

CHAPTER V
Detailed Compliance
Audit on Construction
of North - South
Corridor – Biju
Expressway

CHAPTER V

WORKS DEPARTMENT

5. Detailed Compliance Audit on “Construction of North- South Corridor - Biju Expressway”

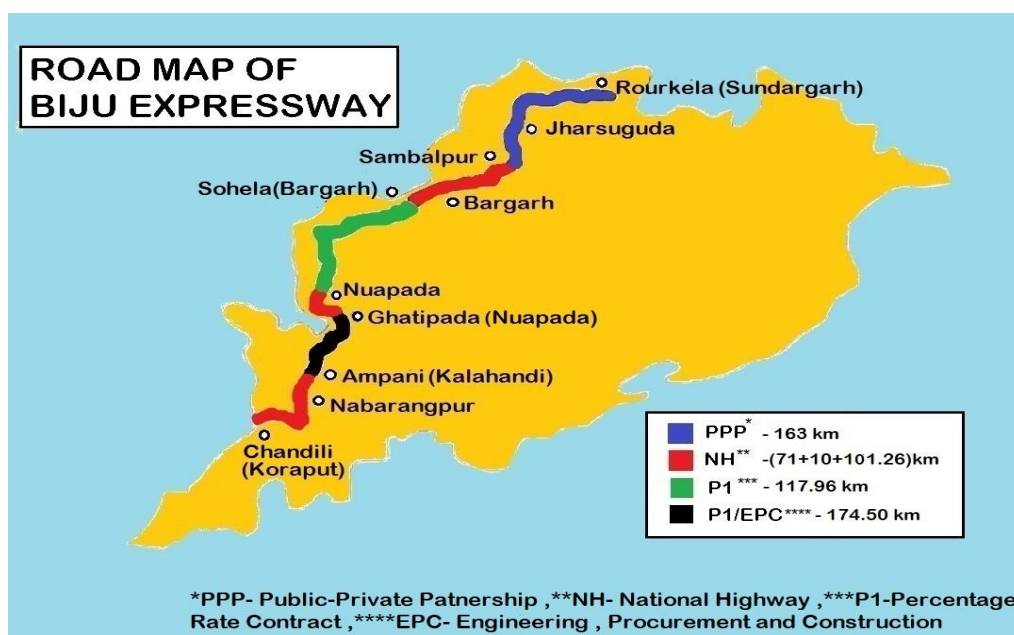
5.1 Introduction

Odisha has a road network of a total length of 30,637.90 km consisting of National Highways, State Highways and District Roads. These roads carry the bulk of the traffic and are the principal carrier of economic activities. Odisha Works Department takes care of the construction, improvement and maintenance of these roads. There has been a conscious effort to develop roads of Odisha under various schemes. In order to mitigate the isolation of the important commercial centres/ towns of Koraput, Balangir, Kalahandi (KBK) districts and other border districts, it was proposed to develop an economic corridor by providing an expressway connecting Rourkela to Jagdalpur of Chattisgarh covering eight Districts¹²⁵ of the State. After Cabinet approval (August 2015), North-South Corridor namely “Biju Expressway” (BEW) was notified (September 2015) to develop a four-lane road of 637.72 km.

5.1.1 Project proposals and present status

Proposal for construction of a four-lane North-South Corridor was submitted (August 2014) by the Chief Engineer (CE), DPI & Roads for according approval of the Engineer-In-Chief (EIC) and Secretary to Government, Works Department.

Map No. 1: Route map of Biju Expressway with mode of execution



¹²⁵ (i) Sundargarh, (ii) Jharsuguda, (iii) Sambalpur, (iv) Bargarh, (v) Nuapada, (vi) Kalahandi, (vii) Nabarangpur and (viii) Koraput

The BEW was approved in principle by the Government of Odisha (GoO) on 1 September 2014. Details of the BEW road stretch, mode of execution and the present status are given in **Table No. 5.1** below:

Table No. 5.1: Details of stretch, length, mode of execution and status of the road as of March 2021

Sl. No.	Stretch of road	Length (Kms)	Scheme/Mode of execution	Nature of Road	Present Status
1	2	3	4	5	6
1	Rourkela-Sambalpur	163	Public Private Partnership (PPP) with Viability Gap Fund (VGF)	Four lane roads	Completed
2	Sambalpur to Sohela	71	National Highways Authority of India (NHAI)	Four lane roads	Completed
3	Sohela to Nuapada	117.96	Central Road Infrastructure Fund (CRIF)/ State Plan (SP) on percentage contracts ¹²⁶	Two lane and four lane roads	In progress
4	Nuapada to Ghatipada	10	NHAI	Two lane roads	Completed
5	Ghatipada to Ampani	174.50	CRIF/ NABARD/ SP on percentage and EPC contracts ¹²⁷	Two lane and Four lane roads	In progress
6	Ampani to Jagdalpur	101.26	NHAI	Two lane roads	In progress
	Total	637.72			

(Source: data as furnished by the Department)

Out of the total length, 182.26 km¹²⁸ of National Highways (NH) were improved by NHAI¹²⁹/ MoRTH. The PPP mode project (163 km- Rourkela to Sambalpur), an existing two lane road, was awarded (November 2013) to a Concessionaire¹³⁰ for ₹1,292.56 crore for improvement to four lane with paved shoulders and concession period of 22 years including three years of construction period which formed part of BEW. The State Government approved the remaining 292.46 km of BEW from Sohela to Ampani excluding Nuapada to Ghatipada during 2015-16 for construction and completion by 2020 for a cost of ₹3,630 crore under various schemes as given in the Table above. The Department had incurred an expenditure of ₹1,191.05 crore for two lane and four lane roads from Sohela to Ampani (March 2021). The State Government instead of comprehensively developing BEW with four lanes, executed two lanes under various schemes and then ventured to convert the road into a four-laned one and encountered issues on land acquisition, alignment of roads and bridges, change in pavement specifications *etc.*, as detailed in subsequent paragraphs.

5.1.2 Audit objectives and criteria

The objectives of this Detailed Compliance Audit were to assess whether (i) the planning process including survey and investigation was adequate; (ii) the

¹²⁶ Award of work on percentage basis over the estimated cost of the project

¹²⁷ Engineering, procurement and construction (EPC) contract

¹²⁸ Sambalpur to Sohela (NH-53) for 71 km four lane road, Nuapada to Ghatipada (NH-353) for 10 km two lane road and from Ampani to Boriguma (NH-26) - Boriguma--Jagdalpur (NH-63) for 101.26 km two lane road

¹²⁹ National Highways Authority of India/ Ministry of Road Transport and Highways

¹³⁰ L&T Sambalpur-Rourkela Toll Way Limited

financial management of projects was prudent, the tendering process was transparent and execution of the projects was economical and efficient; and (iii) the quality control mechanism and monitoring system of projects were adequate and effective.

The main sources of Audit Criteria were the (i) GoO Guidelines and orders, Scheme guidelines/ Circulars and Instructions of Government of India (GoI) issued from time to time; (ii) Detailed project reports, standard specifications and contract conditions; (iii) Indian Road Congress Guidelines/ MoRT&H specifications/ Bureau of Indian Standards/ State Schedule of Rates and Analysis of Rates; (iv) Odisha Public Works Department Code and (v) Terms and conditions of Concession Agreement/PPP agreement.

5.1.3 Organisational structure, Scope and Methodology of Audit

Works Department is headed by the Commissioner-cum-Secretary to Government. The field formation of Department has one Engineer-in-Chief (Civil), seven CEs, 20 Superintending Engineers (SEs) who are responsible for the administration and general professional control of the public works within their Circles. The Executive Engineers (EEs) at the Divisional level are the executive heads of the administrative units of the Department. There are 76 EEs in charge of Public Works Divisions in the State.

Audit was conducted from August to December 2021 through test check of all seven Roads & Buildings (R&B) Divisions involved in BEW road works covering the period from 2016-17 to 2020-21. Of these, three R&B Divisions¹³¹ were involved in execution of non-PPP works and four R&B Divisions¹³² were involved exclusively in land acquisition for PPP project and utility shifting. Besides, SE, Northern R&B Circle, Sambalpur and Engineer-in-Chief (Civil), Bhubaneswar were audited for collection of information on tender finalisation, agreements and instructions issued thereon. The Audit methodology adopted included document analysis, scrutiny of works agreements, response to audit queries, issue of preliminary observation memos (POMs), photographic evidence and examination of reports and records of executing agencies. Joint Physical Inspection (JPI) of roads was also conducted to verify the conditions of roads executed. Entry Conference was held (24 August 2021) with the Commissioner-cum-Secretary to GoO, Works Department explaining the audit objectives and criteria being used to assess the BEW projects. The Audit findings were discussed in the Exit Conference held on 23 May 2022 and replies of the Government have been suitably incorporated in the report.

5.2 Construction of Roads under PPP project

5.2.1 Planning Process

It is essential to plan and implement PPP projects efficiently and meticulously and without pitfalls. In this context, it would be useful to recount the features and requirements for the successful completion of a PPP project.

¹³¹ Bargarh, Kalahandi and Khariar

¹³² Jharsuguda, Rourkela, Sambalpur-I and Sundargarah

The Empowered Committee on Infrastructure¹³³ in its meeting (June 2008) cleared the Rourkela-Sambalpur Road as economically viable and to be executed under PPP mode based on the report of the consultant¹³⁴ with equity Internal Rate of Return (IRR) of 14.6 *per cent*. As per the norms of the Committee Report a bid under PPP mode is acceptable if equity IRR is up to 18 *per cent* and if equity IRR exceeds 18 *per cent*, the project needs to be executed on EPC mode of contract. The prescribed norms were adopted from the recommendations of Mr. Chaturvedi Committee report (2009) constituted by GoI.

Subsequently, the consultant had submitted a feasibility report (June 2012) with total project cost of ₹1,292.56 crore wherein the consultant had arrived at equity IRR of 21.66 *per cent* duly recommending for EPC mode of contract. However, the PPP project was approved (September 2013) by the High Level Clearance Authority¹³⁵ of the State in accordance with the Empowered Committee Report of June 2008.

The infrastructure project of construction of Rourkela- Sambalpur Road (SH-10) from Reduced Distance¹³⁶ (RD) 00 to 163 km was taken up on Build, Operate and Transfer (BOT) basis and awarded to a Concessionaire in November 2013 for 22 years including construction period of three years. The bid was invited for ₹1,292.56 crore with maximum admissible VGF of 40 *per cent*. The bidder/ concessionaire was selected with payment of 36 *per cent* VGF rounded off to ₹465.30 crore as per the agreement, with GoI share of ₹258.51 crore for construction period and State share of ₹206.79 crore to be paid for maintenance.

The Government stated (March 2022) that the proposal had been reviewed and accepted by the statutory authorities of the Central and State Government for implementation under PPP mode. The reply was not acceptable since the equity IRR was more than 18 *per cent*, the project should have been executed under EPC mode of contract instead of PPP mode of contract.

5.2.1.1 Undue benefit to Concessionaire on inflated project price

➤ Article 11.2 and 11.4 of the Concessionaire Agreement (CA) stipulate that the cost of shifting of utility, leveling of trees and measures for safeguarding environment shall be borne by the Government.

¹³³ Empowered Committee comprised of Chief Secretary, Development Commissioner-cum-Additional Chief Secretary and heads of the Departments of Housing & Urban Development, Revenue, Commerce & Transport, Energy and Works. The committee was to prioritise, approve shelf of projects, sanction, authorize expenditure for PPP projects and recommend projects for Viability Gap Funding

¹³⁴ M/s. Price Waterhouse Coopers (PWC) was the consultant. The department had engaged the consultant during 2008 with an agreement value of ₹3.47 crore.

¹³⁵ Chief Minister of Odisha is the Chairman of High level Clearance Authority constituted for clearance of PPP projects.

¹³⁶ Reduced distance means the length of the road reduced to that extent from the starting point.

Audit noticed that the consultant had submitted the DPR estimating the project cost at Schedule of Rates (SoR) 2011 price which included cost of ₹176.18 crore towards social and utility shifting cost as well as ₹10.25 crore towards environment cost. To arrive at the tender cost of ₹1,292.56 crore during 2012-13, five *per cent* of social and utility shifting cost plus environment cost was added towards escalation. As per concessionaire agreement the above two items of works were to be executed by the Department. Hence, the project cost should have been reduced by ₹195.75 crore including five *per cent* escalation charges (₹176.18 crore + ₹10.25 crore + 5 *per cent*). Non-reduction of the expenses on works excluded from the concessionaire's responsibility resulted in undue benefit to concessionaire.

As against the actual bidding price of ₹918.41 crore, project cost of ₹1,292.56 crore was considered by the Department. As concessionaire has claimed 36 *per cent* VGF, the amount of VGF should have been pegged at ₹330.63 crore instead of ₹465.30 crore. Thus, due to preparation of faulty DPR without considering above components, excess VGF of ₹134.67 crore was paid to concessionaire.

Due to inflated estimates, the concession period was enhanced by six years. As per Concessionaire's assessment, the concessionaire would collect revenue of ₹4,876.38 crore from the general public which would include net additional profit of ₹2,322.19 crore in six years.

The Government stated (March 2022) that the total project cost for a PPP project was derived as the sum of civil construction cost, contingencies, cost for independent consultant, escalation and finance cost and interest for the period of construction. However, the reply is silent regarding payment for utility shifting and Environment cost to the concessionaire by the department.

➤ Estimates for improvement to four lane under PPP mode of the Rourkela-Sambalpur road, being a State Highway, should have been prepared based on State SoR and Analysis of Rates (AoR).

Scrutiny of records revealed that the consultant had prepared the estimates as per MoRT&H specifications with adoption of State SoRs for labour, materials, hire charges of machineries and equipment. The consultant adopted overhead charges at eight *per cent* and contractor's profit at 10 *per cent*. Over and above the overhead charges, the total centage¹³⁷ provided was 18.8 *per cent* for road works, 37.50 and 43 *per cent* for structure works and miscellaneous works, respectively, against 10 *per cent* admissible for all works as per State SoR. Thus, excess provision of centage inflated the project cost by ₹94.92 crore as detailed in **Table No. 5.2**.

¹³⁷ Percentage of estimated cost (item cost) of the project

Table No. 5.2: Details of extra cost on contractor's profit and overhead charges

Sl. No.	Description of works	Total cost (₹ in crore)	Total centages provided (MoRT&H)	Centages admissible (State SoR)	Excess centages	Extra cost (₹ in crore)
1	2	3	4	5	6	7
1	Road works	668.75	18.8	10	8.8	58.85
2	Structure Works	114.15	37.5	10	27.5	31.39
3	Miscellaneous works	14.17	43	10	33	4.68
Total						94.92

(Source: Information collected by Audit)

Similarly, other irregularities are discussed below:

➤ As per SoR, 2012 the hire charges of motor grader¹³⁸ were ₹1,545 per hour for spreading 200 cum of earth. However, the output was taken as 100 cum per hour and 50 cum per two hours for earth work in road embankment and sub-grade respectively. By adopting under rated output of motor grader, the cost was inflated by ₹9.85 and ₹64.92 per cum. For execution of earth spreading of 20.94 lakh cum in embankment and 21.23 lakh cum in sub-grade/shoulder, the cost was inflated by ₹15.84 crore during the years 2014 to 2018.

➤ As per the DPR, the rate of burrow earth was provided as ₹138 per cum whereas the fly ash was provided at the rate of ₹291 per cum for construction of embankment and sub-grade. The consultant provided 4.19 lakh cum of fly ash instead of burrow earth for execution of embankment and sub-grade without attributing any reason leading to extra project cost of ₹6.41 crore.

➤ In the detailed estimates, the rate of bitumen, was ₹45,737.02 per MT whereas in the AoR, the rate of bitumen was ₹52,670.15 per MT. Use of 26,841.13 MT of bitumen for execution of 1.30 lakh cum of Dense Bituminous Macadam (DBM) and 1.19 lakh cum of Bituminous Concrete (BC) resulted in extra project cost of ₹18.61 crore.

➤ The AoR of turfing was calculated at ₹19 per square meter (sqm). But for calculating the project cost, the rate was taken as ₹112 per sqm without assigning any reason, leading to inflation of project cost by ₹7.26 crore for execution of 7.81 lakh sqm.

➤ Non-utilisation of 6.84 lakh cum of excavated earth in construction of embankment inflated the estimated project cost by ₹4.58¹³⁹ crore.

Thus, total civil construction cost of project was inflated by ₹178.40 crore as detailed in the **Table No. 5.2 and Table No. 5.3**.

¹³⁸ Murrum and earth spreader for creating smooth and flat surface.

¹³⁹ 6.84 lakh cum x (₹138 is the cost of burrow earth per cum - ₹71 cost of utilisation of excavated earth per cum) = ₹4.58 crore

Table No. 5.3: Details of extra cost paid in excess of rate admissible

Sl. No.	Brief description of item	Quantity	Rate taken (In ₹)	Rate admissible (In ₹)	Extra cost per unit (In ₹)	Total extra cost (₹ in crore)
1	2	3	4	5	6	7
1	Spreading of earth in construction of road	20.94 lakh cum	18.35	8.50	9.85	2.06
2	Spreading of earth in construction of sub-grade and in shoulder	21.23 lakh cum	73.42	8.50	64.92	13.78
3	Utilisation of fly ash instead of earth	4.19 lakh cum	291	138	153	6.41
4	DBM/BC	26,841.13 MT	52,670.15	45,737.02	6,933.13	18.61
5	Turfing	7.81 lakh sqm	112	19	93	7.26
6	Non-utilisation of excavated earth	6.84 lakh cum	138	71	67	4.58
	Total					52.70
	Total of Table 5.2 and 5.3					147.62
	7.5 per cent contingency on construction cost					11.07
	Total					158.69
	One per cent preparation cost					1.59
	Total					160.28
	6 per cent escalation					9.62
	Total					169.90
	Further addition of 5 per cent escalation					8.50
	Grand Total					178.40

(Source: Information collected by Audit)

As detailed above, the overall bidding price was inflated by ₹374.15 crore. Thus, as against the actual bidding price of ₹918.41 crore, project cost of ₹1,292.56 crore was considered by the Department. As concessionaire has claimed 36 per cent VGF, the amount of VGF should have been pegged at ₹330.63 crore instead of ₹465.30 crore. Thus, preparation of faulty DPR without considering above components, excess of ₹134.67¹⁴⁰ crore towards VGF to concessionaire was paid.

In reply, the Government stated (March 2022) that the project proposal had been submitted to the PPPAC Department of Economic Affairs for availing 20 per cent VGF through MoRTH for which the estimate has been prepared by the consultant as per Ministry of Surface Transport (MoST) Data Book. The reply is not acceptable since the Project was a State Highway of the State Government, the State SoR/AoR should have been adopted.

5.2.1.2 Excess provision of concession period

The concession period was based on the total cost of the project and the total return to be received thereon. For the project cost of ₹1,292.56 crore the concession period was provided for 22 years. If the cost of the project had been reduced to ₹918.41 crore, the concession period would have been reduced proportionately to 16 years. As such, due to inflated estimates, the concession period was enhanced by six years. As per Concessionaire's assessment submitted to the Department, the concessionaire would collect

¹⁴⁰ Total VGF sanctioned ₹465.30 crore – VGF admissible ₹330.63 crore = ₹134.67 crore

revenue of ₹4,876.38 crore from the general public which would include net profit of ₹2,322.19 crore in six years which would be unduly benefiting the concessionaire.

The Government stated (March 2022) that the proposal had been reviewed and accepted by the statutory authorities of the Central and State Government for PPP. As per the recommendations of the Empowered Committee, the concession period of the PPP project was fixed based on the capacity of the project road for better financial returns. However, the concession period to the concessionaire should have been fixed in accordance with the cost of the project, incurred by the concessionaire and not on the basis of the life or capacity of the road.

5.2.1.3 Undue benefit of VGF to the Concessionaire

Scrutiny of records revealed that the consultant had prepared the feasibility report including the detailed cost estimates at 2011 price level. The consultant calculated the expected Passenger Car Unit (PCU) would be more than 60,000 in the year 2035. As such, the consultant suggested for concession period to be 22 years taking into account the project commencement in the year 2013. Accordingly, the MoU was signed in 2013 with concession period of 22 years.

The consultant recommended that the project is viable without Government support and the concessionaire may incline for sharing of revenue. Despite such recommendations of consultant, the basis on which the bid was invited with the Government support *i.e* provision of VGF and without revenue sharing, was not provided to Audit for scrutiny. In spite of request during entry conference and subsequent reminders (January and February 2022) to provide all records connected to PPP mode contract, the department did not provide the relevant records relating to deliberations of the Government in this regard except DPRs. In the absence of such base records, Audit could not vouchsafe the reasonability of grant of VGF to concessionaire.

Accepting the factual position, the Government stated (March 2022) that the proposal had been reviewed and accepted by the Statutory Authorities of Central and State Government for PPP. The reply is not tenable since the reasons for not accepting the consultant's recommendations for EPC mode of contract were not made available to Audit.

5.2.1.4 Avoidable expenditure due to change of scope of work

Para 3.2.7 of the OPWD Code stipulates that the proposal for work should be structurally sound and the estimates should be accurately calculated based on adequate data. Further, para 3.4.10 (i) stipulates that on every estimate submitted to the Chief Engineer for sanction, the Divisional Officer should certify that he has personally visited the spot and prepared the estimates using the sanctioned schedule of rates and provided for the most economical and safe way of executing the work. Article 16 of the Concessionaire Agreement (CA) stipulates that if any Change of Scope (CoS) during execution of work (additional work) was allowed, the cost thereof was to be reimbursed to the concessionaire by the Government. Further, Article 16.3.2 stipulates that if

any CoS during execution falls within a limit of 0.25 per cent of the total cost, it was to be borne by the Concessionaire. Any excess amount was to be reimbursed by the Government.

Test check of records revealed that the Department had executed an agreement for ₹137.57 crore under CoS in November 2016 for completion of 24 new works within the construction period. Had the department carried out proper survey and investigation, the above works would have been included in original scope and only 36 per cent amounting to ₹49.53 crore would have been payable by the Government towards VGF leading to saving of ₹88.04 crore.

In reply, the Government stated (March 2022) that provisions of OPWD Code are applicable for non-PPP projects and particularly where the proposals are technically accepted by competent authority. Since it was a PPP project, the concessionaire was expected to prepare the DPR and execute the work as per the standards set forth in the CA. Further, the Government stated that the views of Audit were noted and appropriate action would be taken care of while effecting payment to the concessionaire. The reply was not based on facts, since the Government had appointed a consultant for preparation of the DPR of the PPP project at a cost of ₹3.67 crore to submit the report to Government. Before according the approval to the DPR, the Government should have made proper survey and investigation of the items to be included in the DPR so that all the requirements were met.

5.2.1.5 Undue benefit to the Concessionaire

During checking of estimate for four laning with paved shoulders of Rourkela – Sambalpur from km 00 to km 163 of two Rail Over Bridges (RoBs) at km 18.270 and km 28.534 under the CoS work, it was noticed that for providing structural steel for steel girder the rate taken by Independent Engineer (IE) was ₹1,32,541.40 per MT whereas as per State AoR the item rate was ₹73,498 per MT. Thus, the item rate was enhanced by ₹59,043 per MT for execution of 494.56 MT of two RoBs which resulted in an undue benefit of ₹2.92 crore to the Concessionaire.



Photo No. 9: Rail Over Bridge

Accepting the factual position, the Government stated (March 2022) that the views of Audit were noted and action would be taken.

5.2.2 Execution under PPP mode

5.2.2.1 Non-construction of Flyover Bridge

Para 3.2.7 of the OPWD Code stipulates that the estimate for work should be accurately calculated based on adequate data.

The PPP project and NH- 49 crossed at RD 53 km (Prasanna Panda chowk, Jharsuguda). In order to divert the heavy traffic and for smooth flow of traffic in the above crossing a fly over bridge was included as per recommendation of Safety Consultant. The cost of the bridge was estimated as ₹26.59 crore as per DPR under CoS during 2016. Due to non-shifting of utilities by the department, the bridge could not be constructed (October 2021) by the Concessionaire. Due to delay in execution, the Independent Engineer (IE)¹⁴¹ submitted a revised estimate for ₹37.58 crore. Thus, non-execution of flyover with the original estimate not only caused additional costs of ₹10.99 crore but also deprived public of free flow of traffic.

Accepting the factual position, the Government stated (March 2022) that the views of Audit were noted and action would be taken. However, the fact remains that departmental failure in timely shifting the utilities resulted in delay and additional costs in execution of the project.

5.2.2.2 Non-dismantling of boundary wall led to non-construction of service road

As per the DPR, the boundary wall of Thelkoli High School was to be dismantled for construction of 1.36 km of service road at RD 38.67 km (June 2012). Under CoS ₹1.25 crore was paid towards cost of boundary wall and land to School authority (May 2013). On JPI (September 2021) of the site along with the departmental Engineers, it was found that the boundary wall of the school was yet to be dismantled by District



Photo No.10: Boundary Wall of Thelkoli HS

Administration. As the required land was not acquired and the structures were not demolished, the service road could not be constructed. Thus, the Department failed to provide service road facilities to the people although the PPP project had been completed since March 2018 and toll was being collected.

Accepting the factual position the Government stated (March 2022) that the views of Audit are noted and necessary action would be taken. However, the fact remained that the service road could not be constructed.

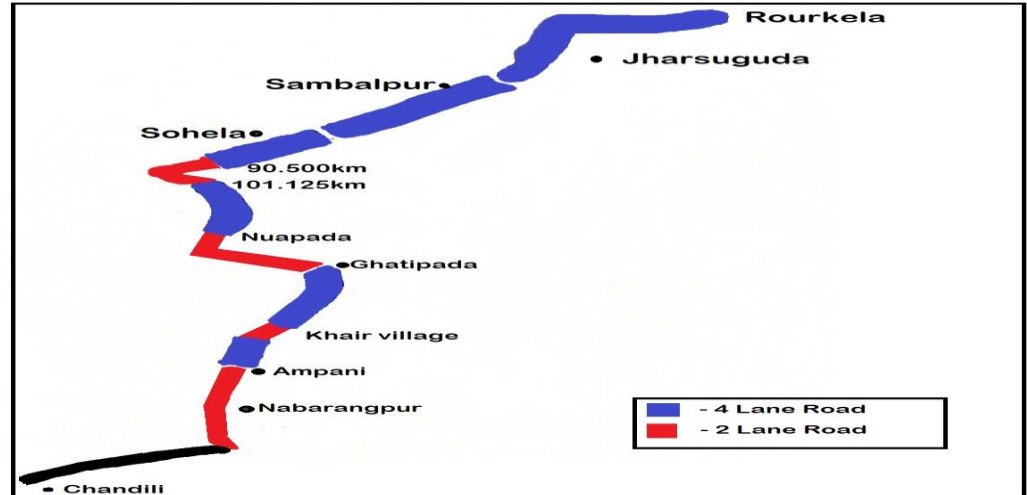
¹⁴¹ Outsourced consultant engaged by the Department for supervision, quality monitoring, etc.

5.3 Construction of Roads under Non-PPP mode

5.3.1 Planning under Non-PPP mode

5.3.1.1 Planning of Biju Expressway from Sohela to Ampani

Proposal for construction of a four-lane North-South Corridor (Biju Expressway) was mooted during August 2014 by the Chief Engineer (CE), DPI & Roads and sought approval of the EIC and Secretary to Government, Works Department. Accordingly, GoO had provided in-principle approval (September 2014) to BEW.



The road from Sohela to Ampani was approved as a four-lane Express Way of 292.46 km and targeted for completion by 2020. Although, the entire project was approved as a four-lane road, the department had taken up Sohela to Nuapada as four-lane road and Ghatipada to Ampani as two-lane road between August 2014 and August 2018 for completion between July 2015 and September 2019. The two-lane road from Ghatipada to Ampani was almost completed for ₹403.74 crore except two km stretch near Khair village and the approach road to a bridge over river Indra as of December 2021.

Before completion of the two-lane road of 174.50 km from Ghatipada to Ampani, it was taken up for improvement as a four-lane road between July 2021 and October 2021 at a cost of ₹501.78 crore (for completion by March 2023). The department had taken up the project in piecemeal basis though the project was approved for improvement as four-lane in a comprehensive manner resulting in various lapses in planning process as discussed in subsequent paragraphs.

5.3.1.2 Improper planning led to wasteful expenditure

The work of widening and strengthening of Sinapalli-Dharamgarh¹⁴² road and Ghatipada - Ampani¹⁴³ road pavement width from 3.75 m to 7 m was awarded

¹⁴² RD 0.00 to 2.00 km

¹⁴³ RD 16 to 24 km

to a contractor in August 2014 for ₹19.98 crore for completion by July 2015. During execution of work, the EIC-cum-Secretary, Works Department and CE (DPI & Roads) visited (September 2014 after in principle approval of the BEW) the site of the road and suggested to increase the pavement width to 7.25 m from 7 m and change the alignment by one meter towards left so that the road could be utilised as a part of BEW. The construction of the road was redesigned from RD 14.35 to RD 24 km with change of alignment as per suggestion of the EIC-cum-Secretary. The work was completed and the contractor was paid ₹21.91 crore in August 2017.

Further, improvement of two lane to four lane of BEW from RD 104.650 to 140 km under Ghatipada - Ampani was taken up under EPC mode in July 2021 for completion by January 2023. During JPI (December 2021) it was noticed that the entire road of 9.65 km was not utilised for improvement of the two-lane road to four lane road under BEW as the existing road was not in alignment with the new four lane road. The estimates of the EPC contract included the above portion for improvement from two lane road to four lane road. The road was not planned properly even after inspection by higher technical Authorities. Despite instructions of EIC-cum-Secretary, the design of the road was not made properly so that the road could be utilised during widening. Thus, poor planning in regard to execution of the road resulted in wasteful expenditure of ₹21.91 crore.

The project for construction of road from Ghatipada to Ampani was approved as four lanes. However, department had taken up this road as two lanes (2014 - 2018). Even before completion of this road, it was again taken up for four laning in 2021, indicating lack of foresight in planning. Further, poor planning in regard to execution of the road, resulted in wasteful expenditure of ₹21.91 crore.

In reply, the Government stated (March 2022) that the road was a single lane road with inadequate width and insufficient crust which was proposed to be widened. There was only provision for improvement of existing crust without changing the alignment. During construction of two-lane road, the alignment was considered as per the traffic at that period of time.

The reply is not acceptable as the Department failed to foresee the changes in alignment for improvement to four lane road.

5.3.1.3 Extra expenditure due to improper survey of bridge work

Para 3.4.10 (i) of OPWD Code stipulates that estimate should be prepared in most economical manner. Further, it stipulates that on every estimate submitted to the Chief Engineer for sanction, the Divisional Officer should certify that he has personally visited the spot and prepared the estimates using the sanctioned schedule of rates and provided for the most economical and safe way of executing the work.

Scrutiny of records revealed that the widening and strengthening of a two-lane road *i.e.* Dharamgarh- Ampani road from RD 28.86 to RD 41.31 km under Ghatipada to Ampani road including a bridge of 130 m length at RD 32.35 km over river Mudra (left side)¹⁴⁴ was technically sanctioned for ₹29.14 crore (includes cost of bridge ₹3.47 crore) by CE (DPI & Roads) in August 2016. The work was awarded to a contractor for ₹25.92 crore being 11.05 *per cent* less than the amount put to tender. The road work was in progress and the contractor was paid ₹28.38 crore as of April 2021.



Photo No.11 Construction of Bridge over River Mudra

Test check of the deviation statement revealed that the contractor had not executed the bridge as the alignment of road could not be executed for want of land. The allocated amount was only utilised for construction of the road from two lane to four lane by claiming additional work/ extra quantities on the road works. Audit found that this was as per the revised plan (January 2017) submitted by EE, wherein construction of the bridge was excluded from that work and tenders were called for the bridge work separately. In the revised plan, length of the bridge was increased from 130 m to 188 m with 672 m approach road. The bridge work was approved by CE (DPI & Roads) for ₹8.96 crore in September 2018. The work was awarded for ₹9.85 crore being 9.99 *per cent* excess over the estimated cost and the work was in progress (December 2021). If proper survey and investigation was done before initial estimation, the bridge could have been designed to be of 188 m length and the approach road could have been included. Hence, these works could have been executed with the original work at the contract price which was 11.05 *per cent* less than the estimated cost. Accordingly, the bridge with approach could have been executed for ₹7.96 crore. Thus, inadequate survey and investigation led to execution of the bridge through a separate contract resulting in extra cost of ₹2.12 crore including GST. Also, after execution of this bridge with approach, the road work of approximately 500 meters length costing ₹86 lakh already executed would render wasteful.

In reply, the Government stated (March 2022) that the road work was to be executed after purchasing land from private land owners and accordingly work was to progress. The proposed high level bridge could not be progressed due to some land disputes and the scope of the bridge was excluded. However, the reply was not acceptable as the work was awarded before acquisition of land required for construction of bridge. As such the bridge could have been executed as per the original tender rate without involving extra cost.

¹⁴⁴ Two lane road from Ghatipada to Ampani was on the left side and two-lane road from Ampani to Ghatipada was on the right side across river Mudra.

5.3.1.4 Irregular payment towards cost of structures

It was observed that the District Compensation Advisory Committee in its meeting held on 6 May 2016 valued three plots¹⁴⁵ of Saradhapali village with structure at ₹1.15 crore. Accordingly, the SE, Bargarh (R & B) Division paid ₹1.15 crore to two beneficiaries on 15 July 2016 which included the cost of structures for ₹1.13 crore. It was noticed that the departmental *Amin*¹⁴⁶ engaged for the acquisition of land, had erroneously demarcated the plots with structures in the month of February 2016. Fresh demarcation was done in the presence of the field officials and found that the structures were not present on those plots. Hence, SE requested (January 2017) the beneficiaries for refund of the amount. The amount had not been refunded till November 2021. Thus, erroneous demarcation of alignment of land by *Amin* led to irregular payment of ₹1.13 crore. Connivance of the *Amin* with the land owners for submitting incorrect information could not be ruled out.

In reply the Government stated (March 2022) that it had proposed to construct service road at Saradhapali village on both sides of BEW by acquiring 5 m extra length and the three plots will come under 5 m extra land. The excess amount would be adjusted by acquiring the same land. The reply was not acceptable since the payment was made for the structures which were not existing in the plots acquired for BEW. The Government also did not take any action against the persons responsible.

5.3.1.5 Works taken up in deviation to IRC code

Indian Road Congress (IRC) specifies design procedure for all types of roads. The works were executed in deviation to IRC specifications leading to extra expenditure of ₹89.78 crore as detailed in the following **Table No. 5.4**.

Table No. 5.4: Statement showing issues in deviation to IRC Code

Sl. No.	Nature of discrepancies	Impact on discrepancies
1	IRC-37-2012 stipulates for provision of 150 mm GSB for roads with MSA ¹⁴⁷ five and CBR ¹⁴⁸ eight. Similarly, as per IRC the required thickness of BM was 50 mm for CBR eight and MSA five.	The estimates of 15 works with CBR value eight and MSA five provided 200 mm GSB against 150 mm leading to excess provision of 2.09 lakh cum resulting in avoidable extra expenditure of ₹36.08 crore. In reply, the Government stated (March 2022) that views of Audit were noted and needful action would be taken care of. In Ghatipada-Sinapalli – Dharamgarh - Ampani road against the requirement of 50 mm BM, 75 mm BM was provided for 5805.60 cum in the road from RD 0.0 to 2

¹⁴⁵ Plot No. 563, 565 and 566 of Saradhapali village

¹⁴⁶ Amin is a group 'C' level Government official responsible for measurement and evaluation of land and structures.

¹⁴⁷ Million standard axle

¹⁴⁸ California bearing ratio of the road

Sl. No.	Nature of discrepancies	Impact on discrepancies
		km and from RD14 to 24 km leading to excess provision for 1,935.20 cum resulting in avoidable extra expenditure of ₹1.35 crore. In reply, the Government stated (March 2022) that views of Audit were noted and needful action would be taken care of.
2	Para 7.1 of IRC specifies the pavement composition of road that consists of Sub-grade, Granular Sub-Base (GSB), Granular Base (GB) in the form of Wet Mix Macadam (WMM) and Bituminous Surfacing (BS) in the form of Bituminous Macadam and Semi Dense Bituminous Concrete. Para 5.1 of IRC specifies that the sub-grade of the top 500 mm of the embankment is made up of selected soil or stabilized soil. As such the sub-grade was to be constructed with soil.	Four works provided for laying of 1.01 lakh cum of sand and morrum admixture for ₹4.76 crore in the sub-grade instead of soil which was unwarranted and resulted in extra expenditure of ₹3.22 crore. In reply, the Government stated (March 2022) that views of Audit were noted and needful action would be taken care of.
3	IRC stipulates that the required width of GSB would be 0.45 m extra on either side than the required pavement width of 7 m for two lane road as such the required width of GSB for two lane road is 7.9 m.	Construction of 16 works provided 10.68 m to 13.95 m width of GSB against the required width of 7.9 m leading to execution of 2.55 lakh cum of excess GSB resulting in extra expenditure of ₹44.05 crore. In reply, the Government stated (March 2022) that views of Audit were noted and needful action would be taken care of.
4	The work of widening and strengthening of Sohela - Nuapada Road from RD 60.00 km to RD 80.50 km was technically sanctioned for provision of 50 mm BM for 6,741 cum.	Check of Measurement Books revealed that the contractor had provided 50 mm to 175 mm BM for 16,251.30 cum leading to excess execution of 9,510.3 cum for ₹5.08 crore at ₹5,342.82 per cum. The deviations were approved by CE without recording reasons. In reply, the Government stated (March 2022) that views of Audit were noted and needful action would be taken care of.

5.3.1.6 Works taken up in deviation to OPWD code

Para 3.4.10 (i) of OPWD Code stipulates that estimates should be prepared in most economical manner and should be based on SoR and AoR. Deviation to the SoR/AoR led to extra expenditure of ₹52.52 crore as detailed in the **Table No. 5.5:**

Table No. 5.5: Statement showing issues in deviation to OPWD Code

Sl. No.	Nature of discrepancies	Impact of discrepancies
1	The SoR provided two types of rates for transportation of all types of materials in cum (volume-wise) and another rate for transportation of earth, WMM and GSB in MT (weight-wise). The Department had provided transportation cost of earth and WMM in MT but for GSB the transportation cost was provided in cum. The rate of transportation cost including 10 per cent towards loading and unloading was ₹2.75/ 2.39 per MT per km for pre GST/post GST period respectively.	Construction of 30 works taken up under BEW provided for transportation of 11.98 lakh cum of GSB for ₹57.76 crore (in cum) against the transportation cost of ₹21.19 crore in MT leading to undue benefit of ₹36.58 crore to the contractors. No specific reply was furnished by the Department.
2	The SoR provided the hire charges of motor grader as ₹1,545/ 1,343.48 per hour for spreading 200 cum of earth for pre GST/ post GST period respectively.	Construction of 11 works executed under BEW provided for construction of sub-grade using 15.18 lakh cum of burrow earth adopting hire charges of motor grader for spreading 100 cum of earth instead of 200 cum resulted in extra expenditure of ₹1.07 crore. No specific reply was furnished by the Department.
3	The lead distance provided should be shortest. The EE had also certified that the estimate was prepared in most economical manner and was satisfied with the survey and investigation made.	Eight works provided for execution of GSB, WMM, BM and SDBC utilising 9.51 lakh cum of stone products with lead distance ranging from 32 to 80 km against actual availability of stone products at a distance ranging from 10 to 60 km leading to extra lead of 7 to 48 km Provision of excess lead led to extra expenditure of ₹11.86 crore. No reply was furnished by the Department.
4	The construction of road work involved construction of embankment, sub-grade, GSB, WMM, BM and SDBC. The total quantity of materials required for construction of road was calculated taking the cross section of the alignment in which the road was to be constructed. The requirement of earth for embankment and sub-grade was to be calculated after deducting the quantities required for GSB, WMM, BM and SDBC.	Construction of six roads involved utilisation of 27.33 lakh cum of various types of materials of which GSB, WMM, BM and SDBC for 3.87 lakh cum was utilised. As such, 3.87 lakh cum should have been deducted from the total quantity to calculate the required quantity of burrow earth. But 3.87 lakh cum was not deducted from the quantity of burrow earth leading to undue benefit of ₹3.01 crore. In reply the SE accepted the observation and stated that the deduction of road crust would be made during final bill. However, the recovery needs to be ensured.

WMM: Wet Mix Macadam, **GSB:** Granular Sub-base, **BM:** Bituminous Macadam, **SDBC:** Semi Dense Bituminous Concrete

5.3.2 Execution under Non-PPP mode

5.3.2.1 Extra cost on unwarranted excess width of median

Para 2.5.1 of IRC: SP: 84-2014, Manual of specifications and standards for four laning stipulates that the width of median was to be 2.5 m in built area. It was noticed that construction of Sohela-Nuapada road for 117.96 km was awarded in 14 contracts between December 2015 and November 2018 for completion between December 2017 and August 2019. In all the road contracts, the median¹⁴⁹ of the road as provided in the DPR was ranging from 0.6 m to 2.5 m. In five packages of road contracts, median was constructed as per original design and in other nine packages of road contracts construction of median was done ranging from 3.5 to 6.0 m. Due to increase in median width, the quantity of burrow earth was increased from 9.16 lakh to 20.30 lakh cum leading to unwarranted extra expenditure of ₹15.13 crore.

In reply, the Government stated (March 2022) that the works were executed in different periods depending on the availability of land. The median was also provided with 0.6 m to 1.5 m in different packages as per availability of land. Further, it was stated that in order to prevent encroachment of acquired private land, median was constructed with excess width. The reply was not acceptable, since there was no justification for acquiring excess land and construction of excess width of median to prevent encroachment.

5.3.2.2 Unwarranted increase in height of road led to extra expenditure

Estimates of 11 works involving 518 Cross Drainage (CD) works were provided for construction of road from Ghatipada to Ampani with utilisation of 33.77 lakh cum of burrow earth. During execution of road works, the quantity of burrow earth used was increased to 53.62 lakh cum. The increase in quantity was attributed to increase in Full Reservoir Level (FRL), increase in height of Cross Drainage (CD) works and change in alignment. As per the DPR, the consultant had prepared the estimate by conducting survey and investigation and hydrology particulars, and hence there was no justification for further increase in FRL and change in alignment of the road. Besides, there was also no justification for increase in height of CD works of the roads in absence of requirement. As such provision of excess quantity of earth for 19.85 lakh cum in deviation to the DPR quantity was unwarranted and led to avoidable extra expenditure of ₹25.99 crore.

No reply was furnished by the Department.

5.4 Delay in completion of road projects

- **Road projects constructed under PPP mode:** The PPP mode project of 163 km from Rourkela to Sambalpur an existing two lane road, was commenced from July 2014 for improvement to four lane with paved shoulders. The concession period of 22 years including three years of

¹⁴⁹ Median means a narrow strip of land or concrete between the two sides of a large road, separating the vehicles moving in opposite directions.

construction period which formed part of BEW was to be completed by July 2017. However, the road construction work was delayed by nine months and completed by March 2018 due to delay in land acquisition for which the objective of construction of North – South Corridor – Biju Express way was not achieved in time.

- **Road projects constructed under Non-PPP mode:** The road from Sohela to Ampani was approved as a four-lane Express Way of 292.46 km and targeted for completion by 2020. Although, the entire project was approved as a four-lane road, the department had taken up Sohela to Nuapada as four-lane road and Ghatipada to Ampani as two-lane road between August 2014 and August 2018 for completion between July 2015 and September 2019. The two-lane road from Ghatipada to Ampani was almost completed except two km stretch near Khair village and the approach road to a bridge over river Indra as of December 2021.

Before completion of the two-lane road of 174.50 km from Ghatipada to Ampani, the Department had awarded the work for improvement to four-lane road between July 2021 and October 2021 for completion by January and March 2023. The department had taken up the project in piecemeal basis though the project was approved for improvement as four-lane in a comprehensive manner. The project could not be completed in time due to improper planning of road, non-acquisition of land, improper survey of bridge work, change of scope of work and delay in finalisation of design of the bridge. As such the completion period has already been delayed by three years.

5.5 Tendering process

5.5.1 Acceptance of fake securities led to non-recovery of Government dues

Para 3.5.20 of OPWD Code stipulates that each contractor is required to deposit one *per cent* of the estimated cost as earnest money while offering tender and one *per cent* as initial security at the time of acceptance of tender. Further, Para 12 of the Detailed Tender Call Notice (DTCN) stipulates that the successful bidder who has quoted less bid price than the estimated cost put to tender shall have to furnish additional performance security. This would be the exact amount of differential cost *i.e.*, estimated cost put to tender minus quoted amount. This security should be in the form of Demand Draft/ Term Deposit Receipt pledged in favour of EE of concerned division. Para 2 (b) (i) of the Agreement stipulates that in case of default in execution of work, penalty at 20 *per cent* of the cost of left-over work was to be recovered from the contractor.

Scrutiny of records revealed that three works¹⁵⁰ under BEW were awarded to a contractor for ₹118.24 crore during 2016-17 for completion during 2018-19. The contractor executed the work valuing ₹37.88 crore as of March 2018. During execution of work the CE (DPI&Roads) directed the EEs to verify the

¹⁵⁰ (i) Widening and strengthening of Sohela-Nuapada road from RD. 80/00 to 101/125 km, (ii) RD. 101/125 to 117/955 km and (iii) Sinapalli-Ghatipada road from RD. 69.950 to 92.674 km

authenticity of the securities deposited by the contractor. On verification, it was found that securities submitted by the contractor were fake which was under investigation by the vigilance authority. In view of the above irregularities, the Government accorded approval for rescission of contracts under clause 2 (b) (i) of the agreement between November 2017 and March 2018. Although the contracts were closed, the penalty under clause 2 (b) (i) of the contract, *i.e.* 20 per cent of the value of leftover work amounting to ₹16.07 crore was not recovered from the contractor.

Further, it was revealed that the balance works of ₹80.36 crore was awarded for ₹94.64 crore between April and May 2018 for completion between May and August 2019. Thus, failure of the EEs, (R&B) Division, Bargarah and Khariar to check authenticity of the securities submitted by the bidder before award of work, which warranted recession of contract led to avoidable extra expenditure of ₹14.28 crore.

Accepting the factual position, the Government stated (March 2022) that the recovery proposal of the rescinded contract was recommended to the higher authority for approval. After approval, the amount would be recovered and credited to Government account. However, the reply was silent regarding extra expenditure on execution of balance works.

5.5.2 Undue benefit to contractor due to adoption of different rates of bitumen

Para 3.4.10 (i) of OPWD Code stipulates that estimates should be prepared in the most economical manner. As such the tender should have been invited with current SoR and the cost of materials should be taken as per current market rates. The estimates of two packages of Sohela - Nuapada road¹⁵¹ were sanctioned by the CE (DPI & Roads) in December 2014 and another two packages¹⁵² were sanctioned in February 2015. The tenders of all the four packages were accepted in a single Tender Committee meeting held in September 2015 and the works were awarded to three contractors. Agreements were executed between December 2015 and January 2016.

Scrutiny of estimates of the works revealed that the price of Bitumen was taken as ₹45,168.32 per MT for the works technically sanctioned during December 2014 and ₹36,394.88 per MT¹⁵³ for the works technically sanctioned in February 2015. There was a difference of ₹8,773.44 per MT in the rates adopted for the tenders of works accepted in the same tender committee meeting in September 2015. No reasons for the variation were found on record. The works technically sanctioned during December 2014 provided for execution of 18,477 cum of DBM and 9,895 cum of BC utilizing 2,978 MT of Bitumen. Due to adoption of different rates of Bitumen, undue benefit of ₹2.61 crore (₹8,773.44 x 2,978 MT) was extended to the contractors.

¹⁵¹ W/s of Sohela Nuapada road from RD 0 to 16.65 km and from RD. 18 to 30 km

¹⁵² W/s of Sohela - Nuapada road from RD 30 to 47 km and from RD. 49 to 60 km

¹⁵³ W/s of Sohela-Nuapada from RD 30 to 47 and from RD 49 to 60 km

In reply, the Government stated (March 2022) that the tenders were finalised based on the estimated cost put to tender and these being percentage rate of tender and competitive one, therefore the cost of bitumen had little effect on the finalisation of the cost. The reply was not acceptable since this being percentage rate contract, any increase in cost would be directly passed on to the contractor. Thus, non-reduction of the cost of bitumen led to undue benefit to the contractors.

5.6 Deficiencies in Land Acquisition

5.6.1 Extra cost due to delay in land acquisition

As per Section 23(1) 1-A and 23(2) of Land Acquisition (LA) Act, 1894, in addition to the market value of the land, the amount of 12 *per cent* per annum plus the compensation of 30 *per cent* on such market value of land and 20 *per cent* establishment charges will be charged thereon as per the orders of the District Collector.

- Scrutiny of records revealed that the valuation for land acquisition of 42.41 acre in Panchupada village of Rourkela-Sambalpur road was made (June 2011) for ₹3.29 crore by the Land Acquisition Officer¹⁵⁴ (LAO), Jharsuguda and the total cost of land would have been ₹5.61 crore after adding solatium, interest and establishment cost thereon. However, LAO delayed the LA process owing to which the payment could not be made (January 2014) although the department had deposited the required amount with the LAO. As a result, the LAO made revaluation of the land as per amended LA Act, 2013 and the cost of the land was enhanced (June 2014) to ₹35.89 crore leading to extra cost of ₹30.28 crore. The payment of ₹27.80 crore was made and 41.167 acres of land was acquired as of October 2021. Thus, the failure of the department to monitor the LA at proper level led to not only delay in LA and extra cost of ₹30.28 crore but also delayed the completion of the PPP project.

In reply, the Government stated (March 2022) that the views of Audit have been noted and necessary action would be taken.

- Scrutiny of records revealed that the EE, Jharsuguda submitted (June 2011) the requisition to LAO for acquisition of 81.43 acre of land in nine villages¹⁵⁵. The LA was completed by 2013 as per LA Act 2007 and after completion, it was noticed (April 2015) by EE that 43 plots of total 2.85 acre and 19 structures were erroneously left out during LA. However, department purchased the land with structures for ₹11.64 crore with 100 *per cent* solatium between January 2015 and February 2016 directly from the land owners as per revised LA Act, 2013 against

¹⁵⁴ Prior to enactment of the Right to Fair Compensation and Transparency in Land Acquisition and Resettlement Act 2013, Government of Odisha, under clause 'C' of Section 3 of Land Acquisition Act, 1894 (Act 1 of 1894), used to appoint the Land Acquisition Officer for each district.

¹⁵⁵ 1. Umbekela, 2. Kherwal, 3. Brundamal, 4. Gadamal, 5. Beherapat, 6. Panchapada, 7. Saletikra, 8. Durlaga and 9. Tangarpali

30 *per cent* admissible as per LA Act 2007 leading to extra cost of ₹3.84 crore which could have been avoided with proper planning.

Accepting the factual position, the Government stated (March 2022) that payment has been made as per revised LA Act. The reply was not acceptable as the process of land acquisition was delayed for which the extra cost was paid.

5.6.2 Extra cost due to delay in payment to the beneficiaries

As per LA Act, 2007 and the clarification issued (January 2009), the beneficiary is entitled for receipt of an amount equivalent to cost of land plus 30 *per cent* solatium and 12 *per cent* additional compensation within one year. During the course of assessing additional compensation, it is required to calculate the additional market value on day-to-day basis and payment should be made accordingly.

It was noticed that due to delay in payment by the LAO beyond one year ranging up to 547 days, the division had made payment of additional compensation for 53 structures related to 13 villages of Rourkela – Sambalpur road that ranged between 15.18 and 18 *per cent*, total amounting to ₹2.21 crore.

Accepting the factual position, the Government stated (March 2022) that the additional compensation was paid to the beneficiaries due to delay in finalisation of alignment and subsequent acquisition of land by the LAO. However, the fact remains that the Department failed to monitor and pursue the land acquisition for early settlement of compensation.

5.7 Financial management of project

The department incurred (June 2021) an expenditure of ₹955.77 crore on the PPP project and created a liability of ₹41.50 crore for payment of various claims as recommended by the IE. The financial irregularities noticed by Audit are discussed as follows:

5.7.1 Non-recovery of Advance

Article 16.3.1 of the Concessionaire Agreement (CA) of the PPP project stipulates that 20 *per cent* of the cost of CoS was to be paid as advance. Accordingly, the Department paid advance of ₹27.51 crore in December 2016 to the concessionaire. As of September 2021, an amount of ₹13.27 crore was still pending for recovery. In addition, ₹82.98 crore was paid to concessionaire for the works executed for ₹71.37 crore up to March 2018 leading to excess payment of ₹11.61 crore.

Further, it was noticed that the IE recommended for payment of the last RA bill without GST as the works were awarded during pre-GST period. However, ₹1.65 crore was paid by the department towards GST leading to inadmissible GST payment.

Accepting the factual position the Government stated (March 2022) that based on the request of concessionaire as per provisions of CA, amount of ₹27.51

crore was paid as advance, out of which an amount of ₹14.82 crore was adjusted and the balance amount of ₹12.69 crore is yet to be recovered. The reply was silent towards the excess payment of ₹ 11.61 crore and inadmissible GST payment of ₹ 1.65 crore.

5.7.2 Non-receipt of cost of work under reduction in change of scope

Article 16.6.1 of the CA stipulates that 80 *per cent* of the amount under reduction in CoS was to be deposited by the concessionaire if the concessionaire did not execute any construction work due to negative CoS.

It was noticed that the cost of the project was ₹1,292.56 crore against which the concessionaire had executed work for ₹1,274.36 crore and the IE issued completion certificate in March 2018. Thus, as there was reduction in CoS of ₹18.20 crore, 80 *per cent* of this should have been deposited by the concessionaire. However, the Department had not taken any action for realisation of the amount (September 2021).

Accepting the factual position, Government stated (March 2022) that the views of Audit are noted and necessary action would be taken. However, the fact remains that the amount was not realised even after a period of four years.

5.7.3 Inadmissible GST payment

It was observed that the work of widening and strengthening of Ampani-Dharamgarh Road from RD 11.81 to RD 28.87 km was technically sanctioned by Chief Engineer (DPI & Roads) in April 2017 for ₹49.50 crore. The work was awarded to a contractor in December 2017 for ₹41.05 crore with the condition that the awarded cost was inclusive of GST. Violating the above stipulated condition, the SE paid differential GST of ₹61 lakh resulting in inadmissible payment. Similarly, SE paid differential amount of tax of ₹71 lakh in two other works of Ampani - Dharamgarh road awarded in December 2016 in addition to the normal agreement rate.

Thus, payment of GST of ₹1.32 crore in violation to the tender acceptance order as well as without recasting it with reference to the reduced rate of materials led to inadmissible payment to the contractors.

In reply, the Government stated (March 2022) that the estimate was of pre-GST regime whereas the work executed mostly after introduction of GST. So as per instructions of the GST guidelines, differential payment to be made or recovered, has been done. Final calculation would be made and differential cost would be adjusted or recovered during final payment. However, the reply was not acceptable since the tender acceptance letter issued on 22 November 2017 (*i.e.*, after introduction of GST) clearly stated that the accepted bid was inclusive of GST.

5.7.4 Non-recovery of cost of work executed for Rail over Bridge

As per Ministry of Railways Notification (January 2008), the construction of Rail over Bridge (RoB) was to be taken up with the mutual understanding of

State Government and Railways. The cost of execution of work excluding the cost of land was to be shared by both the parties.

Scrutiny of records related to Rourkela- Sambalpur road under PPP mode revealed that three RoBs were constructed under concessionaire agreement for ₹17.20 crore and subsequently, in CoS of the works ₹22.31 crore was incurred towards increase in length of RoBs. It was noticed that the works had been executed without mutual understanding between Railways and GoO as per notification of January 2008 *supra*. The Department had not made any correspondence for sharing of 50 *per cent* of the cost amounting to ₹19.76 crore leading to unwarranted burden on GoO.

Accepting the factual position, the Government stated (March 2022) that the views of Audit were noted and action would be taken.

5.7.5 Non-execution of roadside plantation

It was noticed that the department deposited, between January 2016 and September 2018, an amount of ₹20.42 crore with the Forest Department towards plantation of roadside trees in three Divisions¹⁵⁶. While plantation had not been done on the roadside, the department also did not take any steps for recovery of the deposited amount (December 2021).

Accepting the factual position, the Government stated (March 2022) that action was being taken to obtain the utilisation certificates from the Forest Department. However, the reply was not acceptable as the department had not taken any steps either for roadside plantation or to recover the deposited amount.

5.8 Quality control mechanism and monitoring of BEW projects

5.8.1 Deficiency in quality control of PPP project

Internal control and monitoring are prerequisites to ensure economy, efficiency and effectiveness besides preventing the executants from indulging in fraudulent activities. Lapses noticed in this regard for the works executed under PPP mode of contracts are discussed below:

5.8.1.2 Lack of quality assurance

Article 23.1 of the CA stipulates that the Government shall appoint a consulting Engineering Firm as IE within 90 days from the date of the execution of CA and will continue for three years. Article 13.2 of the CA stipulates that the IE shall inspect the project highways at least once in a month and submit the report of defects and deficiencies with particular reference to the scope of project. As per Article 13.3.1 of CA, the concessionaire was to carry out tests as specified by the IE and with a sample size not exceeding 10 *per cent* of the quantity and number of tests prescribed by IRC. In the event of any test results conducted under this clause establish

¹⁵⁶ R&B Division, Bargarh, Khariar and Kalahandi

any defects or deficiencies in the construction works, the concessionaire shall carry out remedial measures and furnish a report in this regard to the IE.

Test check of records in Audit revealed that though the concessionaire started the work in November 2013, IE was appointed in February 2015 after a year and three months. During this period no such tests were conducted by any of the Departmental Engineers in the absence of IE.



Photo No.12 : Pothole at RD 38.240 km of

JPI of the road (September 2021) revealed a number of potholes and water logging in the approach to fly over near Government High School, Karamdihi of Rourkela – Sambalpur road. Besides, the earthen shoulder was not maintained as per the DPR and the entire road side was covered by weeds.

Similarly, the test reports for three months during February 2016 and July 2016 submitted by the IE revealed that out of 4,708 tests of the works conducted, in results of 1,261 tests (27 per cent), defects in works were pointed out. But no report in support of the defects rectification by the concessionaire was submitted to the department which showed the failure of the department in quality monitoring of the PPP project.

Accepting the factual position, the Government stated (March 2022) that the views of Audit were noted and needful action would be taken. However, the fact remained that the maintenance work of the road was not taken up by the concessionaire, causing public inconvenience in the meantime.

5.8.1.3 Non-provisioning of safety measures

(i) Non-construction of standard traffic aid post

Article 20.1 to 20.4 of the CA stipulates that (i) the concessionaire shall put in place safety measures on the project highway in accordance with applicable laws, and subject to the supervision and control of the State Authorities. (ii) Construction of traffic aid post at each toll plaza and a building of 25 square metres of plinth area should be handed over to the Government. Further, (iii) the concessionaire shall provide one vehicle with chauffeur for round the clock patrolling at its own expenses. In the project cost, ₹30 crore was provided for Highway Traffic Management System.

During JPI (September 2021), it was noticed that in the toll plazas at RD 17.025 km and 71.853 km, the traffic aid posts buildings were constructed with plinth area of five sq mtr as against 25 sq mtr stipulated in the CA. Besides, no vehicle was there for patrolling round the clock. This showed that the Department failed to monitor compliance of the terms and conditions related to traffic safety measures as stipulated in the CA. This resulted in undue benefit to the concessionaire.

Accepting the factual position, the Government stated (March 2022) that the views of Audit were noted and needful action would be taken.

(ii) Non-construction of medical aid post

Article 21.1 and 21.2 of the CA provide that concessionaire should construct one medical aid post in each of the toll plaza to provide medical aid during operation period and one ambulance was to be provided round the clock. The concessionaire shall also construct the building as prescribed by the State Medical Department and two residential buildings in each of the toll plazas.

During JPI (September 2021) at RD 17.025 km and 71.853 km of the PPP project, it was noticed that small rooms indicating medical aid post were constructed at the entrance of the plazas. However, neither first-aid materials nor personnel to administer medical aid were available there. Besides, no residential quarters were constructed for the medical aid personnel as prescribed in the CA. Thus, due to poor monitoring by the departmental officers, health aid centres were not constructed by the concessionaire in any of the toll plazas, depriving medical aid during exigencies.

Accepting the factual position, the Government stated (March 2022) that the views of Audit were noted and needful action would be taken.

(iii) Non-Provisioning of FASTag in toll plaza

As per para 10.4.10 of IRC:SP-84-2014 Guidelines, in four lane road, the concessionaire was to make provision for Electronic Toll Collection (ETC) in respect of four toll lanes at their own cost. In order to reduce traffic congestion in toll plazas, GoI introduced FASTag in all toll plazas from January 2020 so that there would be free flow of traffic without waiting for movement. Despite such provision in the IRC, the concessionaire had not provided electronic toll collection system (FASTag), as a result, the tax payers were deprived of getting the free traffic flow in the toll plazas defeating the very purpose of improving the road to four lanes under PPP mode.

It was noticed that no FASTag system was introduced (October 2021) in all three toll plazas. However, for installation of FASTag, the concessionaire claimed ₹1.45 crore (February 2021) under CoS which was unwarranted.

Accepting the factual position, the Government stated (March 2022) that the views of Audit were noted and needful action would be taken.

5.8.1.4 Non-monitoring of works during maintenance of road

As per conditions of the contract, the CoS work should have been completed within the completion date of the PPP project. Although more than three years have elapsed, the CoS works could not be completed. It was noticed that no monitoring meeting was held with the contractor for completion of CoS works. Since there was no clause for levy of penalty in the work order, the concessionaire did not execute the works in time. Further, the IE had submitted his monthly report of April 2021 to the Department with recommendation for repair and maintenance of 54 defective/ damaged patches in various reaches, but the concessionaire had not rectified these patches despite VGF of ₹168.02 crore was paid by the Department for maintenance of the road. Thus, payment was made by the Division without undertaking the

O & M work by the concessionaire as per the obligation under the agreement which led to undue benefit to him.



Photo No.13: RD 22.6 km of Sambalpur-Rourkela road



Photo No.14: Crack in BC at RD 73.300

During JPI (September 2021) of over bridge at Shyam Metallics, Jharsuguda, it was noticed that there were cracks/rutting in the road due to non-maintenance by the concessionaire. Besides, the defects as pointed out by IEs in the monthly report of March 2021 still persisted. There were a number of rutting, cracks and pot-holes developed in the road within three years of completion which shows the poor workmanship. The Department, however had not taken any action against the concessionaire for non-maintenance of the road.

The SE stated (September 2021) that IE has been appointed for administering the concessionaire's agreement on behalf of the client and the Nodal Officer is monitoring the Expressway and the VGF was released as per clause 25.3.2. The reply was not acceptable since the concessionaire had not maintained the road as required under CA as seen in photographs. Besides, the department had not instructed the concessionaire to take up the O&M work on receipt of the report from IE. This shows that there were lapses in monitoring of O&M work.

5.8.2 Supervision and Quality monitoring of Sohela – Ampani road

The GoO had decided for supervision of EPC contracts through Authority Engineer¹⁵⁷ and Percentage Rate Contracts¹⁵⁸ (P1) through Supervision Consultant and Departmental Engineers. For supervision and quality monitoring of the BEW executed under P1, one consultant was engaged in three packages between October 2016 and August 2018 as detailed in the **Table No. 5.6**.

¹⁵⁷ Authority Engineer (AE) is appointed by the Department to supervise the work including design, measurement and quality test of the work and submit the bill to the department for payment. He is responsible for any defect in the work.

¹⁵⁸ Percentage rate contract where the contractor will quote only in percentage either excess or less on overall value of work.

Table No. 5.6: Statement showing engagement of consultants

Sl. No.	Phase	Details of work	DoC/ SDoC	Payment made (₹ in crore)
1	Package-I	Supervision Consultancy for widening and strengthening of existing road to four lane carriage way from Sohela to Nuapada from 0/000 to 117/955 km including the Bridges, Minor Bridges and Culverts having two lane length of 235.91 km under Biju Expressway.	14.10.2016 / 13.10.2021	8.13
2	Package-II	Supervision Consultancy for Widening and strengthening of Sinapali- Ghatipada road from 49/090 to 92/674 km (43.58 km) in the district of Nuapada and Ampani- Dharmagarh road 0/000 to 11/812 and 28/855 to 41/305 km (24.262 km) in the district of Kalahandi.	15.07.2017 / 14.04.2019	3.02
3	Package-III	Supervision Consultancy for Widening and strengthening of Sinapali- Ghatipada road from 00/000 to 49/090 km (49.09 km) including Indra Bridge, Dharmagarh- Sinapali road from 0/00 to 16/05 km (16.05 km) and 25/00 to 41/90 km (16.90 km) including Tel Bridge and Ampani- Dharmagarh road from 11/81 to 28/86 km (17.05 km) in the district of Kalahandi.	02.08.2018 / 01.07.2020	3.41

(Source: Information collected by Audit)

In Package-I, agreement was drawn for five years including the defect liability period for 117.96 km road. Further, though the contract completion period was October 2021, the consultant left the work in October 2020 without completion during the contractual period on the plea that different agencies executed the work in different reaches. However, the penalty at the rate of 10 *per cent* of left over work was not assessed and recovered from the consultant.



Photo No. 15: Patch work at RD 137.64 km of Ghatipada - Ampani road

In respect of two other packages the supervision consultant was engaged only for construction period for 167 kms. In second package, although the consultancy period was over, most of the reaches had not been completed. Besides, the consultant did not provide any consultancy service for 18 km of road work and two bridge works over river Mudra and river Tel. Despite non-appointment of consultant, the works were in progress under direct supervision of the departmental engineers. As such appointment of consultant for supervision of P1 contract work was unwarranted and led to avoidable expenditure of ₹14.56 crore.

Following deficiencies were noticed during three JPI of roads conducted between November and December 2021.

- It was noticed that in a patch from RD 0.0 to 11.81 km of two lane road (new four lane road from RD 104.65 to 140 km), although the design life of the road was 15 years, the bituminous work was substandard for which

the contractors executed patch works in the bituminous portion which indicated that the department did not monitor the execution work properly.

- Although the design life of the road was 15 years, the entire reach from RD 60 km to RD 80 km of Sohela – Nuapada road was found deteriorated. Further, the road was not constructed with proper slope as the gradient was not proper. As such, proper supervision of the project was doubtful.



Photo No. 16 : RD 65 km of Sohela-Nuapada road

Accepting the factual position, the Government stated (March 2022) that the views of Audit were noted

and needful action would be taken. However, the fact remained that the department had not monitored and supervised the execution work properly for which the condition of roads deteriorated within a period of 10 and 35 months from their execution respectively.

5.8.3 Non-completion of bridges due to delay in receipt of design

Construction of three bridges were awarded for ₹37.30 crore between December 2017 and June 2020 for completion between June 2019 and December 2021. The works were not completed and the contractors were paid an amount of ₹24.04 crore till December 2021 on receipt of part design. The contractors had neither completed the work within the contractual period nor applied EOT for further execution of the works beyond the contractual period. The SE had also not issued any show cause notice to the defaulting agencies to expedite the progress of the works. The completion of the bridges was delayed inordinately ranging from one to 31 months. Thus, the BEW completion by March 2020 could not be achieved due to poor monitoring at higher level.

Accepting the factual position, the Government stated (March 2022) that the views of Audit are noted and needful action would be taken.

5.9 Conclusion

The BEW project with four lanes was not visualised in a comprehensive manner. Works were executed in a piecemeal manner under different schemes and the State Government attempted to fit the executed roads into the BEW project. Due to this, issues on land acquisition, alignment of roads and bridges, change in pavement specifications *etc.*, were observed. Non-consideration of the recommendation of the Consultant taking into account the prevailing equity IRR as 21.66 *per cent*, rendered the State Government to award the road project of Rourkela-Sambalpur in PPP mode with VGF instead of EPC mode. Preparation of faulty DPR and non-reduction of cost of utility

shifting and forest clearance led to excess provision of ₹134.67 crore towards VGF to the concessionaire. If the cost of the project was to reduce to ₹918.41 crore, the concession period should have been reduced proportionately to 16 years. Due to inflated estimate and consequent enhancement of the concession period by six years, the concessionaire would collect revenue of ₹4,876.38 crore from the general public including a net profit of ₹2,322.19 crore as per concessionaire assessment. Had the Department carried out proper survey and investigation, the change of scope of 24 works would have been included in the original scope, and 36 per cent of ₹137.57 crore amounting to ₹49.53 crore only was payable by the Government towards VGF leading to saving of ₹88.04 crore. Delay in LA process and not effecting timely payment to the beneficiaries led to revaluation of the land as per amended LA Act, 2013 resulting in extra cost of ₹30.28 crore. A number of patches of rutting, cracks and pot-holes were found on the road within only three years of completion of the road which shows poor workmanship. The Department, however, has not taken any action against the concessionaire for non-maintenance of the road.

The construction of the road from RD 0.0 to 2.00 km and from RD 16 to 24 km of Sinapalli-Dharamgarh road was not planned properly leading to poor execution of road for improvement to four-lane resulting in wasteful expenditure of ₹21.91 crore. Erroneous demarcation and alignment of land with structures led to fraudulent payment under SE, Bargarh (R&B) Division. Failure of the department to check authenticity of the securities submitted by the bidder before award of work led to recession of contract which led to avoidable extra expenditure of ₹14.28 crore.

5.10 Recommendations

The Government may:

- plan infrastructure projects comprehensively to achieve desired objectives and to avoid disorganised execution.
- need to reassess the possibility of reducing the period of toll collection at three toll plazas in Rourkela – Sambalpur Road in view of inflated costs as pointed out in Audit.
- ensure authenticity of the securities deposited in the form of Demand Draft/ Term Deposit Receipt by the successful contractors and strengthen other internal controls.
- fix responsibility on the persons responsible for receiving fake securities from the contractor which led to non-recovery of Government dues.
- consider recovering the following amounts:
 - Excess payment of ₹134.67 crore towards VGF to concessionaire due to preparation of faulty DPR.
 - Balance advance amount of ₹12.69 crore.

- Amount for reduction in change of scope ₹14.56 crore.
- Amount for sharing of 50 *per cent* cost of work executed for three Rail over Bridges, amounting to ₹19.76 crore.