Chapter-III

Compliance Audit

Compliance audit of Departments of Government and their field formations brought out several instances of lapses in management of resources. There was failure in observance of regularity and propriety. These have been discussed in the succeeding paragraphs.

FOREST AND ENVIRONMENT DEPARTMENT

3.1 Interest on delayed payment of Net Present Value not realised

Interest of ₹ 1.02 crore on delayed payment of Net Present Value not realised

As per Guidelines issued (September 2003) by Ministry of Environment and Forests, Government of India, forest land may be diverted for non-forest purposes under Forest (Conservation) Act 1980 on collection of Net Present Value (NPV) of forest land. The Central Empowered Committee constituted by the Hon'ble Supreme Court of India instructed (May 2010) that mining lease holders who did not pay NPV within a period of 30 days from the date of issue of demand would not be allowed to continue mining till payment of NPV along with interest. Forest and Environment Department, Government of Odisha prescribed (May 2013) the rate of interest at nine *per cent* per annum for delayed payment of NPV.

Audit observed (May-December 2016) that four Divisional Forest Offices (DFOs)[29] raised demands against 10 user agencies between June 2010 and May 2015. The user agencies had to deposit NPV of ₹ 103.68 crore for diversion of forest land within 30 days. The user agencies had deposited ₹ 103.68 crore between July 2010 and August 2015 towards NPV. There were delays ranging from 18 to 1115[30] days from the due dates of payment. However, interest of ₹ 1.31 crore (rate of nine *per cent)* for the period of delay was neither demanded by the DFOs nor deposited by the user agencies. Thus, ₹ 1.31 crore (***Appendix 3.1.1***) towards interest on NPV remained unrealised.

The Government stated (June 2017) that out of ₹ 1.31 crore, interest of ₹ 0.29 crore had already been realised from two user agencies. The steps were being taken for collection of balance amount of ₹ 1.02 crore.

[29]DFO, Angul, Cuttack, Jharsuguda and Chandaka (WL).

[30] (18 to 50 -11 cases, 51 to 150 – 2 cases, 1115- 1case)

3.2 Sandal wood, timber and poles not disposed

The Government did not fix market price for disposal of red sander/ sandal wood. DFOs also failed to take timely action for disposal of timber and poles which resulted in blocking of revenue of ₹ 1.55 crore

The Government of Odisha, Forest and Environment Department had issued (August 2005) instructions for early disposal of seized forest produce in undetected (UD)[31] forest offence cases either by public auction or by delivery to the Odisha Forest Development Corporation (OFDC) Limited. Timber[32] and pole[33] were to be disposed of within two months and red sander/sandal wood within three months from the date of seizure. It was to avoid loss of revenue and deterioration in quality and consequent value reduction on account of prolonged storage. The rates of royalty on regular and irregular lots of timber, poles and firewood for the year 2016-17 were fixed by the Government (October 2016). As per standing arrangement, red sander/ sandal wood seized in different forest Divisions were being sold by the DFO, Forest Resources Survey Division (FRSD), Cuttack.

Audit observed that in 230 undetected (UD) forest offence and offence report cases (1987-88 to 2015-16), 53,490.40 kg of red sander and 3180.3 kg of sandal wood were lying undisposed. This pertained to five[34] forest divisions[35].In Parlakhemundi Forest Division a stock of red sander was lying undisposed since 1987-88.The stocks of sandal wood remained undisposed in five divisions since 2011-12. The prolonged storage of red sander/ sandal wood is fraught with the risk of deterioration in quality. Considering the price fixed by Government during 1998, which was ₹ 200 per kg the value of seized red sander/sandal wood worked out to ₹1.13 crore. The price had not been revised by Government since 1998 although proposal was submitted by DFO, FRSD, Cuttack in December 2004. Audit observed that the price of sandal wood in neighboring State of Andhra Pradesh was fixed at ₹ 1200 per kg in February 2016. Thus, inordinate delay in notification of market price of red sander / sandal wood by the Government resulted in blockage of Government revenue of ₹ 1.13 crore. This would have increased manifold calculated at the rates prevalent in neighbouring States.

Records of twenty eight[36]forest divisions[37]showed that 15583.08 cft of timber(logs and sized), 5143 poles and 177.40 stacks of firewood were lying un-disposed till date. The material was seized in 1051 UD forest offence cases during 2009-16. This was valued at ₹ 45.13 lakh (details as per ***Appendix 3.2.1***). This indicated lack of effective and timely action by the Divisional Forest Officers, which resulted in blocking of revenue of ₹ 45.13 lakh.

[31]Theft of forest material seized but person was not found.

[32]A type of wood that has been processed into beams and planks.

[33]A long cylindrical piece of wood.

[34] Parlakhemundi, Khariar, Koraput, Baliguda and Keonjhar

[35] between December 2016 and February 2017

[36] Athagarh, Cuttack, Dhenkanal, Athamallik, Angul, Phulbani, Subarnapur, Khordha, Sambalpur, Bargarh, Jharsuguda, Chandaka(WL), Satkosia (WL), Ghumsur(N),Rourkela, Ghumsur(S), Baripada, Bonai, STR Baripada, Rayagada, Karanjia, Nayagarh, Keonjhar, Parlakhemundi, Kalahandi (S), Sundargarh, Koraput and Baliguda.

[37] between May 2016 and February 2017

Government accepted the factual position and stated (August 2017) that the concerned DFOs had already been instructed (May/ August 2017) for immediate disposal. The Government further stated (September 2017) that 1159.63 cft timber (log), 77.086 cft of timber (size) and 129 poles involved in 58 cases for ₹ 2.61 lakh had been disposed of by way of delivery to OFDC. The steps were being taken to dispose of the balance materials seized under forest offence cases. The Government further stated that seized red sander would be disposed of through OFDC or by public auction. Thus, delay in disposal of timber, poles and sandal wood led to blocking of revenue of ₹ 1.55crore.

3.3 Avoidable expenditure on purchase of Gabions

Procurement of Gabions (Tree Guards) in excess over prescribed cost norms resulted in extra expenditure of ₹ 1.77 crore

The Principal Chief Conservator of Forests (PCCF) Odisha prescribed (July 2014/ January 2016) the cost norms for different plantation modules. It was based on the recommendation of the cost norm committee. The approved cost norm per gabion (tree guards) made up of bamboo twigs for Urban tree and Avenue plantation was ₹ 175 upto 23 July 2015 and ₹ 253 from 24 July 2015 onwards. Further, para 11 & 12 of Office Memorandum of Finance Department, Government of Odisha, stipulated that where the estimated value of goods is ₹ 5 lakh and above, procurement shall be done by invitation of bids through wide circulation in one local and one national newspaper and details made available in the website.

The records of six forest Divisions[38] showed that 19,917 gabions made of iron, fibre and poly wire mesh were purchased. These were purchased for use in different avenue plantations for ₹ 2.23 crore[39] .The prices ranged from ₹ 670 to ₹ 1547 per gabion against the approved rate of ₹175 and ₹ 253 for each gabion made of bamboo twigs. Thus, procurement of gabions at higher cost than the prescribed cost norm resulted in avoidable extra expenditure of ₹ 1.77 crore (***Appendix 3.3.1***).

Check of records further showed that two[40] out of six DFOs placed (June/July 2015) procurement orders range-wise through short tender call notices at different rates. Invitation of bids was not widely circulated. In the remaining Divisions, tender procedure was not followed. Approval of higher authority was also not obtained for split up purchase at different rates.

The Government in reply stated (August 2017) that all the Divisional Forest Officers had executed works within the prescribed norms. The addition and alteration of fencing cost so attributed with excess expenditure was within the overall approved cost norm. Urban plantation, field requirements, location (populated, less populated, within boundary wall, etc.), were considered.

[38] DFOs, Jharsuguda, Rourkela, Baripada, Rayagada, Malkangiri and Koraput

[39] ₹ 2.23 crore {Jharsuguda - ₹ 8.68 lakh, Rourkela - ₹ 1.00 crore, Baripada - ₹ 30.54 lakh, Rayagada - ₹ 16.90 lakh, Malkangiri - ₹ 37.56 lakh,andKoraput- ₹ 29.00 lakh}.

[40] DFO, Rayagada, Rourkela

Further, safety needs of plants and nature of plantations (avenue mode, single line, double line, block plantation etc.) were also considered. Safety of plants from cattle, human etc. had been given importance to enhance survival percentage in those Divisions. Hence there was no deviation and excess expenditure was within the overall approved cost norms of urban plantation.

The reply of government that the addition and alteration of fencing cost was within the overall approved cost norm is not relevant. The cost norm in these cases are the approved cost norm of ₹ 175 and ₹ 253 for each gabion (bamboo twigs); while the cost of the purchases made by forest division ranged between₹ 670 to ₹ 1547per Gabion.

DEPARTMENT OF WATER RESOURCES

3.4 Avoidable expenditure on cement concrete

Excess cement concrete provided in lining of bed and vertical side walls of water course and field channels violated Indian Standards Code. It led to extra expenditure of ₹ 13.28 crore.

Para 4.4 of Indian Standard Code of Practice for lining of water-courses and field channels issued by Bureau of Indian Standards stipulated that for cement concrete lining, 75 mm thick cement concrete should be laid in the bed if Low Density Polyethylene (LDPE) film is not used. Similarly, vertical side walls should also be constructed with 75 mm thick cement concrete.

Audit noted that 37 contracts were awarded for ₹ 33.57 crore (between August 2015 and August 2016) for construction of water course and field channels[41]. They were to be completed between May 2016 and May 2017. The above contracts were awarded for execution of 0.55 lakh cum of cement concrete lining without LDPE film in the bed and vertical side walls. As of March 2017, the works were in progress with payment of ₹ 26.95 crore.

Audit further noted (November 2016) that estimates of the above works were prepared in deviation from Indian Standard Code (IS-12379-1988). The cement concrete for 150 mm thick for bed 200 mm thick vertical side walls were taken in estimates against the requirement of only 75 mm. An excess provision of cement concrete for 75mm on bed lining and 125mm in vertical side walls was made. It led to extra expenditure of ₹ 13.28 crore as detailed in ***Appendix 3.4.1***

The Government accepted the facts. It stated (May 2017) that Para 4.4 of IS-12379-1988 prescribed thickness of bed and vertical side wall of cement concrete lining as 75 mm for general conditions. It was meant for lining on compacted sections. In the instant cases, the vertical walls were exposed and beds were not compacted. The Government further stated that extra thickness was adopted due to presence of expansive soil in water courses/field channels.

The reply was not tenable since Bureau of Indian Standard prescribed 75 mm cement concrete in vertical side walls of water courses/field channels in exposure condition. Moreover, the estimates provided for sand filling in bed over the expansive soil.

[41] In Upper Indravati Left Canal Division No.II, Dharamgarh (Nov 2016),

3.5 Avoidable cost due to excess provision of cement concrete

Provision of excess thickness of cement concrete in lining of canal led to extra cost of ₹ 10.62 crore.

The work "Renovation of Anandapur main canal, branch canals, distributaries and minors" under "Canal Lining and System Rehabilitation Programme" was sanctioned (February 2014) by Chief Construction Engineer, Anandapur Barrage Project for ₹ 68.80 crore. The work was awarded (January 2015) to a contractor for ₹ 69.26 crore to be completed by June 2016. The work could not be completed due to delay in acquisition of land. As of March 2017, the work was in progress with expenditure of ₹ 27.95 crore. As per para 5.2 of Indian Standard Code (IS 3873:1993), required thickness of cement concrete lining in canal for discharge of 5-50 cumecs of water ranges 60 -75 mm. The projected discharge of canal in the sanctioned estimate was 46.534 cumecs. As such cement concrete lining should have been 75 mm as per Indian Standard Code. The estimate however provided for 100 mm of cement concrete lining in canal bed and side slope measuring 0.81 lakh cum. Thus, excess provision of cement concrete lining of 25 mm measuring 20166.47 cum inflated the estimate by ₹ 10.36 crore. This resulted in avoidable extra cost. With tender premium, extra cost worked out to ₹ 10.62 crore. As of March 2017, for the work executed the extra cost incurred was ₹ 5.45 crore.

The Government stated (August 2017) that the test report of the soil showed that the nature of soil was expansive (Black Cotton). The project authorities had decided to enhance the thickness of cement concrete lining from 75 mm to 100 mm in the interest of quality. Moreover, there was no upper limit for fixation of thickness of cement concrete lining. As such the estimate for the work had been prepared with provision of 100 mm thickness of cement concrete. The factors like shape and size of canal, climatic condition and tolerance in concrete besides better stability and durability of the lining work were also considered.

The Government's reply justifying the excess provision of cement concrete lining based on the expansive nature of soil was not acceptable. For treatment of expansive soil, the estimate had provided cohesive non-swelling soil (CNS)[42] layer in the bed at a cost of ₹ 8.04 crore. Moreover, Indian Standard Code prescribed limits after considering all the relevant factors.

WORKS DEPARTMENT

3.6 Improvement of Road and Bridge Projects with Central Road Fund and Additional Central Assistance

3.6.1 Introduction

Roads play a vital role in the economic development of the State. The Works Department of Government of Odisha (GoO) is responsible for construction, improvement, widening and maintenance of National Highways(NH), State

[42] Material having cohesion but not have swelling/ expansive properties.

Highways(SH), Major District Roads (MDR), Other District Roads (ODR) and bridges in the State.

For construction of roads and bridges, certain funds were provided by Government of India (GoI) under Central Road Fund (CRF). During 2012-17, out of 83 projects proposed, GoI had approved 49 projects for widening, strengthening and up-gradation of 340.64 km roads including 27 bridge works at a cost of ₹ 933.81 crore under CRF. The balance 34 projects under CRF were not sanctioned for which reasons were not on record. Similarly, during 2012-15 Government of India, Planning Commission allocated ₹ 319.67 crore for 78 projects proposed by GoO under one time Additional Central Assistance (ACA). Under this scheme 30 *per cent* of project cost was given as grant and the balance 70 *per cent* was provided by State Government. The assistance was to improve 377.48 km roads for providing better connectivity to places of tourist importance/cultural heritage. In 2015-16, GoI, National Institution for Transforming India (NITI) Ayog withdrew one time Additional Central Assistance. The spillover projects were however executed with funds provided by GoO. Government of Odisha implemented the projects after approval from GoI and submitted claims to GoI for reimbursement.

Works Department, headed by Engineer-in-Chief-cum-Secretary to the Government of Odisha had been implementing the CRF/ACA projects. Execution was monitored by Engineer-in-Chief (EIC) (Civil), Chief Engineer, Design, Planning, Investigation & Roads (DPI&R). They were assisted by 12 Superintending Engineers (SEs) and 49 Executive Engineers (EEs) at the field level.

Audit of execution of projects with assistance from CRF and ACA was conducted during March-May 2017. The objective was to assess whether planning and implementation of the projects were as per scheme guidelines, execution of works was done economically, efficiently and effectively and whether funds received from GoI under CRF/ACA was utilised properly. For this purpose, records and data maintained in the Works Department, office of EIC (Civil), Chief Engineer, (DPI&R) and 10[43] out of 49 divisions implementing 74 projects (33 out of 49 CRF projects and 41 out of 78 ACA projects) were test checked.

The Draft Report was issued on 20 June 2017 to Government. The findings were discussed on 18 September 2017 with Engineer-in-Chief-cum-Secretary to Government of Odisha, Works Department. Views of Government have been considered wherever necessary while finalising the report.

[43] Rourkela, Keonjhar, Mayurbhanj, Panikoili, , Baragarh, Kalahandi, Sundargarh, Koraput, Rairangpur and Phulbani (R & B) Division.

3.6.2 Audit Findings

3.6.2.1 Physical and financial progress of works under CRF

Details of projects taken up and projects completed under CRF during 2012-17 are given below.

Table No. 3.1: Details of projects sanctioned/completed under CRF during 2012-17

Year	Projects sanctioned				Projects completed		
	Roads (in Nos.)	Roads (in Km)	Bridges (in Nos.)	Total Sanctioned cost (₹ in crore)	Roads (in Km)	Bridges (in Nos.)	Total Cost (₹ in crore)
2012-13	04	39.00	0	69.55	25.25	01*	57.91
2013-14	07	83.00	0	136.64	30.32	0	67.50
2014-15	00	0.00	04	70.86	68.67	0	108.08
2015-16	03	47.90	19	257.73	70.32	0	101.37
2016-17(up to February 2017)	08	170.74	04	399.03	3.70	02**	101.99
Total	**22**	**340.64**	**27**	**933.81**	**198.26**	**03**	**436.85**

Source: Data provided by EIC (Civil) and Works Department
*** from previous year,***
***** pertains to bridge sanctioned in 2014-15***

It may be seen from the above table, GoI sanctioned roads for 340.64 km under CRF. The Department, however, could complete 198.26 km (58 *per cent*) of the total roads sanctioned. Against 27 bridges sanctioned during the period, only three bridges were completed. One bridge completed during this period had been taken up before 2012-13. Four[44] bridge works were not awarded as the tender was not finalised even within the prescribed period of 24 months for completion of individual works as per CRF guidelines. The projects were not completed in time due to delay in acquisition of land, want of forest clearance, delay in shifting of utility services and encroachments. The delay in completion of projects ranged from 240 to 1188 days. As roads in some stretches were not laid, quality riding surface was not maintained continuously.

3.6.2.2 Physical and financial progress of works under ACA

Details of projects taken up during 2012-15 and completed as of March 2017 under ACA are given below.

Table No. 3.2: Details of projects sanctioned/ project completed under ACA

Year	Projects sanctioned			Completed projects	
	Roads (in Nos.)	Roads (in Km)	Total sanctioned cost (₹ in crore)	Roads (in Km)	Total cost (₹ in crore)
2012-13	31	159.42	114.67	164.30	98.20
2013-14	31	130.14	88.00	125.17	108.59
2014-15	16	87.92	117.00	146.07	86.93
2015-16	0	0	0	75.21	0.00
2016-17	0	0	0	5.63	0.00
Total	**78**	**377.48**	**319.67**	**516.38**	**293.72**

Source: Information furnished by the EIC (Civil) & Works Department

[44](i) Construction of HL bridge over river Kala at 39th km on Seragarh Nilagiri Kaptipada Udala Baripada Medinapur Border road (SH-19) (ii) Construction of HL bridge over Budhabalanga at 87th km on Nilagiri Kaptipada Udala Baripada Medinapur road (iii) Construction of HL bridge over Kalosihiria nalla at 3/315 km on Kuarmunda Purnapani Nuagaon road and (iv) Construction of HL bridge over Khatma nallah at 16/095 km on Kuarmunda Purnapani Nuagaon road

It may be noted from the above table that GoI sanctioned 377.48 km roads under ACA during 2012-15. The Department however completed 516.38 km roads during 2012-17. Execution of works in excess of sanctioned limit was due to completion of spillover road works taken up before 2012-13. The execution of works was done from State funds to the full extent since funding under ACA was stopped after 2014-15. In four out of ten test checked divisions, four works were not completed in time. This was due to delay in acquisition of land, shifting of utility services and want of forest clearance, re-tender and eviction of encroachments.

3.6.3 Planning and submission of proposals for approval under CRF

As per para 5(5) of CRF guidelines, proposals should focus on a balanced development of road network in the entire State. To ensure the above, the department had to conduct surveys and prepare a master plan for roads. The department had prepared the master plan. The same was, however, not approved till the date of audit. Further, the guidelines stipulated that the executive agency shall render a certificate that the land was available and it was in possession for road development and utility services[45] were removed. The following deficiencies were observed in project proposals submitted for approval:

3.6.3.1 Projects taken up deviating from CRF guidelines

Government of India, Ministry of Road Transport and Highways issued Central Road Fund (State Roads) Rules 2007. The above Rules were revised in July 2014. In all the test checked divisions, the projects sanctioned in deviation from the above Rules are discussed below:

- Para 5(3) of CRF State Road Rule 2007 stipulated that roads taken up under CRF should cover at least 10 km length.

  Audit observed that 15 roads with less than 10 km were sanctioned for ₹ 180.71 crore. The reasons for selection of roads with lesser length were not on record.

  The Government stated (September 2017) that the projects under CRF were selected for completion in a corridor concept basis and to fill up gaps.

  Audit observed that the CRF guidelines of funding for filling up gaps had not been provided. Further, in the absence of approved master plan, selection of projects in corridor concept could not be confirmed.

- Para 7(iv) of CRF State Road Rules 2007 states that estimated cost of project shall not exceed ₹ 25 crore. However, two[46] road projects for ₹ 57.83 crore were sanctioned, each costing more than ₹ 25 crore. The reasons for selection of roads with excessive costs were not on record.

  The Government stated (September 2017) that after administrative approval

[45] Utility services viz. Telephone line, electricity line, sewerage connection, water supply lines etc.

[46] (i) Improvement to VRC from 10.0 to 25/0 km (Rairangpur to Jashipur) (₹ 25.33 crore) and (ii) Improvement to Seragarh Nilagiri Kaptipada Udala Medinapur Border road from 95/0 to 113/0km (₹.32.50 crore)

by GoI to each project, the detailed project report would be technically sanctioned by the CE (DPI&R) and taken up.

The fact remained that the projects selected were in deviation from guidelines of CRF.

- Para 6(3) of CRF State Road Rules 2014 (revised and effective from July 2014) stipulate that the project proposal shall not be less than ₹10 crore. However, 18 projects for ₹ 107.82 crore were sanctioned each costing less than ₹ 10 crore during 2015-16 deviating from CRF guidelines. The reasons for selection of roads with lesser cost were not on record.

  The Government accepted the facts. It was stated (September 2017) that important roads were taken up to fill up the gaps keeping in view the requirement of road safety aspect also.

  The reply was not acceptable since filling up of gaps was not permissible as the value of works were less than Rs. 10 crore

The objective to provide direct connectivity to important market centers, agriculture regions and tourist centres was not achieved in eight road projects executed.

- Para 7(2)(i) of CRF State Road Rules 2007 stipulate that the proposed road should be either, directly connecting to or leading to an important market centres, economic zone, agriculture region, tourist centres etc. Eight[47]projects executed at a cost of ₹ 246.81 crore did not connect to the above locations**.** The reasons for selection of roads which do not serve the intended purpose were not on record.

  In exit conference, the Engineer-in-Chief-cum-Secretary to Government, Works Department accepted the facts. He stated (September 2017) that the funds were utilised to fill up critical gaps in the road network of the State.

  The reply is not acceptable since the CRF guidelines stipulated that proposed road should directly connect or lead to important market centres, economic zone, agriculture region, and tourist centres etc. The above objective was not achieved. The funding under CRF was not for filling up gaps in road networks. The funding was for providing roads to market centres/economic zone etc.

Execution of excess carriageway width for 22 ODRs in deviation of IRC guidelines resulted in additional expenditure of ₹42.25 crore.

- Para 5(7) of CRF State Road Rules 2007 stipulated that design and specification of works should follow relevant guidelines, codes and Indian Road Congress (IRC) specifications in preparation of estimates for execution of works. As such, the Department had to follow appropriate IRC specifications for development of Other District Roads (ODRs). IRC SP: 20-2002 (para 2.6.4) stipulated carriageway of 3.75 meter for ODRs.

  Audit observed that 22 ODRs out of 55 roads with a total length of 121.988 km sanctioned (2012-17) at a cost of ₹ 112.22 crore had carriage way of 5.5 meter. This resulted in additional expenditure of ₹ 42.25 crore as detailed in ***Appendix 3.6.1***.

[47](i) Improvement of Karamdihi-Talsara-Lulkidihi road (SH-31) from 43/0 to 52/0 km, (ii) Improvement to Vizag-Jeypore road (MDR-52) from 139/5 to 149/5 km, (iii) Widening and Improvement to Vizag-Jeypore road (MDR-52) from 163/0 to 173/0 km, (iv) Improvement such as Widening and Strengthening of Sohela Nuapada road from 60/0 to 80/5 km, (v) Improvement such as Widening of Sohela Nuapada road from 80/5 to 101/125 km (except one bridge and its approaches), (vi) Widening and Strengthening of Ampani Dharmagarh road from 31/328 to 41.328 km, (vii) Widening and Strengthening of Kunar-Banspal road from 6/0 to 14/4 km and (viii) Widening and Strengthening of Suakati-Dubuna road from 12/5 to 31/0 Km

The Government stated (September 2017) that the growth of traffic would increase considerably soon after improvement of such roads.

The reply was not acceptable. The sanctioned estimates of the above roads showed that the traffic intensity projected for ten years for these roads would remain low.

Execution of carriageway with excess width for four roads in deviation from IRC guidelines resulted in additional expenditure of ₹5.49 crore.

- IRC: SP-73-2007/IRC-SP-84-2014 stipulated carriageway of 7 meter width for double lane road.

  Audit observed that in two[48] divisions, four[49] road works for 67.846 km roads sanctioned at a cost of ₹ 159.35 crore had carriageway width of 7.25 meter. Reasons for provision of excess width were not on record. The deviation from IRC specifications resulted in additional expenditure of ₹ 5.49 crore.

  The Government stated (September 2017) that the projects were actually the stretches of Biju Expressway with provision of 0.25 meter for kerbs.

  The reply was not acceptable since the above roads were of two lane carriageway as per the sanctioned estimates. The provision of kerbs for these two lane carriageway was in deviation from IRC specifications.

3.6.3.2 Projects taken up deviating from Additional Central Assistance guidelines

As per ACA guidelines, roads constructed were to provide better connectivity to places of tourist importance/cultural heritage to attract tourists from various parts of the world.

Objectives to provide better connectivity to places of tourist importance/cultural heritage were not achieved in 42 roads in 18 divisions.

Audit observed that in 18 divisions, 42 roads sanctioned from ACA for ₹ 166.45 crore were not directly connected to any place of tourist importance/cultural heritage**.** The reasons for taking up the roads which did not serve the intended purpose were not on record.

The Engineer-in-Chief-cum-Secretary to Government, Works Department accepted the facts. He stated (September 2017) that all the tourist places were already connected. The roads under ACA were sanctioned to fill up critical gaps in conjunction with other roads.

The Government reply confirmed the audit observation. The diversion of funds to fill up critical gaps was a violation of ACA guidelines.

3.6.4 Award of works before acquisition of land and adequate survey

Odisha Public Works Department Code (OPWD) (Para 3.7.4) stipulated that no work should be commenced on land which has not been duly made over by a responsible civil Officer. Further, para 3.2.7 stipulated that before execution of any work, technical sanction of detailed estimate must be obtained to ensure

[48] Kalahandi and Khariar (R&B) Division

[49] (i) Widening and Strengthening of Sinapali-Ghatipada road from 49/09 to 69/95 km, (ii) Widening and Strengthening of Sinapali-Ghatipada road from 69/95 to 92/674 km, (iii) Widening and Strengthening of Ampani Dharmagrh road from 0/0 to 11/812 km and (iv) Widening and Strengthening of Ampani Dharmagrh road from 28/855 to 41/305 km.

that the proposal is structurally sound and is based on adequate data. These provisions were not complied with for some projects and their impacts are discussed below:

3.6.4.1 Central Road Fund

Selection of project before completion of land acquisition, shifting of utilities and forest clearance in deviation from CRF guidelines resulted in delays in completion of projects.

Para 5(5) (ix) of CRF State Road Rule 2007 insisted on unencumbered land for the project. Further, para 7(8) of the above rule stipulated that the executive agency should not sponsor any proposal involving acquisition of land and shifting of utility services. The proposal would be approved only when the executing agencies render a certificate to the effect that land is available for road development. The maximum time allowed for completion of individual work was 24 months including period required for tendering. As such, the Department has to ensure completion of individual works within the above time schedule.

In six divisions, 10 roads[50] were sanctioned for ₹ 209.99 crore before completion of land acquisition/shifting of utility services (five projects) and receipt of forest clearance (five projects). As a result, there were delays in completion of works. The delay in completion of projects ranged from 240 to 1188 days.

The Government accepted the facts. It was stated (September 2017) that the projects were delayed in some sporadic locations of these road works. Causes were either that the required land was not acquired, or shifting of utilities and want of forest clearance. The Government further stated that there was no cost overrun due to the delayed completion of these works.

The reply was not acceptable since the roads were selected before land acquisition, shifting of utilities and forest clearance in deviation from CRF guidelines. This led to delay in completion of works.

Change of scope of work during execution in deviation of CRF guidelines resulted in extra expenditure of ₹ 2.97 crore requiring approval from GoI.

- As per para 7(3) of CRF State Road Rules 2014, the scope of work as per administrative approval should not be changed during execution. The revised estimate shall not be considered by GoI. Further, GoI while sanctioning the projects, instructed that if the project cost is exceeded by more than ten *per cent,* revised sanction from GoI should be obtained. The widening and strengthening of a road[51] was awarded for ₹ 19.97 crore in August 2014 under CRF. This was to be completed by July 2015. The scope of the work was changed for widening of carriageway from 5.5 meter to 7 meter.

  During execution, the carriageway width was increased (February 2017) from 7 meter to 7.25 meter. As a result, the estimated cost was revised to ₹ 22.05 crore. This revised cost included an additional cost of ₹ 2.97 crore for change in scope of works. The increase in revised cost was more than

[50](i) Improvement and Widening to Bhubaneswar Chandaka road (MDR) from 6/25 to 17/25 km (Nakagate square to Chandaka), (ii) Improvement to Charichhak to Phulbani from 8/0 to 10/0 km on Phulbani Tikarpada road, (iii) Improvement to Charichhak to Phulbani from 15/0 to 23/0 km on Phulbani Tikarpada road, (iv) Improvement to Charichhak to Phulbani from 23/0 to 35/0 km on Phulbani Tikarpada road, (v) Improvement to Jagannathpur Berhampur Phulbani road from 112/0 to 117/0 km, (vi) Widening and Improvement of Nayagarh Khandapada road from 1/0 to 16/0 km, (vii) Improvement to Digapahandi Ghodahada Meghajholi road from 0/0 to 8/0 km, (viii) Widening /Strengthening of Sohela Nuapada road from 60/0 to 80/5 km, (ix) Widening /Strengthening of Sohela Nuapada road from 80/5 to 101/125 km and (x) Improvement to Karanjia Thakurmunda Satokosia Anandapur road from 0/0 to 10/0 km

[51]Dharmagarh Golamunda Sinapali road from 0/0 to 2/0 km and from 16/0 to 24/0 km

15 *per cent* than the original estimated cost of ₹ 19.08 crore. Hence, this required revised sanction from GoI. As of March 2017, the work was in progress with payment of ₹ 20.23 crore. Thus, change in scope of work during execution was in deviation from CRF guideline. It had resulted in extra expenditure of ₹ 2.97 crore.

The Government stated (September 2017) that the said road was part of Biju Expressway. The project cost was, however, within the sanctioned cost.

The reply was not acceptable since the scope of work was changed and the revised estimated cost exceeded by more than 15 *per cent*. As such, approval from GoI needed to be obtained.

3.6.4.2 Additional Central Assistance

Selection of projects before acquisition of land and shifting of utilities in deviation from ACA guidelines resulted in delays in completion of projects.

- Four[52] out of 41 road works were awarded for ₹ 31.60 crore before acquisition of land/eviction of encroachment/shifting of utility services. The contracts were closed before completion. As a result, the intended purpose for providing uninterrupted connectivity to places of tourist interest/cultural heritage could not be achieved under ACA. The delay ranged from 264 to 2011 days.

  The Government accepted the factual position. It stated (September 2017) that projects were delayed in some sporadic locations of these road works. It was due to delay in land acquisition, eviction of encroachment, shifting of utility and forest clearance.

  The reply was not acceptable since the roads were selected without ensuring availability of land, shifting of utilities and forest clearances. This was in deviation from OPWD code.

Change in scope of works during execution led to extra expenditure of ₹ 1.10 crore.

- The work for up-gradation of Ghatagaon Harichandanpur road (14 km) was awarded at ₹ 17.17 crore in January 2015 for completion by May 2016. The execution of work could not be continued for want of forest clearance, delay in eviction of encroachment and shifting of utility services. The remaining portion of the road was completed as of November 2016 with payment of ₹ 16.05 crore to the contractor. Further, a high level bridge was approved (December 2015) at 12th km and approach road costing ₹ 16.63 crore was also sanctioned. This was against the original proposal of two slab culverts of ₹ 0.22 crore. The work was taken up availing loan assistance from Rural Infrastructure Development Fund. It resulted in extra expenditure of ₹ 16.41 crore. Moreover, additional expenditure of ₹ 1.10 crore was incurred on three extra items. This was incurred without the approval of competent authority.

  The Government stated (September 2017) that on completion of bridge and its approaches, there would be thorough connectivity. The Government further stated that the additional works were taken up as per

[52] (i) Improvement to Ravi Takies Tankapani road such as widening from 0/0 to1/04 km, (ii) Upgradation of Ghatagaon Harichandanpur road from 0/0 to 15/0 km, (iii) Improvement and Widening the road from Nakagate to Kateni (IIIT to Kateni) Bhubaneswar from 4/78 to 8/18 km and balance work and (iv) Upgradation of road from NH 5 to Mumtaz Ali High School via Diabetic Centre near Dumduma Bhubaneswar from 0/0 to 1/85 km.

site requirement and was approved by the competent authority subsequently.

The Government reply was, however, silent regarding change in scope of work during execution. The change of scope of work was due to erroneous estimates by the field Engineers as replied by EE Ghatagaon (R&B) Division. Further, the work with revised scope involved extra cost of ₹16.41 crore. For this purpose, assistance from Rural Infrastructure Development Fund (RIDF) was taken.

3.6.5 Financial Management

Government of Odisha (GoO) made initial fund allocation through budget for implementing projects approved by GoI under CRF and ACA. GoI released 50 *per cent* of project cost in first installment on the basis of requirement communicated by GoO. The quantum of the first installments was, however, regulated by GoI based on progress of expenditure. The second installment covering up to entire project cost was also regulated based on progress of work and actual expenditure. Details of approved costs and funds released by Government of India are given below:

3.6.5.1 Central Road Fund (CRF)

Table No. 3.3: Details of approved cost and funds released by GoI

Year	Cost of project approved by GoI (₹in crore)	Funds released by GoI (₹in crore)	Percentage of release	Utilisation certificate submitted to GoI (₹in crore)
2012-13	69.55	63.69	92	64.12
2013-14	136.64	53.68	39	57.59
2014-15	70.86	123.42	174	83.05
2015-16	257.73	125.98	49	140.77
2016-17 (upto February 2017)	399.03	68.20	17	24.25
Total	**933.81**	**434.97**	**47**	**369.78**

Source: Information provided by Works Department & EIC (Civil)

Under utilisation of CRF fund resulted in surrender of ₹ 504.42 crore.

- The above table showed that GoI had released ₹ 434.97 crore (47 *per cent*) against the committed assistance of ₹ 933.81 crore. The reason behind this was under utilisation of fund under CRF during 2012-17. This was mainly due to delays in acquisition of land, eviction of encroachment, finalisation of tender, receipt of forest clearance and default in execution of works by contractors. Department could submit utilisation certificates for ₹ 369.78 crore only to GoI against release of ₹ 434.97 crore (85 *per cent*) for which reasons were not on record.
- Audit observed that Government of Odisha had made budget provision of ₹ 941.27 crore during 2012-17. The actual expenditure was however ₹ 436.85 crore only (46 *per cent* of allocation) resulted in surrender of ₹504.42 crore.

3.6.5.2 Additional Central Assistance

Table No. 3.4: Details of budget provision and expenditure (GoO)

Year	Budget provision (₹in crore)	Expenditure (₹in crore)	Surrender/Excess (₹in crore)
2012-13	119.00	98.21	20.79
2013-14	94.00	108.59	-14.59
2014-15	117.00	86.93	30.07
2015-16	0.0	0.0	0
2016-17	0.0	0.0	0
Total	**330.00**	**293.73**	**36.27**

Source: Information provided by Works Department and EIC (Civil)

Under utilization of ACA fund resulted in surrender of ₹ 36.27 crore.

- The Department had incurred expenditure of ₹ 293.73crore (89 *per cent*) during 2012-15 against the budget provision of ₹ 330.00 crore. This resulted in surrender of ₹ 36.27 crore. The surrender was mainly due to delays in acquisition of land, eviction of encroachment, retender and default in execution of works by contractors.

The Government accepted the facts. It stated (September 2017) that less expenditure was due to late sanction of projects, contractual litigations, court cases, slow progress of works in maoist affected areas, scarcity of materials, untimely rainfall and less tender premium.

The fact, however, remained that under utilisation of fund ultimately delayed the project completion. Further, as per provisions of OPWD code and the guidelines of CRF, projects for which lands were yet to be acquired and utilities to be shifted should not be proposed for sanction. As per conditions of contract, the arrangement of material was the responsibility of the contractor. Further, the maoist affected areas were known to the department before selection of projects.

3.6.5.3 Savings under CRF/ACA not utilised

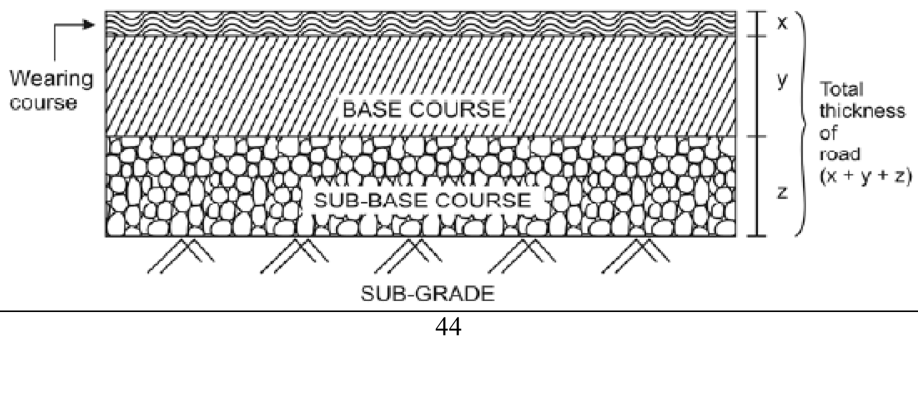
Saving of ₹ 22.85 crore due to receipt of lesser bids than the sanctioned cost was retained by GoO.

Audit observed that in 10 test checked divisions, there was savings of ₹ 22.85 crore during 2012-17 under CRF/ACA. The bids received by the divisions were lower by more than 10 *per cent* of the estimated cost as detailed in ***Appendix 3.6.2***. The Department had neither utilised the savings nor intimated GoI about the retention of the amount saved.

The Government accepted the factual position and stated (September 2017) that GoI would be consulted to suggest appropriate action for utilisation of saved amount.

3.6.6 Execution of works

General profile of Road Formation



Central Road Fund (State Roads) Rules, 2007 para 5(7) stipulated that design and specification of works shall follow relevant guidelines, codes and IRC specifications in preparation of estimates for execution of works. As such, the Department had to follow OPWD Code, Schedule of Rates/Analysis of Rates so that economy, efficiency and effectiveness in execution could be achieved. The following deviations from IRC specifications and their impact are discussed below:

3.6.6.1 Unwarranted provision of capping layer

Unwarranted provision of capping layer in deviation from IRC specifications led to extra expenditure of ₹ 2.25 crore.

According to IRC specifications (IRC-37-2001 Para 4.2.1.5) sub grade soil strength expressed in California Bearing Ratio (CBR) should not be less than two *per cent*. Where CBR value of sub grade soil is less than two *per cent*, the pavement design should be based on sub grade CBR value of two *per cent* and a capping layer of 150 mm thickness with minimum CBR of 10 *per cent* shall be provided in addition to sub base.

Audit observed that in nine divisions, estimates of 13 works provided for unwarranted capping layer of sand though the CBR values of sub grade soil were above two *per cent*. The above provision inflated the estimates by ₹ 2.48 crore. With tender received being higher or lower than the estimates, extra cost worked out to ₹ 2.25 crore. Out of this amount ₹ 1.35 crore had already been paid to the contractors as of March 2017 as detailed in ***Appendix 3.6.3.***

The Government stated (September 2017) that the extra thickness of sand was provided to compensate less thickness of GSB and to act as a drainage layer.

The reply was not acceptable as capping layer was provided in addition to the required thickness of GSB. Moreover, as per para 5.5 of IRC guidelines, the drainage layer was required only under shoulders of the road at the sub grade level and not for the entire width of the road.

3.6.6.2 Unwarranted provision of surface dressing

As per IRC specifications (37-2001) pavement layers were to consist of Granular Sub Base, Granular Base and Bituminous Surfacing. Further, bituminous surfacing was to consist of either wearing course or a binder course with a wearing course depending upon traffic to be carried.

Provision of additional wearing course of bituminous layer in deviation from IRC specifications resulted in extra expenditure of ₹ 1.50 crore.

Audit observed in 10 out of 55 road works (in seven divisions) that after having provided for wearing course, provision was made for another wearing course of surface dressing. The above excess provision inflated the estimates by ₹ 1.61 crore. Taking into account the lesser rate quoted by the bidders, the extra cost worked out to ₹ 1.50 crore as detailed in ***Appendix 3.6.4.***

The Government stated (September 2017) that surface dressing was provided in one side of road from the centre line to avoid disturbance to the Wet Mix Macadam layer. The traffic was also allowed and the other side was used for construction of bituminous layer to avoid inconvenience to the traffic during their movement at the time of construction.

The reply was not acceptable since provision of surface dressing in addition to semi dense bituminous concrete was not admissible as per IRC specifications.

Moreover, as per conditions in detailed tender call notice forming part of the agreement, traffic management was to be done at the risk and cost of the contractors.

3.6.6.3 Unwarranted provision of Semi Dense Bituminous Concrete in wearing course

Undue provision of richer bituminous surfacing for roads having less traffic intensity led to extra expenditure of ₹ 5.55 crore.

According to IRC (37-2001) guidelines, designing of flexible pavements depend upon cumulative traffic expressed in terms of Million Standard Axles (MSA) and load bearing strength of sub grade soil. As per the above guidelines, premix carpet of 20 mm only is required for bituminous surfacing for roads with one MSA traffic.

Audit observed that in four divisions, five out of 55 roads were constructed over sub grade with CBR value of over five *per cent.* The cumulative traffic to be carried by these roads was one/two MSA only. The estimates however, provided for 50mm bituminous macadam as binder course which was unwarranted as per IRC specifications. Again for roads of 2 msa, in addition to 20mm premix carpet as wearing course, 50mm bituminous macadam (BM) was to be provided as binder course. Against the above requirement, the estimates provided 25mm Semi Dense Bituminous Concrete (SDBC) as wearing course along with 50mm bituminous macadam as binder course. This inflated the estimates by ₹ 6 crore. It led to avoidable extra expenditure of ₹ 5.55 crore including tender premium as detailed in ***Appendix 3.6.5.***

The Government stated (September 2017) that SDBC was provided, considering environmental condition and experience gained that SDBC was functioning better.

The reply was not acceptable since the specifications were prescribed by the IRC, considering the cumulative traffic, load bearing capacity of soil and past experience also. Moreover, the deviations from the specifications were noticed only in five out of 55 roads. This implied that such deviations were not a decision across divisions, but an error which needs to be rectified.

3.6.6.4 Excessive provision of Granular Sub Base and Bituminous Macadam

Guidelines for designing of flexible pavements (IRC:37-2001) recommended thickness of Granular Sub Base (GSB) between 150mm and 230mm, Bituminous Macadam for 67mm[53], keeping in view the sub grade soil strength and cumulative traffic to be carried on the road.

Excessive provision of GSB thickness in deviation from IRC specifications led to extra expenditure of ₹ 8.15 crore.

In four divisions, Audit observed that seven out of 55 works for improvement/strengthening of existing roads, thickness of GSB was provided between 200mm and 300mm.This resulted in excess provision ranging from 50 mm to 70 mm. In one work, bituminous macadam was provided for 75mm against the requirement of 67mm. The above excess provision inflated the estimates and led to extra expenditure of ₹ 8.15 crore including tender premium as detailed in ***Appendix 3.6.6.***

[53]Requirement of BM as per IRC: -37-2001 for substitution of 50mm DBM= (75mm/55.85mm)*50mm= 67mm BM

The Government stated (September 2017) that excess GSB layer was provided to match the existing crust.

The reply was not acceptable since the GSB thickness was recommended by IRC considering cumulative traffic growth. The thickness of crust for a road is determined on the basis of cumulative traffic and load bearing strength of sub grade soil as per IRC: 37-2001. As such, the excess provision of GSB and BM was not justified.

3.6.6.5 Undue provision in Bituminous surfacing

Provision of excess SDBC in deviation from IRC specifications led to extra expenditure of ₹ 1.28 crore.

For bituminous surfacing, IRC specifications recommended either wearing course or a binder course with wearing course depending upon traffic to be carried. Where number of commercial vehicles per day (CVPD) plying over a road was up to 450, IRC: SP-20-2002/ IRC: 37-2001 recommended only 20mm premix carpet (PC) or 20mm Semi Dense Bituminous Concrete (SDBC).

Audit observed in three divisions that 12 out of 55 works estimates for Other District Roads took 25mm SDBC against the requirement of 20mm PC/SDBC. In addition, 50mm bituminous macadam which was not required was also provided. The above excess/undue provisions inflated the estimates by ₹ 1.28 crore. It led to avoidable extra expenditure of ₹ 1.17 crore including tender premium as detailed in ***Appendix 3.6.7.***

The Government stated (September 2017) that the works executed with wearing course of 25mm SDBC had performed very well.

The reply was not acceptable since the IRC: 37-2001 (Para 4.2.3.4) guidelines prescribed bituminous course based on several factors like design traffic, type of base/binder course provided to the road, rain fall etc. Hence, the excess provision of bituminous surfacing was unwarranted.

3.6.6.6 Computation of inflated design traffic leading to excessive provision

Considering 15 years design life instead of 10 years for strengthening/ improvement of existing road in deviation from IRC specification led to extra expenditure of ₹ 8.97 crore.

IRC specifications (IRC-81) recommend design life for 10 years for strengthening/widening of existing roads other than State Highways. For three Major District Roads (MDR), design of road was computed by taking design life of 15 years instead of 10 years. The estimates adopted vehicle damage factor of 3.5 for traffic volume up to 1500 vehicles per day against the present traffic of 600 vehicles per day. As a result, design traffic was inflated to 9-10 msa against 5 msa. As such higher GSB were provided. This led to extra expenditure of ₹ 8.97 crore including tender premium.

The Government stated (September 2017) that all the three roads were in mining area of Keonjhar district and leading to important National Highways of the State. Increase of heavy commercial/traffic in the mining area/industrial area was always expected to be more than 7.5 *per cent* per annum.

The reply was not acceptable since in computation of design traffic, the estimates adopted vehicle damage factor of 3.5 applicable for traffic volume up to 1500 vehicles per day against the present traffic of 600 vehicles per day.

3.6.6.7 Undue provision of Dry lean Concrete to roads with low traffic intensity

Provision of dry lean concrete for roads of low traffic intensity in deviation from IRC specifications led to extra expenditure of ₹ 1.14 crore.

IRC: 15-2000 (para 6.2.1) specifically stipulated that dry lean concrete (DLC) sub base is recommended for modern concrete pavements, preferably with high intensity of traffic. Further, specification no. IRC: SP-62 do not provide for DLC as sub base for construction of cement concrete pavement roads with low traffic intensity.

In six divisions, Audit observed in seven out of 55 existing roads that commercial vehicles plying on these roads ranged from 121 to 351 per day (as per DPR). Further, design traffic computed for these roads for 10 years ranged from 1msa to 3 msa, indicating traffic of low intensity. In deviation from the IRC specifications, 100 mm of dry lean concrete for entire width of these roads were provided in the estimate. However there was availability of sub base and base materials of 300 mm under the existing roads. The provision of dry lean concrete was unwarranted and it led to avoidable expenditure of ₹ 1.14 crore including tender premium as detailed in ***Appendix 3.6.8.***

The Government stated (September 2017) that to cater to heavy traffic dry lean concrete was provided as sub base as there was every potential for increase of heavy commercial vehicles in all these roads.

The reply was not tenable since as per the estimates, roads mentioned above were expected to be of low traffic intensity during their design life. The requirement of base and sub base thickness as per IRC guidelines was already available.

3.6.6.8 Provision of Wet Mix Macadam/ Granular Sub Base without considering existing crust

Provision of WMM without deducting existing crust led to avoidable extra expenditure of ₹ 10.97 crore.

IRC:81-1997 provides guidelines for strengthening of flexible road pavements and recommends "Benkelman Beam Deflection Technique" (BBDT) test. This test would assess the existing thickness and help to calculate additional thickness required to improve or strengthen the existing road pavement.

Audit observed in four divisions that in eight out of 55 existing roads estimates provided for overlaying of WMM[54]/GSB[55] for entire width of the roads[56]. The roads were taken up for widening and improvement. Further, they had not deducted the quantum of crust available in the existing roads. BBDT test was also not conducted for the above purpose. Thus, not deducting of existing crust inflated the estimates. It led to avoidable extra expenditure of ₹ 10.97 crore including tender premium (***Appendix 3.6.9).***

The Government stated (September 2017) that the available existing crust of each of the above roads had been duly accounted for during preparation of the estimates and during execution of works as well.

The reply was factually incorrect since no deduction was made for the crust available in the existing roads as mentioned in the estimates of the roads.

[54] Wet Mix Macadam
[55] Granular Sub Base
[56] (both existing and widening portion)

3.6.7 Preparation of estimates in deviation from OPWD Code, Schedule of Rates and Analysis of Rates

Provision of excess transportation charges inclusive of voids for stone products resulted in undue benefit of ₹ 13.68 crore to the contractors.

Odisha Public Works Department Code (para 3.4.10) stipulated that estimates should be prepared using Schedule of Rates (SoR) and providing for the most economical and safe way of executing the work. Instances of preparation of estimates in deviation from the above provisions are discussed below:

- As per SoR, rates allowed for transportation of materials are exclusive of void[57]in materials. Estimates had been prepared by the Department with provision of transportation charges for 1.28/1.32 cubic meter (cum) of GSB/WMM against one cum. This led to excess provision for transportation charges for 0.28/0.32 cum of stone products. In respect of 46 road works, the Department allowed transportation charges for 12.57 lakh cum materials. The admissible quantity was however 11.04 lakh cum only taking into account the related void. The excess provision of transportation charges made in the estimate was ₹ 14.84 crore. Considering tender premium, undue benefits extended to the contractors worked out to ₹ 13.68crore.

  The Government stated (September 2017) that the SoR provided carriage charges for stone products for each cubic meter. Each cubic meter has been defined as box heap of 1.5m x 1.5m x 0.44m. Hence, there were no voids.

  The reply was not acceptable since stone products were transported loose. Further, the estimate provided transportation charges for 1.28/1.32 cum against one cum. In the Exit Conference the EIC-cum-Secretary agreed to amend the SoR/AoR in this regard.

Non deduction of stacking charges from the rate of materials of stone products resulted in undue benefit of ₹ 3.27crore to the contractors.

- Schedule of Rates stipulated that the rates of materials (stone products) include stacking charges. Further as per Detailed Tender Call Notice forming part of contract, stone products are to be stacked for pre-measurement to assess the exact quantity transported to the work site. The contractors had utilised 12.57 lakh cum of materials directly in road construction without stacking in respect of 46 road works. As such, payment of stacking charges of ₹ 3.27crore built in the estimated cost resulted in undue benefit to the contractors.

  The Government stated (September 2017) that there was no need for stacking of the materials on the road side for pre measurement or assessment of the quantity of materials brought to site as the measurement was taken on compacted thickness for finished items of work.

  The Government accepted that there was no need for stacking of the materials on the road side. The reply was, however, silent on recovery of stacking charges from the contractors.

- Odisha Public Works Department Code (para 3.4.10) stipulated preparation of estimates in the most economical manner. Audit observed that in six road works, estimates provided for excess utilisation of burrow earth. This happened because the volume of GSB, WMM, Morrum, BM, SDBC and sand for use in filling section was not deducted from the estimated thickness. The provision of burrow earth in excess of actual

[57] A void is a pore that remains unoccupied in a composite material

Non-consideration of materials for crust thickness to be used in filling section resulted in excess provision of burrow earth. It led to undue benefit of ₹ 4.08 crore to the contractors.

requirement inflated the estimates by ₹ 4.54 crore for transportation of 3.42 lakh cum of burrow earth. This resulted in undue benefit of ₹ 4.08 crore to the contractors with tender variations as detailed in ***Appendix 3.6.10.***

The Government accepted audit findings and stated (September 2017) that quantity of crust was not deducted at the time of estimate and the crust provided was to be deducted from finished section at the time of final payment.

Provision of average lead instead of shortest lead for stone products led to undue benefit of ₹ 20 lakh to a contractor.

- Audit reviewed records on widening to KTSA[58]road under ACA for 2013-14. The Executive Engineer adopted lead distance of 72 km taking average lead of two quarries against the shortest lead distance of 50 km. Provision of excess lead distance of 22 km inflated the estimates by ₹ 20 lakh towards conveyance of 0.17 lakh cum of stone products. This led to undue benefit of ₹ 20 lakh to a contractor including tender premium.

  The Government stated (September 2017) that estimate was an approximate proposed cost. Once a competitive bid was accepted, that becomes the workable cost with least market value and the inflation in estimate if any would have no impact on lowest tender.

  The reply was not acceptable. The inflated estimated cost would be passed on to the contractor since the stone products were available in nearby quarry located at a distance of 50 km. Moreover, as per condition of contract, materials required for the work was to be arranged by the contractor at his own cost. Provision of average lead distance led to undue benefit to the contractor.

Provision of conveyance charges for excavated earth which were to be reused led to undue benefit of₹ 1.13 crore to the contractors.

- Earth excavated from the side of existing road while widening them, would be kept aside for reuse in the embankment of widened road. The estimates of 19 works provided for conveyance of excavated earth for a distance of up to one kilometer. The above unwarranted provision inflated the estimates by ₹ 1.13 crore. It led to undue benefit of ₹ 1.02crore to the contractors including tender variations as detailed in ***Appendix 3.6.11.***

  The Government stated (September 2017) that provision for excavation of earth by mechanical means with disposal upto one kilometer lead was provided as per GoI Data Book.

  The reply was not acceptable. As provided in the estimates, the excavated materials were required to be used in the shoulder of the road throughout its entire length under construction. As such, provision of conveyance was not justified.

- The estimates of four road works, executed with ACA assistance were reviewed in Rourkela (R&B) Division. Two out of four estimates provided for slag which was obtained free of cost for construction of sub base. For two[59] works under ACA and one[60]work under CRF, estimates provided for

[58]Karanjia Thakurmunda Satkosia Anandapur Road from 30/00 to 31/902 km and from 34/700 to 42/040 km

[59](i) Improvement to Lalei to Khandadhar Waterfall road from 6/0 to 15/0 km and (ii) Upgradation of Koira-Tensa-Bansuan-Kaleiposh road from 24/0 to 27/35 km

[60]Widening and Improvement of Hatibari Biramitrapur-Raiboga Salangabhal Bihar Border road from 0/0 to 10/0 km

Not considering slag at free of cost for construction of sub base resulted in extra expenditure of ₹ 3.43 crore.

use of coarse graded GSB instead of slag as sub base. It resulted in extra expenditure of ₹ 3.43 crore including tender variations.

The Government stated (September 2017) that there was nothing wrong in use of GSB with crushed stone aggregates in lieu of slag. The Government also stated certain problems in getting slag.

The reply was not acceptable since the same division had provided for slag (free of cost) for two other ACA works.

3.6.8 Internal control and Monitoring

Internal control and monitoring are prerequisite to ensure economy, efficiency and effectiveness besides preventing officers from indulging in irregular activities. Lapses noticed in this regard are discussed below:

3.6.8.1 Check measurements not conducted

In the absence of check measurement by EEs, inaccuracies in measurement cannot be ruled out.

OPWD Code (Appendix-II) stipulated that Sub Divisional Officers and Divisional Officers are to check the accuracy of measurements recorded by subordinate officers. The Divisional officer should particularly check measure at least 10 *per cent* of items of works done.

Audit observed that no check measurements had been done by the Divisional Officers in 10 test checked divisions. Thus, in the absence of check measurement, the possibility of excess payment due to inaccuracies in measurement cannot be ruled out.

The Government had accepted the facts. It was stated (September 2017) that detailed inquiry would be taken up to ensure test checks as per codal provisions.

3.6.8.2 Lack of quality monitoring

Due to non issue of inspection notes by higher authorities, quality parameters was not assured.

As per the guidelines of CRF, there should be a quality monitoring system at the State level consisting of experts and supporting staff. They should devise Quality Assurance (QA) system to spot non-conformities.

Audit observed that EE/ SE/ CE who visited the project sites also did not issue any inspection notes for ensuring quality workmanship as per para 2.2.9 of OPWD code. In the absence of above arrangement, execution of works observing quality parameters was not assured.

The Government stated (September 2017) that the reports on quality of works were reviewed by the Chief Engineer and Government periodically to address quality issues.

The reply was not acceptable since no inspection note of Regional Officer/EE/SE and CE was made available in the test checked divisions.

3.6.8.3 Refund of security deposit before defect liability period

At the time of drawal of agreement, the contractor has to deposit one *per cent* of bid amount as initial security deposit. Para 3.5.20 of OPWD Code stipulated that security deposit is refundable after six months or such period specified in the agreement from the date of satisfactory completion of the work, provided the contractor's final bill has been paid. As per Detailed Tender Call Notice forming part of the agreement, defect liability period was one year from the date of completion of the work.

Refund of security deposit before payment of final bills/expiry of defect liability period led to undue benefit to contractors for ₹ 3.19 crore.

Audit observed that in 19 works, security deposit of ₹ 3.19 crore had been refunded to the contractors prior to payment of final bills/before the expiry of defect liability period. The bills were not finalised due to delay in sanction of extension of time and deviations. This led to undue financial benefit to the contractors. Thus, the department would have no scope for recovery in case of bad performance and for imposing penalty.

The Government stated (September 2017) that necessary action would be initiated against the defaulting officers on receipt of information from them.

3.6.8.4 Differential cost not recovered

As per condition of contract, the prices to be paid in respect of steel and bitumen should be adjusted for increase or decrease in price.

Non recovery differential cost for steel and bitumen of ₹ 4.68 crore led to undue benefit to the contractors.

Audit observed that differential cost for steel and bitumen utilised in the works amounting to ₹ 4.68 crore was not recovered in 11 road works. However, there was reduction in prices of steel and bitumen as detailed in ***Appendix 3.6.12.*** Reasons were not on record.

The Government stated (September 2017) that necessary action would be initiated against the defaulting officers on receipt of information from them. However, the reply was silent as regards recovery of differential cost.

3.6.8.5 Plantation of trees not monitored

No plantation works had been done by the DFOs.

As per IRC guidelines, trees uprooted during widening of roads are to be compensated by planting of trees. Road side tree plantation was required to be made for landscaping and also for environmental control.

Audit observed that sanctioned estimates of eight[61] works provided for plantation of 25410 trees against uprooting of 2541 trees. The Divisional Officers deposited (August 2010/August 2016) ₹ 1.45 crore with Divisional Forest Officers (DFO) concerned. No plantation works had, however, been done and the DFOs had also not submitted the utilization certificates.

The Government had accepted the factual position. The Government had also stated (September 2017) that the EEs were being instructed to obtain utilisation certificates from DFOs and ensure completion of plantation work.

3.6.8.6 Delay in completion of works

Due to lack of monitoring, 28 works were delayed for completion.

Time being the essence of any project, the Department was to ensure that the projects were completed in time. As per condition 2(a) of the contract, the contractor shall pay compensation amount equal to half *per cent* per day

[61] (i) Improvement and Widening of road from Ravi talkies to Tankapani road 0/0 to 1/8 km , (ii) Upgradation of Ghatagaon Harichandanpur road from 0/0 to 15/0 km, (iii) Improvement to Karanjia Thakurmunda Satkosia Anandpur road from 0/0 to 10/0 km, (iv) Improvement to Jagannathpur-Berhampur Phulbani road from 112/0 to 117/0 km, (v) Improvement to Jagannathpur-Berhampur Phulbani road from 120/0 to 128/0 km, (vi) Improvement to Jagannathpur-Berhampur Phulbani road from 117/0 to 120/0 km, (vii) Improvement and Widening to Bhubaneswar Chandaka (MDR) from 6/25 to 17/25 km and (viii) Widening and Improvement to Nayagarh Khandapada road from 0/0 to 16/0 km

subject to maximum of 10 *per cent* on the contract value for delays in completion of the projects or failure to achieve the stipulated progress as per milestone.

The progress of works in test checked divisions showed that 28 works were not completed as per schedule. Further, compensation amounting to ₹ 23.86 crore were also not imposed on contractors. The records maintained did not disclose the reasons for the delay. The contract conditions stipulated that either the Engineer or the contractor can require the other to attend a management meeting to discuss issues or constraints in execution of work to resolve them. No such meetings had however been held. The delay in completion of projects ranged from 60 to 1188 days. The above facts indicated lack of seriousness in timely completion of projects.

The Government stated (September 2017) that necessary action would be initiated against the defaulting officers on receipt of information from them.

3.6.9 Conclusion

Audit of projects under Improvement of Roads and Bridges with CRF/ACA showed that the projects were selected in deviation from scheme guidelines. As a result, eight roads executed under CRF were not directly connected to places of important market centers, economic zone, agriculture region, tourist centers. Similarly,42 roads executed under ACA were not connected to any place of tourist importance or cultural heritage.

The Department could complete 58 *per cent* of projects sanctioned under CRF. The projects were commenced without ensuring availability of required land, shifting of utility services and forest clearance. As a result there were delays in completion of projects.

The guidelines insisted on construction of road projects as per IRC specifications and estimates were to be prepared as per provisions of Odisha Public Works Code, Schedule of Rates and Analysis of Rates. There were however several instances of deviations leading to avoidable extra expenditure.

Government of India released only 47 *per cent* of the sanctioned cost under CRF due to under utilisation of funds by GoO. Differential cost of steel and bitumen utilised in works was not recovered leading to undue benefit to the contractors. Internal control and monitoring mechanism were not adequate. As a result, 28 projects were delayed inordinately.

3.7 *Undue benefit to contractors*

Adoption of average lead distance instead of shortest lead for transportation of stone products inflated the estimates. It led to undue benefit of ₹ 25.61 crore to the contractors.

Odisha Public Works Department (OPWD) Code (Para 3.4.10) stipulated that the Divisional Officer is to certify that he has personally visited the spot and prepared the estimate using Schedule of Rates (SoR) and providing for the most economical and safe way of executing the work.

Chief Engineer (CE), Design, Planning, Investigation and Roads (DPI and Roads), Odisha sanctioned seven road projects[62] under three Roads and Buildings Divisions[63] for ₹ 341.37crore. The works were awarded to seven contractors at a cost of ₹ 323.62 crore between June 2010 and January 2016 for completion between June 2012 and June 2017. As of March 2017, two works were completed and other five works were in progress with expenditure of ₹ 349.48 crore including escalation charges of ₹ 39.99 crore. Estimates of the above works *inter alia* provided for transportation of 12.86 lakh cum of stone products from approved quarries. The stones were for execution of Granular Sub Base (GSB), Wet Mix Macadam (WMM), Bituminous Macadam (BM), Semi Dense Bituminous Concrete (SDBC), Cement Concrete and stone packing.

Audit observed from the sanctioned estimates of the works that for sourcing the stone products average lead distances ranging from 29 to 102 km were provided. The shortest lead distances to nearby quarries as certified by Engineers concerned were ranging from seven to 55 km. The average lead was adopted on the plea that the nearest quarries were not able to meet the requirement of works. Audit further observed that before preparation of estimates, certificate of adequate quantity of materials not being available from the nearest quarries had not been obtained from Revenue Authorities.

Thus, the provision of excess lead between 14 and 60 km for the above seven road projects inflated the transportation cost ranging from ₹ 109.50 to ₹ 411 per cum. For transportation of 12.86 lakh cum of stone-products estimated cost of the projects was inflated by ₹ 27.24 crore. With the tender premium the undue benefit extended to the contractors worked out to ₹ 25.61 crore. Of the above amount,₹ 25.20 crore had already been passed on to the contractors as detailed in ***Appendix 3.7.1***.

The Government stated (September 2017) that average lead was proposed for want of availability of sufficient crushed stone products in the nearby crusher of the project. Hence the Executive Engineers/ Superintendent Engineers, concerned had recommended for average lead. Further, unforeseen problems like machinery break down, labour unrest, scarcity of materials from a single quarry were also considered. They act as a barrier for smooth supply of crusher stone products by a single crusher. Further, estimate was an approximate cost of the project and the realistic estimate made it workable from the point of view of the execution.

The reply was not tenable since average lead was adopted in the estimates without verifying the availability of materials from the Revenue authorities. Further as per the terms and conditions of contract, arranging the materials was the responsibility of the contractors. Provision of higher lead for want of availability of sufficient materials was not in accordance with the provisions of the contract.

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[62] (i) Widening to two lane and improvement of Bhawanipatna-Gunupur-Kasipur-Rupkona road (S-44), (ii) Widening to two lane and improvement of JKpur-Muniguda-Bhawanipatna Border Road (SH-6), (iii) Improvement to two lane of VRC (Boudh-Kiakata-Rairakhol) road, (iv) Widening and strengthening of existing lane from 183/300 to 188/200 km of Kuchinda-Bamara road, (v) Widening and strengthening of existing lane from 188/800 to 194/200 km of Kuchinda-Bamara road, (vi) Widening and strengthening of existing lane from 176 to 183 km of Kuchinda-Bamara road and (vii) Widening and strengthening of existing lane from 171 to 174 km of Kuchinda-Bamara road.

[63] Rayagada (R & B) Division, Sambalpur (R&B) Division No-I & II.

3.8 *Extra cost due to inclusion of inadmissible overhead charges on cost of conveyance of stone products.*

Incorrect inclusion of conveyance charges to prime cost for calculating overhead charges and contractor's profit led to extra cost of ₹ 11.36 crore

Government of Odisha (GoO) in Works Department published (2006) Analysis of Rates (AoR) prescribing admissible cost elements to be considered to arrive at item rate of various works. For the items of works mentioned in AoR, Schedule of Rates (SoR) is published every year in consideration of increase in cost of materials, machinery and labour. Estimates for public works are to be prepared on the basis of AoR 2006 and prevailing SoR. The rates of material as per SoR are basic rates excluding cost of conveyance, royalty and other local taxes. The AoR 2006 provides for overhead charges (OHC) and contractors profit on each item of work at prime cost[64]. After adding OHC and contractors' profit, cost of conveyance of materials and royalty must be added at the end to arrive at final item rate.

The two Divisions[65] estimates for ₹ 262 crore were sanctioned between December 2009 and November 2012 for three road projects[66]. Audit observed that the sanctioned estimates of the above works provided for transportation of 9.45 lakh cum of stone products. They were for execution of Granular Sub Base, Wet Mix Macadam, Bituminous Macadam, Semi Dense Bituminous Concrete, Cement Concrete etc.

Audit review of the item rates of the above works showed that in contravention of Analysis of Rates, conveyance charges were first added to prime cost and then overhead charges at eight/ten *per cent* and contractors profit at 10 *per cent* were worked out on that inflated amount. Further, one *per cent* labour cess was calculated on overhead charges and contractor's profit thus worked out. This resulted in an overall inflation of the estimated cost by ₹ 11.01 crore.

The tender for the works were invited on such inflated estimates. The same was awarded for ₹ 252.43 crore between July 2010 and April 2013 for completion between January 2013 and April 2015. As of March 2016, the above works were in progress and the contractors were paid for ₹ 302.11 crore. As of March 2017, the contractors had utilised 9.64 lakh cum of stone products. ₹ 11.36 crore had already been passed on to the contractors for the above quantity.

The Government stated (September 2017) that the estimates were prepared as per the provisions/ stipulations of the Analysis of Rates 2006 of GoI/ Ministry of Road Transport and Highways (MoRTH).

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64 Cost of materials, machinery and labour

65 Parlakhemundi Roads & Buildings Division and NH Division, Keonjhar

66 (i) Widening of two lane and improvement of Parlakhemundi-R.Udayagiri-Mohana Road, (ii) Widening of two lane and improvement of Gunupur-Kasinagar Road and (iii) Widening and strengthening from 0/0 to14/0 km of NH-20

The reply was incorrect as the Analysis of Rates required computation of overhead charges, contractor's profit and labour cess as a percentage of prime cost, before computing the cost of conveyance.

3.9 *Avoidable cost due to unwarranted/excess provision of bituminous items*

Unwarranted provision of Bituminous Macadam and excess provision of Semi Dense Bituminous Concrete were made in deviation from IRC Specifications. It led to avoidable cost of ₹ 65.38 crore.

Indian Road Congress (IRC) specifications stipulated that the pavement thickness/design of roads depends on load bearing capacity of the soil, expressed in terms of California Bearing Ratios[67] (CBR) and on the basis of projected number of commercial vehicles which would ply over the road, calculated as Million Standard Axles (msa). As per IRC: 37-2001, for traffic intensity of one msa with CBR value ranged from two to five *per cent,* the pavement composition should comprise Granular Sub-base, Granular base and bituminous surfacing. Further bituminous surfacing consists of 20 mm wearing course (Premix Carpet/Semi Dense Bituminous Concrete) and no binder course should be provided.

The records of Malkangiri Roads & Buildings (R&B) Division were reviewed. They showed (October 2016) that during 2010-11, seven[68] road works for widening and improvement were under execution with assistance from GoI, MoRTH.

Audit observed from the estimates/sanctioned notes of MoRTH that all the seven roads were with traffic of one msa and the CBR value of the roads ranged from two to five *per cent*. Against the requirement of 20 mm SDBC, the EE provided 25 mm to 30 mm SDBC. Further Bituminous Macadam (BM) of 50 mm to 60 mm was also provided although there was no requirement for BM. Thus unwarranted provision of BM and excess provision of five to 10 mm of SDBC inflated the estimates by ₹ 66.63 crore as detailed in the ***Appendix 3.9.1.***

Based on such inflated estimates, tenders were invited. The works were awarded to four [69]contractors between December 2010 and November 2011 at a cost of ₹ 363.12 crore for completion between January 2013 and May 2014. As of March 2017, only one work was completed and remaining six works were in progress as the Department could not hand over the hindrance free site in time. The contractors were paid ₹ 288.71 crore. The extra cost due to inflated estimate worked out to ₹ 65.38 crore taking into account tender premium quoted by the bidders.

[67]The California Bearing Ratio (CBR) is a penetration test for evaluation of the mechanical strength of natural ground, sub grades and base courses beneath new carriageway construction. .

[68] (i) Improvement to MalkangiriMottu Road from 102/0 to 149/0 km, (ii) Widening and Improvement to JKMM Road from149/0 to 202/7 km (iii) Widening and Improvement to CJP Road from 0/0 to 29/5 km,(iv) Improvement to Malkangiri Balimela Road from 0/0 to 29/2 km, (v) Improvement to Balimela Junction to Tunnel, (vi) Widening and improvement of KP Road from 0/0 to 30/0 km and (vii) Improvement to GSM road from 0/0 to 45/353 km.

[69](i) Patil Construction, (ii) M/s Raghava Constructions, (iii) IVRCL Ltd and (iv) KCL-AMRCL.

The Government stated (September 2017) that the traffic density in terms of msa for 15 year design life was re-assessed which were more than 5 MSA for four roads (Sl. No. 1, 2, 5 and 7 of the ***Appendix 3.9.1***). The design requirement of BM for these roads for both binder layer and wearing course did not exceed specifications. The Government accepted the factual position for other three roads. It was stated that thicker layers of BM had been provided as these roads were located in strategic area. This would help in safe and easy movement of vehicular traffic of law enforcing agencies like CRPF/Police personnel for maintaining law and order.

The reply was not acceptable. The extra thickness of SDBC and extra layer of BM was not required since the assessed traffic intensity was one msa and CBR value was ranging from two to five *per cent*.

3.10 *Avoidable cost due to provision of surface dressing*

Provision was made for surface dressing over and above the pavement design stipulated by Indian Roads Congress specifications. It led to avoidable cost of ₹ 12.08 crore.

Mention was made in para 3.14 of Report of the Comptroller and Auditor General of India on Economic Sector for the year ended March 2016 regarding extra expenditure due to unwarranted provision of surface dressing for ₹ 17.02 crore in 10 road works of two roads and buildings[70] divisions. Audit scrutiny of records in 19 road projects under five divisions showed the following.

Chief Engineer, Design, Planning, Investigation & Roads (DPIR) had sanctioned estimates of 19 road projects under five Divisions[71] for ₹ 534.91 crore. The works were awarded at ₹ 522.56 crore between July 2010 and December 2016 for completion between January 2013 and August 2018. As of March 2017, all the works were in progress with expenditure of ₹ 498.32 crore on the basis of actual measurement.

As per Indian Roads Congress (IRC) specifications, pavement layers are to comprise Granular Sub Base, Granular Base and Bituminous Surfacing. Further the bituminous surfacing shall consist of either a wearing[72] course or a binder[73] course with a wearing course depending upon the traffic to be carried.

Audit observed that the estimates of the above works provided for Semi Dense Bituminous Concrete (SDBC) as a wearing course and Bituminous Macadam as binder course. A wearing course as per pavement design stipulated by the IRC specifications was already provided. Over and above, the estimates provided another wearing course for 18.39 lakh square meter in the form of surface dressing. The above unwarranted provision led to avoidable extra cost of ₹ 12.08 crore.

[70] Rayagada and Malkangiri (R&B) Divisions
[71] (I) Paralakhemundi (R&B) Division, (ii) Keonjhar NH Division, (iii) Sambalpur (R&B) Division No-II, (iv) Ganjam (R&B) Division No-II and (v) Jharsuguda (R&B) Division.
[72] The most commonly used wearing courses are surface dressing, open graded premix carpet, mix seal surfacing, semi-dense bituminous concrete and bituminous concrete
[73] Binder Course-Bituminous Macadam and Dense Bituminous Macadam

The Government stated (September 2017) that to avoid disturbances of WMM layer one side of the road was provided with surface dressing over which traffic was allowed.

The reply was not acceptable. The condition in detailed tender call notice stipulated that traffic management and maintenance of the stretch of road during the period of execution would be done by the contractor at his own cost. As such, the contractor was to manage the traffic after execution of WMM at his own cost. Hence the provision of surface dressing by the Department led to avoidable extra cost of ₹ 12.08 crore. Of this amount, ₹ 9.25 crore had already been paid to the contractor for execution for 14.14 lakh square meter of surface dressing.

3.11 *Undue benefit to contractors*

Undue provision was made for extra lead charges from mixing plant to worksite for transportation of stone products. It inflated the estimated cost by ₹4.77 crore and led to undue payment to contractors.

As per note below the chapter on road works of the State Analysis of Rates, 2006 in case of items where wet mix plant[74] and hot mix plant[75] are used, the total distance for transportation of materials from quarry to work site should not exceed the distance from quarry to plant site plus distance from plant to work site to carry mixed materials.

Estimates for widening and improvement of three road projects were sanctioned by Chief Engineer, (DPI & Roads) for ₹ 261.99 crore (between December 2009 and November 2012). The works were awarded between July 2010 and April 2013 to three contractors by the Executive Engineers of Roads and Buildings (R&B) Divisions, Parlakhemundi and National Highway(NH) Division, Keonjhar at a cost of ₹ 252.43 crore. They were due for completion between January 2013 and April 2015. As of March 2017, the works were in progress and the contractors had been paid ₹ 302.11 crore. It included escalation charges of ₹ 46.73 crore on the basis of actual measurement of quantities executed.

The above works, *inter alia,* involved transportation of 5.59 lakh cum of stone products from quarries to plant. It was meant for use in preparation of Wet Mix Macadam (WMM), Bituminous Macadam (BM) and Semi Dense Bituminous Concrete (SDBC). Then the above mixed materials were to be transported to various work sites. The estimates for the works provided for lead charges for distances ranging from 44 to 118 km for transportation of stone products from quarries to work sites. In addition, lead charges were included in the item rates for distances ranging from 3.5 to 13 km for transportation from mixing plant to work sites. However, transportation costs were to be limited to sums worked out on the basis of AoR. ***(Table no. 3.5)***.

[74] Wet mix plant: - The plant where the stone chips of various dimensions including stone dust are mixed up. Its output wet mix macadam is for construction of Base course.

[75] Hot mix plant: - The plant where stone chips of various dimensions were mixed up with bitumen. It is for construction of wearing course (Bituminous macadam and semi dense bituminous concrete).

Table No. 3.5: Details of undue benefit to contractors due to provision of extra lead charges from mixing plant to worksite

Name of the Work	Estimated cost (₹ in crore)	Agreement Value (₹ in crore)	Payment made (₹in crore)	Total lead provided in estimate (in km)	Actual lead allowed in AoR (in km)	Excess lead (in km)	Excess payment already made (₹ in lakh)
Widening of two lane and improvement Parlakhemundi-R: Udayagiri-Mohana Road	141.2	153.91	192.79	124	111	13	315.46
Widening of two lane and improvement of Gunupur-Kasinagar Road.	84.08	68.13	79.18	128	118	10	147.40
Widening and strengthening from km 0/0 to14/0 km of NH-20	36.71	30.3	30.14	47.5	44	3.5	13.79
Total	**261.99**	**252.34**	**302.11**				**476.65 lakh or 4.77 crore**

Thus**,** extra lead charges between ₹ 27.40 and ₹ 99.80 per cum from mixing plant to various work sites included in the item rates inflated the estimated cost by ₹ 4.77 crore **(*Appendix 3.11.1)***. Award of work based on such inflated estimated cost resulted in extra cost to work and undue benefit of ₹ 4.77 crore to contractors.

The Government in reply stated (September 2017) that provision of a rate in the estimate did not bear extra expenditure for the project as competitive bids were invited. Further bid was finalised in favour of L1 bidder. Any change in estimated rate influence only the estimated cost but position of L1 remained unaltered.

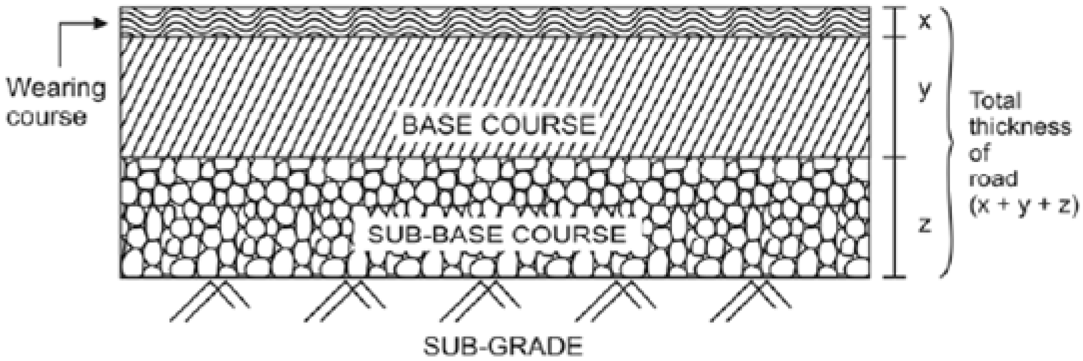
The reply was not acceptable since invitation of bid was based on inflated estimated cost which usually results in higher bids.

3.12 Avoidable Cost on provision of capping layer of sand

Unwarranted provision of capping layer of sand in deviation from IRC specifications led to avoidable cost of ₹ 7.55 crore.

Regarding avoidable extra expenditure of ₹ 14.56 crore in 26 works of 15 Roads and Buildings Divisions, mention was made in para 3.13 and 3.18 of Report of the Comptroller and Auditor General of India on Economic Sector for the year ended March 2014 and March 2015 respectively. Audit scrutiny of records in other six divisions showed the following.

According to the norms of Indian Road Congress (IRC), pavement layer of a road consists of sub base course which may include granular sub base (GSB), base course and wearing course laid in successive layers over sub grade surface as shown in the diagram below.



Thickness of pavement of road is designed depending on load bearing capacity of the road. Load bearing capacity is worked out on two factors, i.e, California Bearing Ratio (CBR) representing the strength of sub grade soil, and the projected number of commercial vehicles which would ply on the road calculated as Million Standard Axles (msa). Para 3.2.3 of the IRC states that the pavement designs are given for sub grade CBR values ranging from 2 per cent to 10 per cent and design traffic ranging from 1 msa to 150 msa. Para 4.2.1.5 of the IRC guidelines states that the sub grade soil should have CBR value of two per cent. Where the CBR value of sub grade soil is less than two per cent, the design should be based on sub grade CBR value of two per cent and a capping layer of 150 mm thickness of materials with minimum CBR of 10 per cent shall be provided in addition to the sub base.

Audit reviewed estimates for improvement/ widening of 12 road works costing ₹ 198.09 crore in six divisions (between October 2014 and December 2016). The works were awarded for ₹ 187.11 crore. The work would be completed between April 2016 and August 2018.

Audit observed that the CBR value of sub grade soils in all the 12 works were more than the required two per cent (i.e. three to eight per cent). This indicated adequate load bearing capacity. The divisions however provided unwarranted capping layer of sand with thickness ranging from 115 mm to 450 mm. The unwarranted provision of capping layers of sand inflated the estimate by ₹ 8.12 crore. With the tender premium/discount the extra cost worked out to ₹ 7.55 crore as detailed in ***Appendix 3.12.1***.

The Government stated (September 2017) that extra thickness of sand was provided to compensate less thickness of granular sub base thereby saving in cost. The Government further stated that extra thickness of sand was provided for raising formation of the road to avoid submergence/overlapping during monsoon which would act as drainage layer.

The reply was factually incorrect since the layer of sand was provided in addition to an adequate sub base layer and thickness of Granular Sub base has not been reduced. As such there was no saving in cost. Further, the drainage layers were required only under shoulders of the road at sub grade level and not for the entire width of the road as per para 5.5 of IRC: 37 guidelines.

3.13. *Avoidable expenditure on use of morrum and sand instead of earth*

Construction of sub-grade of roads with morrum and sand at higher cost in lieu of earth in deviation of IRC specifications led to extra expenditure of ₹ 13.09 crore

Indian Road Congress (IRC) specifications 37-2001 (Para 3.4.1) stipulated that sub-grade constructed for road formation should be well compacted. For the sub-grade, earth available on project area or burrow earth is to be used. Use of materials like morrum or sand which is costlier than earth is in deviation from OPWD code (para 3.4.10) which insists on most economical way of executing the works.

In four Roads & Building divisions,[76] four road works[77] were awarded for ₹ 92.35 crore between September 2009 and November 2013. This was to be completed between March 2011 and May 2015. Three works had already been completed. The construction of new embankment and road at submersible portion of Bolangir Kantabanji Bangomunda Chandutora (BKBC) road under Kantabanji (R&B) Division was in progress. The total expenditure on the above works as of March 2017 was ₹ 87.14 crore.

Review of estimates of the above works showed that as per the design of roads, 13.65 lakh cum of earth was required for formation of sub-grade. Against the requirement of 13.65 lakh cum of earth, the estimates provided for 6.30 lakh cum of earth at rates varying from ₹ 107.50 to ₹ 165.10 per cum. For the remaining quantity, provision was made for 0.78 lakh cum of morrum at rates varying from ₹ 377.50 to ₹ 614 per cum and 6.57 lakh cum of sand at rates varying from ₹ 160.70 to ₹ 491.90 per cum. The undue provisions of morrum and sand against earth resulted in extra cost of ₹ 12.66 crore. As of March 2017, with tender premium ₹ 13.09 crore had already been passed on to the contractors. In the preface report of the estimate, the department did not mention that the required quantity of earth was not available. Without proper justification, the provision was made for sand and morrum for utilisation in the works at higher cost.

The Government in reply stated (September 2017) that capping layer was provided for stabilisation of road. It was also stated as the naturally occurring local sub-grade soil had poor engineering properties and low strength in terms of CBR. The Government further stated that the good quality of earth was not available and provision of sand was not for sub grade but towards high embankment in respect of BKBC road.

The reply was not acceptable since as per IRC: 37 (para 4.2.1.5) guidelines drainage layer of sand was recommended only in case of CBR value of the sub-grade was less than two *per cent.* The CBR value of the sub-grade was, however, eight *per cent* in Puri bye pass road indicating adequate load bearing capacity. Further as per the conditions of the contract it was the responsibility of the contractor to arrange required earth for the work.

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[76] (i) Puri (R & B) Division, (ii) Bhubaneswar (R & B) Division No.I (iii) Cuttack (R &B) Division No.I and (iv) Kantabanji (R&B) Division.

[77] (i) Construction of Puri by pass road from NH 203- Malatipatpur, (ii) Construction of road by the side of Pettanullah, (iii) Widening and strengthening of the Kuakhia right embankment, and (iv) Construction of new embankment and road at submersible portion of BKBC road.

3.14 *Excess provision of pavement thickness led to extra cost*

Provision of pavement thickness in excess of IRC specification led to extra cost of ₹ 13.16 crore.

Indian Road Congress guidelines (IRC: 37-2001) specified design of flexible pavements, keeping in view load bearing capacity of sub-grade soil expressed in California Bearing Ratio (CBR) and cumulative traffic to be carried expressed in Million Standard Axles (msa). The IRC guidelines prescribed pavement design as per CBR of sub-grade soil for cumulative traffic ranging from 1 to 150 msa. The pavement to be provided consists of Granular Sub Base (GSB), Granular Base (GB) and Bituminous Surfacing (BS).

Chief Engineer (DPI & Roads) sanctioned estimates for ₹ 348 crore in respect of five road projects for strengthening and improvement/widening to two-lane. The roads were under five[78] R&B Divisions. The works were awarded for ₹ 298.87 crore between August 2012 and December 2016 to be completed between August 2015 and May 2018. As of March 2017, the works were in progress and the contractors had been paid ₹ 88.77 crore.

Audit observed from the estimates that the CBR of sub-grade soil ranged from four to eight *per cent.* The cumulative traffic ranged from three to eight msa. As per IRC specifications, the required thickness of the pavements consisting of GSB, GB and BS ranged from 515 to 620 millimeter (mm). Against the above requirement, the Executive Engineers (EEs), without any justification, had provided pavement thickness ranging from 535 to 685 mm. This resulted in excess provision between 5 and 100 mm and this inflated the estimated cost by ₹ 15.65 crore. Considering bids received with less/more than the estimated cost, the extra cost worked out to ₹ 13.16 crore (***Appendix 3.14.1***).

The Government stated (September 2017) that the work was to be executed according to the sanction, terms and condition of funding agency i.e GoI/ Ministry of Road Transport and Highways. The above provisions were considered. So there was no extra cost on provision of pavement thickness.

The fact, however, remained that the excess thickness of pavements between 5 and 100 mm was provided in the estimate in deviation from the IRC specifications. This resulted in extra cost.

FINANCE DEPARTMENT

3.15 Response to Audit

Timely response to audit findings is one of the essential attributes of good governance as it provides assurance that the Government takes its stewardship role seriously.

Principal Accountant General (E&RSA), Odisha conducts periodical inspection of Government departments and their field offices. It test checks the

[78] (i) Paralakhemundi (R&B) Division , (ii) Baragada (R&B) Division, (iii) Mayurbhanja (R&B) Division, (iv) Nayagarah (R&B) Division and (v) Dhenkanal (R&B) Division

transactions and verifies the maintenance of important accounting and other records as per prescribed rules and procedures. These inspections are followed by Inspection Reports (IRs) sent to the Heads of offices and the next higher authorities. Defects and omissions are expected to be attended to promptly and compliance reported to the Principal Accountant General. A half-yearly Report of pending IRs is sent to the Secretary of each department to facilitate monitoring of the audit observations and their compliance by the departments. Apart from the above standing mechanism, Audit Committee Meetings, consisting of representatives of administrative departments, the office of the Principal Accountant General (E & RSA) and representative from Finance Department are also held. They are meant for settlement of outstanding IRs and paragraphs after detailed deliberation and verification or records.

A review of IRs issued up to March 2017 pertaining to 12 departments showed that 9,219 paragraphs relating to 2,944 IRs were outstanding at the end of June 2017. Of these, 1,046 IRs containing 2,213 paragraphs are outstanding for more than 10 years **(*Appendix 3.15.1*).** Even first reply from the Heads of offices which was to be furnished within one month had not been received in respect of 319 IRs issued up to March 2017. Year-wise position of the outstanding IRs and paragraphs is detailed in ***Appendix 3.15.2.***

Serious irregularities commented upon in these IRs have not been settled as of June 2017 **(*Appendix 3.15.3*)**. Number of paragraphs and amount involved in these irregularities are categorised below.

Table No. 3.5: Category of paragraphs

(₹ in crore)

Sl. No.	*Broad objective heads*	*Number of paragraphs*	*Amount*
1	Rules and regulations not complied with	150	1,277.17
2	Audit against propriety/expenditure without justification	62	721.94
3	Persistent/pervasive irregularities	105	506.52
4	Failure of oversight/governance	15	42.91
	Total	**332**	**2,548.54**

3.15.1 Follow-up action on earlier Audit Reports

Serious irregularities observed in audit are included in the Reports of the Comptroller and Auditor General that were presented to State Legislature. According to the instructions of the Finance Department (December 1993/June 2016), the Administrative Departments are required to furnish explanatory notes on transaction audit paragraphs, reviews/performance audits, etc. included in the Audit Reports within three months of their presentation to the State Legislature.

Audit observed that for Audit Reports (2007-08 to 2014-15), nine[79] out of 12 departments, which were commented upon, did not submit explanatory notes

[79] Agriculture, Cooperation, Energy, Fisheries and Animal Resources Development, Forest & Environment, Industries, SD&TE, Water Resources and Works Departments.

on paragraphs. Further four[80] departments did not submit explanatory notes on performance audits as of March 2017.

Table No. 3.6: No. of Performance Audit/Thematic Audit/Paragraphs for which explanatory notes were not submitted

Year of Audit Report	Total number of Performance Audit/Thematic Audit/Paragraphs	Individual paragraphs/reviews		Number of paragraphs/reviews for which explanatory notes were not submitted (March 2017)	
		Individual paragraphs	Performance Audits/ Thematic Audit	Individual paragraphs	Reviews
1	2	3	4	5	6
2007-08	27	23	04	07	00
2008-09	21	19	02	02	00
2009-10	20	19	01	04	01
2010-11	13	10	03	02	02
2011-12	18	16	02	04	00
2012-13	13	12	01	02	00
2013-14	15	13	02	01	00
2014-15	23	21	02	13	02
Total	**150**	**133**	**17**	**35**	**05**

Source : As per records of the PAG (E&RSA)

There were 35 individual transaction audit paragraphs and 05 reviews on which compliance had not been submitted to the Odisha Legislative Assembly (OLA). Departments largely responsible for not submitting explanatory notes were Energy, Fisheries and Works Department.

3.15.2 Response of departments to Recommendations of the Public Accounts Committee

PAC Reports/Recommendations are the principal medium by which Legislature ensures financial accountability of the Executive. The OLA Secretariat issued (May 1966) instructions to all State Government departments to submit ATNs on suggestions and recommendations made by PAC within six months of presentation of PAC Reports to the Legislature. The above instructions were reiterated by Finance Department of Government in December 1993 and by OLA Secretariat in January 1998. Time limit for submission of ATNs has since been reduced from six to four months by OLA (April 2005).

[80] Agriculture, Cooperation, Energy, Fisheries and Animal Resources Development.

Out of 730 recommendations relating to Audit Report (Economic Sector) made by the PAC[81], final action on 42 recommendations was awaited (March 2017).

Bhubaneswar **(Yashodhara Ray Chaudhuri)**
The **Principal Accountant General (E&RSA)**
Odisha

Countersigned

New Delhi **(Rajiv Mehrishi)**
The **Comptroller and Auditor General of India**

[81] from the 1st Report of 10th Assembly (1990-95) to 5th Report of 14th Assembly (2009-14)