

Chapter II

Performance Audit

This chapter contains the findings of Performance Audits on i) Implementation of Pradhan Mantri Gram Sadak Yojana in the State, ii) Implementation of National Cyclone Risk Mitigation Project and Odisha Disaster Recovery Project in the State and iii) Information Technology Audit on Works and Accounting Management Information System.

Rural Development Department

2.1 Implementation of Pradhan Mantri Gram Sadak Yojana in the State

EXECUTIVE SUMMARY

The Government of India launched Pradhan Mantri Gram Sadak Yojana (PMGSY) in December 2000. The objective was to provide all-weather connectivity to eligible unconnected rural habitations. As of March 2017, the Department had not provided connectivity to 33 per cent of eligible habitations even after 16 years of implementation of the programme. The State could not avail Central assistance of ₹ 155.33 crore due to defective Core Network Plan. The Department had failed to undertake adequate preparatory work and proper survey for preparing Detailed Project Reports. This led to non-completion of works as well as execution of inadmissible projects. The Department awarded works without ensuring land availability and forest clearance that led to unfruitful expenditure of ₹ 41.82 crore. Contract management was deficient, as there was delay in according administrative approval and award of works. There were also cases of awarding works to ineligible contractors. Non-realisation of liquidated damages of ₹ 62.44 crore from contractors amounted to extension of undue favour. Quality control mechanism was not adequate. Routine maintenance of completed PMGSY roads was also not adequate.

2.1.1 Introduction

Government of India (GoI) had launched Pradhan Mantri Gram Sadak Yojana (PMGSY) in December 2000. The objective was to establish all-weather road connectivity in rural areas¹. All the projects are to be completed by March 2019.

The Rural Development (RD) Department of Government of Odisha (GoO) was the nodal authority for implementation of PMGSY in the State. Engineer-in-Chief (EIC), Rural Works (RW) was the Chief Executive Officer (CEO) of Odisha State Rural Roads Agency (OSRRA). The CEO was responsible for

¹ For habitations having population of 500 persons & above, 250 persons & above in respect of Scheduled Tribe areas and 100 persons & above in respect of most intensive IAP (Integrated Action Plan) Blocks as per Census 2001

approval of project proposals, monitoring and management of funds of PMGSY.

2.1.2 Audit objectives

Performance Audit was conducted to assess whether:

- planning for providing all weather connectivity to unconnected habitations was adequate and conformed to the District Rural Road Plans and Core Network;
- financial management of the programme was efficient and effective;
- all-weather connectivity was provided to the eligible rural habitations and construction/ maintenance works were executed economically, efficiently and effectively; and
- quality control mechanism and monitoring system was adequate and effective in achieving the desired objectives.

2.1.3 Scope and methodology of Audit

Audit was conducted during April to June 2017 covering the period 2012-17. Audit examined records of RD Department, EIC (RW), OSRRA, SEs and EEs of RW Divisions. Eight² out of the 30 districts were selected through random sampling, integrating three risk parameters³. There were 538 completed works and 485 on-going works in the 16⁴ RW Divisions. Audit test-checked records of 128 (24 *per cent*) out of 538 completed works and 305 (63 *per cent*) out of 485 on-going works. An Entry Conference was held with the Principal Secretary of the RD Department on 19 March 2017. Audit objectives, criteria, scope and methodology were discussed. Joint physical inspections (JPIs) of 84 (16 *per cent*) out of 538 completed works and 30 (6 *per cent*) out of 485 on-going works were conducted. Photographic evidences were also taken in the presence of departmental officials. Audit observations noticed during compliance audit in six other districts⁵ in addition to those selected through random sampling, were also included in the Report. Exit Conference was held with the Commissioner-*cum*-Secretary on 5 September 2017 to discuss the audit findings. The views of the Department were suitably incorporated in the Report.

2.1.4 Audit criteria

The implementation of PMGSY was evaluated based on criteria derived from:

- PMGSY guidelines, as amended from time to time;
- Guidelines and instructions issued by the Ministry of Rural Development (MoRD)/ National Rural Roads Development Agency (NRRDA);

² Angul, Bolangir, Gajapati, Kalahandi, Kandhamal, Khurda, Nuapada and Sambalpur

³ Expenditure, connectivity status and quality of execution in a Geographical Information System (GIS) map

⁴ Angul, Baliguda, Bhawanipatna, Bhubaneswar, Bolangir, Dharmagarh, Kesinga, Khariar, Kuchinda, Mohana, Nuapada, Patnagarh, Paralakhemundi, Phulbani, Sambalpur and Titilagarh

⁵ Balasore, Kendrapara, Keonjhar, Rayagada, Rourkela and Sundargarh

- Indian Road Congress/ Rural Road Manual;
- Orissa Public Works Department Code;
- Periodical reports/ returns prescribed by the State Government;
- Circulars and instructions issued by the GoI/ GoO/ OSRRA; and
- Reports of National and State Quality Monitors.

2.1.5 Acknowledgement

We acknowledge the cooperation and assistance rendered to Audit by the Rural Development Department during the Performance Audit.

The Audit findings are discussed in the succeeding paragraphs.

Audit findings

2.1.6 Status of connectivity

PMGSY guidelines set an objective of covering habitations with population of more than 1000 by 2003 and those with population of 500-1000 by 2007. **Table 2.1.1** below details the habitations included in the Core Network⁶ (CNW) and covered under the programme:

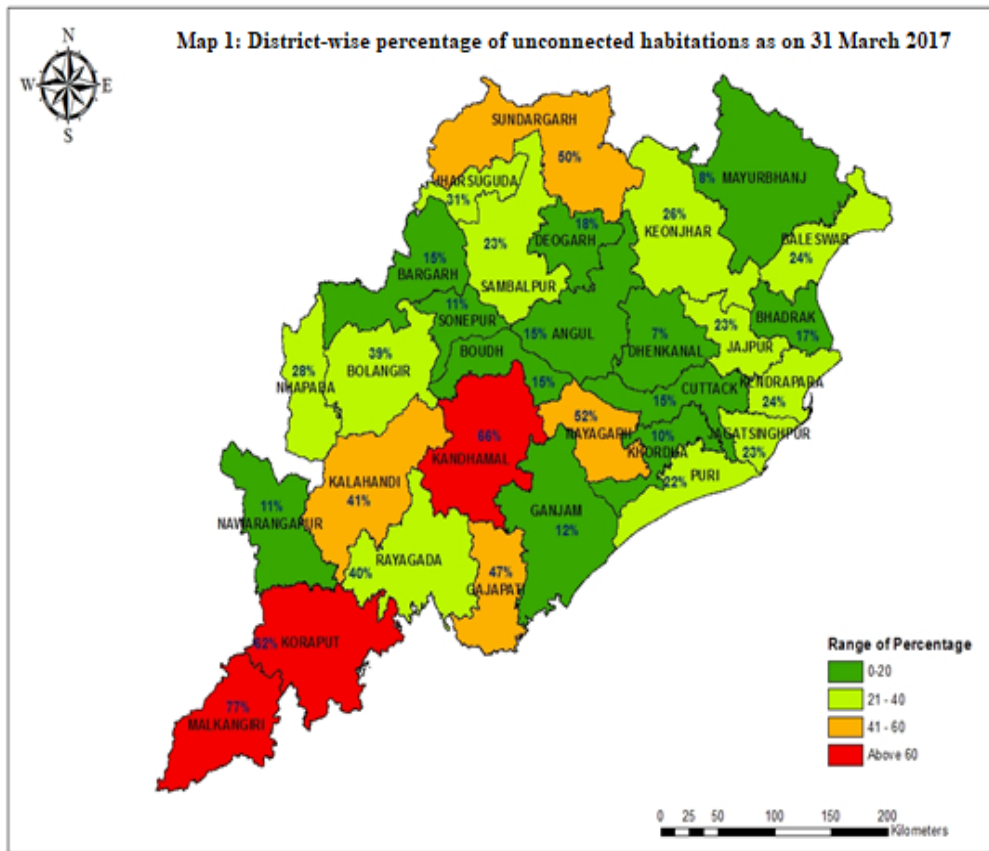
Table 2.1.1: Status of connectivity as of March 2017

Size of population	1000+	500-1000	250-500	100+	Total
No. of eligible unconnected habitations included in the Core Network (as per Census 2001)	3,703	6,741	5,666	2,066	18,176
Habitations provided connectivity by March 2012	3,406	2,856	502	113	6,877
Unconnected habitations as on 31 March 2012	297	3,885	5,164	1,953	11,299
Habitations provided connectivity during 2012-17	136	2,701	2,241	173	5,251
Unconnected habitations as on 31 March 2017	161	1,184	2,923	1,780	6,048
Percentage of unconnected habitations	4	18	52	86	33

(Source: Information furnished by the EIC, Rural Works)

⁶ Rural road network required for providing basic access to all eligible unconnected habitations

Audit observed that the Department provided connectivity to 12,128 (67 per cent) out of 18,176 eligible habitations, as of March 2017. Thus, 33 per cent habitations remained unconnected, even after 16 years of implementation of the programme. The district-wise status of unconnected habitations is depicted in **Map 1** below:



2.1.6.1 Target and achievement

GoI had set annual targets for construction of roads and connectivity of eligible habitations. The target was based on i) balance road length pending for completion, ii) unconnected habitations, iii) available financial resources, etc. Target fixed and achievement made in coverage of habitations and construction of roads during the period from 2012-13 to 2016-17 is detailed below in **Table 2.1.2**:

Table 2.1.2: Coverage of habitations and road length

(Habitation in numbers and road length in Km)

Year	Habitations		Road length	
	Target	Achievement	Target	Achievement
2012-13	490	205	4,170	2,401
2013-14	1,050	1,004	3,000	3,063
2014-15	1,300	1,192	4,000	3,843
2015-16	1,430	1,788	3,055	3,780

Year	Habitations		Road length	
	Target	Achievement	Target	Achievement
2016-17	2,050	1,685	6,200	5,797
Total	6,320	5,874	20,425	18,884

(Source: Records of EIC, Rural Works)

Audit observed that the Department could not achieve targets for coverage of habitations by 7 per cent and construction of roads by 8 per cent during 2012-17. In 16 test-checked Divisions, the EEs provided connectivity to 1,529 out of 1,768 targeted habitations during this period. Thus, there was shortfall of achievement in 239 (14 per cent) habitations.

The Department stated (September 2017) that they had taken action to accelerate the programme to complete all sanctioned projects by March 2019.

2.1.7 Planning

The programme guidelines required to prepare District Rural Road Plans (DRRPs)⁷ for rural road connectivity planning. Based on DRRP, the State was to prepare Core Network (CNW). The DRRP and the CNW constituted the basis for all planning exercises under PMGSY. Accordingly, the State prepared CNW in 2000-01. Audit observed that planning was deficient and inadequate, as discussed in the following paragraphs.

2.1.7.1 Data inconsistencies

Audit found data inconsistencies in i) CNW, ii) Detailed Project Reports (DPRs)⁸ and iii) Online Management, Monitoring and Accounting System (OMMAS)⁹. As a result, eligible habitations remained uncovered under PMGSY, as discussed in *Table 2.1.3*

Table 2.1.3: Observations on Incorrect road length in Core Network, eligible habitations not covered, etc.

Nature of observation	Audit observation	Reply of the Government
Incorrect road length in Core Network	Road length of 121 projects mentioned in the DPRs did not match with that in the CNW. Due to variations, NRRDA did not approve these projects. Verification of actual road length showed that the length mentioned in the CNW was not correct. Thus, wrong data in CNW led to non-approval of 121 projects (646.883	The Department stated (September 2017) that adequate time was not available to physically verify all existing road network data, due

⁷ Entire existing road network system in the district clearly identifying the proposed roads for providing connectivity to eligible unconnected habitations

⁸ Each rural road project should have separate DPR based on detailed survey and investigation, accurate quantities, costs, etc.

⁹ OMMAS is a software of GoI for monitoring progress of works under PMGSY, in respect of eligible habitations, road length, number of roads for maintenance, etc.

Nature of observation	Audit observation	Reply of the Government
	Km road). These projects were to connect 227 habitations with 0.69 lakh population which did not get all weather connectivity under PMGSY. Besides, the State could not avail Central assistance of ₹ 155.33 crore ¹⁰ .	to which actual road length was not correct.
Eligible habitations not included	<p>The CNW did not include 4,035 eligible habitations as these were shown to be 'connected'. However, these habitations were actually not connected. As CNW was the basis for approval of road projects, these habitations remained out of coverage under PMGSY. GoO requested (December 2015) the MoRD to allow them to include these habitations in the CNW. The same had not been accepted so far (June 2017).</p> <p>In 14 test checked Divisions¹¹, 507 eligible habitations were not included in the CNW. As such, these habitations were not covered under PMGSY.</p>	<p>The Department stated (September 2017) that the proposal for inclusion of the left out habitations had been reported to MoRD and DPRs would be submitted for sanction. The fact, remained that the left out habitations had not been included in the CNW till date.</p>
Discrepancies in data relating to routine maintenance of roads	<p>As per OMMAS, 5,368 roads were to be maintained with ₹ 84.41 crore during 2012-17 in 16 test checked RW Divisions. Against this, the EEs had shown 3,583 roads to be maintained with ₹ 52.12 crore. Thus, there were discrepancies between OMMAS and divisional records. Road-wise expenditure in the records of Divisions also did not match with that of OMMAS. As such, the data was not reliable.</p>	<p>The Department stated (September 2017) that the discrepancy was due to manual payments. They had decided to make online payments in future to address the issue.</p>

(Source: Records of concerned departments)

Thus, poor planning resulted in exclusion of eligible habitations and non-availing of Central assistance.

¹⁰ 646.883 Km x ₹ 40.02 lakh x 60 per cent (GoI share)

¹¹ Baliguda, Bhawanipatna, Bolangir, Dharmagarh, Kesinga, Khariar, Kuchinda, Mohana, Nuapada, Patnagarh, Paralakhemundi, Phulbani, Sambalpur and Titilagarh

2.1.8 Financial performance

PMGSY was a 100 per cent centrally funded programme. However, from 1 April 2015, the funding pattern was changed to 60:40 between GoI and GoO. OSRRA was to maintain accounts for PMGSY funds. The financial performance during 2012-17 under PMGSY is discussed in subsequent paragraphs.

2.1.8.1 Allotment and expenditure

During 2012-17, OSRRA incurred expenditure of ₹ 8,424.40 crore against allotment of ₹ 7,658.51 crore. The year-wise receipt and expenditure of funds is given in the *Table 2.1.4*

Table 2.1.4: Funds allocated and expenditure made during 2012-17

(₹ in crore)

Year	Funds received			Expenditure
	GoI	GoO ¹²	Total	
2012-13	82.25	90.00	172.25	1,238.73 (included balance from previous years)
2013-14	1,179.54	129.73	1,309.27	1,654.96
2014-15	1,051.50	158.43	1,209.93	1,677.23
2015-16	1,481.04	955.63	2,436.67	1,960.06
2016-17	1,640.96	889.43	2,530.39	1,893.42
Total	5,435.29	2,223.22	7,658.51	8,424.40

(Source: Data furnished by OSRRA)

The excess expenditure over the funds received were met from the unspent balance of ₹ 1,412.17 crore lying as Opening Balance of 2012-13. In 16 test-checked Divisions, the EEs spent ₹ 2,191.19 crore (97 per cent) against available funds of ₹ 2,257.55 crore. The Divisions could not spend ₹ 66.36 crore, despite having 1,843 unconnected habitations. Due to slow progress of works, the available funds could not be utilised fully.

2.1.8.2 Loss of interest

The Operational Manual (OM) provided that all funds in excess of ₹ 50 lakh would automatically be maintained by the bank as fixed deposits at the interest rate applicable for 91 days. Contrary to this, OSRRA executed MoUs¹³ with the banks to keep a minimum balance of ₹ 5 crore in Saving Bank (SB) accounts¹⁴.

¹² Extra expenditure over the estimated cost sanctioned by NRRDA due to cost overrun, construction of bridge more than permissible length under the programme, etc.

¹³ Memorandum of Understanding

¹⁴ In respect of Programme funds and Maintenance funds

Audit found that OSRRA maintained¹⁵ monthly balance amounts in SB accounts relating to Administrative funds between ₹ 0.79 crore and ₹ 10.33 crore. Similarly, in respect of Maintenance funds, the balance in SB account¹⁶ ranged between ₹ 1.78 crore and ₹ 98.22 crore. The banks had not transferred the excess funds to fixed deposits. This resulted in loss of interest of ₹ 6.38 crore.

The Department stated (September 2017) that the matter would be taken up with the banks to reduce the threshold amount as per the OM of PMGSY.

2.1.8.3 Non-adjustment/ recovery of mobilisation and machinery advance

As per the General Conditions of Contract (GCC), payment of interest free mobilisation and machinery advances¹⁷ to the contractors would be against their unconditional bank guarantees (BG). The amount to be recovered would be from the payments due to the contractor as per the contractual completion schedule. The recoverable amount was not to be linked with progress of work.

Audit observed that:

- The EEs paid mobilisation advance of ₹ 7.27 crore to 17 contractors. As of March 2017, ₹ 3.49 crore was outstanding though the scheduled period of completion of works had expired since 1 to 121 months.
- The EEs had paid mobilisation/ machinery advance of ₹ 0.88 crore¹⁸ in excess of the prescribed limits¹⁹ to 20 contractors during the period 2008-16.

Thus, the EEs had not followed prescribed provisions for payment and recovery of interest free mobilisation and machinery advances scrupulously. This resulted in undue financial benefit to the contractors.

The Department stated (September 2017) that they would recover the outstanding amounts from the bills of the contractors.

2.1.8.4 Lapsed bank guarantees

As per the programme guidelines and Standard Bidding Document (SBD), the successful bidder should furnish performance security (PS) at two and a half *per cent*. The PS should be either in the form of BG or fixed deposit receipts from a scheduled commercial bank in the name of the employer. The validity of BGs should be up to 45 days from the date of expiry of the defect liability period²⁰.

In 13²¹ out of 16 test checked Divisions, Audit observed that 62 contractors had submitted BGs worth ₹ 10.20 crore for 111 road works. The validity of these BGs lapsed between November 2009 and March 2017. The EEs neither

¹⁵ Between April 2013 and February 2015

¹⁶ During the period from 2012-13 to 2016-17

¹⁷ For mobilising men, material and machinery to the site

¹⁸ Mobilisation advance (₹ 0.68 crore) and machinery advances (₹ 0.20 crore)

¹⁹ Five *per cent* of contract cost as mobilisation advance and 90 *per cent* of cost of the new equipment brought to site as machinery advance subject to 10 *per cent* of contract cost

²⁰ Routine maintenance period of five years after completion of works

²¹ Angul, Bolangir, Baliguda, Bhawanipatna, Dharmagarh, Kuchinda, Khurda, Mohana, Patnagarh, Paralakhemundi, Phulbani, Sambalpur and Titilagarh

encashed the BGs within the validity period nor got them revalidated to cover the defect liability period. Further, the EE, RW Division, Dharmagarh had received ₹ 1.20 crore additional performance security²² (APS)²³. The EE released the APSs though works of four packages were lying incomplete. This amounted to undue financial benefit to the contractors.

The Department stated (September 2017) that they would issue suitable instructions to the EEs for maintaining validity of BGs. They further added that after implementation of e-payment system, all BGs would be entered in OMMAS. The system would not allow payments in the event of time barred BGs.

2.1.9 Programme Implementation

As per the OPWD code, the competent authority was to accord administrative and technical sanction after sanction of project proposals. GoO was to follow the terms of standard bidding documents (SBD)²⁴ for all the tenders which constituted both technical and financial bids.

During 2012-17, MoRD sanctioned 5,184 projects including 2,561 related to 2016-17. No project was sanctioned during 2014-16. The EEs completed 1,865 out of 2,623 projects sanctioned during 2012-14 and 733 remained incomplete. It was observed that 25 road projects had not been taken up even after three years of sanction. Audit observed deficiencies in contract management, which also contributed to the delay in completion. The deficiencies in contract management are discussed below:

2.1.9.1 Delay in according administrative approval and award of works

As per Paragraph 7.11 of OM, all activities²⁵ for award of work should be completed within 90 days²⁶ after clearance of projects by NRRDA. The RD Department was to accord administrative approval and technical sanction to the works within seven days from the date of clearance.

Audit observed that:

- The Department accorded administrative approval to the road works²⁷ 12 to 28 days after the permissible time. Reasons for the delay were not on record.
- In test-checked Divisions, 1,510²⁸ works were sanctioned during 2012-17. The EEs had awarded 1,023 works. There were delays of 21 to

²² Package No. OR-15-230 (₹ 30.16 lakh); Package No. OR-15-231 (₹ 27.06 lakh); Package No. OR-15-223 (₹ 20.97 lakh) and Package No. OR-15-225 (₹ 42.19 lakh)

²³ Bidders quoting bid price less than the estimated cost were to submit the differential amount as APS

²⁴ Time frame for various activities in tendering process, clear qualification for the contractors, evaluation of bidding capacity, etc.

²⁵ Including administrative approval and technical sanction

²⁶ From 15 November to 15 February

²⁷ Sanctioned during 2012-13 (Batch-II), 2013-14 and 2016-17 (Batch-II). Records of administrative approval for other works were not made available

²⁸ 2012-13: 333; 2013-14: 402 and 2016-17: 775

1,076 days in award of 953 works. The EEs had not awarded 487²⁹ works, the reasons for which were not on record.

PMGSY was a time bound programme. Delays in according administrative approval and award of work caused delay in execution of projects.

The Department stated (September 2017) that the delay in award of work was due to repeated non-response/ cancellation of tender due to abnormal higher tender rates, *etc.*

2.1.9.2 Irregular award of works

Audit found that the EEs of the test-checked Divisions awarded works valued at ₹ 201.92 crore, without following the prescribed provisions. These are discussed below:

- ***Award of works to contractors having inadequate bidding capacity***³⁰: As per SBD, contractors having bid capacity equal to or more than the total bid value were eligible. In RW Division, Gajapati, the EE awarded five works under three³¹ packages³² for ₹ 12.39 crore to two contractors. The bid capacity of the contractors was less than the bid value.

In RW Division, Sundargarh, the EE awarded 13 works under 10 packages to a contractor for ₹ 15.56 crore during 2009-11. The contractor, however, lacked bidding capacity and therefore could not complete the works. The CE terminated the contracts during August 2012 to September 2013. The EE re-estimated balance works of ₹ 12.21 crore at ₹ 17.68 crore. This resulted in cost overrun of ₹ 5.47 crore.

The Department stated (September 2017) that the EEs awarded the works to those contractors on various considerations like non-responsive bids, difficult site conditions, naxal prone areas, *etc.* The reply was not tenable as award of work disregarding SBD was irregular.

- ***Acceptance of tender without Additional Performance Security (APS)***: As per the OPWD code³³, bidders quoting bid price less than the estimated cost of the tender were to furnish APS³⁴. They had to submit APS at the time of submission of bids. The EIC, RW also

²⁹ 2012-13: 7, 2013-14: 13; 2016-17: 467

³⁰ Bidding capacity is the ability of the contractor to execute maximum value of work within a scheduled period. As per the PMGSY manual, bidding capacity is calculated as $A*N*M-B$, where A= maximum value of works completed or in progress in any one year in last five years, N = No. of years prescribed for completion in respect of works for which bid is invited, M = 2 or such higher figure not exceeding 3 as per the index at Instruction to Bidder and B= value at current price level of works which are committed to be completed during the completion period of the work for which bid is invited

³¹ Package No. OR-10-29, OR-10-31 and OR-10-181

³² One or more road works in a Block or in adjacent Blocks can be combined to form packages for tendering purposes

³³ Amendment made to OPWD code on 4 May 2016

³⁴ The exact amount of differential cost as APS in shape of Demand draft/ TDR along with the price bid

instructed (June 2016) all the SEs to include this provision in all Detailed Tender Call Notices (DTCN) floated on or after 4 May 2016.

The SEs, RW Circles, Berhampur and Bhawanipatna accepted bids of five bidders³⁵, who had quoted price less than the estimated cost³⁶. The EEs awarded the works for ₹ 17.91 crore without ensuring APS for ₹ 0.57 crore³⁷. Instead of rejecting the bids, the same were accepted in violation of the codal provisions though the tenders had been called for in June 2016.

Thus, award of works without APS was irregular which amounted to extension of undue financial benefit to the contractors.

The Department stated (September 2017) that the circular issued by the EIC was meant for non-PMGSY works. The reply was not tenable as there was no such specific mention in the circular.

- **Award of works without ensuring performance security:** As per Clause 30.1 of SBD, the successful bidder was to provide PS of two and half *per cent* of contract price before signing the contract. The balance two and half *per cent* would be retained from each payment due to the contractor. In RW Division, Nuapada, the EE awarded 10 works to five contractors at ₹ 41.50 crore. The contractors provided ₹ 0.85 crore as PS against the requirement of ₹ 1.04 crore. The EE signed contracts with them without insisting for balance PS of ₹ 0.19 crore. This was contrary to the provisions of SBD. Further, the EE had also not deducted PS of ₹ 34.86 lakh from the running account bills of the contractor.

Thus, award of work valued at ₹ 41.50 crore to the contractors without ensuring required amount of PS was irregular. This also amounted to extension of undue financial benefit to them.

The Department stated (September 2017) that action of the Division in obtaining PS was as per the decision of the District Level Committee (DLC). The reply was not tenable as the action was in violation of the provisions of the SBD.

- **Award of work to poor performing contractors:** Poor performance³⁸ of the contractors would render them disqualified for PMGSY roads, as per the SBD. Audit observed that the EEs³⁹ awarded 33 works valued at ₹ 114.56 crore to 19 poor performing contractors. The works had been awarded between February 2014 and March 2017. These

³⁵ (i) Sri Kishore Chandra Siabal: Package No. OR-10-228 (2.22 *per cent* less) and Package No. OR-10-226 (2.56 *per cent* less); (ii) Sri Ashis Kumar Padhi: Package No. OR-10-229 (5.25 *per cent* less); (iii) Sri Chandrakanta Samal: Package No. OR-25-137 (3.20 *per cent* less); (iv) Sri Prakash Chandra Sahu: Package No. OR-25-133 (5.60 *per cent* less); (v) Sri Srinibas Mishra: Package No. OR-25-134 (1.30 *per cent* less)

³⁶ Less than 1.30 to 5.60 *per cent* of the estimated cost

³⁷ Being the differential cost between the bid value and estimated value put to tender

³⁸ Like abandoning the works, inordinate delay in completion, improper completion of works, etc.

³⁹ EEs of RW Divisions: Bolangir, Baliguda, Bhawanipatna, Kesinga, Mohana, Nuapada, Paralakhemundi, Phulbani and Sambalpur

contractors had committed inordinate delay ranging from 31 to 108 months in completing works awarded to them previously. Thus, award of works to these contractors was in violation of the provisions of SBD.

The Department stated (September 2017) that EEs had awarded the works keeping in view the difficult site conditions⁴⁰. The fact, however, remained that the works were awarded, violating the conditions of the SBD.

2.1.10 Preparation of Detailed Project Report (DPR)

As per the PMGSY guidelines and OM, in respect of each road project, there should be a DPR. The DPRs should be based on detailed survey and investigation, design and technology choice with accurate quantities and costs. Cost overrun should not take place due to changes in scope of work or quantities at the time of execution. The RW Divisions should organise 'Transect Walk'⁴¹ to decide suitable road alignment and sort out land/ forest issues. This was to be done to ensure that land for the road was available before the road works were put to tender.

2.1.10.1 Works remaining incomplete due to forest/ land issues

MoRD had sanctioned 55 road works (441 Km) during 2003-17 at ₹ 221.60 crore. These road works could not be completed for want of forest clearance. Out of these, 31 works remained incomplete after incurring ₹ 53.54 crore. Construction of 24 roads had not started as of March 2017.

In seven⁴² out of 16 test-checked Divisions, Audit found that the EEs awarded 26 works for ₹ 111.29 crore. Out of these, seven works had not started and 19 works remained incomplete after incurring ₹ 34.50 crore. The reasons were non-availability of land and absence of forest clearances. Audit observed that the issues pertaining to forest and land had not been addressed during



Road Budhidhar to Upardunda lying incomplete due to want of forest clearance



PWD road to Kacheripada ends without construction of 1.000 Km due to want of forest clearance

⁴⁰ Maoist activities, forest problem, etc.

⁴¹ At the time of preparation of DPRs, the Assistant Engineer/ Junior Engineer was to organise transect walk with the local representatives

⁴² Bhawanipatna, Dharmagarh, Paralakhemundi, Nuapada, Khariar, Sambalpur and Titilagarh

preparation of the DPR. As a result, remedial actions could not be taken prior to award of contracts. As a result, the works had to be stopped midway.

In four RW Divisions⁴³, Audit found that the EEs awarded five works without ensuring land availability or forest clearance. As a result, these works remained incomplete after incurring ₹ 7.32 crore. Out of these, the EEs re-awarded three works for ₹ 11.14 crore. This resulted in cost overrun of ₹ 3.01 crore.

Thus, award of work without ensuring land availability and forest clearance led to unfruitful expenditure of ₹ 41.82 crore. Besides, the targeted habitations were deprived of all weather connectivity.

The Department stated (September 2017) that they had taken up the matter with Forest Department for expediting forest clearance.

2.1.10.2 Unfruitful expenditure due to missing link bridges⁴⁴

The EEs awarded road works under four⁴⁵ packages for ₹ 13.02 crore for providing connectivity to eight habitations. Road works with a length of 22.62 Km were completed incurring ₹ 11.36 crore. However, the targeted habitations remained unconnected due to non-construction/ non-completion of link bridges coming across these roads. DPRs of these projects were silent about the existence of such rivers/ *nallahs*⁴⁶, which would require bridge for achieving complete road connectivity. This indicated that the DPRs were deficient. This deprived the targeted habitations of all-weather connectivity rendering the expenditure of ₹ 11.36 crore unfruitful.



Bridge without approach under RW Division, Kendrapara

In RW Division, Kendrapara, one missing link bridge constructed (April 2014) over Saliajangha *nallah* incurring ₹ 2.70 crore could not be put to use due to non-construction of approach roads. This occurred due to non-acquisition of land.

The Department stated (September 2017) that the General Alignment Drawing for one bridge was under finalisation. They would complete the same for other three bridges between December 2017 and March 2018.

⁴³ Jaleswar, Keonjhar, Rayagada, Rourkela

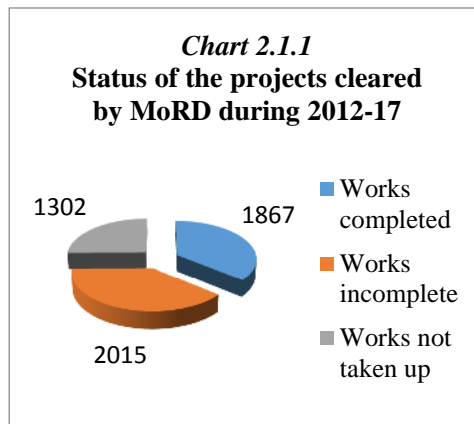
⁴⁴ A bridge over a river, *nallaha*, etc., for connecting roads in both sides

⁴⁵ Package No. OR-25-59A (11 October 2010), Package No. OR-05-113 (16 September 2015), Package No. OR-18-46 (30 April 2007), Package No. OR-15-74 (28 May 2009)

⁴⁶ An intermittent water course

2.1.11 Execution of works

As per the PMGSY guidelines, the Department was to complete works within 15 months from the date of sanction by MoRD. During 2012-17, MoRD had sanctioned 5,184 works. The status of works is depicted in the **Chart 2.1.1**. Regarding execution of works, Audit observed the following:



2.1.11.1 Selection of inadmissible road projects

PMGSY guidelines prescribed that habitations within 500 metres of already connected habitation or with an all-weather road were not eligible to be covered under PMGSY. All such habitations should be treated as covered.

On scrutiny of records and JPI of 84 completed roads, Audit observed that 13 habitations under five⁴⁷ RW Divisions were within 500 metres of already existing all weather roads. Therefore, these habitations were not eligible under PMGSY. However, 10.067 Km road was constructed incurring expenditure of ₹ 4.39 crore. Audit noticed that 136 other eligible habitations under the Divisions were yet to be covered under the programme.

The Department stated (September 2017) that connectivity to these habitations had been provided keeping in view the demand of the local people. The reply was not tenable since these habitations were not eligible under PMGSY.

2.1.11.2 Delay in completion of works

As per the Programme guidelines, duration for completing a work was 12 months from the date of award. Audit observed that the EEs awarded 1,023 road works during 2012-17, of which 538 were completed as of March 2017. They could complete only 101 (19 per cent) works within the stipulated period. In the remaining 437 completed works, the delay was up to 34 months⁴⁸. The delay was mainly due to poor progress of works by the contractors, forest and land issues. The concerned Divisions had not taken effective action for completion of these works as per the schedule. Out of 485⁴⁹ works under execution, stipulated completion period of 180 works had lapsed by March 2017.

The Department stated (September 2017) that they could not complete all works in time due to land/ forest issues, slow pace of work by contractors, naxal problems, etc. The fact, however, remained that the Department had not addressed these issues.

⁴⁷ Bhawanipatna, Bolangir, Dharmagarh, Mohana and Patnagarh

⁴⁸ Up to 6 months: 162 works; 6-12 months: 135 works; 12-24 months: 118 works; more than 24 months: 22 works

⁴⁹ 2012-13: 84 works; 2013-14: 89 works; 2016-17: 312 works

2.1.11.3 Short realisation of liquidated damages

As per the OM and SBD, contractors were liable to pay liquidated damages (LD) at one *per cent* of the contract price per week⁵⁰ for delay in execution of works. In case of Asian Development Bank (ADB) assisted works, amount of LD was at 0.25 *per cent* of the initial contract price per week limited to 5 *per cent* of the contract price.

Audit observed in the test-checked divisions that there was delay in completion of 269 works by 76 to 2,430 days. This was due to delay in execution of work by the contractors. The contractors were liable to pay LD amounting to ₹ 64.52 crore in all the 269 cases. Against this, the EEs withheld or recovered only ₹ 2.08 crore. This resulted in short recovery of ₹ 62.44 crore. Thus, the Divisions extended undue financial benefit to the contractors.

The Department stated (September 2017) that they recovered LD from the contractors who had delayed the works due to their fault. The reply was not tenable as the EEs failed to recover LD at the prescribed rates.

2.1.11.4 Termination of contracts

Clause 52 of the GCC, *inter alia*, provided that a contract was liable for termination for unauthorised stoppage of work for 28 days by a contractor. In that case, the contractor was liable for penalty of 20 *per cent* of the cost of the balance work.

Audit observed that the EEs of five test-checked Divisions⁵¹ awarded 19 road works⁵² at ₹ 39.79 crore to eight contractors⁵³ during 2007-14. The contractors could not execute the works as per the schedule. The deficiencies are detailed in *Table 2.1.5*:

Table 2.1.5: Audit observations on termination of contracts

Nature of Audit Observation	Audit Observation	Government reply (September 2017)
<i>Delay in termination of contracts</i>	The scheduled dates of completion of works under two packages ⁵⁴ were 29 November 2013 and 2 September 2014 respectively. The contractors could execute works valued at ₹ 3.30 crore (54 <i>per cent</i>) against awarded cost of ₹ 6.14 crore. Thereafter, they abandoned	The Department stated that they were examining the matter to terminate the contracts and retender the works.

⁵⁰ Up to maximum of 10 *per cent* of the contract value

⁵¹ Baliguda, Dharmagarh, Mohana, Paralakhemundi, Phulbani

⁵² Under 11 PMGSY packages

⁵³ (i) M/s OCC Limited, (ii) M/s S&J Construction (Baliguda), (iii) Sri Sarat Chandra Nayak (Dharmagarh), (iv) M/s Budharaj Mining and Construction Limited, (v) M/s Shri Siridisai Balaji Constructions (Mohana), (vi) S N Rajuguru, (vii) B Manoj Kumar Rao (Paralakhemundi), (viii) Dilip Kumar Panda (Phulbani)

⁵⁴ Package No. OR-15-178 and OR-15-220

	the works. The EE had proposed for termination of contracts ⁵⁵ due to slow progress in execution of works. The CE, however, had not terminated the contracts. The works were lying incomplete as of March 2017.	
Closure of contract without levy of penalty	The EE awarded a work ⁵⁶ , to be completed by 13 October 2013 at ₹ 5.61 crore. The contractor abandoned (February 2015) the work after executing works costing ₹ 4.33 crore. Despite issue of a series of notices by the EE, the contractor failed to complete the work. This amounted to fundamental breach of contract. The EE proposed (July 2015) to terminate the contract with imposition of penalty. The CE, however, closed (March 2017) the contract without penalty. Due to this, penalty of ₹ 25.57 lakh ⁵⁷ could not be imposed on the contractor.	The Department stated that they had not levied penalty since the road had already been handed over to the Works Department. The fact, however, remained that the incomplete road had been handed over to the Works Department. Therefore penalty was to be imposed as per conditions of the SBD.
Non-levy of penalty	The CE terminated contracts under eight packages ⁵⁸ during 2012-17 with levy of penalty. The EEs had not taken any action to levy penalty for an amount of ₹ 3.78 crore ⁵⁹ on the defaulting contractors. The reasons for non-levy of penalty were not on record. The EE, Paralakhemundi had, however, adjusted ₹ 9.21 lakh from the withheld amount of the contractor. Non-levy of penalty amounted to undue benefit to the contractors.	The Department assured that the penalty amount from the dues of the contractors would be realised.

(Source: Records of concerned departments)

⁵⁵ Package No. OR-15-178 in July 2015 and Package No. OR-15-220 in July 2014/ August 2015

⁵⁶ Under Package No. OR-15-184

⁵⁷ 20 per cent of ₹ 127.87 lakh [₹ 560.86 lakh (awarded cost) minus ₹ 432.99 lakh (value of work done)]

⁵⁸ OR-25-75 (RW Division, Phulbani); OR-25-32 and OR-25-71 (RW Division, Baliguda); OR-10-29, OR-10-31, OR-10-44 (RW Division, Paralakhemundi); OR-10-40, OR-10-60 (RW Division, Mohana)

⁵⁹ 20 per cent of the balance works

2.1.12 Maintenance of PMGSY roads

Programme guidelines provided for maintenance of PMGSY roads for a period of five years by the contractors.

The OM prescribed targets⁶⁰ for inspection by field officers under PMGSY. The EEs should identify, record and intimate all the defects⁶¹ to the contractor for rectification. All maintenance works should be noted in a checklist in the routine inspection card and for each road, log book should be maintained. The dates of inspection, defects/ deficiencies noticed during inspection, defects rectified, *etc.*, should be recorded in the log book.

During 2012-17, OSRRA received ₹ 242.93 crore against requirement of ₹ 319.63 crore and incurred ₹ 200.07 crore (82 *per cent*) for routine maintenance. In test-checked Divisions, the EEs had received ₹ 37.49 crore and spent ₹ 35.62 crore during this period. The less expenditure was due to non-maintenance of roads. The irregularities noticed in maintenance of roads are discussed in *Table 2.1.6*.

Table 2.1.6 Irregularities in maintenance of roads

Nature of Audit Observation	Audit Observation	Reply of the Department (September 2017)
<i>Completed roads not maintained</i>	The Department had not maintained 7,496 (39 <i>per cent</i>) roads out of 19,203 requiring maintenance during 2012-17. In 16 test checked Divisions, out of 3,583 roads requiring routine maintenance, 1,578 roads (44 <i>per cent</i>) had not been maintained. This caused further deterioration to the surface condition of roads. Inspection of roads by SEs showed that conditions of 29 <i>per cent</i> of the roads inspected were ‘unsatisfactory’ or ‘satisfactory requiring improvement’.	The Department stated that they had directed the EEs to take action for routine maintenance of roads in terms of relevant clauses of the agreement.
<i>Routine inspection card and maintenance of log book not ensured</i>	In test-checked Divisions, the EEs had not followed the prescribed procedure to carry out maintenance work. The EEs had not maintained routine inspection cards and log books to ensure that all the roads were maintained as per the requirement.	The Department stated that they had instructed the EEs for maintenance of routine inspection cards and log books.
<i>Absence of zonal maintenance contract</i>	The EEs had not entered into zonal maintenance contracts for maintenance of PMGSY roads after expiry of five year maintenance period.	The Department noted the audit observation for future reference.

(Source: Records of concerned departments)

⁶⁰ Junior Engineer (JE) to inspect each Km of the road at least once in a month, the Assistant Engineer (AE) once in three months and the EE at least once in six months

⁶¹ Such as potholes, shoulder damages, clearing of road side drains and weeds, CD works, *etc.*

Audit conducted joint physical inspection of 84 completed roads and found that the contractors had not maintained 23 roads. The concerned divisions had not taken any action against the contractors and had also not undertaken departmental maintenance.

2.1.13 Quality control

PMGSY had a three-tier quality control mechanism. Project Implementing Units/ EEs at Division level, State Quality Monitor (SQM) at State and National Quality Monitor (NQM) at National level were responsible for quality monitoring.

The details of inspections conducted by NQM and SQM are given in **Table 2.1.7:**

Table 2.1.7 Road works inspected by NQM and SQM during 2012-17

Agency	No. of road works inspected	Number of road works graded as			Action Taken Reports (ATRs) pending
		Satisfactory (Percentage)	Unsatisfactory (Percentage)	Satisfactory Requiring Improvement (SRI) (Percentage)	
SQM	14,601	10,149 (69)	1,434 (10)	3,018 (21)	932
NQM	2,473	1,525(62)	340 (14)	608 (24)	84
Total	17,074	11,674 (68)	1,774 (10)	3,626 (21)	1,016

(Source: Records of concerned divisions)

In test-checked Divisions, NQM made 436 inspections while SQM made 3,635 inspections during 2012-17. The EEs had not submitted ATRs on 352 out of 1,447 (24 per cent) works graded as unsatisfactory or SRI. Thus, the Department had not taken corrective action on all the deficiencies/ defects pointed out by the NQM/ SQM.

The Department stated (September 2017) that action had been taken to submit the balance ATRs.

2.1.14 Monitoring and supervision

Audit observed following deficiencies in monitoring and supervision of implementation of PMGSY.

- **Shortfall in State Level Standing Committee (SLSC) meetings:** Paragraph 2.4 of OM stipulated SLSC⁶² to meet every quarter for close and effective monitoring of implementation of the programme. SLSC held only three meetings against the requirement of 20 meetings during 2012-17. The Department noted the audit observation for future guidance.
- **Shortfall in inspection of completed roads:** The CE instructed (August 2013) all the SEs to inspect at least 30 completed PMGSY roads every month. The SEs of six Circles⁶³ had inspected 2,388 roads during

⁶² Comprising Chief Secretary as Chairman and the other stakeholders were Secretaries of Rural Development, Transport, Finance, Forest & Environment and IT Departments, State Informatics Officer, State Technical Agencies

⁶³ Angul, Bolangir, Berhampur, Bhawanipatna, Bhubaneswar and Sambalpur

2013-17 against the target of 7,740. The shortfall in inspections was 5,352 (69 per cent).

- **Inspection by local representatives:** Paragraph 15.10.1 of PMGSY guidelines envisaged that the SE should request the local Member of Parliament (MP)/ Zilla Pramukh once in six months to select any PMGSY roads for joint inspection. Audit observed that the SEs did not maintain records of joint inspection of PMGSY roads by the local representatives.

The Department stated (September 2017) that they had instructed SEs to request the MP/ Zilla Pramukh to select PMGSY roads for joint inspection.

2.1.15 Conclusion

Even after 16 years of implementation of the programme, connectivity to 33 per cent of the eligible habitations was not provided. Deficiencies in financial management led to loss of interest, non-adjustment of advances, etc. Adequate preparatory and survey works were not carried out in preparing Detailed Project Reports. This resulted in abandonment/ dropping/ non-completion of works. Contract management was deficient. Cases of award of works to ineligible contractors were noticed. Routine maintenance of PMGSY roads was not ensured. The Department had not taken adequate action to rectify the defects pointed out by National Quality Monitors and State Quality Monitors.

2.1.16 Recommendations

Government may consider the following:

- Planning process as envisaged in programme guidelines may be strictly followed.
- Effective coordination with other Departments for getting land/ forest clearances may be ensured.
- Scheme guidelines and standard conditions of contract may be strictly followed in awarding contracts.
- Cases of abnormal delay in execution of works may be investigated for fixing responsibility and addressing systemic deficiencies.
- A suitable mechanism may be put in place for maintenance of PMGSY roads to avoid untimely deterioration.

The Department accepted all the recommendations in the exit conference held in September 2017.

Revenue & Disaster Management Department and Housing & Urban Development Department

2.2 Implementation of National Cyclone Risk Mitigation Project and Odisha Disaster Recovery Project in the State

EXECUTIVE SUMMARY

Odisha State Disaster Management Authority (OSDMA) was implementing National Cyclone Risk Mitigation Project (NCRMP) and Odisha Disaster Recovery Project (ODRP). Performance Audit of two projects revealed that OSDMA had not implemented the projects efficiently despite utilising ₹ 1,432.76 crore as of March 2017.

OSDMA had not made Early Warning Dissemination System (EWDS) operational even after six years of commencement of the project. Audit noticed that 74 per cent of MPCs were not ready for use due to non-provision of essential equipment and electricity. OSDMA had constructed 56 MPCs at a cost of ₹ 77.84 crore in excess of the recommendation of Indian Institute of Technology, Kharagpur. Cases of execution of sub-standard road works were noticed. There were instances of excess payment and undue favour to contractors in construction of saline embankments. OSDMA had not recovered liquidated damages of ₹ 15.26 crore from the contractors, despite delay in completion of works.

Under ODRP, against planned construction of 30,000 houses, OSDMA had identified beneficiaries for only 16,576 houses. Out of 288 villages, 101 villages situated within five kilometres from the sea coast remained excluded from ODRP. At the same time, 100 ineligible beneficiaries were included under the scheme. Critical urban infrastructure like roads, storm water drains and up-gradation of slums remained non-starter. Capacity building and disaster mitigation strategies at community level remained almost absent.

2.2.1 Introduction

Odisha has 480 Km long coastline and seven major flood prone rivers⁶⁴ with 129 tributaries passing through it. The State is prone to flood, tropical cyclone, storm surge and Tsunami in view of its geographical location. The State was struck by a ‘super cyclone’ in October 1999, in which, over 8,962 human lives were lost. The cyclone ‘Phailin’ in October 2013 and cyclone ‘Hud Hud’ in October 2014 had struck the State. In these cyclones, 47 human lives were lost and properties worth ₹ 19,322.86 crore⁶⁵ were damaged.

National Cyclone Risk Mitigation Project (NCRMP): Government of India (GoI) signed agreements with International Development Association (IDA) in January 2011 and August 2015 for phases I & II respectively. As per the

⁶⁴ Brahmani, Baitarani, Budhabalang, Mahanadi, Rushikulya, Subarnarekha and Vansadhara

⁶⁵ Source: OSDMA and Special Relief Commissioner

agreement, IDA had to provide financial assistance in shape of loans for National Cyclone Risk Mitigation Projects⁶⁶. Government of Odisha (GoO) launched (March 2011) the National Cyclone Risk Mitigation Project (NCRMP) with a project outlay of ₹ 653.79 crore covering six districts⁶⁷ of the State. The project period was up to October 2015. Subsequently, after *Phailin*, GoI revised (July 2015) the project outlay to ₹ 1,093.79⁶⁸ crore with allocation of ₹ 440 crore under NCRMP (Additional Financing-AF) for cyclone risk mitigation infrastructure in eight districts⁶⁹ with stipulation for completion by October 2017. Cost of one component (cyclone risk mitigation infrastructure) was shared between the Centre and State in the ratio of 75:25. GoI was to bear all other components entirely. As of March 2017 both GoI and GoO had released ₹ 1,015.33 crore, of which Odisha State Disaster Management Authority (OSDMA) had utilised ₹ 877.07 crore.

Odisha Disaster Recovery Project (ODRP): After cyclone *Phailin*, GoO took up (February 2014) ODRP to overcome large scale damages in three⁷⁰ coastal districts in the cyclone. The objectives of ODRP were to restore damaged houses and improve capacity building of the community. The project included four components⁷¹ with project outlay of ₹ 1,352 crore. GoO entered into an agreement with IDA in July 2014 for financing of the project. As per the terms of the agreement, IDA would provide ₹ 945.85 crore (70 per cent) and the GoO would provide the balance funds. Further, GoO would incur expenditure at first instance and then prefer claims for reimbursement from IDA. The project was under execution and scheduled for completion in March 2019. As of March 2017, GoO had utilised ₹ 555.69 crore (41 per cent) of the outlay, of which, IDA had reimbursed ₹ 338.76 crore (61 per cent).

Repayment schedule: GoI would repay the loan with interest under NCRMP spreading over a period of 25 years from 15 October 2020. In respect of NCRMP (AF) repayment schedule was 20 years from 1 October 2019. GoO would repay loans with interest⁷² under ODRP within a span of 20 years commencing from 15 August 2019.

Implementation structure: A State Level Project Steering Committee⁷³ (SLPSC) was responsible for supervision, guidance and approval of project proposals under NCRMP. The Managing Director (MD), Odisha State Disaster Management Authority⁷⁴ (OSDMA) was the Project Director and

⁶⁶ Cyclone shelters, approach roads, embankments, early warning dissemination system and capacity building of village community on disaster preparedness

⁶⁷ Balasore, Bhadrak, Ganjam, Jagatsinghpur, Kendrapara and Puri

⁶⁸ Early warning dissemination system (₹ 38.80 crore), cyclone risk mitigation infrastructure (₹ 918.95 crore), technical assistance for capacity building (₹ 2.43 crore), implementation assistance (₹ 75.41 crore) and unallocated contingency (₹ 58.20 crore)

⁶⁹ Balasore, Bhadrak, Ganjam, Jagatsinghpur, Kendrapara, Khurda, Nayagarh and Puri

⁷⁰ Ganjam, Khurda and Puri

⁷¹ Resilient housing construction and community infrastructure (₹1,034.25 crore), urban infrastructure in Berhampur (₹ 200.91 crore), capacity building (₹ 49.46 crore) and implementation support (₹ 67.38 crore)

⁷² Interest at 1.25 per cent per annum and service charges at 0.75 per cent of un-withdrawn credit balance per annum

⁷³ Headed by the Chief Secretary

⁷⁴ An autonomous body set up in December 1999

head of Project Implementation Unit (PIU) of NCRMP. The MD was also head of the Project Management Unit (PMU) of ODRP. For the component 'Urban Infrastructure in Berhampur' under ODRP, Commissioner-cum-Secretary, Housing and Urban Development (H&UD) Department was the head of PMU. The Municipal Commissioner, Berhampur Municipal Corporation (BeMC) was the Project Director.

The Collector-cum-District Magistrates of Ganjam and Khurda acted as head of District Project Implementation Unit (DPIU) under ODRP. The line departments⁷⁵ executed infrastructural works under both NCRMP and ODRP. The Special Relief Commissioner (SRC) implemented Early Warning Dissemination System (EWDS).

2.2.2 Audit objectives

The objectives of Audit were to assess whether:

- Institutional arrangements envisaged in the project agreements and guidelines were created and were effective;
- Funds were received as per entitlements after fulfilling the pre-conditions and were utilised economically, efficiently and effectively for the intended purpose;
- The projects were executed in most economical, efficient and effective manner;
- The project development objective of reducing vulnerability of coastal communities to cyclone and other hydro-meteorological hazards and disaster recovery were achieved along with sustainable development goals; and
- Monitoring mechanisms and quality control measures were effective.

2.2.3 Audit scope and sample

Performance Audit was conducted during March to June 2017, covering the period from March 2011 to March 2017. Audit covered 10 sampled units⁷⁶ for NCRMP and 11 sampled units⁷⁷ for ODRP. Audit test-checked records relating to 45 Multi-Purpose Cyclone Shelters (MPCSs), 46 approach roads and all the 12 saline embankments⁷⁸ for NCRMP. For ODRP, Audit test-checked records relating to 91 out of 384 infrastructure projects⁷⁹ and 337 out of 16,576 housing projects taken up.

⁷⁵ Executive Engineers of Rural Works, Rural Water Supply and Sanitation and Irrigation Divisions of districts concerned

⁷⁶ OSDMA, SRC, Rural Works Divisions: Balasore II, Bhadrak II, Jagatsinghpur, Kendrapara and Puri; Aul Embankment Division, Mahanadi South Division and Nimapada Irrigation Division

⁷⁷ DPIU of Ganjam and Khurda; BDOs of Ganjam, Chhatrapur, Rangeilunda, Chilika, EE, RW Division, Berhampur and EE, RWS&S Division, Berhampur, Berhampur Municipal Corporation, OSDMA and H&UD Department

⁷⁸ Out of 316 MPCSs, 243 approach roads and 12 saline embankments

⁷⁹ Excluding 70 slums not taken up

2.2.4 Audit Methodology

Audit examined records of State and district level offices of Revenue and Disaster Management, Housing and Urban Development, Rural Development and Water Resources Departments as well as the sampled units. Joint physical inspection (JPI) of assets and projects was also conducted with the authorised officials.

The audit objectives, criteria, scope and methodology of the audit were discussed with the head of the department and other officials⁸⁰ in an Entry Conference on 14 March 2017. Audit findings were discussed with them in Exit Conference on 6 October 2017. The views of the Government have been suitably incorporated in the report.

2.2.5 Audit criteria

Criteria for this Audit were drawn from the following documents:

- Disaster Management Act, 2005;
- Project agreements, financing agreements, project appraisal documents, project operation manual of both NCRMP and ODRP;
- Financial Management Manual, Operational Manual, Procurement Manual prescribed by National Disaster Management Authority (NDMA) for NCRMP;
- Orissa General Financial Rules (OGFR) and Orissa Public Works Department (OPWD) Code;
- Guidelines and other instructions issued by the World Bank/ IDA, GoI, GoO and NDMA; and
- Monitoring mechanism prescribed in project agreements of both the projects.

2.2.6 Acknowledgement

We acknowledge the co-operation and assistance rendered to Audit by the Revenue and Disaster Management Department and Housing & Urban Development Department during the conduct of the Performance Audit.

The Audit findings are discussed in the succeeding paragraphs.

Audit findings

2.2.7 Institutional arrangements

2.2.7.1 Deficient institutional arrangements

Paragraph 5.1.5 of NCRMP Operational Manual provided that a Project Director would head each State PIU. The sector experts drawn from the line departments would support the Project Director. Project Appraisal Document (PAD) stipulated for a full time Project Director for implementation of ODRP.

⁸⁰ Principal Secretary, Disaster Management Department—cum—Special Relief Commissioner and Managing Director, OSDMA

Further, PAD also prescribed appointment of a Third Party Quality Auditor (TPQA) for independent monitoring.

Audit observed that OSDMA had not appointed full time Project Director (PD) for PMU of ODRP and PIU of NCRMP. Managing Director, OSDMA was looking after both the works. OSDMA had also not appointed TPQA for concurrent quality monitoring of infrastructure projects under ODRP.

OSDMA stated (October 2017) that their Managing Director (MD) was in additional charge for better coordination among line departments and other Government agencies. District PIU and a Consultant were also jointly monitoring the quality aspect. The reply was not acceptable as full time PD and consultants should have been engaged as per the guidelines of NCRMP.

2.2.7.2 Defective contracts with TPQA leading to under-performances

As per the Standard Document for Consultancy Services issued (September 2009) by GoI, State Quality Monitoring Consultant was liable for payment of compensation for failure in rendering satisfactory service. The amount of compensation would be twice the billing rate for conducting inspections less than that prescribed. In case of defective inspection, amount of compensation was equal to full consultancy charges. This would be levied wherever detected on independent check by OSDMA. Audit noticed the following deficiencies:

- For ensuring quality control in construction of cyclone mitigation infrastructure⁸¹, OSDMA engaged two TPQAs⁸² under NCRMP. OSDMA had not included compensation clause in the contracts signed with TPQAs.
- One TPQA (Mukesh and Associates) did not conduct required laboratory test of materials for initial nine months up to February 2012. The Additional Chief Secretary, Revenue & Disaster Management Department, who was also MD, OSDMA found (January 2015) during inspection that the firm had certified sub-standard work as good. However, OSDMA had paid ₹ 9.04 crore (including service charges) to the firm as of March 2017. In absence of penalty clause in the agreement, OSDMA could not levy compensation on TPQA for sub-standard work and defective inspection of works.

OSDMA stated (October 2017) that there was no reporting of any substandard work. The reply was not acceptable as the same was contradictory to the findings of the then MD as mentioned above.

Thus, payment of full dues of ₹ 9.04 crore made to the TPQA without prescribed deduction was irregular, failure of internal control and non-compliance of statutory requirement.

⁸¹ MPCSS, saline embankments and approach roads

⁸² Mukesh and Associates Private Limited: May 2011 to 15 November 2013 with contract price of ₹ 8.52 crore; Arkitechno Consultant (India) Private Limited: 16 November 2013 to March 2017 with contract price of ₹ 9.54 crore

2.2.7.3 Wasteful expenditure in engagement of consultant under ODRP

As discussed in *Paragraph 2.2.7.2*, M/s Mukesh and Associates Private Limited, engaged as TPQA for NCRMP, had not discharged its function properly. H&UD Department was aware of the poor performance of the firm under NCRMP. However, the Department engaged (January 2015) the firm as Project Management Consultant for ₹ 7.18 crore under ODRP. The work included development of Urban Infrastructure in Berhampur. Due to persistent poor performance like non-preparation of Resettlement Action Plan, non-provision of parking space, street lighting, landscaping, etc., H&UD Department disengaged the firm in October 2015. However, H&UD Department did not recover advance of ₹ 71.80 lakh paid to the agency.

H&UD Department stated (October 2017) that the implementing agencies of NCRMP and ODRP were different; there was no scope of being aware of the poor performance of the Mukesh & Associates. The reply was not acceptable as OSDMA was the nodal and also the appointing authority of the TPQA- M/s Mukesh & Associates for both NCRMP and ODRP.

2.2.8 Funds management

GoI had released ₹ 744.49 crore out of the total project cost of ₹ 1,093.79 crore to GoO under NCRMP as of March 2017. GoO had also released ₹ 270.84 crore as its share. OSDMA had utilised ₹ 877.07 crore out of total released amount of ₹ 1,015.33 crore, as of March 2017.

Under ODRP, GoO had released ₹ 735 crore out of the project cost of ₹ 1,352 crore. OSDMA had utilised ₹ 555.69 crore (75.60 per cent) up to 31 March 2017. Against the claim of ₹ 371.98 crore by the State, IDA had reimbursed ₹ 338.76 crore as of March 2017.

2.2.8.1 Loss of interest

As per the GoI guidelines, interest earned on unspent scheme fund was additional fund available to the scheme. Further, Orissa Treasury Code (OTC) prohibited withdrawal of funds from treasury without immediate requirement. Finance Department had also instructed to open flexi accounts in banks to earn higher interest on unspent fund. In this regard, Audit observed the following deficiencies:

- **Irregular diversion of interest earned:** OSDMA earned an interest of ₹ 16.15 crore and ₹ 5.97 crore under NCRMP and ODRP respectively by keeping unspent funds in bank accounts. However, instead of crediting to the scheme account, OSDMA transferred the same to the OSDMA-Society account. At the same time, OSDMA did not take up works like lightening arrestor, electrification, etc., in many Multi-Purpose Cyclone Shelters (MPCSs) due to paucity of funds.

OSDMA while accepting the fact of diversion of interest, assured (October 2017) of placing the matter in their next Governing Body meeting for their appraisal.

- **Avoidable loss of interest of ₹ 5.20 crore under ODRP:** Berhampur Municipal Corporation (BeMC) withdrew ₹ 120 crore under ODRP from treasury during October 2014 to March 2017. The BeMC and

four executing agencies⁸³ retained the unspent funds in savings bank (SB) account, instead of depositing in a flexi account. These resulted in loss of interest of ₹ 5.20 crore during 2014-17.

OSDMA stated (October 2017) that they had issued instructions to keep unutilised funds in flexi account.

A. National Cyclone Risk Mitigation Project (NCRMP)

2.2.9 Early Warning Dissemination System (EWDS)

Early Warning Dissemination System (EWDS) was one of the five components of NCRMP. Special Relief Commissioner (SRC) awarded (July 2016) the work to Larsen & Toubro (L&T) at a price of ₹ 65.56 crore. The stipulated date of completion was March 2017. The scope of work, *inter alia*, included installation of Alert Siren Towers in 164 locations⁸⁴. SRC had released a total of ₹ 9.74 crore⁸⁵. The work was under execution as of June 2017. Audit found (June 2017) that only seven Alert Siren Towers had been installed in Ganjam district. None of the towers were functional due to non-setting up of Location Based Alert System for Mass Messaging System. Mock drills had also not been conducted.

Audit observed that the designs of the towers finalised by SRC were not as per the site conditions. Therefore, L&T requested (December 2016) for revising the designs⁸⁶. Thus, due to belated finalisation of designs, the towers could not be completed within the stipulated period even after incurring an expenditure of ₹ 9.74 crore. OSDMA stated (October 2017) that they would complete the work by November 2017.

2.2.10 Multi-Purpose Cyclone Shelter

The guidelines for construction of Multi-Purpose Cyclone Shelters (MPCS) provided that the location of cyclone shelters should be on high elevated land. The site of the MPCS should be within 10 Km of the coast line.

Under NCRMP and NCRMP (AF), OSDMA planned for construction of 316 MPCSs. OSDMA had completed 242 MPCSs and the remaining 74 were under construction as of March 2017. OSDMA had utilised ₹ 343.91 crore out of the contract value of ₹ 439.64 crore as of March 2017. The deficiencies in construction of MPCSs are summarised in *Table 2.2.1*:

⁸³ BDOs of Chhatrapur, Chilika, Ganjam and Rangeilunda

⁸⁴ District level (6), 22 at Block level, 122 at different places and 14 at Fish Landing Centres (FLCs)

⁸⁵ Mobilisation advance: ₹ 6.56 crore in August 2016 and 50 *per cent* of cost of materials supplied: ₹ 3.18 crore in March 2017

⁸⁶ Reducing the number of 5m angular towers from 85 to 45 on the ground that line of site was not available at 40 locations

Table 2.2.1: Audit observation on MPCs

Subject	Criteria/ Requirement	Observation	Reply
Survey and identification of locations	IIT, Kharagpur ⁸⁷ recommended for 512 MPCs ⁸⁸ in six coastal districts ⁸⁹ , based on area, population ⁹⁰ and availability of cyclone shelters within 10 Kms of coastline.	OSDMA constructed 568 MPCs during 2000 to 2017 under various ⁹¹ schemes without assessing requirement. These included 316 MPCs constructed under NCRMP, out of which 21 were constructed beyond 10 Km from coastline. Thus, construction of additional 56 MPCs resulted in extra expenditure of ₹ 77.84 crore ⁹² .	OSDMA accepted (October 2017) the deviations in constructing MPCs beyond 10 Kms from the coastline. However, it did not furnish specific replies to construction of more numbers of MPCs than recommended.
Design of MPCs not in conformity with NDMA Guidelines	NDMA guidelines prescribed circular/hexagonal/octagonal shaped buildings in order to improve the aerodynamics of the structure. Besides, there were other detailed specifications ⁹³ .	During JPI of 43 MPCs in five sampled RW Divisions of five districts ⁹⁴ , Audit observed violations (<i>Appendix 2.2.1</i>) in adhering to specifications. OSDMA had prepared two sets of designs of MPCs. The	OSDMA stated (October 2017) that they would take care of views of Audit during future drawings since all the works were in completion stage.

⁸⁷ Engaged in January 2000 to undertake a study to recommend number and locations of MPCs

⁸⁸ Including 19 in isolated pockets

⁸⁹ Balasore, Bhadrak, Kendrapara, Jagatsinghpur, Puri and Ganjam

⁹⁰ One MPCs per 10 sq Km and one MPCs per 3000 population considering 75 per cent have no pucca house

⁹¹ Chief Ministers Relief fund: 60, Prime Minister National Relief fund: 38, World Bank: 37, State Plan: 36, NCRMP: 316, Integrated Coastal Zone Management Programme: 14, Indian Red Cross Society: 65 and others: 2

⁹² Average cost of ₹ 1.39 crore per cyclone shelter for 56

⁹³ Louvered vents (a ventilation system that allows air to pass through a number of fixed or operable blades mounted in a frame while keeping out unwanted elements such as water, dirt and debris) for ventilation in walls, non-brittle fibre reinforced plastic louver type window, storage space in walls and corridor, rain water harvesting, etc.

⁹⁴ Balasore, Bhadrak, Jagatsinghpur, Kendrapara and Puri

Subject	Criteria/ Requirement	Observation	Reply
		<p>designed shapes were rectangular in shape. Specified features like louvered vents, windows, resting facility, ventilation, lightening arresters and silent generators, etc., were absent. Thus, all the 43 MPCSSs constructed at the cost of ₹ 56.69 crore, had design deficiencies posing risk for use during disasters.</p>	
<p>Idling of completed MPCSSs</p>	<p>OSDMA had planned (July 2009) to set up MPCSSs in the campuses of existing schools. MPCSSs would be equipped with emergency equipment like generator, kitchen utensil, etc. The locals could utilise the buildings as hub of their social activities also. A corpus fund would be created for each MPCSS for funding maintenance of buildings.</p>	<p>OSDMA had completed 242 out of 316 MPCSSs and handed over 233 MPCSSs to the CSMMCs. The MPCSSs were not equipped with emergency equipment. There was no provision for electricity. It had also not created corpus funds. During JPI of 43 MPCSSs, Audit observed that only 11 MPCSSs, located within school or college premises, were being utilised. Thus, objective of utilising these buildings as hub of their social activities was not achieved.</p>	<p>OSDMA stated (October 2017) that they would provide emergency equipment by March 2018. They had also requested the Special Relief Commissioner for creation of corpus fund.</p>

(Source: Compiled by Audit from the records of the Departments)

Thus, selection of locations for MPCSSs and their designs were not as per the recommendation of IIT, Kharagpur and NDMA guidelines, respectively.

2.2.11 Construction of approach roads to MPCSSs

The objective of approach roads was speedy evacuation of people to safer places during cyclone for ensuring quick relief measures.

2.2.11.1 Construction of approach roads with higher specifications

As per the NCRMP guidelines, the State had to assess availability of roads in cyclone prone areas and villages. Assessment was to be done about the need, requirement of road length to be constructed. OSDMA had awarded construction of 243 approach roads at a contract price of ₹ 351.18 crore. As of March 2017, OSDMA had completed 229 approach roads and the remaining 14 were under construction. The total expenditure as of March 2017 was ₹ 302.15 crore⁹⁵. Audit examined records of 46 approach roads⁹⁶ and observed the following deficiencies:

- Connectivity of MPCSSs to the habitations by construction of approach roads had not been assessed by OSDMA. During JPI of 39 approach roads, Audit observed that in 13 cases⁹⁷, approach roads constructed by incurring ₹ 18.04 crore did not connect the targeted habitations.
- Rural Road Manual of GoI prescribed for construction of cement concrete roads on 75 mm thick Granular sub-Base⁹⁸ (GSB). OSDMA provided 100 to 150 mm thick GSB in 34 of 41 test checked roads without any justification. The remaining seven roads were of 75 mm thickness. This resulted in avoidable extra expenditure of ₹ 2.92 crore on construction of roads with higher specifications.

OSDMA stated (October 2017) that they had provided higher thickness of GSB based on the soil parameter. The reply is not acceptable as OSDMA could not provide any records to indicate the scientific basis for adopting higher specifications.

2.2.11.2 Avoidable expenditure on earthwork

Odisha Analysis of Rate, 2006 provided composite rate for formation of roads with soil excavated and transported by mechanical means within a distance of five Km. The rate ranged from ₹ 108.84 to ₹ 132.36 per cum. In the estimates of 28 out of 46 test-checked roads, OSDMA made provision for excavation of soil through manual means and transportation by mechanical means. The rates for manual excavation and mechanical transportation of soil varied from ₹ 129 to ₹ 250 per cum. The execution of works was economical through mechanical means. As such, excavation of 5.26 lakh cum soil through manual means resulted in avoidable extra expenditure of ₹ 2.95 crore.

OSDMA stated (October 2017) that in absence of approach road for movement of mechanical equipment; they made provision for manual excavation. The reply was not acceptable as transportation of earth was made

⁹⁵ NCRMP: ₹ 170.46 crore and AF: ₹ 131.69 crore

⁹⁶ Including 42 completed roads

⁹⁷ Puri: Anjira, Tantiapal, Bedha, Tendula, Mulabasanta, Rahangiria, Nuagaon, Balasore: Odasala, Bishnupur, Bhadrak: Radhakantapur, Kismatkrishnapur, Jagatsinghpur: Kankan, Kusupur

⁹⁸ Hard metals used underneath cement-concrete or black top surface roads

through mechanical means, which indicated presence of motorable approach road.

2.2.12 Strengthening and improvement of saline embankments

OSDMA had taken up work on strengthening 12 saline embankments of 57.975 Km length in four districts⁹⁹. The award value of embankments was ₹ 183.68 crore and completion cost was ₹ 187.31 crore. Audit test-checked records of nine saline embankments and observed the following deficiencies:

- **Gaps in embankments not plugged:** Audit conducted JPI of two embankments¹⁰⁰, which had been completed in March and November 2016 at an expenditure of ₹ 38.25 crore. Audit, however, found that saline embankment in a stretch of 4.480 Km¹⁰¹ had not been constructed. Thus, non-construction of all required saline embankments did not ensure prevention of flow of saline water into agricultural fields and habitats. The World Bank team, after inspection (January 2016) of sites, had also advised to plug the gaps to provide comprehensive protection to local inhabitants. However, OSDMA had not taken action to construct the remaining stretches.

OSDMA stated (October 2017) that the Water Resources Department would plug the gaps. The reply was not acceptable since construction of saline embankments was its responsibility.

- **Excess payment for gabion boxes:** As per terms of agreement, minimum voids¹⁰² were to be deducted from the filling of stones in the gabion boxes¹⁰³. The Water Resources Department and OSDMA had decided (May 2016) to deduct void at 1/6th of gross volume for gabion boxes with stone size of 15 to 25 cm. For gabion boxes containing stone size 10 to 20 cm, the rate of deduction would be 1/8th of gross volume. During JPI, Audit observed use of stone size ranging between 30 and 40 cm in 27 places of the embankments. For use of this size, OSDMA should have deducted 1/6th of gross volume. However, OSDMA deducted 1/8th of gross volume for gabion boxes with 10 to 20 cm stone from the bills of the contractors. Thus, OSDMA had made excess payment of ₹ 2.66 crore¹⁰⁴ to five contractors¹⁰⁵.

OSDMA stated (October 2017) that over size stones were within 5 per cent of total quantity of stones used in slopes. However, they could not furnish documentary evidence in support of their reply.

- **Undue favour to contractors:** The agreements with the contractors envisaged transportation of soil from borrow areas situated up to 5 Km.

⁹⁹ Kendrapara, Jagatsinghpur, Puri and Ganjam

¹⁰⁰ Total length was 12.395 Kms and completion cost was ₹ 38.25 crore

¹⁰¹ Nagar Saline embankment (3.30 Km) at Astarang; Patua to Gadaharispur saline embankment (1.180 Km) at Erasama

¹⁰² Empty space between stone pieces put in a box for volumetric measurement

¹⁰³ Wire mesh baskets filled with stones which serves as retaining wall

¹⁰⁴ Differential cost between deduction of 1/8th and 1/6th of volume of stone

¹⁰⁵ OCC Limited (3), Gangadhar Jena (3), Ajit Kumar Sahoo (1), Sarathi Engineering and Developers (1) and Nirmal Kumar Swain (1)

Accordingly, the cost was included in the estimate. For this purpose, the contractors were to enter into agreements with the concerned land owners, which was to be furnished to the Department. On JPI of 9 out of the 12 embankments, Audit found borrow pits¹⁰⁶ within 30 to 500 mtrs of six¹⁰⁷ embankments. This indicated that the contractors had collected soil within 30 to 500 mtrs of embankments. This was also confirmed through comparison of satellite images of Gopalpur-Rajnagar saline embankment for the year 2011 with 2016, as shown below:

Picture 2.2.1: Satellite image taken in 2011 before construction of saline embankment when no borrow pits were visible



(GIS map of Rajnagar-Gopalpur saline embankment of Kendrapara district)

Picture 2.2.2: Satellite image taken in 2016 after construction of saline embankment when borrow pits were visible



¹⁰⁶ Formation of hole for excavation of soil for use in embankment

¹⁰⁷ Tandahara, Rajnagar-Gopalpur 8050 to 14050, Rajnagar-Gopalpur 15050 to 19050, Chasisabha, Sasanpeta and Patua to Gadaharipur

JPI of the saline embankment conducted in June 2017 confirmed existence of several borrow pits near embankments. Thus, actual transportation of soil from borrow areas, situated beyond 500 mtr. was doubtful. However, the contractors were paid considering distance of transportation as 5 Km, resulting in excess payment of ₹ 7.37 crore to four contractors on six works. Responsibility may be fixed on the concerned Executive Engineer for making excess payment.

OSDMA stated (October 2017) that in absence of identified borrow area, a distance of 5 Km had been included in the estimate. The reply was not acceptable as no verification had been made to ascertain actual distance of transportation. Further, the contractors had not entered into any agreement with any of the land owners for obtaining soil.

2.2.13 Liquidated damages for delayed completion not levied

The agreements with the contractors for construction of MPCSSs, approach roads and saline embankments provided for levy of Liquidated Damages (LD).

Audit test checked 74 out of 91 contracts¹⁰⁸ and observed that contractors had completed works with delays ranging from 33 to 1,478 days. As against LD of ₹ 15.28 crore, EE had levied only ₹ 2.46 lakh. This resulted in non-recovery of LD by ₹ 15.26 crore and undue favour to the contractors.

OSDMA stated (October 2017) that they had imposed liquidated damages of ₹ 25.53 lakh on the defaulting contractors. The reply is not acceptable as ₹ 25.53 lakh too was only 1.7 *per cent* of the amount due.

2.2.14 Avoidable extra cost on excess usage of cement

For execution of plain cement concrete (PCC)/ Reinforced Cement Concrete (RCC) of M 20 grade and M 30 grade, Indian Standard (IS) 456: 2000/ 2005 prescribed the cement requirement as 250 kg and 320 kg per cum respectively. As per IS, comprehensive strength of PCC/ RCC should not be less than 30 N/mm².

Audit noticed that the EEs prepared estimates based on the State Analysis of Rate (SAR). As per the SAR, requirement of cement *per cum* of M20 and M 30 grade of PCC and RCC was 347 kg and 407 kg respectively. Accordingly, the bidders submitted bids based on the quantity of cement provided in the estimated cost. However, the agreements with the contractors provided to follow IS specification for PCC/ RCC works. Thus, the agreement provided for use of less quantity of cement than the estimate.

Audit observed that in execution of 99,802.12 cum of RCC/ PCC works, quantity was calculated as per the SAR as contained in the estimates instead of IS as shown in the contract (details in **Table 2.2.2**):

¹⁰⁸ Construction of 45 MPCSSs and 46 approach roads

Table 2.2.2: Details of excess cement utilised

Specifi- cation (1)	Provision of cement as per SAR (2)	Provision of cement as per IS 456 (3)	Qty. of works executed (cum) (4)	Qty. of cement required as per SAR (qtl.) (5) (Col. 2 X Col. 4)	Qty. of cement utilised as per IS 456 (qtl.) (6) (Col. 3 X Col. 4)	Difference (qtl.) (7)
M20	347	250	8,207.37	28,479.58	20,518.43	7,961.15
M30	407	320	91,594.75	3,72,790.63	2,93,103.20	79,687.43
Total			99,802.12	4,01,270.21	3,13,621.63	87,648.58

(Source: Records of EE)

As a result, excess provision of 87,648.58 qtl. led to excess payment of ₹ 6.31 crore. Further, had the contractors utilised cement as provided in the estimate, comprehensive strength of roads should have been more than 30 N/mm². However, on joint core testing (June 2017) of 27 roads at 82 points, Audit found that in 22 roads, the comprehensive strength was below¹⁰⁹ 30 N/mm². Hence, even after use of excess cement, the road was sub-standard.

This suggests that the actual quantity of cement used was much lower than the stated figures. The matter needs to be investigated thoroughly by the Department.

OSDMA (October 2017) stated that EEs had prepared the estimates as per state analysis of rates. The reply was not acceptable as agreements provided for use of 320 kg cement as per IS 456 specifications and actual utilisation of 407 kg of cement was not ensured.

B Odisha Disaster Recovery Project (ODRP)

As per the project guidelines, beneficiaries and line departments were to construct 30,000 resilient houses and community infrastructure respectively during 2014-19. As per said guidelines, the State had to complete 16,000 resilient houses and prepare 100 out of 200 village development plans up to 2016-17. It had also to provide access to improved sanitation, water sources and all weather roads within 500 metres for 10,000 out of 25,000 populations of Berhampur by the end of the year 2016-17. The deficiencies in the implementation of ODRP were as follows:

2.2.15 Assessment of requirement of resilient house

OSDMA assessed (May 2014) the requirement of 24,775¹¹⁰ resilient houses in three districts. However, it signed (October 2014) an agreement with a consultant (Gram Vikas) for providing technical support for construction of 23,527 resilient houses. In this regard, Audit observed the following:

¹⁰⁹ Less than 20 N/mm²: 18, between 20-25: 12, between 25-30: 19

¹¹⁰ No. of resilient houses as per agreement with IDA were 30,000

2.2.15.1 Identification of eligible villages and beneficiaries

ODRP guideline required that all the villages located within 5 Km from sea coast should be covered under ODRP. OSDMA should select the families whose houses were damaged beyond repair in cyclone *Phailin* and associated rains/ floods. OSDMA had also to select the houses which may not have been damaged but were vulnerable to hydro-meteorological hazards. Conforming to these criteria, the District Collectors had to conduct a survey of “structure and beneficiary” to prepare the list of beneficiaries. The district authorities had to organise the village meetings and document the proceedings of the meetings to arrive at the beneficiary list. Audit observed the following deficiencies (**Table 2.2.3**):

Table 2.2.3: Audit observations on identification of eligible villages and beneficiaries

Subject	Observation	Reply
Eligible villages not included	Audit plotted the villages of Ganjam and Khurda districts on GIS Map (Appendix 2.2.2). The map showed that 101 out of 288 villages were situated within 5 Km from sea coast/ Chilika lake. There were 90 villages which were not included in three Blocks (Ganjam, Chhatrapur and Chilika) having 4,156 temporary houses as per Census 2011. Thus, DPIU had not devised proper mechanism to ensure inclusion of all the eligible villages.	OSDMA stated (October 2017) that they had excluded some villages due to less vulnerability and having more number of <i>pucca</i> houses. The reply was not acceptable as Tahasildar had reported about 163 damaged houses in 30 villages of Ganjam district.
Exclusion of eligible beneficiaries	Due to improper survey, DPIU Khurda could identify only 281 against 882 eligible beneficiaries as of March 2017. During JPI in Atharabatia village ¹¹¹ , Audit observed that many families were living in thatched or asbestos houses. But DPIU had selected only seven villagers from this village. Consequently, 196 villagers had submitted their grievance of non-selection to the Block Development Officer (BDO), Chilika requesting for resilient houses.	OSDMA stated (October 2017) that in Atharabatia village, they found only seven eligible beneficiaries. Some of the villagers had submitted grievance petition belatedly. The reply was indicative of the fact that the Tahasildar had not conducted the survey properly.

¹¹¹ Nimikheta Gram Panchayat of Chilika block situated very close to Chilika lake

Inclusion of ineligible villagers	In Ganjam and Chhatrapur Blocks, DPIU had covered 5,899 beneficiaries ¹¹² under ODRP. Subsequently, concerned Revenue Inspectors identified 100 beneficiaries as ineligible. Meanwhile, BDOs had released ₹ 36.59 lakh to these ineligible beneficiaries. Out of this, DPIU had recovered only ₹ 2.56 lakh and ₹ 34.03 lakh was outstanding as of March 2017.	OSDMA stated (October 2017) that they were taking steps to recover the amount from the ineligible beneficiaries.
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(Source: Records of test-checked District Collectorate)

2.2.15.2 Design and construction of resilient houses

As per the guidelines, the beneficiaries were to complete construction of houses within 12 months from the date of issue of work order. Out of 10,112 houses taken up for construction during 2014-15 in three test checked Blocks¹¹³ of Ganjam district, beneficiaries had completed 8,446 houses¹¹⁴ (84 per cent) as of March 2017. Audit observed the following:

- **Non-completion due to deviation in design:** In two villages of Rangeilunda and Chhatrapur Blocks, none of the 1,071 houses taken up for construction were completed as of March 2017. The reasons for non-completion of these houses were not on record. During Joint physical inspection (May 2017) of 11 such houses in a village¹¹⁵, Audit observed that the plinth area of the houses was 405 sqft. to 649 sqft., which were more than the prescribed maximum of 400 sqft. OSDMA stated (October 2017) that beneficiaries themselves had taken up extra construction beyond the approved plan. Thus, Government had no role to play in deciding his extra built up area and his extra financial involvement. The reply was not acceptable as OSDMA did not supervise the construction works and guide the beneficiary on financial impact, though required.
- **Basic amenities not constructed:** Daily report of DPIU indicated that beneficiaries had occupied 15 out of 28 ODRP houses¹¹⁶ completed at a cost of ₹ 79 lakh¹¹⁷ in two relocated sites. However, during JPI (May 2017), Audit observed that beneficiaries had not occupied these houses

¹¹² Ganjam: 3,603 and Chhatrapur: 2,296

¹¹³ Rangeilunda: 4,213; Chhatrapur: 2,296; Ganjam: 3,603

¹¹⁴ Rangeilunda: 2,965; Chhatrapur: 2,157; Ganjam: 3,324

¹¹⁵ New Kirtipur village (Rangeilunda Block)

¹¹⁶ 15 houses at Binchanapali relocation site of Ganjam district and 13 houses at Managalajodi relocation site of Khurda district

¹¹⁷ Binchanapali relocation site: ₹ 42.60 lakh, Managalajodi relocation site: ₹ 36.40 lakh

as OSDMA had not provided the basic amenities¹¹⁸. OSDMA did not furnish any specific reply on this.

- **Completed houses left uninsured against multi-hazard risk:** As per the guidelines, OSDMA should insure all houses built under this project against multi-hazard risks with payment of one time premium for a period of 10 years. OSDMA had insured only 6,857 out of 14,557 completed houses by paying premium of ₹ 94.61 lakh to United India Insurance Company Limited. The remaining 7,700 houses constructed at ₹ 231 crore remained uninsured.

OSDMA stated (October 2017) that they were taking steps to insure the remaining houses within two months.

2.2.15.3 Creation of community infrastructure

ODRP envisaged supplementing housing reconstruction with creation of community infrastructure with amenities like roads, water supply, solid waste management, power grid extensions, community and health centres, playgrounds, etc. These amenities were to be provided in convergence with other schemes, wherever necessary. As of 31 March 2017, the executing agencies¹¹⁹ had completed 81 works¹²⁰ (22 per cent) out of 373 works¹²¹ taken up during 2014-17. Scheduled completion dates for 120 projects had already been expired. Audit observed the following deficiencies:

- **Avoidable expenditure on construction of Anganwadi Centres:** GoI fixed 600 sft. built up area for AWC buildings at unit cost¹²² of ₹ 7 lakh. The construction should be done in convergence with MGNREGA. The Panchayati Raj and Women & Child Development (W&CD) Departments jointly intimated (April 2016) the above norm to all Collectors. Audit observed that EE, RW Division-II, Berhampur prepared drawing and design of 48 AWC buildings with 880 sft. built up area. Concerned Superintending Engineer accorded (May 2016) the technical sanction with estimated cost ranging from ₹ 18.74 lakh to ₹ 19.35 lakh. The works were under execution (May 2017). Thus, due to lack of coordination between Rural Development¹²³ and W&CD Departments, EEs had prepared estimates for higher plinth area, resulted in avoidable expenditure of ₹ 5.77 crore¹²⁴.

¹¹⁸ Piped drinking water supply, internal road, approach road and drain

¹¹⁹ Executive Engineers, Rural Works Division-II and Rural Water Supply and Sanitation, Berhampur

¹²⁰ Roads and drains: 10; PWS: 71

¹²¹ 138 community buildings, 129 roads and drains and 106 PWS projects

¹²² Cost of one Anganwadi building

¹²³ Administrative Department of RW Division-II, Berhampur

¹²⁴ Approved cost: ₹ 9.13 crore less (₹ 7 lakh X 48) = ₹ 5.77 crore

OSDMA stated (October 2017) that the procurement procedures for construction of AWC building of World Bank was different from the buildings constructed by W&CD Department.

The reply was not acceptable as OSDMA did not adopt coordinated convergence approach for economy in construction due to which GoO had to incur extra expenditure. OSDMA did not provide any evidence to prove that the increased plinth area was due to the norms of the World Bank.

- **Extra cost due to purchase of DI pipes instead of PVC pipes:** RWSS Division had executed 106 Piped Water Supply (PWS) projects. Department had prepared (September 2014 to April 2015) estimates for use of 100 mm dia ductile iron (DI) pipes for 15 projects. In remaining 91 cases, it had provided 90 to 110 mm dia PVC pipes. Nothing was on record to indicate that the PVC pipes were not feasible for execution. Since DI pipes were costlier¹²⁵ than PVC pipes, inclusion of DI pipes in the estimate resulted in avoidable expenditure of ₹ 1.30 crore¹²⁶.

OSDMA stated (October 2017) that considering economy in future repair and maintenance, they used DI pipes in 15 projects. The reply was not acceptable since OSDMA had used PVC pipes in 91 projects under the same scheme.

2.2.15.4 Urban infrastructure in Berhampur

The cyclone *Phailin* severely affected urban infrastructure of Berhampur city. GoO had prepared a project outlay of ₹ 200.91 crore¹²⁷ under ODRP and released ₹ 120 crore during 2014-15 to 2016-17 for reconstruction. Out of this, BeMC had utilised only ₹ 23.99 crore (20 per cent) in two components¹²⁸ as of March 2017. Other components like roads, slum development and storm water drains were in DPR stage. Audit observed the following:

- **Delay in preparation of DPRs:** BeMC entrusted (July to December 2015) various works to Tata Consultancy Engineering Limited (TCEL), as detailed below:

¹²⁵ DI pipes-₹ 641.89 per metre and PVC pipes- ₹ 156.73 to ₹ 186.06 per metre

¹²⁶ 27,695.30 mtr executed up to March 2017 X (actual procurement rate of DI pipes ₹ 641.89 less average price of PVC pipes prevailing during November 2014 to March 2017: ₹ 171.05 per metre) = ₹ 1.30 crore

¹²⁷ Upgradation of slum infrastructure: ₹ 85 crore, major and inter-connecting roads: ₹ 40 crore; Storm water drain: ₹ 25 crore, restoration of water supply: ₹ 27.42 crore and implementation support: ₹ 23.49 crore

¹²⁸ For restoration of water supply (₹ 21.08 crore) and ₹ 2.91 crore for implementation support

Table 2.2.4: Details of engagement of TCEL for various projects

Component	Dates of engagement	Stipulated period of completion	Actual date of completion	Status as of December 2017
Master plan for BeMC and DPRs for Storm water	July 2015	April 2016	April 2017	Pending with H&UD Department
DPRs for five roads	July 2015	April 2016	August 2016	Evaluation of tender document pending with H&UD Department
DPRs for up-gradation of 70 slums	December 2015	April 2016	Completed seven slums only. Pending in 63 cases as on April 2017	Pending with BeMC after approval (May 2017) of IDA

(Source: Records of BeMC)

As may be seen from the above table, there was delay in preparation of DPRs by the TCEL. The works were further delayed at PIU/ PMU level and not started so far. Due to delay in preparation of DPR by TCEL and finalisation of tender by Government, there was time overrun by two years. Further, the works were fraught with the risk of cost overrun.

- Inflated estimate and extra expenditure:** BeMC awarded (July 2015) the work of replacement of old water supply pipeline to a contractor¹²⁹ at a value of ₹ 27.16 crore. The scope of work included supply and laying of pipes of 23.9 Km of varying size and grades¹³⁰. The estimated cost of the pipe per metre ranged from ₹ 3,657 to ₹ 11,540 against the DGS&D price of ₹ 2,967 to ₹ 9,259 (July 2015). BeMC awarded the work to contractor with unit rate ranging from ₹ 4,000 to ₹ 12,782 per metre. As BeMC had not followed the unit rate of DGS&D, it had overstated the estimated cost by 19 to 20 per cent. This led to inflating of the estimate by ₹ 3.97 crore. Thus, due to the application of higher rate, BeMC had made excess payment of ₹ 6.06 crore and extended undue favour to the contractor.

H&UD stated (September 2017) that DGS&D price was not available for procurement of pipes (*i.e.*, DI pipes). The reply was not acceptable since the DGS&D approved rates for DI pipes were available during the said period.

¹²⁹ KLSR Infratech Limited

¹³⁰ 600 mm dia Ductile Iron (DI) pipes of K 9 grade: 11.8 Kms; 400 mm dia DI pipes of K 9 grade: 4.2 Kms, 400 mm dia DI pipes of K 7 grade: 4.9 Kms and 300 mm dia DI pipeline of K 7 grade: 3 Kms

2.2.16 Lack of capacity building under NCRMP and ODRP

As per NCRMP Operational Manual (Component-C) Capacity building of village community and stakeholders was an important element of disaster preparedness. GoI had allocated ₹ 51.89 crore¹³¹ under NCRMP and ODRP. In this regard, Audit observed the following:

Table 2.2.5: Audit observation on capacity building

Scheme	Observation	Reply
NCRMP	GoI had released (September 2015) ₹ 1.36 crore, of which OSDMA could spend only ₹ 7.29 lakh (5.36 per cent) as of March 2017. OSDMA had utilised the amount in conducting 'Pallisabha' and trainings ¹³² . Thus, prime purpose of sanction of funds for capacity building for disaster preparedness remained unfulfilled so far (March 2017).	OSDMA stated (October 2017) that they would start the capacity building activities shortly.
ODRP	'Capacity Building in Disaster Risk Management' (DRM) was to support OSDMA in strengthening overall capacity of village community. The capacity building also included better risk mitigation, preparedness and disaster response in line with global best practices. Under ODRP, though GoI earmarked ₹ 49.46 crore for capacity building, OSDMA had not taken any action on the above activities ¹³³ as of March 2017.	

(Source: Records of OSDMA)

2.2.17 Monitoring and evaluation

Guidelines of NCRMP provided for monitoring of implementation of the project by State Level Project Steering Committee (SLPSC). The SLPSC was headed by the Chief Secretary of the State who had to review the implementation of NCRMP as frequently as required. Under ODRP, Project Steering Committee (PSC) headed by the Chief Secretary and PMU had to conduct continuous monitoring of the project. They had to ensure

¹³¹ NCRMP: ₹ 2.43 crore and ODRP: ₹ 49.46 crore

¹³² Training of community and CSMMC members for capacity building

¹³³ (i) establishment of an integrated complex comprising OSDMA, GIS cell equipped with a decision support centre, emergency centre and training centre; (ii) capacity augmentation of OSDMA by providing specialised dedicated manpower and through need based hiring of technical experts to provide timely support to various project activities; and (iii) enabling the affected marginalised communities to cope with survival risks posed by natural calamities through community based initiatives

implementation of ODRP in compliance with the provisions of guideline. Audit observed the following:

Table 2.2.6: Audit observation on monitoring and evaluation

Subject	Observation	Reply
No monitoring by SLPSC since December 2013	SLPSC met six times as of November 2013. Thereafter, SLPSC had not conducted any meeting till March 2017. In absence of review of the project by SLPSC, OSDMA had not monitored the implementation of the project at apex level.	OSDMA stated (October 2017) that SLPSC in its meeting (June 2017) had decided not to hold any further meeting of the committees since many avenues were available for review. Reply was not acceptable as decision of SLPSC was not in conformity with the project guidelines.
Monitoring of ODRP not done by PSC	As of March 2017, PSC had not conducted any meeting after September 2014. Besides, OSDMA did not take steps to establish monitoring and evaluation cell, develop MIS system and engage TPQA for quality monitoring.	OSDMA stated (October 2017) that they were planning to get all the infrastructure activities monitored by a third party.

(Source: Records of OSDMA)

2.2.17.1 Achievement of sustainable development goals

Sustainable Development Goal (SDG) required resilient buildings for the poor and vulnerable section of the society to reduce their exposure to climate related disasters. Reduction in number of persons affected in disaster and putting in place State or Local risk reduction strategies were to be achieved by the year 2030.

Under ODRP, OSDMA did not achieve the main objective of providing resilient houses. It could identify only 16,576 beneficiaries against the planned 30,000. Further, it failed to include all cyclone prone villages and affected beneficiaries under ODRP. OSDMA had not provided basic amenities in resilient housing colonies, due to which beneficiaries could not occupy the constructed houses. OSDMA had also not completed community infrastructures like roads, Anganwadi centres, water supply, electricity, etc. Thus, OSDMA had not achieved the SDG for resilient housing so far.

2.2.18 Conclusion

Odisha State Disaster Management Authority (OSDMA) was implementing National Cyclone Risk Mitigation Project (NCRMP) with a project cost of ₹ 1,093.79 crore and Odisha Disaster Recovery Project (ODRP) with a project cost of ₹ 1,352 crore. The scheduled periods of completion of the projects were October 2017 and March 2019 respectively. As of March 2017,

utilisation of funds in the projects stood at ₹ 877.07 crore and ₹ 555.69 crore respectively.

In NCRMP projects, the institutional arrangement for overseeing implementation was deficient as OSDMA had not engaged full time project director, consultants and Third Party Quality Auditor (TPQA). Even after exclusion of Puri district from ODRP, OSDMA had not reduced the consultancy charges proportionately. Thus, the funds management was ineffective. OSDMA could not make Early Warning Dissemination System operational in the State even after six years of commencement of the project. Out of 43 MPCs constructed under NCRMP, 32 were found idle without any provision of essential equipment, electricity connection and funds for maintenance. Cases of excess payment and undue favour to contractors in construction of embankments were also observed. Despite delay in completion of works, OSDMA had not recovered liquidated damages.

Under ODRP, selection of beneficiaries of resilient houses was not transparent. District authorities had not adopted the prescribed procedure in identifying eligible villages/ beneficiaries, which resulted in exclusion of eligible villages/ beneficiaries. On the other hand, ineligible villages/ beneficiaries were included. In construction of Angawandi centres, prescribed drawing and design had not been followed, which resulted in avoidable expenditure.

Capacity building of community and disaster mitigation strategies at community level remained almost absent. Monitoring by State Level Project Steering Committee under NCRMP and Project Steering Committee under ODRP was deficient.

2.2.19 Recommendations

The State Government may consider to:

- Engage staff exclusively for Project Implementation Unit of National Cyclone Risk Mitigation Project and Project Management Unit of Odisha Disaster Recovery Project.
- Install Early Warning Dissemination System, construct and provide required equipment to Multi-Purpose Cyclone Shelters and also make arrangement for their management/ maintenance.
- Construct common infrastructure in relocated villages and upgrade the slums, roads and storm water drains at the earliest.
- Strengthen Management Information system and monitoring.

Rural Development Department

2.3 Information Technology Audit on Works and Accounting Management Information System

EXECUTIVE SUMMARY

Government of Odisha implemented Works and Accounting Management Information System (WAMIS), a workflow automation system in engineering departments. This was to bring efficiency and effectiveness in its functioning. Except accounting, all modules were utilised partially even after seven years of implementation.

WAMIS had weak management controls as Department had not prepared comprehensive user requirement specification. Changes proposed after implementation for incorporation in the system were not ensured. This created inconsistencies in electronic workflow. Business Continuity and Back up Plans were not framed. The Government had not exercised oversight over database administration by i) segregating duties or ii) putting compensating controls. As a result, unauthorised users accessed the database, logs were deleted, contractor's details were tampered with and records of vital tables were deleted.

WAMIS had design deficiencies like i) lack of audit trails, ii) absence of provisions for preparation of detailed estimates, iii) ineffective session management, iv) lack of validation controls. Besides, the system had issues like non-mapping of business rules, absence of centralised contractor database, non-provision of digital signature, etc.

Vouchers were booked in WAMIS, bypassing the workflow and without uploading of geo-tagged photographs in the system. WAMIS had improper design and defective global master tables. This made the data disintegrated and undue favour extended to the contractors several times.

The usage of WAMIS was as low as five per cent in the engineering departments and entire works were processed manually. Besides, divisions were also primarily dependent on manual records instead of system generated reports.

2.3.1 Introduction

Rural Development Department (RD Department), Government of Odisha (GoO) implemented Works and Accounting Management Information System (WAMIS). The Department awarded the work¹³⁴ to Centre for Development of Advanced Computing (CDAC), Pune in May 2009. The main feature of WAMIS was automation of technical functions and preparation of accounts. The objectives of WAMIS were i) preparation of budget estimates, ii) allotment of funds, iii) creation of work information along with capturing of

¹³⁴ Design, development, implementation and maintenance

contract award details. Subsequently, WAMIS was utilised in seven¹³⁵ other departments. WAMIS was a web based application, developed using Java in the front-end and MYSQL database at the back-end. Servers for the database and application were installed in the State Data Centre (SDC), Bhubaneswar. It consisted of five modules, viz., i) Budget, ii) Works and Billing, iii) Accounts, iv) MIS and v) Integration with Accountant General (Accounts & Entitlement) (AG (A&E)) for submission of monthly accounts.

RD Department, headed by Commissioner-*cum*-Secretary, was the nodal agency for implementation, maintenance, modification, etc., of WAMIS. CDAC maintained the database and application servers. During 2010-17, ₹ 2.71 crore was spent on software development, enhancement and maintenance, logistics support, manpower deployment and training.

2.3.2 Audit objectives

The Information Technology Audit was conducted to assess whether:

- Planning and system development processes followed were robust;
- The system met the Government's objectives of office automation;
- Controls in Information Technology system were adequate and effective;
- Adequate system security and Business Continuity features existed; and
- Monitoring and supervision were adequate and effective.

2.3.3 Scope and methodology of Audit

Audit objectives, scope and methodology were discussed with the Commissioner-*cum*-Secretary, RD Department in an Entry Conference held in March 2017. Audit conducted data analysis using Computer Assisted Audit Techniques like MYSQL covering the period 2012-17. Audit test checked records of RD Department, Engineer-in-Chief (EIC), Rural Works, Bhubaneswar and 10¹³⁶ Rural Works/ Rural Water Supply & Sanitation sampled divisions. The Exit Conference was held with Commissioner-*cum*-Secretary, RD Department in September 2017. The replies of the Department have been incorporated in the report, wherever required. The Department accepted all the recommendations and agreed to implement the same to make the system robust.

¹³⁵ Works, Water Resources, Fisheries and Animal Resources, Housing and Urban Development (PH Division), Commerce and Transport, Energy and General Administration (Rent) Departments

¹³⁶ Rural Works Division, Bhubaneswar, Rural Water Supply & Sanitation Division, Cuttack, Rural Works Division-II, Jajpur, Rural Works Division-II, Bhadrak, Rural Water Supply & Sanitation Division, Balasore, Rural Works Division, Jaleswar, Rural Works Division, Sunabeda, Rural Works Division, Bolangir, Rural Works Division, Bhawanipatna and Rural Works Division, Ganjam

2.3.4 Audit criteria

The following criteria were adopted for the IT Audit:

- User manuals/ Entity Relationship diagram/ project plans;
- Service Level Agreements (SLAs) of WAMIS with the vendor;
- Information Technology (IT) Act, 2000 and subsequent amendments;
- Odisha Budget Manual, Central Public Works Accounts Code, Orissa Public Works Department Code including amendments, Schedule of rates and Analysis of rates; and
- Instructions issued by Government of Odisha relating to implementation of WAMIS.

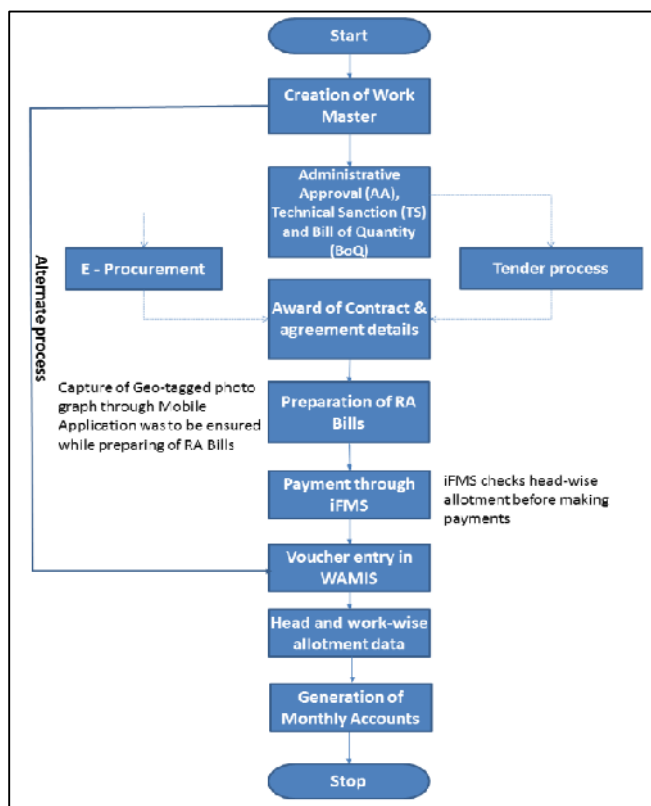
Audit Findings

2.3.5 General Control

2.3.5.1 Bypassing the electronic workflow of WAMIS

WAMIS was developed to automate the activities performed at the divisional offices such as i) capturing of data on work information, ii) Administrative Approval (AA), iii) Technical Sanction (TS), iv) Bill of Quantity (BoQ) and v) Contract Award. Besides, the system had provision of generation of Running Account (RA) Bills. After payment through iFMS¹³⁷, the vouchers were entered for generation and submission of Monthly Accounts to the AG (A&E), Odisha. The workflow processes involved in operation of WAMIS are depicted in *Chart 2.3.1*.

Chart 2.3.1: Workflow of WAMIS



As seen from the chart, WAMIS had provision to bypass the process of capturing AA, TS, Contract Award details, RA Bills, etc. RD Department instructed all divisions to fully automate accounting process through WAMIS

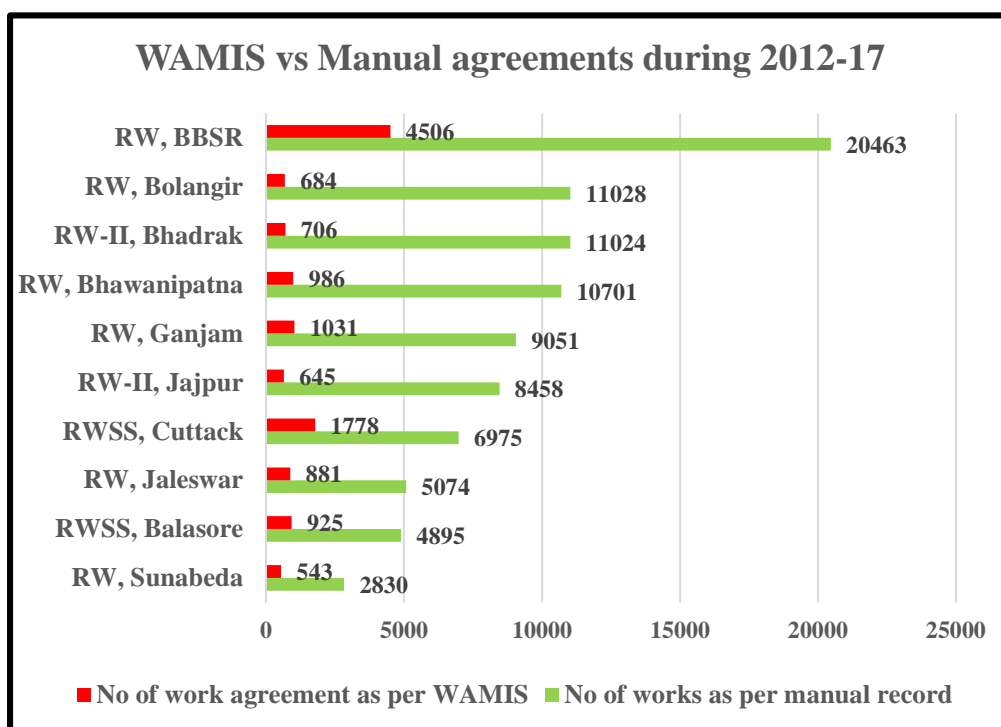
¹³⁷ iFMS - Integrated Financial Management System

and discontinue the manual maintenance of cash book from July 2009. Subsequently, RD Department also instructed all divisions to process RA Bills and submit monthly accounts to AG (A&E) through WAMIS from 2012.

The divisions did not use WAMIS to process all the RA Bills. Some RA Bills were also processed manually. The divisions also made payments using the alternate process without entering the critical details¹³⁸. Data analysis revealed that the divisions processed RA Bills of only 80,316 (12 per cent) out of 6,71,243 works¹³⁹ through WAMIS as of March 2017. Remaining 88 per cent bills were processed manually. The voucher details of these bills were re-entered in WAMIS using the alternate process for generating the monthly accounts. This was confirmed in Audit in 10 test checked divisions. In these divisions, 31,462 works records were created. However, 12,685 agreements were entered and 8,099 RA bills were generated from WAMIS. The manual agreement register of 10 test checked divisions also showed that 90,499 agreements were executed during 2012-17. However, only 12,685 agreements were available in WAMIS.

Out of ten test-checked divisions, five divisions¹⁴⁰ had utilised WAMIS negligibly for capturing of works and generation of RA bills. The other five divisions had utilised the system to a very less extent as could be seen in *Chart 2.3.2*:

Chart 2.3.2



Audit noticed that RD Department had not enforced the inclusion of required validations and changes proposed by different users in the software. In

¹³⁸ AA, TS, BoQ, award of contracts, agreements with contractors, RA bills etc.

¹³⁹ Including split works

¹⁴⁰ RW-II, Bolangir, RW, Bhawanipatna, RW-II, Bhadrak, RW-II, Jajpur, and RW, Bhubaneswar

absence of this, the divisions preferred the manual processes bypassing the workflow of WAMIS. Therefore, WAMIS was implemented partially in all the divisions and failed to generate reliable MIS reports. As a result, the data captured became inconsistent and disintegrated. This caused serious deficiencies in the system as discussed in the subsequent paragraphs.

The Department while accepting (September 2017) the observation stated that Accounts module was selected for implementation first in RD Department. These were gradually extended to other user departments. Incorporation of changes proposed by other user departments and integration with AG and treasuries took most of the time for implementation. However, all modules were targeted for implementation and electronic workflow as envisaged would be enforced.

2.3.5.2 Non-preparation of Software Design Document (SDD)

RD Department has specified the broad requirements to CDAC without preparing detailed User Requirement Specification (URS). As per the agreement, CDAC was required to prepare the Software Requirement Specification (SRS). CDAC was to conduct a detailed study of the workflow in RD Department's functional branches. The study involved interaction with the officials. SRS was also to be prepared as per the codal provisions including instructions of the Government. The SRS was to contain what the system would provide. This was to become the basis for the design and development of the application. Further, CDAC was also required to prepare the SDD detailing how the system was to be developed to take care of the activities mentioned in the SRS.

Audit observed that CDAC implemented its software developed for Maharashtra Public Works Department after customisation. It had not prepared any SRS or SDD. Hence, rules specified in OPWD and CPWA Codes could not be incorporated to cover all the functions of the user departments flawlessly. As a result, the users¹⁴¹ had to seek additional features and integration with other existing applications continuously. Thus, WAMIS was incomplete and open-ended.

The Department stated (September 2017) that i) on the basis of documents prepared for Goa and Maharashtra, WAMIS was implemented in Odisha, ii) the validation was not enforced in the system. The system was kept open-ended due to non-acceptance by all the stakeholders and frequent change requests.

2.3.5.3 Deficiencies in change management

As per the agreement (May 2009 and April 2014), RD Department would give in writing the proposed changes, if any, for incorporation in the software. CDAC would respond within specified time along with the cost escalation, if any, for the changes. Such changes were required to be approved by RD Department. Audit noticed that RD Department instructed CDAC for changes in the software design and incorporation of additional features in WAMIS.

¹⁴¹ Rural Development, Water Resources, Works and Housing & Urban Development Departments

The changes proposed were i) facility for provision of digital signature for approval of bills, ii) generation of contractor's work certificate, iii) restriction for excess expenditure over allotment and iv) expenditure without allotment. Besides, i) provision to track the change of password, ii) system generated request to change the password in every three months, etc., (*Appendix 2.3.1*) were also requested.

Audit observed that the provision for passing of bills and submission of monthly accounts using digital signature was not implemented at the divisional level. Generation of contractor's works certificate using the software was also not implemented at the divisional level. In 2,578 cases¹⁴², the names of the contractors in the vouchers captured in the database were different from the names in the monthly accounts submitted to AG (A&E).

Thus, WAMIS was running without the required changes suggested by the users and therefore, all the modules of WAMIS could not be used.

The Department accepted (September 2017) the fact and stated that some of the requirements were not implemented on account of changed priorities. However, the same would be targeted for implementation after due consultation with all the stakeholders.

2.3.5.4 Absence of Business Continuity/ Disaster Recovery Plans

As per the best practices, the Department acquiring the IT system was required to frame Business Continuity Plan (BCP) and Disaster Recovery Plan (DRP). CDAC had not framed any backup policy and WAMIS had been running without any BCP/ DRP even after seven years of its implementation. In the absence of BCP/ DRP, the users were unaware of the procedure to be followed in the event of disruptions caused by any disaster.

The Department stated (September 2017) that after completion of security audit of WAMIS, the system would be placed in the production server of the State Data Centre (SDC). They would also prepare policy documents.

2.3.5.5 Inadequacies in Database Administration

Database Administrator (DBA) was responsible for the performance, integrity and security of a database and had the privilege to alter the database. Therefore, DBA should not be given other responsibilities like system administration, help desk and data entry.

Audit observed that CDAC was continuing both as system administrator and DBA along with user management, help desk and master data entry. RD Department had not trained its officials for database administration through appropriate segregation of duties and supervisory review of access logs. Besides, RD Department did not have detective controls over the use of database and user management to avoid vendor dependency.

As CDAC had complete control over WAMIS, the activities of the DBA could not be monitored. Audit found that three unauthorised users¹⁴³ accessed WAMIS on 81 occasions. User access logs were deleted on 846 occasions

¹⁴² Pertaining to RW Division-I, Ganjam

¹⁴³ 1689, 1690 and 1691

during July 2013 to January 2017. Further, contractors' details were tampered with in 2,578 cases of RW Division-I, Ganjam. Also, work proposals and contract award details were deleted as elaborated in **Paragraph 2.3.7.2**. Due to lack of audit trail, the impact of the same could not be assessed.

The Department stated (September 2017) that audit trail would be incorporated in the system. Further, a responsible person from the Department would be assigned monitoring of the activities in the system after all the modules of WAMIS were used.

2.3.6 Security and End User Control

2.3.6.1 Absence of audit trails

As per the best practices, audit trails¹⁴⁴ should be captured in the tables for enforcing accountability and detective control against any manipulation of records in database. Audit found that the critical tables having work information details¹⁴⁵ did not contain any field for audit trail. This deficiency disabled the provision to i) detect erroneous transactions like creation of multiple work identities (Ids), ii) incorrect capturing of work award details, *etc.* Thus, responsibility for such violations could not be fixed.

The Department stated (September 2017) that audit trail would be incorporated in future.

2.3.6.2 Inefficient user management

Analysis of the database showed that 6,018 user Ids were created for 3,427 units¹⁴⁶ primarily based on the designations of the users. At the divisional¹⁴⁷ level, two user Ids were assigned to each EE for accounts and billing. Also, one each for DAO, AEs, JEs and Auditors, *etc.*, were assigned for using WAMIS. The estimators/ clerks posted in divisions were assigned with processing of works of different sub-divisions. Audit noticed that 215 user Ids were assigned to different users in 10 test-checked divisions. The deficiencies noticed are discussed below:

- **Multiple users with same username:** In 10 test-checked divisions, six estimators and 11 Auditors were using the same user Id in RW Division, Bhubaneswar. DEOs of seven¹⁴⁸ test-checked divisions were using the username on behalf of all the clerks, estimators, JEs and AEs. All the estimators, clerks, JEs and AEs were using the same user Id in RWSS, Balasore. Four Auditors and JEs/ AEs were using common user Id in RW, Sunabeda. Database analysis revealed that the work

¹⁴⁴ Date of creation of record, users created and updated, *etc.*

¹⁴⁵ AAs, TSs, contract award details, RA bills, item-wise measurements, recovery of statutory deductions, *etc.*

¹⁴⁶ Secretary (Finance), DAG (Works Accounts), Puri, four Departments, 12 Chief Engineer Offices, 54 Superintending Engineer Offices, 508 Divisions, 655 Sub-Divisions and 2,192 Sections

¹⁴⁷ A division was divided into two to five sub-divisions headed by Assistant Executive Engineer (AEE)/ Assistant Engineer (AE) and under each sub-division, two to seven Sections, headed by Junior Engineers (JEs) were working

¹⁴⁸ RWSS, Cuttack; RW Division-II, Jajpur; RW Division-II, Bhadrak and RW, Jaleswar, Ganjam, Bhawanipatna and Bolangir

proposals and contract award details were deleted in 4,04,954 instances. Due to use of one user Id by multiple employees, accountability could not be fixed on such erroneous transactions.

- ***Incomplete logs in cases of transfer of officials:*** The user Ids assigned to the EE/ DAO of the divisions in the initial phase were still being used till date. Provision to inactivate the username on transfer and creation of new username on joining of new officer was not made. Only the passwords were being changed on joining of the successors. Besides, the system captured the details of immediate predecessor and prior to that no information was available. During April 2008 to March 2017, 38¹⁴⁹ EEs and 47¹⁵⁰ DAOs were transferred. In the absence of log details of the transfers in the database, the incumbents could not be held responsible for any mismanagement¹⁵¹, if any, occurred during the said period.
- ***Absence of Single Sign-on mechanism:*** Each EE was assigned two usernames, i) one for accounts and ii) another for works & billing module instead of single sign-on mechanism. Thus, the system had become less user-friendly in the absence of single sign-on.

Audit noticed that, 25,176 multiple work proposals were created in 10 sampled divisions and incorrect details of contract award were captured in 121 cases in two¹⁵² test-checked divisions. Besides, instances of non-entry of work measurement in 21,730 cases were noticed. Short recovery of statutory deductions (VAT) without remarks in 150 cases were also noticed. In the absence of creation of employee specific username and log details, responsibility for erroneous transactions could not be fixed.

The Department agreed (September 2017) that single sign-on mechanism could be achieved, but such employee-based workflow was not envisaged. Provision for employee specific user login should be made to enforce accountability.

2.3.7 Application Controls

WAMIS had five modules and deficiencies noticed in these modules are discussed below.

2.3.7.1 Deficiencies in Budget Module

Budget Management System (BMS) was to be developed in WAMIS at a cost of ₹ 5 lakh as per the agreement (May 2009) executed with CDAC. The module was developed and web-hosted in April 2010. BMS provided for i) preparation of budget estimates, ii) allocation of budget, iii) surrender,

¹⁴⁹ RW, Jajpur: 7; RW, Jaleswar: 4; RW, Ganjam: 3; RWSS, Cuttack: 2; RW, Bhubaneswar: 2; RW, Bolangir: 2; RWSS, Balasore: 8; RW-II, Bhadrak: 2; RW, Bhawanipatna: 4 and RW, Sunabeda: 4

¹⁵⁰ RW, Jajpur: 5; RW, Jaleswar: 4; RW-II, Bhadrak: 5; RWSS, Balasore: 5; RWSS, Cuttack: 4; RW, Bhubaneswar: 6; RW, Bolangir: 5; RW, Bhawanipatna: 4; RW, Sunabeda: 3 and RW, Ganjam: 6

¹⁵¹ Short recovery of security deposit and income tax and other erroneous transactions

¹⁵² RW, Ganjam and R.W Division-II, Bhadrak

iv) re-appropriation of allotment and v) interlinking with other modules. The objective was to control expenditure as per allotment. However, the RD Department did not use the budget module, instead performed budget functions through iFMS¹⁵³. As a result, the divisions manually entered the head-wise budget data for generation of monthly accounts in WAMIS to submit the same to AG (A&E). Audit noticed that the divisions did not properly enter the budget allotment data in monthly accounts though available in iFMS. As a result, the head-wise¹⁵⁴ expenditure figure exceeded the allotment in 486 instances in 10 test checked divisions. Therefore, AG (A&E) rejected the monthly accounts 38 times during January 2014 to March 2017. Besides, the divisions had booked the excess expenditure in WAMIS over the allotment available in iFMS in 30 instances. This happened due to irregular re-appropriation of funds in minor/sub-heads under major heads like 2059, 2216, 4059 and 3054.

Thus, the budget module was not completely integrated with iFMS.

The Department stated (September 2017) that the work-wise allotment would be given by the controlling office through budget module. Also, head-wise allotment would be taken care of by iFMS.

2.3.7.2 Deficient Works and Billing Module

Works and billing module was envisaged to automate the entire technical activities of the engineering departments/ divisions. On analysis of the database, Audit noticed the following deficiencies.

- **Absence of provision for preparation of detailed estimate of works:** As per OPWD Code, a detailed estimate should be prepared for each work¹⁵⁵. Preparation of detailed estimate was one of the core functions of the divisions. Audit observed that there was no provision in WAMIS to prepare the detailed estimate for a work and the same was being prepared manually. Till 2014-15, the division entered the individual items of a work in WAMIS. Thereafter, provision was made to upload the Bill of Quantity (BoQ) using MS-Excel. Audit also noticed that the BoQ of work was uploaded in e-procurement portal for online tender using a customised template.

Thus, absence of facility for preparation of estimate and non-integration of WAMIS with e-Procurement led to duplication of work at each stage.

- **Gaps in vital fields:** As per work-flow in WAMIS, a user was required to enter the work information. The information was stored in a table with an auto generated work Id with incremental sequence of one. The work Id generated in the table was updated in another table with the option of splitting the work into different parts. In split table, another

¹⁵³ Integrated Financial Management System is a software being managed by Directorate of Treasuries and Inspection (DTI) for preparation of budget estimates and allocation, surrender, re-appropriation of fund across the State

¹⁵⁴ Head-wise indicates a head of account comprising a particular 'Major head, Sub-major head, Minor head, Sub head, Detailed head and Sub-detailed head'

¹⁵⁵ Except petty works and repairs

unique work split Id was generated with incremental sequence of one. The split Id generated in the split table was updated in contract award table where contractor Id, agreement amount, *etc.*, were stored. On analysis of WAMIS, Audit found 4,731, 5,869 and 4,00,223 gaps in the sequence of three major tables¹⁵⁶. Work details for 2,324 works pertaining to 11 divisions involving a payment of ₹ 767.28 crore were not available in the work proposal table. This indicated that the work details were deleted after making payments to the contractors. As a result, details of works could not be assessed from the system.

Further, 31,462 work proposals¹⁵⁷ were created in 10 sampled divisions as of March 2017. Of these, the contract award details for 16,072 cases involving payment of ₹ 3,165.14 crore were not available. This occurred since the i) divisions passed the RA Bills using manual process and ii) entered the payment vouchers in the accounts module using alternate process. This has been discussed in **Paragraph 2.3.5.1**.

The database became disintegrated, unreliable and generated unreliable MIS report due to such deletion. Besides, the actual number of works completed and work-wise expenditure could not be assessed. This made the system vulnerable. In the absence of audit logs and audit trails, Audit could not identify the users who deleted the data.

The Department confirmed (September 2017) the fact and stated that this was due to manual entry of vouchers which would be restricted after bill-wise integration with iFMS. It also stated that estimate module would be developed in WAMIS and integration of WAMIS with e-procurement had been initiated.

2.3.7.3 Multiple login session from same machine

WAMIS was designed for multiple concurrent login allowing the users to connect from multiple devices or browsers at the same time. Therefore, the required security features¹⁵⁸ were to be provided.

Audit observed that CDAC had made provision to capture the user Id, login time, logout time and IP address of the logged in session in one table from 8 March 2017. As of 31 March 2017, 65,630 records were captured. On analysis of the access logs in respect of 10 sampled divisions, Audit noticed that in 1,565¹⁵⁹ out of 3,287¹⁶⁰ records, the users had concurrent logins¹⁶¹. As the username assigned to the users were not employee specific, accountability could not be enforced on the users.

¹⁵⁶ Work proposal, split works and contract award of the database respectively

¹⁵⁷ Except proposals for wages and work charged salary

¹⁵⁸ Notifying user of concurrent sessions, provision for sign out from all active sessions, alert to the user for unusual login activity, provision for automatic session timeout

¹⁵⁹ RW, Bhubaneswar: 532; RW-II, Jajpur: 7; RW, Jaleswar: 175; RW-II, Bhadrak: 28; RWSS, Balasore: 260; RWSS, Cuttack: 86; RW, Bolangir: 21; RW, Sunabeda: 97; RW, Bhawanipatna: 302 and RW, Ganjam: 57

¹⁶⁰ RW, Bhubaneswar: 1,054; RW-II, Jajpur: 46; RW, Jaleswar: 452; RW-II, Bhadrak: 34; RWSS, Balasore: 491; RWSS, Cuttack: 191; RW, Bolangir: 65; RW, Sunabeda: 266; RW, Bhawanipatna: 538 and RW, Ganjam: 150

¹⁶¹ Same user accessed a resource on the computer once again, when a logged in session of the same user was active

The Department stated (September 2017) that this would be incorporated in WAMIS.

2.3.7.4 Inconsistent scheduled date of completion for works

As per OPWD code, penalty for delay in completion would be calculated from the scheduled date of completion in terms of number of days. WAMIS was designed to automatically calculate the scheduled date of completion, after entering the date of commencement and work period (in months). However, the field for scheduled date of completion was kept editable with a date picker in the user screen allowing users to modify the dates.

Analysis of database revealed that the scheduled date of completion was wrong in 6,165 out of 2,73,829 records by one day to 6,563 days. In 10 test-checked divisions, 391 similar cases were found. This had happened as the divisions had entered wrong dates and the system accepted those in the absence of proper validation. Audit verified manual records of 10 sampled divisions and found that the dates as per manual records were correct. Thus, absence of validation controls and non-provision in WAMIS to calculate penalty for delay/ incentive for early completion of a work, made the system inefficient. This resulted in failure in achieving the objective of complete automation. Besides, these deficiencies made the system generated agreement registers incorrect and unreliable.

The Department stated (September 2017) that provision would be made not to alter scheduled date of completion. Additionally, another field would be inserted in the system to enter the actual date of completion for calculating delay in completion of work.

2.3.7.5 Incomplete database design

As per the best practices, master table was to be created as a single source for common business data with unique Ids for referencing across multiple tables. WAMIS had several master tables like office master, village master, district master, account head master, *etc.* These were used for processing the works at the divisions. Audit observed the following deficiencies:

- WAMIS did not have a master table for recovery types, rather the users were permitted to create the same. In the database, 43,812 types of recovery/ refund/ payment heads were created. Of these, 818 such cases were found in 10 sampled divisions. Different transaction types were created for the same purpose with different nomenclature (**Appendix 2.3.2**). As there were specific transaction types being used in divisions, CDAC should have designed the master table for such recoveries with unique Ids. Thus, the system became inefficient in generating consolidated reports on such recoveries.
- Audit noticed that 27 divisions recovered ₹ 4.61 crore towards 'Additional Performance Security (APS)' against 265 vouchers¹⁶². These recoveries were supposed to be collected at the time of agreement and not through RA bills. RW Division-II, Bhadrak created

¹⁶² During September 2010 to March 2017

two separate transaction types ‘MDLC’ and ‘Withheld’. Against these, it recovered the APS¹⁶³ of ₹ 2.42 lakh from contractor’s bills.

- Similarly, RW Division, Bhawanipatna recovered APS of ₹ 4.65 lakh out of ₹ 17.41 lakh from RA bills’. Hence, the contractor completed the work without recovery of entire APS of ₹ 17.41 lakh.

Thus, lack of proper master data for capturing recoveries at the division level made the database inconsistent. This had also given scope to the divisional users to by-pass the codal provision to unduly favour the contractors.

The Department stated (September 2017) that database was designed as per the feedback received from stakeholders. However, suggestions would be discussed with all the stakeholders and accordingly, the same would be incorporated in WAMIS.

2.3.7.6 *Inconsistencies in selection of contractor during voucher entry*

As per workflow mechanism in WAMIS discussed in *Paragraph 2.3.7.2*, for each work proposal, a work Id was auto generated with an incremental sequence of one. The work Id updated in contract award table where contractor Id, agreement amount, *etc.*, were stored. The divisions were required to enter the gross amount and contractor name by selecting the drop down menu in voucher entry screen. The entry was to be made after payment of the bills through iFMS¹⁶⁴. Thereafter, the user was to select cheque number¹⁶⁵ and work name from the drop-down menu. Then the details of statutory recoveries of the particular voucher would be entered.

Audit found discrepancies in 52,701 cases pertaining to 10 test checked divisions. The discrepancies were found between the contractors to whom work was awarded and the contractors to whom the payments were made against the same work. In 41,816 cases, the works were awarded to a particular contractor but payment vouchers were booked against a different contractor for the same work Id. In 10,885 cases, though one contractor was awarded a particular work but while entering payment vouchers, multiple contractors were booked.

Audit test checked 108 cases and found that the actually awarded contractors were paid through iFMS. However, incorrect contractor/ work was selected from the drop down menu during voucher entry in WAMIS. Different Ids were used during capture of contract award details and processing of payment

¹⁶³ When the bid amount is seriously unbalanced, *i.e.*, less than the estimated cost by more than 10 *per cent* and within 15 *per cent*, in such an event the successful bidder will deposit the additional performance security to the extent 1.5 times of the differential cost of the bid amount and 90 *per cent* of the estimated cost in shape of NSC/ STDR/ TDR duly pledged in favour of EE

¹⁶⁴ The divisions used to make payment through manual cheque prior to December 2014 and enters the details in iFMS, however, from December 2014, the division used system generated cheques through iFMS

¹⁶⁵ From 2016 onwards, the online cheques used to make payment in iFMS get updated in WAMIS

vouchers. This happened due to existence of multiple contractor Ids of a particular contractor.

Thus, there was absence of complete integration with iFMS to fetch the payment related information and lack of validation. This led to booking of incorrect amount against a contractor as well as work in WAMIS. As a result, the monthly account submitted to AG (A&E) did not reflect i) actual payment made to a particular contractor or ii) actual expenditure of a work, thereby, making it unreliable.

The Department while accepting (September 2017) the fact stated that the discrepancies occurred due to manual voucher posting. Once the bill integration with iFMS was completed, all passed bills would be converted into vouchers and change of work/ contractor name would not be allowed.

2.3.8 Input and validation control

2.3.8.1 Lack of validation controls in according approvals and sanctions

As per OPWD Code, for every work (except repair works), the AA and TS from the competent authorities should be obtained before execution of the work. Further, EE had no power to accord AAs for original works. However, he had the financial power to accord TS up to ₹ 1 crore in case of original works. Besides, the provisions stipulated that time limit for completion would not ordinarily be more than one month for the works costing up to ₹ 50,000.

Audit noticed that contracts were awarded without AAs in 61,018 cases and work orders were issued prior to AAs in 2,659 cases. Besides, unauthorised accordance of AA and TS by EE beyond the delegated financial power in 1,05,979 cases, etc., were noticed. These are detailed in **Appendix 2.3.3**. Audit test checked 160 records in 10 test checked divisions and observed the following irregularities (**Table 2.3.1**).

Table 2.3.1 showing Audit observations on lack of validation controls in according approvals and sanctions

Issue	Observation
Work Order issued prior to AA	In 13 out of 25 test-checked cases, the work orders were actually issued prior to the AA. In two cases, Collector had accorded the AAs without mentioning the dates. In six cases, the work order date was incorrectly entered in the database. In the remaining four cases, the AAs were not found on record.
Accordance of AA by EE beyond eligibility limit	In 17 out of 30 test checked cases of deposit works having estimated cost above ₹ 50,000, AAs were accorded by different authorities ¹⁶⁶ other than the EE. In 13 cases, the AAs were not on record. Similarly, in 20 out of 40 ¹⁶⁷ test

¹⁶⁶ Collectors: 3, CDMO: 3, Director (OMSM): 10 and Western Odisha Development Council (WODC): 1

¹⁶⁷ Non-Residential building: 21, Residential Building: 19

	checked works on residential and non-residential building, AAs were accorded by different authorities.
<i>Accordance of AA as well as TS by EE</i>	In 21 out of 32 test checked cases, the TSs were accorded by the EEs. The AAs were accorded by different authorities except, in one case where the AA was not obtained for the work. However, the authority for issue of AA as well as TS for these works were shown as EE in the database.
<i>Unauthorised accordance of TS by EE</i>	In one case of RWSS, Cuttack, the original work was split into 283 sub-works and contracts worth ₹ 3.20 crore was awarded. Verification of files of these split works showed that the TS was accorded by the EE instead of SE in violation of codal provisions.
<i>Contracts awarded without technical sanction</i>	The TS details of 48 works were not available in the database. In two ¹⁶⁸ cases pertaining to RW Division-II, Bhadrak and RW Division, Ganjam, the TS were not obtained from the competent authority before the award of contract.
<i>Excess time allowed for work</i>	In 18,517 cases, the works costing below ₹ 50,000 were allowed excess time ranging from two months to 639 years-one month for execution. In 10 test checked divisions, 3,456 similar cases were found. On test check of 40 cases, time period of more than one month was given to the contractors for completion of the works.

(Source: Records of concerned divisions)

The above irregularities occurred due to absence of validation and non-mapping of the provisions of the OPWD Code in the system.

The Department stated (September 2017) that every validation would be put in the system, once all the users become familiar with all modules.

2.3.8.2 Agreements captured multiple times

As per OPWD Code, agreement registers were required to be maintained at the divisional level. Each register started from 1st April with initial number as '1' and continued with an increment of one till 31st March of the succeeding year.

Audit noticed that 2,73,829 agreements were captured in the system. Of these, 17,934 agreements were captured multiple times (duplicates) within the same financial year. In 10 test checked divisions, 25,176 multiple work proposals were created for the same work. Funds were allotted to the works under

¹⁶⁸ RW Division-II, Bhadrak – one case (Jhatiasahi-Mangalapur Road under S/R, Estimated Cost: ₹ 40.00 lakh) and RW Division-I, Ganjam – one case (Repair and renovation of U.G. High School at Dhumachai, Estimated Cost: ₹ 8.95 lakh)

different heads of account. As the system did not have provision to assign different heads of account to a work, the divisions created multiple work proposals for the same work. As a result, the actual number of works executed by a division got inflated in the MIS reports. WAMIS failed to calculate the actual expenditure incurred for a particular work.

Thus, due to system deficiency, the user had to create multiple work proposals for the same work with different heads of accounts. Accordingly, multiple agreements were entered for the same work and payment was also made.

The Department stated (September 2017) that tagging of multiple charts of account with a work had been developed and would be put to use in future.

2.3.8.3 Non-capture of critical dates in awarding process

OPWD Code provided that execution of the contract agreement and order to commence work should be given within 15 days after acceptance of the tender.

Audit found that in nine cases¹⁶⁹ pertaining to four divisions, the contractors were allowed time from two to six months from the date of acceptance of tender to submit the additional performance security¹⁷⁰. Besides, the divisions waited till the contractors reported for signing of agreements without cancelling the tender. As the system did not have the provisions to capture the date of acceptance of tender, audit could not make 100 *per cent* verification.

Thus, non-provision to capture the date of acceptance of tender and issue of letter of acceptance, the division extended undue advantage to the contractors.

The Department stated (September 2017) that the integration of e-procurement and WAMIS was in process and accordingly the issue would be taken care of.

2.3.8.4 Incomplete capture of agreements

As per OPWD Code, each work should have separate agreement with the contractor. Even the split up works would be treated as separate works and separate agreements should be executed. Further, in WAMIS, there was provision to enter the agreements for each work/ split up work, but the divisions had not entered the agreement details in WAMIS.

Audit found that only 1,737 agreements were entered in WAMIS against 20,075 agreements in RW Division-II, Bhadrak and RW Division, Ganjam during 2012-17. Audit noticed that the division had executed 1,129 agreements pertaining to 121 works during 2013-15 with an agreement value of ₹ 5.57 crore. The works had been split into 4 to 10 sub-works. However, in the database, details of only 160 agreements pertaining to 42 works were entered with incorrect agreement value of ₹ 12.43 crore. Thus, the agreement register generated from WAMIS showed incorrect number and value of contracts.

¹⁶⁹ RW Division-II, Bhadrak: 03 cases (Work Id: 2324, 1748 and 1644); RW Division-I, Ganjam: 04 cases (Work Id: 2160, 2595, 2930, 3258); RW Division, BBSR: 01 case (Work Id: 3665) and RW Division, Bhawanipatna: 01 case (Work Id : 1613)

¹⁷⁰ To be furnished by the contractor within 15 days of receipt of letter of acceptance

The Department stated (September 2017) that Divisions would be directed to enter all agreements and bills in the system.

2.3.8.5 *Deficiencies in capturing and uploading of geo-tagged photographs*

In WAMIS, CDAC had developed a mobile application which would help the JEs/AEs/EEs to upload the geo-tagged photographs of the works in the server. RD Department decided (July and August 2013) to upload the photographs of all original works of roads, buildings above ₹ 25 lakh, bridges, pipe water supply every month irrespective of the progress made. In November 2013, it was decided to upload geo-tagged photographs of all the works every month.

On analysis of the database, Audit noticed the following deficiencies.

- ***Non-uploading of photographs of all the works:*** 6,71,243 work proposals were created of which the divisions uploaded 23,707 photographs relating to 3,498 work Ids. In 10 test checked divisions, 31,462 work proposals were created, of which 3,942 photographs pertaining to 1,632 works were uploaded without having date/ time on it.
- ***Uploading of irrelevant photographs:*** The uploaded photographs of majority works were incongruous to the specified works. As a result, the actual progress of the work could not be verified from the photographs. Sample photos of the same are shown below:



Photo of HL bridge at 2nd Km on Bahadapadar - Nadinipalli



Photo of LAC Building at Sagargaon

- ***Mismatch between geo-tagged location and the actual work location:*** Audit compared the geographical location details of the uploaded geo-tagged photographs in WAMIS with the geo-spatial data provided by ORSAC¹⁷¹. Audit noticed that there was mismatch in geo-tagged photos and actual location details.

Thus, the divisional officers had not ensured that the relevant photographs for all the works were validated and uploaded in WAMIS every month. As a

¹⁷¹ ORSAC - Odisha Space Application Centre

result, the higher officers could not monitor the actual physical progress of the work at the location specified in the database.

The Department stated (September 2017) that automatic validation of actual location with work location could be incorporated in the system, once it was accepted by all the stakeholders.

2.3.9 Output controls

2.3.9.1 Deficient MIS module

MIS module was developed for generation of reports to monitor the physical and financial progress. On verification of the system, the following deficiencies were noticed (*Table 2.3.2*).

Table 2.3.2 showing various deficiencies in MIS module

Issue	Observation
No provision to generate important reports	The RD Department instructed (February 2012) CDAC to make provision in the WAMIS for Health & Family Welfare Department to access reports relating to progress of building as majority of deposit works were given by it. The same had not been provided in WAMIS as of July 2017. As a result, the beneficiary department was unable to know the progress of the deposit works.
Failure to generate important reports	The system generated reports based on calendar year ¹⁷² only instead of financial year. The report was also not as per different types of agreements (P1, K2, F2, etc.) being used in divisions. As a result, the divisions were still depending on the manual reports/ registers.
Absence of reports in excel format	CDAC was to make provision for generation of reports in excel format. However, the reports could be generated only in pdf format at divisional level. As a result, the divisions could not do any analysis as per the requirements of higher authorities.
Output error	During analysis of the reports generated through WAMIS, Audit noticed the following: i) The technical sanction register in WAMIS showed works of sinking of tube wells under the work type 'bridge'. The deficiency was due to lack of validation between the description of the work and the type of work. ii) The reports generated by the system did not bear the name and type of report. iii) The system was unable to generate the total works executed at a given time. Instead, the user was required to select the year and work type several times for different work types for getting the entire work details of a particular year.

(Source: Records of concerned divisions)

¹⁷² January to December

The Department stated (September 2017) that customisation of MIS would be incorporated in the system after consultation with other user departments. Further, export facility in excel would be added and inconsistencies in MIS reports would be removed.

2.3.10 Monitoring and evaluation

2.3.10.1 Ineffective monitoring of higher authorities

RD Department had constituted (March 2012) a committee¹⁷³ for looking after the implementation of WAMIS. Subsequently, it instructed (July 2013, May and August 2014, June 2015), the EICs/ CEs/ SEs of Rural Works Organisation to monitor the utilisation of all modules. They had to submit the physical and financial progress of every scheme fortnightly/ monthly. Besides, the RD Department decided (February 2015) that all the divisions of RW/ RWSS would identify one AE/ JE as Nodal Officer at the divisional level for better utilisation of WAMIS.

Audit observed that the EICs/ CEs/ SEs had not furnished the physical and financial progress of the schemes every fortnightly/ monthly. Therefore, the same could not be monitored at State level. Further, nodal officers were not designated for WAMIS at the divisions, except in two divisions. Effective steps were not taken to fix responsibility for non-submission of the fortnightly/ monthly reports on usage of the modules by the divisions. As a result, the deficiencies occurred continuously. Thus, the objectives of implementation of WAMIS could not be achieved.

The Department stated (September 2017) that WAMIS would soon be used as a monitoring tool and no physical report would be sought from EIC/ CE/ SE.

2.3.11 Conclusion

WAMIS was implemented by RD Department to automate the technical and functional activities in engineering departments. However, WAMIS failed to achieve its objectives even after seven years of its implementation as all modules except accounting, were utilised partially. The divisions of RD Department had utilised WAMIS for processing Running Account Bills to the extent of 12 *per cent* only and had processed most of the works manually.

WAMIS had weak management controls. The system was implemented i) without preparation of software design documents, ii) testing reports of the changes proposed and iii) their incorporation in the system. Business Continuity and backup policies were not framed. Budget module was not utilised due to non-integration with iFMS. As a result, incomplete data was fed in the monthly accounts and the same were rejected by AG (A&E) on many occasions. This also created additional workload for the users.

RD Department did not exercise adequate control over Database Administration activities. WAMIS had design deficiencies in user management, lack of audit trails and absence of provisions for preparation of

¹⁷³ Chief Engineer, RW-I, RD Department; Chief Engineer, Buildings, Works Department; Chief Engineer, RWS&S; Assistant Financial Adviser, WR Department and Deputy General Manager, OCAC

detailed estimates. Besides, the system lacked validation controls, non-mapping of business rules and non-provision of digital signature. This resulted in deviation of the codal provisions and passing of bills without uploading of geo-tagged photographs in the system. Inconsistent and poor quality data in WAMIS led to generation of incorrect MIS reports serving little purpose.

2.3.12 Recommendations

- Business processes should be reviewed as per OPWD Code and incorporated in the workflow in WAMIS with proper validations.
- Business Continuity Plan and Disaster Recovery mechanism for WAMIS should be framed and put in place.
- Complete integration of e-procurement, iFMS and WAMIS should be done to avoid duplication of work and generation of accurate and reliable reports.
- Proper documentation should be obtained from the vendor along with source code to avoid excessive dependence on vendor support in maintenance of WAMIS.
- Provision for audit trail, employee specific login credentials and digital signature should be made in the system.