 test-checked divisions during the period 2018-23 revealed that in 499 works executed under RDP, the bituminous thickness of all roads was more than 40 mm. However, instead of DLP of three years, the Divisional Officers had provided DLP from three to 12 months only, resulting in undue favour to contractors. Further scrutiny of records revealed that in four works³² under two divisions, the cost of repair/ maintenance of ₹ 54.75 lakh had to be borne by the Government (between January 2021 to March 2023) as the DLP of three years had not been provided for in the applicable agreements with the contractors.

The Government noted (July 2024) the audit observation.

Recommendation:

10. ***The Government may enforce the DLP of three years in each work, as per the standards prescribed by the MoRT&H.***

³¹ The contractor is responsible for rectifying any defects or damages to the work, or any part of it, that may occur within three years from the date of completion, at their own expense.

³² Widening and Strengthening of Pantiyama-B.D. Pur road via Chhamunda from 0/000 km to 15/400 km, Widening and strengthening of 6th Km of AKO road to Polsara via Subalaya (ODR) from 7/000 km to 15/000 km, Widening and strengthening of 6th Km of AKO road to Polsara via Subalaya (ODR) from 15/000 km to 21/000 km of Bhanjanagar R&B and Improvement to Palla-Anda road from 0/00 to 1/000 km of Khordha R&B

2.7.4.3 Irregular obtaining and release of additional performance security to the contractors

As per Paragraph 3.5.5 (V) of OPWD Code Vol. I, after acceptance of tender by the concerned authority, the test-checked bidder had to submit an Additional Performance Security³³ (APS) within seven days of issue of letter of acceptance, otherwise the bid would be cancelled and the security deposit forfeited. Also, as per Clause 4I and Office Memorandum of the Department issued in March 2022, the APS was to be refunded on successful completion of the works *i.e.*, within seven days of issuance of completion certificate/provisional completion certificate.

In this context Audit observed that:

- in Jharsuguda R&B Division, APS had been obtained from the contractors in eight works after finalisation of agreements, instead of being taken within seven days of issue of Letter of Acceptance. Therefore, there were delays ranging between five and 134 days in receipt of APS of ₹3.18 crore for these works.
- in Cuttack R&B Division II, the APS of ₹4.54 crore was refunded before completion of works in two cases, leading to undue favour to the contractor. While the works were not completed as of November 2023, the APS was refunded 17 and 54 days prior to this, in each of the said works.

Thus, delay in obtaining APS and refunding it before completion of the project was not only in violation of the OPWD code, but also led to undue financial benefit to the contractor.

The Government noted (July 2024) the audit observation.

Recommendation:

- 11. The Government may obtain additional performance securities within seven days of issue of letter of acceptance and should release them only on successful completion of the works.***

2.7.5 Quality Control, Monitoring and Internal Control Mechanism

2.7.5.1 Shortage of human resources

In Public Works Divisions, Junior Engineers, Assistant Engineers and Executive Engineers are responsible for ensuring quality of works being executed by contractors under their jurisdiction besides being responsible for preparation of estimates, finalisation of contracts, progress reports, measurement of executed works, preparation of bills, *etc.* Superintending

³³ Additional Performance Security (APS) is the exact amount of differential cost of estimated cost put to tender and the quoted amount which is being obtained from the successful bidder when the bid amount is less than the estimated cost put to tender.

Engineers and Chief Engineers were entrusted with the responsibility of supervision of construction works being executed in their circles or zones.

Scrutiny of records in test-checked 15 R&B divisions revealed that during 2018-2023, against the sanctioned strength of 660 posts in various cadres, there were only 415 persons in place, leading to 245 (37 per cent) vacancies across cadres. Further, in six Quality Control Divisions, out of 103 posts, there were only 41 persons in place, leading to a vacancy of 62 (60 per cent) across various posts in these divisions (as of March 2023, as detailed in *Appendix-XIII*).

Poor manpower position in these divisions not just affected the day to day functioning of these units but also impacted how effectively crucial activities related to project execution, monitoring and quality control were being carried out. Thus, there was an urgent requirement for the Government to fill up crucial posts, especially in the Quality Control Divisions.

The Government stated (July 2024) that filling of vacant post is under active consideration.

Recommendation:

12. ***The Government may take necessary steps to fill up vacant posts to ensure timely completion, monitoring and quality control of works.***

2.7.5.2 Non-conduct of quality tests

Quality assurance is the process undertaken before or during construction which assures that the construction carried out is of satisfactory standards, quality, and minimises the risk of errors. Quality assurance includes testing of materials used in works and inspection of public works projects in view of their complex structure and involvement of huge amount of public funds.

Quality control/ assurance as specified in IRC:SP:112-2017 'Manual for quality control in Roads and Bridge Works' has to be referred to in conjunction with MoRT&H specifications for Roads and Bridge works, and all stakeholders are to ensure that all the quality tests at specified frequencies are conducted. The SOP for quality control/ assurance issued (October 2020) by the MoRT&H requires that the details of quality tests performed shall be indicated in the bills before releasing payment on the final bill. As per condition of Detailed Tender Call Notice (DTCN), sample collection and quality testing are to be conducted prior to execution as well as during execution of work as directed by the concerned Engineer in Charge and the cost is to be borne by the contractor.

Scrutiny of records in test-checked divisions and the information collected from QC Divisions to assess the tests conducted for the works executed under RDP, revealed the following irregularities:

- Out of 573 works executed under RDP during 2018-23, RA bills and final bills had been paid for 553 works, but quality control tests had been

conducted only for 86 works. Quality Control Tests for the balance 467 works with agreement cost of ₹2,031.30 crore had not been conducted, despite provision of ₹22.57 crore in the related estimates specifically for conducting these tests, as detailed in *Appendix -XIV*.

Thus, the quality of the works had not been ensured before making payment for the works, which indicated poor monitoring of quality control/ assurance.

The Government stated (July 2024) that quality test is being conducted by the contractors during execution of projects. The reply is not acceptable, as quality control tests were required to be conducted by the Quality Control divisions under the EIC, and the details of quality tests performed were to be mentioned in the bills before releasing the final payments.

2.7.5.3 Absence of internal control

Appendix-II of OPWD Code Vol-II stipulates that the Divisional Officer must check/ measure 10 *per cent* of the measurements of important and costly items in respect of works costing more than ₹two lakhs.

Audit observed that 15 test-checked divisions executed 573 works during the period 2018-23 costing more than ₹two lakhs. Accordingly, the Divisional Officers had to check/measure 57 works (10 *per cent* of total works), however, Audit found that measurement checks had not been conducted for any of the works. Thus, the objective of measurement checks to detect errors and prevent fraudulent entries, as well as to see that the works were executed as per specifications, could not be achieved which indicates failure of internal control mechanism.

The Government noted the audit observation (July 2024), without any specific reply.

Recommendation:

- 13. The Government may take steps for quality check of all works as per IRC & MoRT&H specifications and improve the monitoring and internal control mechanism to guarantee better quality of works execution.***

2.8 Conclusion

The Works Department did not frame any guidelines for systematic planning, project selection and prioritisation of road works *etc.*, under RDP. Projects were executed in patches, which led to non-completion of continuous chainage of roads. Contracts were entered into without completing the land acquisition process, resulting in non-completion of works and closing of works midway. Inadequate survey and investigation led to changes in the design of roads/bridges and revision in scope of work post tendering. Against a provision of ₹8,385.70 crore for construction of Roads, Bridges and ROBs during the years 2018-23, ₹7,430.52 crore was spent, and the balance of ₹955.18 crore was surrendered due to non-utilisation of funds. Estimates were

prepared in deviation of IRC Specifications, OPWD Code, schedule of rates and analysis of rates prescribed by the Department, leading to avoidable extra cost and undue benefit to the contractors. The required number of quality control tests could not be conducted due to which the quality of roads could not be ensured.