

Chapter 2

Performance Audit

- 2.1 Performance Audit on
Development of roads in Madhya
Pradesh**
- 2.2 Thematic paragraph on
construction of minor irrigation
schemes in Wainganga Basin**
- 2.3 Thematic paragraph on
Distribution Network of Rani
Avanti Bai Lodhi Sagar Project**

CHAPTER-II

Performance Audit

Public Works Department

2.1 Performance Audit on Development of roads in Madhya Pradesh

Highlights

The Government of India, Ministry of Road Transport and Highways (Department of Roads and Transport) approved 298 works of Major District Roads and Other District Roads in Madhya Pradesh, between 2001 and 2012¹ for widening, strengthening and upgradation at a cost of ₹ 2224.78 crore; out of which 152 works were sanctioned during 2007-08 to 2011-12 at a cost of ₹ 1653.67 crore. During 2007-08 to 2011-12, the Government of Madhya Pradesh approved 510 works of village roads for construction and improvement at a cost of ₹ 1499 crore from National Bank for Agriculture and Rural Development (NABARD) loan assistance. Government had also undertaken the development and maintenance of roads through the State Budgetary Provision under plan and non-plan heads on which, an expenditure of ₹ 1109.86 crore was made during the review period. Between 2007-08 and 2011-12, 42 works under Central Road Fund (CRF) and 169 works under NABARD were actually completed. Huge shortfall in achievement of planned connectivity was noticed under the CRF/ NABARD schemes, though there was no financial constraint.

Major deficiencies noticed during audit are mentioned below:

- There were instances of misutilisation of CRF amounting to ₹ 12.34 crore.
(Paragraph 2.1.6.1 and 2.1.13.4)
- There were abnormal delays in completion of sanctioned roads under CRF/ NABARD. Premature upgradation of roads and award of works without clearance from Forest Department resulted in wasteful/unfruitful expenditure of ₹ 15.19 crore and extra cost of ₹ 5.69 crore.
(Paragraph 2.1.8.1 and 2.1.8.2)
- Misclassification of work of strengthening as renewal work led to extra cost of ₹ 2.30 crore besides violation of the orders of Finance Department.
(Paragraph 2.1.9.2)
- Unwarranted provision of Surface Dressing (SD) on Water Bound Macadam (WBM) resulted in extra cost of ₹ 2.76 crore.
(Paragraph 2.1.9.3)
- Short levy of liquidated damages (LD), ineligible payment of price variation and instances of loss to Government amounting to ₹ 25.37 crore were noticed.
(Paragraph 2.1.10.1, 2.1.10.2 and 2.1.10.3)
- There were instances of short recovery of mobilisation advance, undue financial aid and irregular sanction of secured advances.
(Paragraph 2.1.10.4 and 2.1.10.5)
- Expenditure of ₹ 109.54 crore incurred on road works remained unfruitful

¹ Period taken 2001-02 to 2011-12 to exhibit the correct position of Budget estimates and actual expenditure under the funding of CRF.

due to delay and non-completion of works besides interest burden of ₹ 20.39 crore on the loan.

(Paragraph 2.1.10.7)

2.1.1 Introduction

Roads play a vital role in the economic development of the State. Since Madhya Pradesh is centrally located in the country, most of the long haul road



traffic in the north-south and east-west directions in the country has to pass through the State. The comparative position of length of roads under the control of Public Works Department (PWD) of the State as of March 2008 and March 2012 is as under:

Table 2.1

Particulars of Roads	Length of roads (in Kms)	
	2007-08	2011-12
National Highway	4280	4709
State highway	8729	10501
Major District Roads	11572	19574
Village Roads	48733 ²	23639

(Source: Administrative report of PWD for the year 2007-08 and 2011-12)

The Ministry of Road Transport and Highways of Government of India, (MORT&H) approved between 2007-08 and 2011-12 widening, strengthening and upgradation of 2409.74 kms of roads (152 works) in Madhya Pradesh at a cost of ₹ 1653.67 crore through Central Road Fund (CRF)³. The Government of

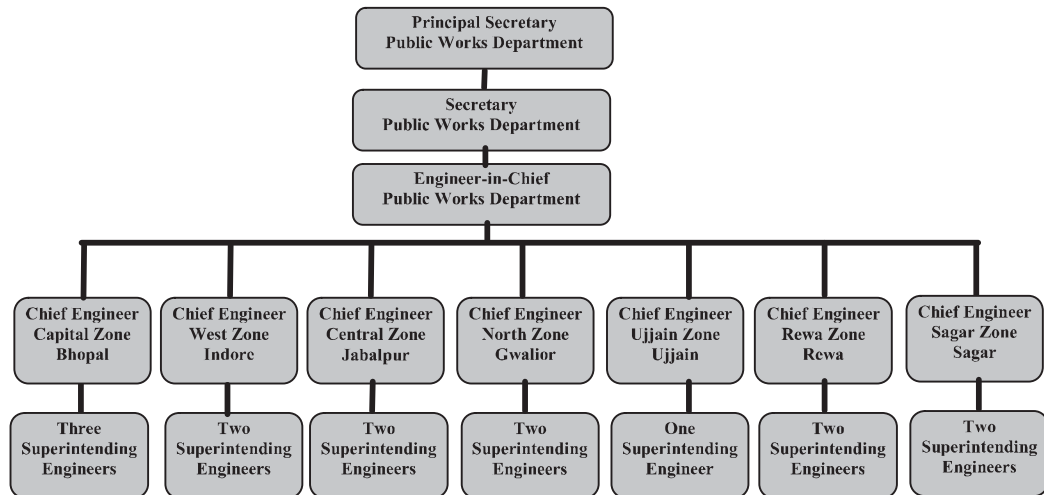
² Length of rural roads reduced due to transfer of roads to Madhya Pradesh Rural Road Development Authority.

³ CRF under the control of MORT&H is created by imposing cess on petrol and diesel at the rate of ₹ one per litre. The Ministry distributes this fund among the State Governments according to their requirements after according administrative approval (AA) to the sponsored works. The fund provided for development and maintenance of

Madhya Pradesh (GOMP) also got (2007-12) approval of the National Bank for Agriculture and Rural Development (NABARD) for loan assistance to improve 4457.27 kms of village roads (510 works) at a cost of ₹ 1499 crore through different phases of Rural Infrastructure Development Fund (RIDF). Besides, the State Government also provided budget of ₹ 1232.17 crore during 2007-12 for the development and maintenance of roads in Madhya Pradesh.

2.1.2 Organisational set-up

The PWD, an implementing agency for taking up road works with the funding of CRF, NABARD and State budget, is headed by Principal Secretary (PS) at the Government level. Engineer-in-Chief (E-in-C) is the technical head of the department, who is assisted by seven Chief Engineers (CEs) in zones. There are 14 Superintending Engineers (SEs) at the circle level as detailed in the organogram. The SEs are assisted by 53 divisions, each headed by an Executive Engineer (EE) for execution of roads and building works.



(Source: Administrative report of PWD for the year 2011-12)

2.1.3 Audit objectives

The audit was conducted with a view to assess whether:

- financial management was effective and adequate control existed for management and utilisation of funds;
- road works were well planned and executed according to the milestones, standard designs and specifications of Ministry of Road Transport and highways (MORT&H) and Indian Road Congress (IRC)⁴ with due attention to efficacy and economy; and

State Highways (SH) and Major District Roads (MDRs), widening of two lanes to four lanes and strengthening of weak pavement sections etc.

⁴ Specifications of MORT&H and IRC were applicable for execution of roads under CRF, NABARD and State Budget.

- contract management and quality control monitoring mechanism were effective.

2.1.4 Audit criteria

The audit findings were based on criteria drawn from:

- Provisions of the Works Department Manual (WD Manual), specifications of Indian Road Congress (IRC), Financial Rules, instructions issued by the Government of India (GOI), State Government and MORT&H,
- CRF Act 2000 and Rules 2007, and
- NABARD guidelines,
- Approved designs and specifications as prescribed in the Detailed Project Report (DPR) for construction of roads and
- Terms and conditions of contracts.

2.1.5 Scope and methodology of audit

The development of road works was being undertaken through 53 divisions of Public Works Department (Building and Road) under seven Zones (headed by CEs) and 14 circles (headed by SEs). For the performance audit, 16 divisions⁵ were selected. Statistical information and data were collected from the E-in- C office. In the performance audit, transactions for the period 2007-08 to 2011-12 relating to planning, implementation and execution of 120 road works in Madhya Pradesh undertaken with the assistance of CRF, and NABARD, were examined during November 2011 to August 2012.

The audit objectives, criteria and methodology were discussed with the Secretary, PWD during the entry conference held in January 2012. In the exit conference held in September 2012 with the Principal Secretary, PWD, audit findings were discussed and the response of the Department elicited. The draft Performance Audit Report was issued to the Department (September 2012), the reply has not been received so far (March 2013) .

2.1.6 Fund Management

Under Section 7 of the CRF Act, funds are disbursed for projects, schemes or activities relating to the construction and development of State roads and routed through the State Budget. NABARD releases the sanctioned amount of loan for road works on reimbursement basis. NABARD may also release funds as advances according to the norms applicable from time to time, if the State Government so desires.

During the period 2007-2008 to 2011-2012, an expenditure of ₹ 996.90 crore and ₹ 1741.09 crore was incurred utilising the CRF and NABARD funds, respectively. Besides, the State Government also provided funds of ₹1232.17 crore from State Plan Budget for development and maintenance of existing

⁵ Ashoknagar, Bhopal 2, Chhindwara, Dewas, Guna, Gwalior 2, Khargoon, Khandwa, Narsinghpur, Rewa, Sagar, Shajapur, Satna, Indore, Sehore and Vidisha.

roads. Out of this, an expenditure of ₹ 1109.86 crore was incurred during the period 2007-08 to 2011-12.

The year wise break up of allotment and expenditure is given as under:

Table 2.2

(₹ in crore)

Years	Central Road Fund			NABARD			State Plan Budget		
	Allotment	Expenditure	Utilisation percentage	Allotment	Expenditure	Utilisation percentage	Allotment	Expenditure	Utilisation percentage
2007-08	122.56	92.59	75.55	360.91	313.38	86.83	391.94	357.15	91.12
2008-09	135.85	113.72	83.71	345.51	321.38	90.65	211.29	219.05	103.67
2009-10	251.00	180.78	72.02	422.09	391.03	92.64	200.74	163.90	81.64
2010-11	481.00	293.97	61.12	432.51	408.20	94.37	173.65	162.15	93.38
2011-12	260.00	315.84	121.48	431.72	307.91	71.32	254.55	207.61	81.56
Total	1250.41	996.90	79.72	1992.74	1741.09	87.37	1232.17	1109.86	91.08

Source: Information provided by E-IN-C, PWD.

It may be seen that the actual expenditure in CRF and NABARD were 79.72 per cent and 87.37 per cent resulting in savings to the extent of 20.28 per cent and 13.02 per cent under CRF and NABARD respectively during 2007-12. The main reasons for savings were delay in award of works and tardy progress by the contractors as discussed in subsequent paragraphs.

Work valued at ₹ 7.20 crore was irregularly awarded through supplementary schedule instead of inviting tender.

2.1.6.1 Misutilisation of Central Road Fund

According to the guidelines issued⁶ (May 1984) by MORT&H for the work under CRF, no work beyond sanctioned estimates leading to increase in scope of work or change in the specification, should be undertaken without the prior written approval from MORT&H. Further, according to the provision of WD manual anticipated or actual saving on sanctioned estimates for a definite project may not, without the sanctioning authority, be applied to additional work which was not included in the original scope of work.

We noticed (April 2012 to May 2012) that supplementary schedule for additional work of Maksudangarh bypass road (Guna) for ₹ 3.10 crore and Uchehra bypass Road (Satna) for ₹ 4.10 crore were sanctioned by the Chief Engineer (North Zone) and Chief Engineer (Rewa Zone), respectively without approval from MORT&H and without inviting tenders for the supplementary works.

The E-in-C during exit conference stated (September 2012) that looking to the lower tender percentage, the additional works were taken up with due consent of MORT&H.

The reply of E-in-C is not convincing as the works were not included in the administrative approval sanctioned by MORT&H and any change in the original scope of work required prior written approval from the MORT&H. No evidence of prior written approval from MORT&H was produced to Audit.

⁶ Letter no. RW/NH11/coord/32/84 dated 19.05 1984.

2.1.7 Physical targets and achievement

Implementation of the programmes is required to be monitored by the E-in-C and the CEs of the zones so as to achieve the targets within the specified time and cost and realisation of benefits expected from the programmes.

We observed that though financial and physical status of the works was prepared by the E-in-C, year wise targets were not fixed for effective monitoring of the programmes and timely completion of projects. The completion of the works was delayed as discussed in the following paragraphs.

2.1.7.1 Works under Central Road Fund (CRF)

The achievements against the sanctioned work as on March 2012 under CRF are summarised in the table below:

Table 2.3

Year	Roads sanctioned (in number)	Roads sanctioned (in km)	Roads completed (in number)	Works under progress at the end of the year (in number)	Roads completed (in km)
Up to 2006-07	146	3026.01	142	4	2971.5
2007-08	18	293.93	15	7	223.59
2008-09	14	261.72	10	11	227.21
2009-10	58	1140.69	17	52	663.08
2010-11	62	713.40	00	79 (35 works not taken up)	10.20
2011-12	00	00	00	79	00
Total	298	5435.75	184	114	4095.58

(Information furnished by the O/o the E-in-C, PWD)

It would be seen from the table that under CRF, 142 works were completed for which sanctions were obtained up to March 2007. During 2007-12, 152 works were sanctioned. The time allowed for completion of individual work under Central Road Fund from the date of issue of administrative approval was for varying periods, maximum up to 24 months. Thus, the works taken up during 2007-10 should have been completed by March 2012.

We noticed (April 2012) that out of 90 works which were taken up during 2007-10, only 42 works were actually completed and 48 works were under progress as of March 2012. Thus, there was a shortfall of 54 *per cent* against the works taken up during 2007-10. Besides, as against the prescribed period of four months for award of works from date of administrative approval (AA), agencies were not fixed for 35 works of CRF out of 62 works even after expiry of two years from the date of AA in 2010-11. We further noticed that information regarding achievement of targeted connectivity to habitations was not compiled in the department.

The E-in-C during exit conference stated (September 2012) that length-wise target was not fixed due to disproportionate release of funds by the MORT&H. The reply is not acceptable. In terms of the Rules for the release of funds under CRF, release of funds was tied to the submission of utilisation certificates and physical progress of the work. Besides, the fact that the department had over ₹ 309.35 crore at the end of March 2011 and ₹ 253.51 crore remaining in the fund as at the end of March 2012, indicated that release of fund had no impact on the progress of work.

2.1.7.2 Works under National Bank for Agriculture and Rural Development (NABARD)

The achievements against the sanctioned work as on March 2012 under NABARD are summarised in the table below;

Table 2.4

Year	Roads sanctioned (in number)	Roads sanctioned (in km)	Roads completed (in number)	Roads completed (in km)
2007-08	80	1091.25	71	965.55
2008-09	No work was sanctioned under NABARD			
2009-10	114	1373.09	71	960.84
2010-11	225	1781.94	27	401.18
2011-12	91	210.99	00	18.92
Total	510	4457.27	169	2346.49

(Information furnished by the O/o the E-in-C, PWD)

It would be seen from the table that while 510 works were sanctioned under NABARD during 2007-12, only 169 works were completed during that period with a delays of one to four years. Thus, there was shortfall in achievements in completion of road works though there was no financial constraint.

Reasons for delay in completion of road works as identified by us were acceptance of tenders on unworkable rates for the works under NABARD scheme, sudden increase in the price of bitumen (2007-08) and unwillingness of contractors to complete works as discussed in details in paragraph 10.7 *infra*.

The Principal Secretary, PWD and E-in-C during exit conference (September 2012) stated that these programmes suffered due to paucity of funds and assured to improve the progress of the works.

The reply is not convincing as the allotted fund under NABARD was never fully utilised during the years 2007-08 to 2011-12.

2.1.8 Planning and Project Management

Road construction requires correct planning, construction methods, execution and implementation of critical safety standards. Since the main reasons for delays in overall execution and cost overruns are delays in land acquisition, forest clearance and planning inaccuracies, project and logistics planning can help in timely execution of projects and avoidance of cost overruns. For every project, detailed survey and investigation are required for proper planning and correct estimation before awarding the work for execution.

The issues relating to the deficiencies in planning are discussed below:

2.1.8.1 Improper planning for development of roads

The guidelines of CRF provide that roads where improvement work has been undertaken in last three years would not be eligible to be considered for sanctioning. Further, the IRC⁷ specifications provide that renewal work should be undertaken at the rate of 20 *per cent* of the constructed roads length per year. Besides, the terms and conditions of contracts provide that contractors are responsible for repair and maintenance of roads till the performance guarantee period (18 months after completion of works).

⁷ Indian Road Congress

Expenditure of ₹ 6.34 crore proved infructuous due to premature upgradation of roads.

Under State Road Improvement Programme (SRIP), seven roads in three divisions⁸ were renewed in total 92.00 kms length during January 2008 to November 2008. The roads were under performance guarantee for the period up to November 2009 to September 2010. Nevertheless, these roads were prematurely reselected (between May 2008 and August 2009) for widening and strengthening work under CRF and NABARD. As a result, the work of renewal of roads (with bituminous course) valued at ₹ 6.34 crore executed earlier proved infructuous as detailed in the **Appendix 2.1**. This is indicative of the fact that there was no long term planning to avoid selection of roads for development as even the works not due for renewal were selected for upgradation resulting in wasteful expenditure thereon.

The E-in-C during exit conference stated (September 2012) that only 20 mm to 25 mm thin layer of bituminous course was executed to maintain the riding quality of the roads and there was no improvement work on these roads. The Principal Secretary, PWD agreed to look in to the matter.

The reply of the E-in-C is not acceptable because works executed were under improvement plan of SRIP using bituminous renewal.

2.1.8.2 Deficient planning in awarding the works without clearance from Forest Department

According to the order (June 2000) of the Government of India, Ministry of Forest and in terms of the provisions of the Forest (Conservation) Act, 1980, it is necessary to obtain clearance of land from the Forest Department before taking up the work of upgradation of roads in forest areas. According to the provision of IRC, one of the primary considerations in the location and design of a road is that the overall cost of transportation of material is the minimum. For satisfying this consideration, detailed survey and investigation should be undertaken to determine the most desirable alignment. All the operations involved should be planned in advance in a logical sequence. Further, in order to mitigate adverse impact on the environment, it is imperative to consider the environmental impact of Highway projects also at all stages including the planning stage.

Expenditure Of ₹ 13.69 crore was unfruitful /extra due to irregular award of work without clearance from Forest Department.

Instances of deficient planning in awarding of works without obtaining clearance for forest land resulting in unfruitful expenditure are discussed in the succeeding paragraphs:

- Two works of roads in PWD Division 2 Gwalior, were taken up (April 2005/ November 2007) irregularly for construction without obtaining clearance from Forest Department though there were involvements of Sonchiraya sanctuary in the roads alignment. The department had to foreclose these works in July 2009/ September 2009 in terms of the agreements after incurring expenditure of ₹ 3.35 crore as clearances for the forest land (Sonchiraya sanctuary) included in the alignment of the two roads, could not be obtained from the Forest Department. This

⁸ Ashoknagar, Shajapur and Vidisha.

resulted in unfruitful expenditure of ₹ 3.35 crore as detailed in the table below:

Table 2.5

Sl. no.	Name of road	Agreement no. work order date and period	PAC/ Tender percentage	Date of foreclosure	Status of payment on the date of foreclosure
1	Dadakhirak-Tighra road 34.20 km under NABARD	265/07-08 30.11.07/10 months	₹ 450 lakh/ (+) 4.77	4.07.09	₹1.80 crore
2	Ghati GaonDada Khirak-Bhawtpura 23 km (CRF)	04/05-06 04.04.05/10 months	₹ 275 lakh/ (-) 23	25.09.09	₹1.55 crore
					₹3.35 crore

We further noticed (March 2012) that the balance works of Dadakhirak-Tighra road was awarded (November 2010) to another contractor, without obtaining forest clearance. This led to cost overrun of ₹ 85.29 lakh⁹ besides the time overrun of more than four years and non-accrual of the intended benefit of all weather roads.

In the exit conference (September 2012), the E-in-C, confirming the facts, stated that works were awarded without getting clearance from the Forest Department to avoid delay in completion of the works and assured that instruction for not awarding works before obtaining forest clearance would be issued. Principal Secretary, PWD agreed to look in to the matter regarding foreclosure of Dada Khirak- Tighra road and subsequent award of balance work again without getting forest clearance.

- In terms of the Central Road Fund (State Roads) Rules 2007, work under Economic Importance (E & I) and Inter State Connectivity (ISC) Schemes can be approved only when the executing agencies render a certificate to the effect that land is available for road development.

We noticed (April 2012) that while preparing estimates of Anarad-Nihaldevi road (length 48 Km) under E&I¹⁰, the department erroneously prepared a detailed estimate (September 2009) taking into account the width of road as 10 metre against the width of 4.5 metre approved (November 2009) by the Forest Department. Though the 21 km road alignment was passing through the forest area, the work was awarded to a contractor (February 2010) without obtaining approval from the Forest Department.

The Forest Department objected and ordered (June 2010) to stop the work. By that time, the department had paid ₹ 5.50 crore to the contractor. The execution of the work was yet to be resumed (April 2012). Thus, the expenditure of ₹ 5.50 crore became unfruitful and the intended benefits did not accrue so far.

In the exit conference (September 2012), the E-in-C, confirming the facts, stated that works was awarded without getting clearance from the Forest Department to avoid delay in completion of the works and assured that

⁹ (A) PAC of Initial work = ₹ 450 lakh plus 4.77% tender premium = ₹ 471. 46 lakh.
work done up to date = ₹ 180.31 lakh

Balance = ₹ 291.15 lakh

(B) PAC of later Agreement = ₹ 453.00 lakh (-) 16.90 % tender premium = ₹ 376.44 lakh

(B) (A) = ₹ 85.29 lakh

¹⁰ Road of E&I connected Madhya Pradesh and Rajasthan Border.

instruction for not awarding works before obtaining forest clearance would be issued. The reply, however, does not explain the reason for taking up the work in more width than approved by the Forest Department.

- The work of upgradation of Bistan-Sirwel road (PWD Division Khargaon) of 48.40 km under NABARD was awarded (March 2005) to a contractor without obtaining forest clearance from the Forest Department. The work was foreclosed on 20 March 2007 by the department for want of clearance from the Forest Department with the condition that the contractor should complete a specified part of the work. Immediately after foreclosure of the work in March 2007, the Department obtained clearance on 10 April 2007 from the Forest Department. The balance work was awarded (February 2008) to another contractor on new SOR effective from 1 April 2007. This resulted in avoidable extra cost of ₹ 4.84 crore as detailed in the table below;

Table 2.6

(₹ in lakh)

Name of roads	PAC/ tender percentage	Total cost to be incurred if completed by the earlier contractor	Amount paid	PAC of balance work/ tender percentage	Amount to be incurred till completion	Total (4+6)	Extra Cost (7-3)
1	2	3	4	5	6	7	8
Bistan Sirwel 48.40.Km (Khargaon)	786.12 (-)7.18	729.68	241.42	868.74 (+)11.90	972.12	1213.54	483.86

In the exit conference (September 2012), the E-in-C and the Principal Secretary assured to look in to the matter of conditional foreclosure of the contract.

2.1.9 Execution of work

All the works executed under CRF requires approval from MORT&H and the scope of work with respect to specifications was not to be changed during execution without the prior approval of the MORT&H. In the case of the works executed under NABARD funding, the terms and conditions of the agreement require that the works are executed strictly as per MORT&H specifications. It however provides that if any changes in the specifications become necessary due to site condition, they should be incorporated in the DPR¹² for the approval of the Government. According to the specifications of MORT&H and pocket book for Highway Engineers (IRC), Flexible Pavements for new roads should be designed in accordance with IRC: 37 Guidelines for the design of Flexible Pavement.

2.1.9.1 Incorrect designing of flexible pavement

The design of Flexible Pavement should be based on various parameters like sub-grade strength in terms of California Bearing Ratio (CBR), Traffic count,

¹¹ The department foreclosed the contract in March 2007 with the instruction to the contractor to execute the bituminous work up to village Pipaljhopa i.e. the contractor had to execute the work up to village Pipaljhopa after foreclosure of contract.

¹² Detailed Project Report

vehicles damage factor (VDF), lane distribution factor, rainfall data, traffic growth rate and designed life of flexible pavement.

The issues relating to the deficiencies in the designing and consequential extra cost are discussed below:

➤ ***Extra cost due to unwarranted provision of richer specification***

According to the provision of IRC: 37, where the designed traffic is less than one Million Standard Axles¹³ (MSA) and sub-grade¹⁴ CBR¹⁵ of more than five *per cent*, provision of 20 mm Open Grade Premix Carpet (OGPC) with seal coat should be provided as a bituminous course.

We observed (February 2012 to August 2012) in 13 test checked works of roads¹⁶ in eight divisions¹⁷ that the estimates of the roads were erroneously prepared. Though the sub-grade was prepared with the soil having CBR more than five *per cent* and designed traffic intensity was less than one MSA, Bituminous Macadam (BM) and Semi Dense Bituminous Macadam (SDBC) were provided and executed instead of OGPC and Seal coat. This led to avoidable extra cost of ₹ 11.50 crore as detailed in **Appendix 2.2**.

The E-in-C during exit conference stated (September 2012) that specifications were only guidelines and Engineer in Charge, having technical expertise, were empowered to deviate from the specifications according to site conditions.

The reply is not acceptable as the MORT&Hs technical instruction provides that the specifications of work will not be changed during execution without prior approval of the Ministry. Besides, all the parameters of site condition which determine the design of the flexible pavement had been considered in IRC specifications. Therefore, adoption of a higher specification due to faulty estimation resulted in extra cost which was avoidable.

The Department incurred extra cost of ₹ 11.50 crore due to unwarranted execution of BM and SDBC instead of OGPC and Seal Coat.

➤ ***Excess execution of Granular Sub-Base (GSB) beyond the scope of specifications and DPR***

The choice and thickness of GSB is decided on the basis of specifications prescribed in IRC: 37, 2001. The thickness of GSB is based on the sub-grade strength in terms of CBR and projected traffic.

We observed (December 2011 - July 2012) in nine test checked works of roads in seven divisions¹⁸ that traffic intensity were wrongly calculated by adopting initial traffic count different from those obtained during survey, using increased lane distribution factor than those prescribed and incorrect determination of the strength of subgrade¹⁹ in respect of four works²⁰. As a result, thickness of GSB provided was in excess of the required thickness in

Execution of GSB in excess of requirements led to avoidable extra cost of ₹ 3.64 crore.

¹³ Million standard axles denotes load of traffic on road.

¹⁴ Sub grade is top 30 cm to 50 cm layer of earth work in roads.

¹⁵ California bearing ratio (CBR) denotes strength of soil.

¹⁶ Six roads (CRF), four roads (NABARD), one road (DTAPT) and two roads (State Plan).

¹⁷ Ashoknagar, Chhindwara, Dewas, Khargwan, Narsinghpur, Rewa, Satna and Sehore.

¹⁸ Ashoknagar, Dewas, Guna, Khandwa, Shajapur, Satna and Sehore.

¹⁹ Top 30 cm to 50 cm soil surface on which road is constructed.

²⁰ Awan Janjali road, Amarpatan to Rampur, Sehore Bilkisganj and Nagod Uchehra road.

terms of IRC 37. In other five works²¹, execution of GSB was in excess of the thickness provided in the DPRs. Provision and execution of excess thickness in the nine works resulted in avoidable extra cost of ₹ 3.64 crore as detailed in **Appendix 2.3.**

The EEs replied (December 2011 - July 2012) that the execution of GSB was according to sanctioned estimates duly approved by the competent authority. The replies of EEs are not acceptable as the sanctioned estimates were based on erroneous computation of traffic intensity which resulted in unwarranted provision and execution of excess thickness of GSB. Besides, no specific reply was given regarding execution of GSB in thickness more than that provided in the DPRs in respect of the five works.

➤ **Extra cost due to unnecessary widening of road width**

According to guidelines issued (December 1999) by the MORT&H and circular issued (August 2010) by E-in-C, the traffic that should be considered for design improvement of road should be based on expected volume of traffic at the end of design life with the specified traffic growth rate. The volume of traffic is to be calculated in terms of numbers of passenger car units for the purpose of determining the width of the road. The capacity of road that could cater the traffic for the design life is as detailed below:

- (i) Traffic volume up to 4000 PCU²² single lane having formation width 9.00 metre and carriage width 3.75 metre.
- (ii) Traffic volume above 4000 PCU up to 10000 PCU - intermediate lane having formation width 10 metre and carriage width 5.50 metre.
- (iii) Traffic volume above 10000 PCU double lane having formation width 10 metre and carriage width 7.0 metre.

We noticed (August 2012) that in case of improvement and up-gradation of five road works in two divisions²³ the projected traffic volume was computed considering MSA as the factor instead of adopting PCUs as prescribed in the MORT&H guidelines. Adoption of MSA as a factor was prescribed only to determine the thickness of the crust. Due to adoption of MSA instead of PCUs for determining the traffic volume, the roads were constructed in carriage width of 5.5 metre and 7.0 metre against the required carriage width of 3.75 metre and 5.5 metre, respectively in terms of the projected traffic (designed traffic) on these roads. This resulted in extra cost of ₹ 8.16 crore as detailed in **Appendix 2.4.**

The EEs replied (August 2012) that the widening of roads were as per the sanctioned estimates.

The replies are not acceptable as sanction for the estimates were obtained based on incorrect computation of projected traffic volume, which had resulted in extra cost.

Unnecessary widening of roads led to extra cost of ₹ 8.16 crore.

²¹ Vijayapura - Eshagarh, Agar Sarangpur-Sadipura, Hatpipaliya-Bhousara, Dewas-Rajosakelod-Doublechauki and Pandhana-Chaigaon Makan

²² Passenger car unit.

²³ Chhindwara and Dewas.

Provision and execution of bituminous base course was not according to specifications

➤ **Inadequate provision of bituminous base course**

According to IRC: 37, 2001, application of Bituminous Macadam (BM) base course may desirably be restricted only to the roads designed to carry traffic less than five million standard axle (MSA). Dense Bituminous Macadam (DBM) binder course is recommended for roads designed to carry more than five MSA. It also provides that for traffic of more than five MSA and sub grade strength of more than five *per cent*, 78 mm BM is required and for traffic of 3 MSA, 50 mm BM is required. According to the specifications, 55 mm DBM can be taken as equivalent to 78 mm of BM.

We observed (April 2012 to May 2012) in test check of records of three roads in three divisions that provision of BM base course in the DPR was not adequate in terms of the IRC 37, 2001 specifications as detailed in the table below;

Table 2.7

Sl. No.	Name of Division	Name of road	Agt. No.	Design traffic	Sub grade CBR (per cent)	Requirement of BM base course (according to IRC 37)	Actually provided in the road	Inadequate provision in the road
1	Narsingh-pur	Mungawali Gorakhpur road under CRF	15/CRF/2009-10	>5 msa	5	55 mm DBM or 78 mm BM	50 mm BM	28 mm BM
2	Guna	Awan (Janjali) to Maksudangarh Rd under CRF	02/CRF/2009-10	5.7 msa	6	55mm DBM or 78 mm BM	50 mm BM	28 mm BM
3	Satna	Deori- kumhari-Pathar Rd. under plan	216/EE/2011-12	3 msa	5	50 mm BM	20 mm OGPC ²⁴	Necessary BM course not provided

Premature failure was noticed in the case of Mungawali-Gorakhpur road (Sl. No.1 of the table) under CRF soon after execution due to inadequate provision of bituminous base course. Therefore, execution of below specification works even if these were executed as provided in the DPR may result in premature failure of rest with respect to the designed life.

The E-in-C during exit conference stated (September 2012) that specifications were only guidelines and Engineers in Charge, having technical expertise, were empowered to deviate from the provision of specifications according to site conditions.

The reply is not convincing as the adequate bituminous crust was not provided according to the requirements of specification. The argument of site conditions can only be advanced when the DPR provides richer specifications than those prescribed in the guidelines.

2.1.9.2 Unwarranted execution of Bituminous Macadam (BM) work

According to the specifications of MORT&H and provisions prescribed in Manual for Construction and Supervision of Bituminous Work (IRC 2001) and IRC 82, renewal of bituminous surface having traffic of 1500 commercial vehicles per day should be considered after five years from its construction or 20 *per cent* of road length per year. Renewal work covers application of a seal or thin surfacing course. Strengthening is a substantially major work intended

²⁴ Open graded premix carpet (OGPC)

Superfluous execution of Bituminous Macadam Led to extra cost of ₹ 2.54 crore.

to restore or upgrade the pavement which covers execution of bituminous base course above 25 mm.

Tenders for the work of renewal of three roads were invited (2012-13) in PWD Division Dewas, with a provision of pothole filling, PCC using Bituminous Macadam (BM), BM as a binder course followed by wearing course of SDBC.

We noticed (June 2012) that the work of renewal required only thin surfacing up to 25 mm SDBC in terms of the provision of IRC 82. Instead, BM in thickness of 50 mm followed by 25 mm thick bituminous surfacing was executed, which was required only for strengthening work. Thus, the execution of entire quantity of 5225 cu m of BM was in excess of the requirement in terms of the provisions of IRC. This resulted into an extra cost of ₹ 2.54 crore as detailed in the table below:

Table 2.8

Agt. No.	Name of work	Qty. of BM (cu m)	Rate (₹ per cu m)	Tender percentage	Total (amount in ₹)
5/SAC/12-13	BT renewal of BKSK road 14 km	1087.50	₹ 4628	(+) 4.99	5284094
07/SAC/12-13	BT renewal of Satwas-Dhasod rd Km 2 to 6.11, 18= 7 Km	2310.00	₹ 4628	(+) 4.98	11223075
04/SAC/12-13	BT renewal on Tonk Kala Khurd rd 7.40 Km	1827.50	₹ 4628	(+) 4.97	8878016
Total		5225			25385185

The E-in-C, during exit conference (September 2012) agreed with the audit findings.

2.1.9.3 Unwarranted execution of Surface Dressing and Intermediate Tack coat

According to the construction procedure stipulated in the specifications²⁵, during execution of the work, the contractor should provide and maintain a passage for traffic either along a part of the existing carriageway under improvement or along a temporary diversion constructed close to the highway. All the arrangement like construction of temporary diversion or execution of single coat surface dressing (SD) and intermediate tack coat (prior to execution of semi dense bituminous concrete on BM) for traffic during construction are considered incidental to the works and was the responsibility of the contractor.

Unwarranted execution of surface dressing beyond the scope of specification led to extra cost ₹ 2.76 crore.

- We observed (November 2011 to August 2012) that 27 contractors executed SD in between WBM and Bituminous Macadam surfaces (BM) in 10 works under CRF in six divisions²⁶, 13 works under NABARD in six divisions and four works under State Plan in four divisions, to allow traffic over freshly laid WBM and were paid for that. Since the execution of surface dressing for traffic arrangement during construction was incidental to the works, the contractors should not have been paid for

²⁵ Clause 112 of MORT&H specifications.

²⁶ Ashoknagar, Chhindwara, Dewas, Guna, Narsinghpur and Sagar.

execution of SD. This led to extra payment of ₹2.76 crore as detailed in the **Appendix 2.5**.

The E-in-C, during exit conference, stated (September 2012) that surface dressing was provided to allow traffic on newly laid WBM.

The reply of E-in-C is not acceptable as the arrangement of traffic was the responsibility of the contractors in terms of clause 112.2 of MORT&H specifications as the work of surface dressing was incidental to the work.

- We further observed (April 2012 to July 2012) that the department provided application of additional/ intermediate tack coat in estimates and in the bills of quantity (BOQ) forming part of the agreements of eight road works in five divisions²⁷. The contractors executed tack coat and were paid for that. As the arrangement of traffic was the responsibility of the contractor and incidental to the works according to MORT&H specifications, the provision for tack coat in the estimates and BOQ and payment on that account, was not justified. This resulted in extra cost of ₹ 0.54 crore to the contractors as detailed in **Appendix 2.6**

The E-in-C during exit conference stated (September 2012) that additional tack coat became necessary for providing a wearing course of SDBC on the BM surface after passing the traffic over BM.

The reply is not acceptable as application of additional/intermediate tack coat was incidental to the work and separate payment was therefore not to be made to the contractors.

2.1.9.4 Excess payment to the contractor due to non-deployment of Electronic Sensor Paver

Deductions of ₹ 73.65 lakh was not made from contractors for non-deployment of Electronic Sensor paver in CC pavement work.

According to the provision of Schedule of Rates (SOR) of PWD, Cement Concrete (CC) pavement of M 40 grade and Dry Lean Concrete (DLC) sub-base should be laid with Electronic Sensor Paver. In the event of non-deployment of Electronic Sensor Paver, deduction at the rates of ₹ 150 per cu m and ₹ 350 per cu m from the rates of DLC and CC M40 grade respectively, should be made from the bills of contractor against the quantities executed.

We observed (April 2012 to May 2012) in respect of four road works in three divisions²⁸ that the contractors were neither having Paver with Electronic Sensor nor had they deployed the machinery through lease. Hence, deductions at prescribed rates were to be made from the contractors, which were not done by the department. This resulted in excess payment of ₹ 73.65 lakh to the contractors as detailed in **Appendix 2.7**.

The EEs Satna and Narsinghpur stated (May 2012) that Paver with Electronic Sensor was deployed by the contractors.

The replies of EEs Satna and Narsinghpur are not acceptable as Paver with Electronic Sensor neither existed in the list of plant and machinery submitted by the contractors in technical bids nor any lease certificates produced in

²⁷ Khargoan, Narsinghpur, Rewa, Sagar, Satna and Sehore.

²⁸ Narsinghpur, Rewa and Satna.

support of the deployment of Paver with Electronic Sensor. Deployment of sensor paver was also not indicated in Measurement books of the works.

2.1.9.5 Excess payment to the contractor due to non-deployment of technical expertise

Deductions of ₹ 74.70 lakh was not made from contractors for non-deployment of technical expertise.

According to the provisions of Standard Bidding Documents (SBD) vide Annexure II, six graduate Engineers were required for the execution of work valued more than ₹ five crore. In the event of non-deployment/short deployment of technical expertise, recovery at the rate of ₹ 10000 per graduate Engineer or ₹ 5000 per diploma holder Engineer per month was to be made.

We observed (February 2012 to June 2012) during scrutiny of eight road works in five divisions²⁹ that the contractors neither deployed adequate technical expertise as required in terms of the provisions of contract nor did the Department recover the amount from the bills of contractors on account of inadequate deployment of technical experts. This not only entailed excess payment of ₹ 74.70 lakh as detailed in **Appendix 2.8**, but also exposed the department to the risk of execution of sub-standard works.

The EEs stated (February 2012 to June 2012) that adequate technical staff were deployed by the contractors.

The replies are not acceptable as the statements submitted by the contractors indicated deployment of less technical staff than mentioned in the contracts.

2.1.10 Contract Management

Contract management is the process of systematically and efficiently managing contract creation, execution and analysis for the purpose of maximising financial and operational performance and minimising risk. The contracts of road works were executed on item rate and percentage rate basis. Shortcomings noticed in contract management are discussed in succeeding paragraphs.

2.1.10.1 Short recovery of Liquidated Damages (LD)

According to the contractual provisions, the time allowed as entered in the agreement should be strictly observed by the contractor and shall be reckoned from the date of work order. The terms and conditions of agreements further provides that LD at the rate 1/16 *per cent* of value of works per week limited to 6 *per cent* of contract price for delay in works should be recovered from the contractor under the contracts on percentage rate tender³⁰. In the case of item rate contract³¹, if the contractor fails to comply with the time for completion as stipulated in the contract, the contractor shall pay to the employer at the rate 1/2000th of initial contract price per day as LD for such default subject to a maximum of 10 *per cent* of contract price.

²⁹ Dewas, Rewa, Sagar, Satna and Sehore.

³⁰ Contract on tender form A

³¹ On tender form SBD.

Liquidated damages of ₹ 17.15 crore was not imposed on contractors despite abnormal delays in execution.

We observed during test check of 28 road works³² in eight divisions³³ out of fifteen divisions that there were delays of 156 days to 1305 days which were attributable to the contractors. The EE served several notices for imposition of penalty under the agreement. Nevertheless, LD of ₹ 17.15 crore leviable on the contractors was not deducted from the bills of contractors as detailed in **Appendix 2.9**.

The E-in-C during exit conference stated (September 2012) that necessary steps would be taken to assess quantum of delays attributable to the contractors.

2.1.10.2 Ineligible payment of price variation

The instruction issued (March 2007) by E-in-C, appended as additional special conditions of contract lays down that any variation (plus/minus) in the cost of bitumen/steel will be paid or deducted on the theoretical consumption of bitumen/steel. The difference in price would be worked out for the agreement period only.

Contractors were paid price variation of ₹ 2.47 crore though not eligible.

We noticed (December 2011 to May 2012) in eight agreements under four divisions³⁴, that the contractors executed bituminous work after the agreement period. Nevertheless, price variation was paid to the contractors. This resulted in ineligible payment of ₹ 2.47 crore to the contractors as detailed in **Appendix 2.10**.

The E-in-C during exit conference stated (September 2012) that the contractual provision would have to be amended to facilitate payment of price variation, where necessary.

The reply does not give any reason for payment of price variation for period beyond the agreement period in these works in violation of the existing contract conditions.

2.1.10.3 Control failure and injudicious decisions

The CE (Controlling Officer) is responsible for overall planning, construction and maintenance of all infrastructural facilities. The CE is also responsible for taking policy decisions, to develop strategies for the good governance and for improving the performance of the Department.

Instances of control failure and injudicious decisions are discussed below:

➤ Loss to the Government due to injudicious decision

Clause 3(a) of the contract, provides that on rescission of contract, the security deposit of the contractor shall stand forfeited and be at the disposal of the Government. Clause 3 (c) of contract provides that if any part of the work that remains unexecuted is given to another contractor, expenses incurred in excess of the original contract value on that part of work shall be borne and paid by the original contractor.

³² CRF: nine works NABARD: 13 works and State Plan: six works.

³³ Ashoknagar, Chhindwara, Khandwa, Rewa, Sagar, Shajapur, Sehore and Vidisha.

³⁴ Ashoknagar, Gwalior 2, Shajapur and Satna.

Injudicious decision of cancellation of penal decision led to loss to the Government of ₹ 2.92 crore.

We observed (June 2012) that two road works³⁵ in Dewas division were terminated by the Executive Engineer at risk and cost of contractor (under clause 3 C of contracts) due to tardy progress by contractors. The balance works were assessed and awarded (March 2009 and October 2008) at the risk and cost of the original contractors. While the balance works were ongoing, the Chief Engineer (CE), Ujjain Zone, without assigning any reason, cancelled the earlier order of the termination of the two works by the EE. As a result, the department could not enforce recovery of extra cost of ₹ 2.92 crore incurred on the balance work from the original contractors, as detailed in the table below:

Table 2.9

(₹ in lakh)

Agt. No./ source of funds	Name of road	PAC/ tender percentage	Period (months)	Value of work executed	Value of balance work	Agt. No. of balance work/ status	PAC/ Tender percent age	Extra cost debit to original contractor
60/07-08 CRF	Hatpiplya Bhourasa road	445.00 lakh/ 4.86% above	16	4.50	440.50	336/08-09 Completed	440.00 lakh/ 59% above	238.21
59/07-08 NABARD	Hatpiplya Barkheda Soma Kamawad Road	189.00 lakh/ 7.86% below	12	57.80	131.20	271/08-09 In progress	126.53 lakh/ 35% above	54.23

The Principal Secretary PWD and E-in-C assured to look into the matter during exit conference (September 2012) on the issue of change of EEs decision of termination of work under risk and cost clause by the CE.

Further action is still awaited (February 2013).

➤ **Irregular foreclosure of contract**

The work of Khardonkala-Ugli-Sujalpur road (NABARD assistance) under PWD Division Shajapur was awarded (April 2007) to a contractor at probable amount of contract (PAC) of ₹ 4.41 crore with tender premium of 19.55 *per cent on SOR* (April 2005). The work was foreclosed³⁶ (June 2009) without risk and cost of contractor attributing paucity of funds under NABARD. The incomplete bill of ₹ 3.03 crore was paid (May 2010) to the contractor.

The NIT for balance work was issued (October 2010) for ₹ 405.64 lakh and the work was again awarded to the same contractor at 17.60 *per cent* below SOR (April 2009).

Irregular foreclosure of contract led to extra cost of ₹ 1.10 crore.

We observed (November 2011) that in the division, there were several other ongoing works funded under NABARD. These works were not foreclosed despite the lapse of period of three to four times of the stipulated completion period. Thus, the decision to foreclose the contract was arbitrary which led to extra cost of ₹ 1.10 crore as detailed in table below:

³⁵ Hatpiplya Bhourasa road under CRF and Hatpiplya Barkheda Soma Kamawad Road under NABARD (Dewas District).

³⁶ Clause 14 of the contract provided for foreclosure of work without risk and cost of the contractor.

Table 2.10

(`in lakh)

Name of roads	PAC/ Tender percentage	Total was to be incurred if completed by earlier contractor	Amount paid to earlier contractor	PAC of Balance work/ Tender percentage	Amount to be incurred till completion	Total (4+6)	Extra cost (7-3)
1	2	3	4	5	6	7	8
Khardon Kala Ugli Shajapur	441.00 /(+19.55%	527.21	302.86	405.64 / (-)17.60%	334.25	637.11	109.90

The EE stated (December 2012) that though the work was sanctioned under NABARD, the project could not be financed by NABARD. He further stated that as price variation clause was not included in the agreement, the department instructed to close the work.

The justification given by the EE for foreclosure of the work is not convincing as NABARD was releasing fund on reimbursement basis and only the said work was foreclosed without risk and cost of the contractor out of several other ongoing works being executed with the assistance of NABARD where also the terms of the agreement did not include price variation clause.

➤ **Extra cost due to injudicious/ irregular award of work**

According to the provision of WD manual, any change in the amount of work beyond 10 *per cent* of amount of administrative approval requires revised administrative approval.

Irregular award of work beyond the administrative approval led to extra cost of ₹ 1.73 crore.

We observed (April 2012) that the work of Strengthening and Upgradation of Bhapel-Jaisinagar road under PWD Division Sagar was awarded (August 2007) to a contractor at ₹ 5.84 crore (PAC of ₹ 6.30 crore) against administrative approval of ₹ 4.96 crore (November 2006). The Ministry stopped funding through CRF for want of revised AA, when the contractor had executed work amounting to ₹ 5.68 crore. Due to paucity of fund, the department foreclosed (December 2010) the contract without risk and cost of contractor leaving the balance bituminous work in 7.2 km road. The balance work was awarded (February 2012) to another contractor at PAC of ₹ 1.93 crore (based on new SOR) under CRF through the funding of Annual Repair. Thus, the decision of the department to award work without obtaining revised AA resulted in extra cost of ₹ 1.73 crore³⁷.

The Principal Secretary PWD and E-in-C during exit conference (September 2012) agreed that the revised administrative approval should have been obtained before floating the NIT for the work on the issue of award of work of strengthening and upgradation at cost more than the sanctioned cost and consequential termination of the work.

Further action is still awaited (February 2013).

37

PAC of the initial work = ₹ 629.62 lakh

Minus tender premium @ 7.29%

Cost of work = ₹ 583.72 lakh

Payment already made = ₹ 567.68 lakh

(A) cost of work after completion = ₹ 567.68 lakh + ₹ 189.53 lakh = ₹ 757.20 lakh

(B) cost of work when entire work was completed by earlier contractor = ₹ 583.72 lakh

A B = ₹ 173.48 lakh

PAC of the balance work = ₹ 193.00 lakh

Minus tender premium @ 1.8 %

Cost of work = ₹ 189.53 lakh

2.1.10.4 Non-recovery of mobilisation advance from contractors

According to Clause 51 of Standard Bidding Document for item rate contract, the employer shall make advance payment to the contractor at the rate of 10 *per cent* of contract price against an unconditional Bank Guarantee. The terms and conditions of contract further provide that the advance loan shall be repaid with percentage deductions from the interim payments certified by the Engineer under the contract. Deductions shall commence in the next Interim Payment Certificate following that in which the total of all such payments to the contractor has reached not less than 20 *per cent* of the contract price or six months from the date of payment of first installment of advance, whichever period concludes earlier, and shall be made at the rate of 20 *per cent* of the amounts of all Interim Payment Certificates until such time the loan is repaid. It is also provided that the loan shall be completely repaid prior to the expiry of the original time for completion.

Mobilisation advance of ₹ 2.14 crore was not recovered/short recovered from contractors.

We observed (December 2011 to August 2012) in test check of three road works in three divisions³⁸ that an amount of ₹ 2.14 crore of mobilisation advance remained unrecovered even though the entire stipulated period of completion of works expired between May 2011 and December 2011. This resulted in undue financial aid to the contractor of ₹ 2.14 crore as detailed in **Appendix 2.11.**

The Principal Secretary PWD and E-in-C during exit conference (September 2012) stated that advances had already been recovered from the contractors.

The reply is not acceptable as the entire amount of mobilisation advance was not recovered before the expiry of the scheduled completion period in terms of the contracts.

2.1.10.5 Irregular refund of performance security deposit

Security deposit ₹ 83.42 lakh was irregularly refunded.

According to additional special conditions appended with agreements, performance security deposit (PSD) to be taken for the due performance and maintenance of the contract under the terms and conditions of contract, will be the earnest money *plus* a deduction of 10 *per cent* from the payment made in the running bills. Fifty *per cent* of the PSD shall be released to the contractor after two years from the date of completion. Balance 50 *per cent* shall be released to the contractor after three years from the date of completion.

We observed (December 2011 to April 2012) that the performance security deposit (PSD) of ₹ 83.42 lakh was refunded to the contractor prior to the

³⁸ Chhindwara, Guna and Shajapur.

expiry of defect liability period as detailed in the table below:

Table 2.11

Sl. No.	Name of Division	Name of work	Agreement no.	Name of contractor	Defect liability period	Refunded in	Amount (₹ in lakh)
1	Shajapur	Shajapur-Dupada-Kanad road under CRF	121/2005-06	M/s T.R. Trehan	23.02.11 (work completed on 23.02.08)	May 2010	48.90
2	Gwalior	Ghatigoan Dada Khirak Bhawarpura road under CRF	04/2005-06	M/s Tomar Builder	30.08.12(as last measurement on 30.08.09)	March 2010	23.25
3	Sagar	Bhapel Jaisinagar road under CRF	61DL/2007-08	M/s Jitendra Je Patel Project Limited.	20.06.13 (last paid on 26.06.10)	February 2009	11.27
						Total	83.42

We further observed that PSD of ₹ 48.90 lakh in case of Shajapur-Dupada-Kanad road work was refunded though there was net recoverable amount of ₹ 44.09 lakh from the contractor on completion of the work.

The EE Shajapur (December 2011) stated that the PSD was not charged against any specific recovery. The EE Sagar stated (April 2012) that the PSD was refunded by the then EE. The EE Gwalior stated (March 2012) that PSD was released as per rule.

The replies of EEs are not acceptable as the PSDs were refunded to the contractors before the expiry of the defect liability period mentioned in the contract.

2.1.10.6 Irregular grant of secured advance

According to the terms and conditions of contract, secured advance should be paid only on imperishable material brought to the site by the contractor for its use in the respective work. The advance shall be paid at the rate of 75 per cent of the amount mentioned in the invoice.

We observed (February 2012 to June 2012) during the scrutiny of two roads in two divisions that secured advance was paid to the contractor on perishable material like 4 mm metal³⁹ and VG 30 (Bitumen) which were brought to the site by the contractors as detailed in table below:

Table 2.12

Name of road	Division	Quantity/ particulars	Total SA paid (₹ in lakh)
Sehore-Bilkisganj -Bhadbhada Rd. (CRF)	Sehore	5000 cu m (4mm metal)	25.00
		305.994 MT VG30	64.26
Hatpipaliya-Tappa-Siddikganj Rd. (CRF)	Dewas	74.54 MT VG 30	15.93
			105.19

Secured advance of ₹ 1.05 crore was given to contractors on imperishable material.

As the said materials came under the category of perishable materials, grant of secured advance was irregular and led to undue benefit of ₹ 1.05 crore to the contractor.

The E-in-C during exit conference stated (September 2012) that items were not of perishable nature.

³⁹

The 4 mm metal, classified in the category of sand (4.75 mm sieve size), is perishable material.

The reply of the E-in-C PWD not acceptable as 4 mm metal came under the category of sand and bitumen which are perishable in nature. Hence grant of secured advance on perishable materials was irregular.

2.1.10.7 Slow progress of work under NABARD

According to the terms and conditions of sanctions of loan by NABARD, once a particular project is cleared, loans are released in installments usually on reimbursement basis by the Regional Offices of the NABARD. Payment by NABARD depends on the progress of the project and utilisation of funds. The terms and conditions of contracts for works provided that the time specified for completion of work was the essence of contract. Monthly progress reports of works are sent by the divisional authority to CE and E-in-C for monitoring purpose. The progress reports sent by the divisional offices are compiled at Office of the E-in-C at monthly basis. Finance Department (FD) of the State Government would continue to be the nodal department for documentation, drawal of fund, etc. Therefore the projects have to be routed through the FD for sanction under RIDF and watched quarterly during the high power committee headed by the Chief Secretary, GOMP.

Since the works were being undertaken through NABARD loans, they were required to be completed in time so as to avoid unnecessary accrual of interest on NABARD loan and to provide the maximum benefits to the habitations.

Due to slow progress of works under NABARD, expenditure of ₹ 109.54 crore on works remained unfruitful and led to accrual of interest of ₹ 20.39 crore.

We observed between November 2011 and May 2012 during test check of road works undertaken through NABARD loan during the period 2006-07 to 2009-10, that in respect of 56 works in seven Divisions⁴⁰, progress was very slow and remained incomplete. These works were executed up to Earth Work/ GSB/ WBM level; even after lapse of three to four times of the stipulated completion period. Bituminous works were neither started by the contractors nor any penal action taken by the department in terms⁴¹ of the contracts. The tardy progress of works not only led to unfruitful expenditure of ₹ 109.54 crore but also created a liability of ₹ 20.39 crore on account of interest payable to NABARD as detailed in **Appendix 2.12**. We analysed that one of the main reason for slow progress of the work was awarding the contract on unworkable rates which were up to 32.34 *per cent* below the estimates. Where the tender percentage was 3.33 *per cent* below the estimates, the works were almost completed.

The Principal Secretary, PWD and E-in-C during exit conference (September 2012) stated that these works suffered due to paucity of funds and assured to improve the progress of the works.

The replies are not acceptable as penal action was not taken by the department for the abnormal delays in completion of works to avoid interest payable to NABARD on incomplete works.

⁴⁰ Gwalior 2, Narsinghpur, Rewa, Sagar, Shajapur, Sehore and Vidisha.

⁴¹ Clause 2 of the contract provides for imposition of liquidated damages based on quantum of delays attributable to the contractors.

2.1.10.8 Undue financial aid due to non-obtaining additional security

According to clause 29.5 and 34.1 of Instructions to bidder of contract documents, if the bid of the successful bidder is seriously unbalanced⁴² in relation to the Engineers estimate of the cost of work, the employer may require the amount of the performance security to be of a level sufficient to protect the employer against financial loss in the event of default of the successful bidder under the contract.

The terms and conditions of contract further provides that the contractor has to deposit an amount equivalent to 5 *per cent* of the contract price *plus* additional security for unbalanced bids within 21 days of receipt of the letter of acceptance. The additional security for unbalanced bids shall be held by the department up to 28 days from the date of issue of the certificate of completion.

Contractors were given undue financial aid due to not deducting additional security of ₹ 2.66 crore from their bills.

We noticed (July 2012 to August 2012) in respect of three road works in two divisions⁴³ that the contractors quoted disproportionately unbalanced rates in respect of some of the items against the estimated rates. Nevertheless, the department did not obtain additional security deposit to meet financial loss in the event of default by the contractors. This led to undue financial aid to the contractors of ₹ 2.66 crore as detailed in **Appendix 2.13**.

The EE PWD, Khandwa stated (July 2012 to August 2012) in replies that the work is likely to be completed in time. The EE PWD, Chhindwara further stated that ₹ 45.00 lakh has been kept in deposit as additional security deposit.

The replies are not acceptable as additional security deposit against the unbalanced items have not been obtained to the extent prescribed in the agreements to protect the financial interests of the department.

2.1.11 Quality assurance and monitoring mechanism

According to the provision of IRC SP 11 and contractual provision appended with the contract, it is the prime responsibility of the Engineer-in-charge to ensure that the work performed and all the material incorporated in works conforms to the specifications. Tests for checking if the quality of material is in accordance with the specifications are also to be conducted at required frequencies. It is also essential that the results of all quality control tests and observations are systematically recorded and carefully preserved.

Instances of weak quality control and monitoring mechanism are discussed below;

⁴² Seriously unbalanced denotes the quoted rates of certain items which are disproportionately higher than the estimated rates of that particular item plus or minus overall tender percentage.

⁴³ Chhindwara and Khandwa.

Execution of Bituminous Macadam work valued at ₹ 17.27 crore was below specification

2.1.11.1 Execution of Bituminous Macadam work below specifications

The specifications of MORT&H require that the work of Bituminous Macadam (BM) shall be covered with the wearing course of Semi Dense Bituminous Concrete (SDBC) within 48 hours. If there was a delay, the BM shall be covered with a seal coat to be treated as incidental part and not to be paid to the contractors separately. The specifications further required that SDBC should be provided on firm bituminous course (BM).



View of Basoda Sironj road under CRF

We noticed (November 2011 to July 2012) in 13 road works in seven Divisions⁴⁴ that the BM executed in 50368.84 cu m quantity at a cost of ₹ 17.27 crore were overlaid by the next wearing course of SDBC after expiry of 15 days to one year and in few cases it remained exposed during the rainy season as seal coat was not done as detailed in **Appendix 2.14**.

The Principal Secretary PWD and E-in-C during exit conference (September 2012) stated that due to practical difficulties in simultaneous execution of BM and SDBC, BM was not covered immediately with next wearing course.

The replies are not acceptable as in case of any difficulty in timely execution of SDBC, BM should be covered by seal coat at the cost of the contractor as the work of seal coat is treated as incidental. If the BM remains exposed during the rainy season, there remained the possibility of premature slippage of SDBC (wearing course) even after application of tack coat prior to the execution of SDBC because of dust deposit over BM course and thereby weakening the bond between BM and SDBC. We further noticed (May 2012) that contrary to these specifications, SDBC on 38599.28 sq m of Lalganj-Mangawan road work under NABARD in Rewa division was provided on WBM surface resulting in below specification work valued at ₹ 45.34 lakh. The EE stated (May 2012) that the work was done according to site requirement and traffic intensity.

The reply is not acceptable as specifications and guidelines of MORT&H were not adhered to.

2.1.11.2 Substandard execution of work

➤ Substandard execution of dry lean concrete (DLC)

Execution of Dry Lean Concrete valued at ₹ 49.82 lakh was below specification

According to the specifications of MORT&H, minimum cement content required in the lean concrete shall not be less than 150 kg per cu m of concrete and minimum average compressive strength of each consecutive group of five cubes shall not be less than 10 Mega Pascal (MPa) at seven days of castings. The Engineer shall give notice to the Contractor of any defects before the end

⁴⁴ Ashoknagar, Dewas, Guna, Khargaoan, Sagar, Satna and Vidisha.

of the Defects Liability Period, which begins from the date of completion and as defined in the contract documents.

We noticed (April 2012) that test result of cubes in respect of Satna-Semariya road conducted during October 2010 to March 2011 indicated very poor average compressive strength of 7-8 MPa in seven days. This indicated substandard execution of 2930.591 cu m dry lean concrete (DLC) valued at ₹ 49.82 lakh⁴⁵. This may lead to premature failure of the road works.

The E-in-C during exit conference (September 2012) stated that required strength of DLC was achieved in 28 days.

The reply is not acceptable as the specification of MORT&H prescribes that the requisite compressive strength of 10 MPa should be achieved in seven days as the DLC was required to be covered by the next rigid pavement within seven days. As the test results showed poor average strength after seven days, allowing the contractor to carry out the work of covering the DLC by rigid pavement indicated poor monitoring.

➤ ***Below specification work of Cement Concrete (CC) pavement***

M40 grade cement concrete pavement should be executed wherever cement concrete road is required to be laid, according to the approved Design Mix in terms of specifications of IRC 44.

Execution of cement concrete pavement work valued at ₹ 87.36 lakh was below specification.



View of Sehore Bilkisganj Bhadbhada Road

We noticed (February 2012) that according to the approved design mix of M40 grade CC, the requirements of cement was 424 and 427.14 kg per cu m of concrete. The contractors, however, executed the work using 400 kg cement per cu m of concrete. Thus, in execution of CC work, there was less utilisation of 27.14 kg cement per cu m of concrete. This resulted in substandard execution of CC pavement valued at ₹ 87.36 lakh⁴⁶ in execution of 2239.97 cu m of M40 grade CC. Besides, the excess

payment of ₹ 3.16 lakh⁴⁷ on account of short utilisation of cement was also recoverable from the contractor.

Short utilisation of cement in CC pavement has resulted in premature deterioration of CC pavement, which may be seen from the photograph of the site.

The EE PWD, Sehore, stated (February 2012) that design mix for further work was approved, which required 400 kg per cu m cement for desired strength.

⁴⁵ Calculated at the rate of ₹ 1700 per cu m.

⁴⁶ $2239.97 \times ₹ 3900 / \text{cu m} = ₹ 8735883$

⁴⁷ $2239.97 \times (427.14 - 400.00) = 60.79 \text{ MT cement @ ₹ 5200 / MT} = ₹ 3.16 \text{ lakh}$

The reply of EE is not acceptable as the approved design mix required 424 kg to 427 kg cement per cu m of concrete and not 400 kg as stated by the EE. Utilisation of 400 kg per cu m has therefore resulted in substandard execution.

➤ ***Substandard execution of granular sub-base (GSB)***

According to the provisions of IRC pocket book for Highway Engineers, sub-base material should be utilised having CBR more than 20 *per cent* in case of traffic intensity up to 2 million standard axles (MSA) and of 30 *per cent* in case of traffic intensity more than 2 MSA.

We noticed (February 2012) in respect of the work of Sehore-Bilkisganj-Bhadbhada road in PWD Division, Sehore, that though the traffic intensity on this road was more than 3 MSA, the GSB utilised on this road was having CBR of 22 *per cent*. This resulted in below specification execution of GSB. We further observed that there was no system of submitting reports to higher authority in case of execution of work with deviations from the specifications.

The EE PWD Division, Sehore stated (February 2012) that the works were carried out using GSB having CBR value more than 30 *per cent*.

The reply of EE is not acceptable as the CBR test results depicted that the GSB utilised in the work was having CBR of 22 *per cent* only.

2.1.12 Monitoring

According to the departmental instructions, implementation of the programme was required to be monitored by the E-in-C and the CEs of the Zone for achieving the targets within time and realisation of full economic benefits. The guidelines (2007) of CRF provided that project monitoring shall be done at regular intervals in methodical manner to avoid time and cost overrun.

For execution of projects under NABARD loan, allotment is made in the budget. Expenditure incurred there against is claimed on monthly basis from NABARD. Therefore, close monitoring is required for watching progress of works so as to avoid time and cost overrun as delays result in extra interest burden on the State Government. Year wise targets are also required to be fixed so as to enable the higher authority to monitor progress of works vis-a-vis targets so fixed and thereby ensuring timely completion of projects.

For the purpose of monitoring works, monthly progress reports are sent by the divisions to the controlling offices (CE and E-in-C).

We noticed from the monthly progress reports being sent by the divisions that monthly progress reports are not in uniform format across the divisions. Schedule completion dates, projections of completion of works in case of delays, fact of approval/ non approval of time extension and reasons for delay in completion of works are not being mentioned in the reports. In the absence of these details, proper appreciation of progress of works, problems in execution and necessary remedial measures may not be adequate. No target of completion of works was fixed by the department. Only actual financial and physical progress of the works was being compiled by the E-in-C and reported to the Chief Secretary GOMP on quarterly basis. In the absence of a target for completion of works, shortfall, if any, cannot be identified and remedied. We

further noticed that there were delays in completion of works with reference to schedule completion periods as discussed in paragraph 10.7 *supra*.

The E-in-C during exit conference stated (September 2012) that length-wise target was not fixed due to disproportionate release of funds by the MORT&H. With respect to works under NABARD, it was stated that the programme suffered due to paucity of funds. He also assured to improve the progress of the works.

The reply is not convincing as generally there were savings of funds in all the three categories, viz, CRF, NABARD and State budget as shown in paragraph 6 *supra* and none of the works suffered due to lack of funds.

2.1.13 Other issues

2.1.13.1 Execution of earthwork after granular sub-base (GSB) work

According to the chronology of activities in the road work prescribed in the specification, the GSB work should be taken up after completion of earthwork. We noticed (April 2012) in respect of work of Khurai-Rajwansh road under CRF that against 52853.60 cu m of earth work provided in bill of quantity, 81411 cu m of earthwork was executed. Of the total executed quantity, 27766 cu m of earthwork was executed after execution of GSB. The excess quantity of 28557.40 cu m of earthwork was sanctioned through supplementary schedule. We further, noticed that the quantity of earthwork sanctioned through supplementary schedule was shown executed and recorded in Measurements Book⁴⁸ before the date of issue of the MB to the concerned sub engineer. Since the GSB is executed after earthwork, the quantity of 27766 cu m of earthwork valued at ₹ 36.10 lakh⁴⁹ was of doubtful nature.

The EE PWD, Sagar stated (April 2012) that the matter was being investigated and action would be taken accordingly.

2.1.13.2 Irregular issuance of misleading completion certificate

According to the guidelines of CRF, completion certificate with respect to the execution of work should be submitted to the MORT&H after its completion. Further, any change in the scope of work required revised AA from MORT&H.

We observed (April 2012 to June 2012) during scrutiny of two works under CRF in two divisions that lengths of the road works actually executed were less than that sanctioned as detailed in the following table below:

Table 2.13

Sl. No.	Name of road	Amount of AA	Sanctioned road length	Total Exp.	Length actually completed
1	Hatpipalya Bhourasa road under CRF(Dewas)	₹ 445.47 lakh	21.20 Km	₹ 463.57 lakh	11.00 Km
2	Mayana Naisarai road under CRF(Guna)	₹ 469.18 lakh	21.00 Km	₹ 556.09 lakh	19.00 Km

⁴⁸ Measurements Book number: 21612.

⁴⁹ 27766 cu m earthwork at the rate of ₹ 130 per cu m.

Though these works were executed in the reduced length, completion certificates were issued by the department with a remark that the aforesaid works were complete in all respects.

The EE Dewas stated (June 2012) that due to higher tender premium, the road was completed in only 11 km. whereas no specific reply was offered by the EE Guna.

The reply of EE Dewas is not acceptable as the Guidelines of the Ministry that change in length of the road from 21.20 km to 11 km amount to change in scope of work requiring revised administrative approval, which were not followed. Besides, the completion certificate stating that the work had been completed in all respects was not correct.

2.1.13.3 Excess payment due to irregular replacement of item

According to the provisions of item rate contract, contractor was bound to execute entire work as detailed in bill of quantity (BOQ) within the specified period and in accordance with the drawing and specifications provided in DPR sanctioned by the MORT&H.



View of Basoda Sironj road under CRF

We observed (February 2012) that the work of widening and upgradation of Basoda Sironj road under CRF was awarded (January 2010) to a contractor at agreed cost of ₹ 25.07 crore, which was revised to ₹ 29.12 crore on item

rate contract. The contractor executed only 47 *per cent* of work at the end of stipulated completion period (November

2011). To accelerate progress of the work, the department introduced the costlier alternative of Wet Mix Macadam (WMM) in 250 mm thickness in replacement of the WBM consolidation in 250 mm. The replacement by costlier item resulted in extra cost of ₹ 70.46 lakh⁵⁰ up to the execution of 30590 cu m. Extra cost will further increase up to ₹ 1.54 crore on execution of total 67422.50 cu m of WMM as per bill of quantity.

The EE stated (February 2012) that the replacement was sanctioned by CE considering the progress of work.

The reply is not acceptable as the delay was attributable to the contractor and any extra cost caused by delay should have been borne by the contractor. Besides, for change in the scope of work, it required approval from the MORT&H as the original scope of work was sanctioned by the MORT&H.

Irregular replacement of WBM consolidation by costlier item resulted in extra cost of ₹ 70.46 lakh.

⁵⁰

Qty. executed till 14th R.Bill- 30590 cu m WMM, Rate of WMM ₹ 886.031 per cu m
Average rate of WBM ₹ 635.66 per cu m
Difference = ₹ 230.36 per cu m
Total undue favour = 30590*230.36 = ₹ 7046712

2.1.13.4 Irregular expenditure

According to the guidelines issued from time to time and in August 2010 by E-in-C, PWD and MORT&H circular (May 1984) for execution of CRF works, the items of road furniture⁵¹ must be included in the scope of work. No work beyond the scope of sanctioned estimate should be undertaken without obtaining prior written approval of the MORT&H.

Irregular expenditure on road furniture of ₹ 5.14 crore.

- We noticed (April 2012 to June 2012) that in seven road works⁵² under CRF in PWD Divisions, Guna and Dewas, items like road marking, speed bump, road studs, cats eye and sign boards etc. costing ₹ 5.14 crore were purchased directly through the open market without obtaining prior written approval of MORT&H. These items were shown utilised by the department by directly charging to the work. We also noticed that in two road work⁵³ under PWD Division, Dewas, though the road furniture items were included in the scope of work and also executed by the contractors, road furniture costing ₹ 1.06 crore was again charged on these two works by making transfer entry from another road work viz. Rajoda-Kelod-Double Chowki. Though the transfer entry once the material was directly charged on work was not allowed in terms of the provisions of MPWD Manual. As the road furniture on the above two works had already been executed, the possibility of fictitious accounting by further transfer of road furniture amounting to ₹ 1.06 crore cannot be ruled out in Audit.

The E-in-C stated (September 2012) during exit conference that the road furniture works were executed through the saving of CRF, which was within the amount of administrative approval. The Principal Secretary, PWD assured to look into the matter of transfer entry.

The reply is not acceptable as prior approval for undertaking work beyond the scope of sanctioned estimates was not obtained from the MORT&H.

Irregular expenditure through piecemeal work of ₹ 2.54 crore.

- We further noticed (March 2012) in three road works in Gwalior Division-2 that ₹ 2.54 crore out of the funds provided under CRF (₹ 0.66 crore) and NABARD (₹ 1.68 crore), was shown utilised during 2010-12 for items of work like berm filling, water bound macadam (WBM) and bituminous (BT) patch repair, special repair and construction of embankment etc. through various piecemeal works though the works had already been stopped (July-September 2009) due to non-clearance of land by the Forest Department. Besides, repair work on these three roads

⁵¹ Road marking with thermoplastic retro-reflective compound, signboards, speed bumps, road studs, place identification marker and cats-eye.

⁵² Mayana Naisarai ₹ 36.88 lakh, Anarad Nihaldevi ₹ 38.95 lakh, Bahwra Kohan Hamirpur ₹ 32.39 lakh (Guna), Pipalrawa Ilashkhedi- Balon-Bigrod ₹ 151.45 lakh, Hatpipaliya Bhausara ₹ 76.53 lakh, Hatpipaliya-Tappa- Siddikganj ₹ 69.45 lakh and Devli-Chaubaradhira-Iklehra-Surjana- Pipalrawa ₹ 108.47 lakh.

⁵³ Pipalrawa Ilashkhedi- Balon-Bigrod and Devli-Chaubaradhira-Iklehra-Surjana- Pipalrawa

⁵⁴ Ghatigaon Dada Khirak Bhawarpura ₹ 65.91 lakh (CRF), Dadakhirak-Tighra ₹ 43.22 lakh (NABARD), Makoda-Antari Chimmak ₹ 144.23 lakh (NABARD) under Gwalior Dn.2.

was not required to be undertaken as the completed part of the work was already covered under performance guarantee.

The E-in-C stated (September 2012) during exit conference that expenditure was incurred on the available reaches under revenue land and instructed the concerned SE to verify the facts of the matter.

The reply is not acceptable as ongoing works were foreclosed due to involvement of forest land and the roads completed on the revenue land were covered under the performance guarantee period. Incurring further expenditure on maintenance, therefore was irregular.

2.1.14 Conclusion

The fund management of works undertaken through CRF was deficient and there were instances of misutilisation of funds as works beyond the approved scope of work were executed. The year wise targets were not fixed for effective monitoring of the programmes and timely completion of projects. There were instances of unfruitful expenditure due to incorrect selection of road alignment and awarding of works without obtaining forest clearance. Execution of work was deficient as in large number of cases MORT&H specifications were disregarded during preparation and approval of estimates. Works were awarded without invitation of tenders and liquidated damages were not recovered though the delays were attributable to contractors. Tenders were accepted on abnormally unworkable rates resulting in slow progress of works under NABARD. The stipulated mobilisation advances were not recovered from the contractor in time.

2.1.15 Recommendations

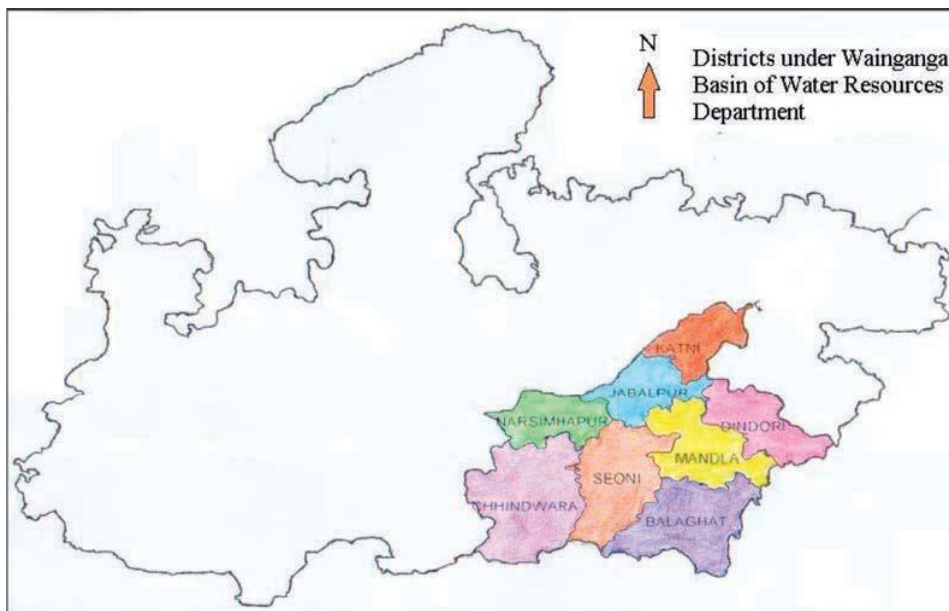
- The progress of the works should be reviewed at periodic and regular intervals at various levels so as to identify bottlenecks and ensure timely completion.
- The work should be taken up after obtaining all the necessary clearance from the concerned authority.
- Contractual provisions should be enforced in case of withdrawal/ termination of the contract to safeguard the interest of the Government. Contract management needs further strengthening in ensuring that payments are made according to progress of work and as provided in the contracts.
- A well structured system for internal control and monitoring of works should be put in place.

Water Resources Department

2.2 Thematic paragraph on construction of minor irrigation schemes in Wainganga Basin

2.2.1 Introduction

Wainganga Basin of the Department covers 1.62 lakh ha area through 778 MI schemes up to end of 2011-12. The basin covers eight districts, namely Balaghat, Chhindwara, Dindori, Jabalpur, Katni, Mandla, Narsinghpur and Seoni and consists of 12 water resources divisions headed by Executive Engineers (EEs) under administrative control of four Superintending Engineers (SEs). CE Wainganga Basin is responsible for administrative control over works under the Basin. Sub Divisional Officers (SDOs), who are under the control of EE of Division, are responsible for preparation of new schemes.



2.2.2 Audit Scope and methodology

The thematic study covered transactions relating to construction and maintenance of Minor Irrigation (MI) schemes⁵⁵ of the Wainganga Basin during the period 2007-12. During audit, records relating to planning and construction of MI schemes, utilisation of created irrigation potential and utilisation of created infrastructure of MI schemes were scrutinised. Out of the 12 divisional offices in the Wainganga Basin, Audit examined in detail the records of randomly selected six divisional offices and office of the Chief

⁵⁵

The surface and ground water irrigation schemes having cultivable command area up to 2000 hectare (ha) are classified as minor irrigation (MI) schemes.

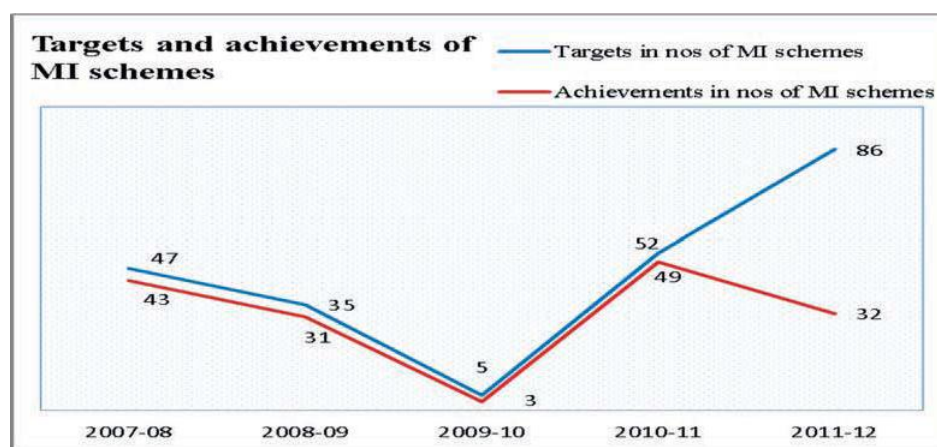
Engineer, Wainganga Basin, Seoni between December 2011 and May 2012 and information has been collected from remaining six divisional offices.

Entry conference with the executives of the Department was held in October 2011. Exit conference was held in September 2012 with the Principal Secretary (PS) to discuss the audit findings and replies of the Department are incorporated at suitable places. The reply of E-in-C was received in October 2012.

2.2.3 Planning

The planning process in the context of MI schemes includes identification of command area to be irrigated, feasibility of project, assessment of site suitability for head works⁵⁶ as well as canal works⁵⁷, formulation of strategies to achieve them, arrangement of the means required, and implementation, direction and monitoring of all steps in their proper sequence for execution of works according to the Technical Circulars of Water Resources Department.

There were 620 MI schemes covering 127452 ha of created irrigation potential (IP) up to March 2007 in Wainganga basin. The Department constructed 158 MI schemes with IP of 34902 ha during the period 2007-08 to 2011-12 against the target of 225 MI schemes for development of 37904 ha of IP after incurring an expenditure of ₹ 447.73 crore. Thus, 30 *per cent* of targeted schemes could not be completed during the period. In total there were 778 MI schemes covering 162354 ha of created IP in Wainganga Basin up to end of 2011-12.



Source: Information provided by the Chief Engineer Wainganga Basin

Year wise targets and achievements for completion of MI schemes in terms of number of schemes, are detailed in the chart. Only three MI schemes were completed in the year 2009-10. The achievements in all the five years were less than the targets. The shortfall in achievements which increased from four (47 targeted, achieved 43 as given in the above graph) in 2007-08 to 54 in

⁵⁶ Include construction of dam, sluice and spill channel etc.

⁵⁷ Include construction of canals and water regulating structures.

2011-12 in construction of schemes was mainly due to non-acquisition of land, poor planning, improper survey and estimates as discussed in succeeding paragraphs:

2.2.3.1 *Overlapping of command area of MI schemes due to ill planning*

Ill planning in construction of MI schemes resulted in overlapping of command area.

According to para 2.007 and 7.008 of Madhya Pradesh Works Department (MPWD) Manual, detailed estimates are prepared after completion of survey and alignment and after approval by EE. SDOs are responsible for preparation of Detailed Project Report (DPR) after obtaining details on gauge and discharge, rainfall, meteorological data, agricultural statistics of villages under submergence and command etc. Instances of command area having overlapping MI schemes due to improper survey and investigations are discussed below;

- In Katni division, the work of construction of Bhainswahi MI scheme envisaged to irrigate 105 ha was taken up in January 2009 at a cost of ₹88.38 lakh. The scope of work included construction of earthen bund, excavation and filling of puddle, filter blanket, rock toe, seepage drain, chipping and pitching, turfing, head sluice, excavation for approach channel and spill channel, waste weir and fall. The contractor executed earthwork for earthen bund in entire length excluding length for nalla closure and sluice (November 2010). Thereafter work was stopped as the command area of scheme was overlapping with the command area of right bank canal of Bargi dam. An expenditure of ₹ 36.26 lakh was incurred till February 2012 on the work.

On this being pointed out in audit E-in-C stated (October 2012) that even after detailed survey of the scheme and award of headwork in January 2009, overlapping of command area of Bargi canal was not known which was noticed only during preparation of land acquisition cases for canal. It was further stated that Minor schemes often came in the command area of major schemes and structures constructed for minor schemes would be utilised for other works.

The reply is not acceptable as work on Bargi Diversion Project was ongoing since 2001 and overlapping of command area could have been identified in alignment survey for canal. Thus, due to lack of coordination between the two Departments of the Government, the expenditure of ₹ 36.26 lakh on survey and construction proved wasteful.

- In Seoni division, the work of construction of Bothiya MI scheme envisaged to irrigate 252.94 ha of area was taken up (November 2008). Till March 2012, 80 *per cent* of the head work was completed and no progress in canal work was reported. Further, proposal to acquire the land for canal system was sent to Land Acquisition Officer (LAO) in August 2010. An expenditure of ₹ 2.58 crore has been incurred up to 2011-12.

We noticed (April 2012) that a part of command area of Bothiya MI

scheme came under the command area of Pench Diversion Project which was a major project undertaken by WRD in 1987-88. The Department, however, did not take initiative to reduce/modify the command area so as to reduce cost of project or cover new command area. Further, the agreement for work was rescinded in 2011-12 due to slow progress of work by the contractor. Thus, the expenditure of ₹ 2.58 crore remained unfruitful so far (October 2012).

E-in-C stated (October 2012) that the scheme was situated at tail of Pench Diversion Project and partial command of the scheme was affected by the command of Pench Diversion Project; therefore it was decided to complete the scheme.

The reply confirms that the division was aware that part of the command area was overlapping but did not take any corrective action.

The Principal Secretary, WRD stated (September 2012) in exit conference that the works of major schemes generally covered command area of MI Schemes and asserted that MI schemes would still be useful even after completion of major projects and supplement irrigation for additional crop. It was further stated that completion period of major projects were very long due to land acquisition, rehabilitation and environmental clearances.

The reply is not acceptable because overlapping of command area could have been identified at time of alignment survey of canal and corrective actions for avoiding overlapping of command should have been taken by the Department as it resulted in avoidable expenditure.

2.2.3.2 Poor planning of designs, survey etc. causing unfruitful expenditure

III planning in construction of MI schemes led to unfruitful expenditure of ₹ 5.89 crore.

Para 7.002 and 7.003 of the MPWD Manual provides that the reconnaissance report⁵⁸ in respect of medium and minor projects shall be initiated by the EE and the SDO. After receipt of Administrative Approval (AA) for survey and investigation, technical sanction for survey estimate shall be accorded by the officers competent to sanction it and thereafter, detailed survey and investigation will start for the project. Technical circular (No.53) issued in February 2006 stipulated that no project was to be submitted above the level of EE without ensuring general feasibility of project which included ascertaining sufficiently impervious dam site.

We noticed (December 2011 to May 2012) in three divisions that five MI schemes covering 607.46 ha of area to be irrigated, were non functional due to poor planning of designs, survey etc. rendering an expenditure of ₹ 5.89 crore unfruitful to a large extent as detailed in **Appendix 2.15**. The failure in planning for the schemes mainly resulted in;

- non-retaining of water in the tank basin,

⁵⁸ Report for assessment of feasibility of scheme by preliminary survey and investigation

- abandonment of the scheme due to incorrect identification of catchment area,
- execution of works without canal system due to inadequate survey and
- obstructions in execution of works due to non-identification of hurdles by land owners.

The Principal Secretary, WRD stated (September 2012) in exit conference that geotechnical investigations were done for only medium and major irrigation projects.

The reply is not acceptable as the geotechnical investigations were necessary in terms of the Technical circular. Further, fixing the location of dam/spill channel foundation in case of minor project is required to be done in consultation with Engineering Geologist according to Appendix 7.02 of MPWD Manual. Thus, poor planning resulted in the investment of ₹ 5.89 crore remaining largely unfruitful.

2.2.3.3 Plan for acquisition of land

As per note 3 below paragraph 2.104 of MPWD Manual, notification for the acquisition of land required for any particular work must be submitted before the work is put in hand. Thus availability of land is the first pre requisite for proceeding with the construction of any irrigation project.

Non-acquisition of land led to incomplete MI schemes rendering expenditure of ₹ 16.89 crore unfruitful.

We noticed (December 2011 to April 2012) in six test checked divisions that 13 MI schemes covering 3057.41 ha of targeted irrigation remained incomplete due to non-acquisition of land rendering expenditure of ₹ 16.89 crore unfruitful as detailed in the **Appendix 2.16**. The delays in execution were mainly due to non preparation of plans and time schedule for acquisition of land.

The Principal Secretary, WRD accepted (September 2012) in exit conference that there were delays in acquisition of land and stated that to a large extent the problem has been resolved by continuous monitoring and dialogue with the Collectors. He further stated that the Department was contemplating to make payment for land acquisition after notification under Section 9 of the Land Acquisition Act and revenue authorities were being requested for mutation of acquired land in favour of WRD within 15 days of payment of compensation, to avoid any hindrance later on.

The fact however remains that due to taking up works before ensuring acquisition of land required for the schemes rendered the investment of ₹ 16.89 crore unfruitful.

2.2.4 Budget allocation and expenditure

The Government provides the funds for MI Schemes under the head of accounts 4702- Capital outlay on MI (Plan). Finance Department releases the funds under this head to the Department. The funds are further distributed to the divisional offices for execution of works. The budget allotment and expenditure of the Wainganga basin for construction of MI schemes of the Department during the years from 2007-08 to 2011-12 is given in the table

below:

Table 2.14

(₹ in crore)

Year	Allotment	Expenditure	Savings/Excess (in per cent)
2007-08	107.53	100.87	6.66 (6.19)
2008-09	117.35	112.51	4.84 (4.12)
2009-10	72.25	69.97	2.28 (3.15)
2010-11	70.55	70.47	0.08 (0.11)
2011-12	94.14	93.91	0.23 (0.24)
Grand Total	461.82	447.73	14.09

Source: Information provided by the E-in-C WRD

As may be seen from the table, savings during 2007-12 ranged from 0.11 per cent to 6.19 per cent only.

2.2.5 Execution

2.2.5.1 Excess expenditure over Administrative Approval

As per para 2.005 of MPWD Manual, revised AA of the competent authority should be obtained when the expenditure exceeds or is likely to exceed the amount approved by more than 10 per cent. Further, as per note 3(b) below para 2.120, the amount of the detailed estimate must not exceed the amount included in the expenditure sanction.

We noticed (February 2012 to April 2012) from records of five divisions⁵⁹ test checked that excess expenditure on 26 MI schemes was incurred over the AA to the tune of ₹ 29.34 crore, as ₹ 76.67 crore was actually incurred against the amount of AA of ₹ 47.33 crore. The excess expenditure over AA ranged between 11.36 per cent and 267.32 per cent as detailed in **Appendix 2.17**. However, revised AA was not obtained though the expenditure exceeded the AA.

The Principal Secretary, WRD stated (September 2012) during exit conference that excess expenditure over AA was due to price escalation and increased cost of land acquisition and the process of issuing revised AA was underway. He further stated that system had been refined and administrative approval for works was being given after examining feasibility of scheme, detailed survey, technical sanction and preparation of case for land acquisition.

The fact remains that revised AA was not obtained before incurring excess expenditure beyond 10 per cent over the AA.

➤ We further noticed that for two MI schemes of Dindori, technical sanctions (TS) of the projects were accorded in excess of AA of the GOMP after

Excess expenditure of ₹ 29.34 crore over administrative approval was done in 26 MI schemes.

⁵⁹ Dindori: 16.61 crore (08 MI schemes), Narsinghpur: 1.94 crore (05 MI schemes), Hiran Jabalpur: 1.89 crore (04 MI schemes), Katni: 3.89 crore (04 MI schemes), Seoni: 3.54 crore (05 MI schemes)

delay of four to five years as detailed in the table below:

Table 2.15

Name of project	CCA in ha	AA amount in crore ₹ and date	TS amount in crore ₹ and date	Excess TS in crore ₹	Delay in years
Bilaikhar Tank MI scheme	105.26	1.03 crore 31 August 2004	1.35 crore 13 August 2008	0.32	4 years
Silighati Tank MI Scheme	165.92	1.37 crore 31 August 2004	2.44 crore 1 December 2009	1.06	5 years
Total	271.18			1.38	

As evident from the above table, revised AA was not obtained by the Divisional Officer though TS was already accorded for amount in excess of AA. Amounts of ₹ 2.36 crore and ₹ 2.26 crore had been incurred (March 2012) on Bilaikhar and Silighati MI schemes respectively which were in excess of AA as well as TS.

- We further noticed in four MI schemes of Dindori and Jabalpur including the above mentioned two schemes that technical sanctions were also unrealistic as additional quantities of more than 10 *per cent* of estimated quantities were executed by the contractors who were also paid accordingly as detailed below:

Table 2.16

Name of the project	Items works of excess quantities	Amount paid to the contractor without approval (₹ in lakh)	Increase in quantity in per cent
Bilaikhar Tank MI scheme	Two items	3.67	19 to 34 <i>per cent</i> ⁶⁰
Silighati Tank MI Scheme	five item	34.34	55.90 to 156.65 <i>per cent</i> ⁶¹
Dandananaalla Tank MI scheme	Four item	289.34	27.89 to 213.14 <i>per cent</i> ⁶²
Marhapatha Tank MI scheme	One item	3.90	349.71 <i>per cent</i> ⁶³
Total		₹ 331.25	

EE Dindori stated (February 2012) that proposal for sanction of excess quantities had been submitted to higher authority. The EE Jabalpur stated (April 2012) that as per site condition and availability of strata the work was executed.

The reply is not acceptable as the excess quantities should have been executed and paid only after approval of competent authority.

Thus, technical sanction to works in excess of AA resulted in provision of excess quantities in schedule of quantities and execution of work thereafter resulted in excess expenditure over AA.

⁶⁰ Earthwork 19 *per cent*, Uncoursed rubble masonry 34 *per cent*.

⁶¹ Earthwork 55.90 *per cent*, Filter blanket 70.84 *per cent* and excavation 156.65 *per cent*

⁶² Earthwork 27.89 *per cent*, Stone pitching 93.50 *per cent*, Puddle filling 107.96 *per cent* and excavation 213.14 *per cent*

⁶³ Excavation in DR and SR

- The terms of agreement provided for payment at the estimated rate *plus* or *minus* overall tender percentage, if executed quantity of an item increases by more than 10 *per cent* of the estimated quantity.

In case of work of Gorakhpur tank of Seoni division undertaken in April 2007, the quantity of construction of rock toe was 2465.35 cu m at the rate of ₹ 150 per cu m in terms of the agreement, while the rate according to the estimates for this item of work was ₹ 331.45 per cu m. The quantity was subsequently increased to 4700.50 cu m. Due to increase in quantity, the Department had to pay the higher estimated rate of ₹ 331.45 per cu m for 1990.52 cum of excess quantity. The extra expenditure of ₹ 3.61 lakh could have been avoided by accurate estimation of the item of work.

The EE stated (April 2012) that the excess quantities were paid according to the agreement and with the sanction of the CE. The reply confirms that payment at higher rates for extra quantities was necessitated due to incorrect estimates.

2.2.5.2 Non-deposit of performance security by the contractors

As per conditions of contract in Appendix 2.14 (clause 1) of MPWD Manual, the person whose tender is accepted, shall deposit security alongwith earnest money in cash or Government securities and amount of shortfall in security will be recovered from his running bills to make up total amount of security not exceeding 10 *per cent* of estimated cost of work.

Further, according to the order of the Government (May 2003), the person whose tender is accepted shall within 30 days from the date of acceptance letter of his bid or before entering into an agreement, furnish initial security deposit (performance security deposit) equal to five *per cent* of the contract value which shall include the amount of earnest money deposit. In addition to the above initial security deposit, deduction shall be made from the running bill equal to 5 *per cent* of the total value of each bill. Besides, in terms of rule 21 of MPFC Vol-II, clauses of the agreement should not be changed without concurrence of the Finance Department.

Performance security of ₹ 3.72 crore was not obtained by irregular exclusion of performance guarantee clause from agreement.

We noticed (December 2011 to April 2012) that the decision for excluding the clause of five *per cent* security deposit was taken by committee headed by E-in-C in June 2006 on submission of application in this respect by the contractors. The Department did not obtain the performance security deposit amounting to ₹ 3.72 crore in 50 agreements of six divisions as detailed in **Appendix 2.18**. We also observed that the clause of five *per cent* security deposit was reintroduced from March 2011. The action of deleting the clause of five *per cent* performance security at E-in-C level without consent of the Finance Department was irregular and led to undue financial aid of ₹ 3.72 crore to the contractors. Besides, performance of the works was not secured as discussed in paragraph 2.2.5.6.

The Principal Secretary, WRD stated (September 2012) during exit conference that contractors quoted rates considering terms and conditions of the contracts and deduction of performance security would have impacted on their quoted

⁶⁴ WRD Dn Chhindwara: (7 agreements), WRD Dn Dindori: (12 agreements), WRD Dn Hiran Jabalpur: (6 agreements), WRD Dn Katni (8 agreements), WRD Dn Narsinghpur (8 agreements), WRD Dn Seoni (9 agreements).

price and therefore, there was no loss. He further stated that the objective of tendering had been to get the works executed in a cost effective way.

The reply is not acceptable as the department did not have powers to make any changes in the contract document without obtaining the consent of the Finance Department in terms of provisions of MPFC and the department did not provide any evidence that by making changes to the contract conditions, the department derived cost effectiveness in execution of the work.

2.2.5.3 Non-deduction of additional security deposit for unbalanced items

Additional security deposit for unbalanced items was not recovered to the tune of ₹ 3.87 crore.

According to standard clause 3.28 of the agreements, in case the approving authority considers that the tenderer has quoted disproportionately high rates for some items when compared to the estimated rate of such items, the tender is to be considered unbalanced and he shall have the power to limit the payment of such items to the estimated rate of that item plus or minus overall tender percentage above/below as the case may be. The withheld amount on such items shall be retained by the Engineer-in-charge as additional security deposit. If the contractor leaves the work incomplete for any reason, the additional security deposit so deducted shall stand forfeited to the Government.

We noticed (December 2011 to April 2012) in five divisions⁶⁵ that divisional officers did not recover the amount of additional security deposit on account of unbalanced rates of items of works to the tune of ₹ 3.87 crore in 13 on-going works as detailed in the **Appendix 2.19**. Non-retention of amount of additional security deposit for unbalanced items of works was contrary to the provisions of the agreement.

The Principal Secretary, WRD stated (September 2012) during exit conference that the Department had taken corrective measures in this regard and tenders were being invited on percentage rate basis.

2.2.5.4 Unfruitful expenditure on construction of Lift Irrigation Schemes

Expenditure of ₹ 6.68 crore on LISs was unfruitful due to incomplete and non-functional LISs.

Lift Irrigation Schemes (LIS) are constructed in the areas where irrigation through gravity canals is not possible. Feasibility of the scheme is ascertained by conducting survey and preparing the estimates to arrive at the probable cost by considering all the expenses for its construction as well as for maintenance. According to the directions of WRD, electric connection for LIS was to be taken by beneficiary farmers. There were 44 completed LISs in the Basin of which 18 LISs were examined in six divisions. Instances of partial execution of four LISs and abandonment of completed LIS etc. are detailed below;

Table 2.17

Name of division	Name of MI scheme, IP in ha	Completion and expenditure	Observation	Reply of the EE/ Further comment of Audit
Katni	Chapna LIS, 858 ha	Ongoing ₹ 4.50 crore	Vacuum pump of second pump house could not be finalised up to December 2007. Thereafter, the work of LIS was stopped	According to the instructions given by the Government, all the work of lift irrigation schemes was to be stopped till acceptance

⁶⁵ Chhindwara, Dindori, Katni, Narsinghpur and Seoni

Name of division	Name of MI scheme, IP in ha	Completion and expenditure	Observation	Reply of the EE/ Further comment of Audit
			according to instructions of the Department and the entire expenditure of ₹ 4.50 crore was rendered unfruitful.	was given by water users to run the schemes on cooperative basis. It was further stated that where farmers did not agree to form registered societies and take electric connections, no allotment was being issued since the last two years. The reply is not acceptable as the viability of the schemes should have been ascertained before taking up the work for execution.
WRD division Hiran, Jabalpur	Katav and Shahgarh LIS, 202 ha and 466 ha	2010 ₹ 13.00 lakh and ₹ 1.20 crore	No irrigation in the year 2011-12 through LISs were reported from these completed LISs, rendering the expenditure of ₹ 1.33 crore on the schemes unfruitful.	Designed irrigation from Katav and Shahgarh LISs could not be achieved because electric connections were disconnected due to non-payment of electric bills. No irrigation has been done during 2011-12 by these LISs. The reply is indicative of the fact that fund for electricity were not tied up.
WRD division Hiran, Jabalpur	Sukri LIS, 241.40 ha	Ongoing ₹ 85.37 lakh	The farmers committee was unable to take electric connection for operating LIS. As per the directions of WRD, allotment for completion of the balance work was to be given only after taking the electric connection by beneficiary farmers. The CE instructed in January 2012 to disconnect the electric connection, transfer the land to the Revenue Department and keep the machinery in stores. Thus, the expenditure of ₹ 85.37 lakh was rendered wasteful.	Efforts were being made to solve the problem by contacting the members of Farmers Committee and other farmers.

Further, E-in-C stated (October 2012), that consideration at Government level for alternative arrangement of these schemes is being done due to excess expenditure on running and maintenance and non-availability of an interrupted power supply to the schemes. The works would be completed only after formation of committee of farmers and taking responsibility of operation by them.

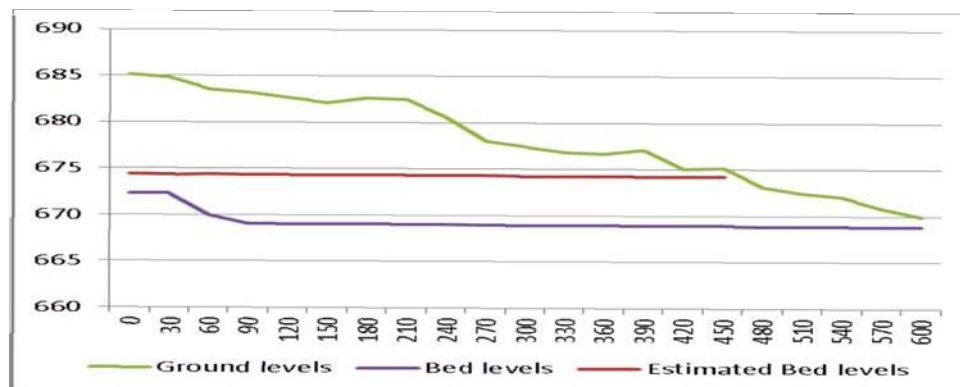
The reply confirms that the feasibility of the schemes was not ascertained before the schemes were taken up thus resulting in imprudent expenditure.

Avoidable expenditure of ₹ 2.32 crore was incurred due to non-observance of economical arrangements in spill channel.

2.2.5.5 Avoidable expenditure in construction of spill channel

In the agreement entered into in February 2008 for the work of construction of head work of Dandana Nalla Tank MI scheme, a provision of 184723.43 cu m excavation in all types of disintegrated rock, soft rock (DR/SR) for puddle trench, cut off trench, boulder toe filter, sluice waste weir, out drains, approach and spill channel, was made. Of this, 171327.57 cu m excavation for DR and SR were provided in spill channel⁶⁶ constituting 92.75 per cent of the total excavation in DR/SR.

Graph showing difference in levels of executed excavation of spill channel with respect to estimated



We noticed (February 2012) that the quantity of excavation in DR and SR increased up to 578445.02 cu m, for which ₹ 3.84 crore was paid to the contractor. The proposal for approval of excess quantities was sent (November 2009) to the CE, Wainganga Basin, Seoni mentioning the reasons, such as increase of bed width and length with respect to the technical sanction for excess excavation of DR/SR in spill channel. The CE observed (November 2009) that the work was executed without approval of revised drawing and not as per technical sanction. Sanction of excess quantities was still awaited (February 2012). As envisaged in the design, the bed level of the spill channel was to meet at reduced distance (RD) 450 m. The division, however under took excavation by increasing the depth of the spill channel to meet the downstream of the reservoir at RD 600 m. As a result, the quantity of excavation for the spill channel increased and therefore there was extra expenditure of ₹ 2.32 crore⁶⁷. The E-in-C stated (October 2012), that there was no fall in spill channel. Therefore, excavation in designed depth and designed bed grade was essential and as such it had been excavated. It was further stated

Spill channel or spillways are provided to release surplus water from reservoir in order to prevent rise of water level above a specific level in reservoir. This avoids unwanted submergence of the upstream or consequent overtopping and possible failure of dam (WRD Technical circular no. 28).

1.	Estimated quantity of DR/SR	184723.43 cu m
2.	10% of the estimated quantity	18472.34 cu m
3.	Total allowable quantity	193195.77 cu m
4.	Executed quantity according to RA bill 22 nd	578445.02 cu m
5.	Unwarranted execution (4-3)	385249.25 cu m
6.	Unwarranted execution of DR/SR in spill channel @ 92.75%	357318.67 cu m
7.	Avoidable expenditure @ ₹ 65/- per cu m	₹ 23225713.55

that the quantity of excavation in the estimate was not included due to omission.

The fact remains that excess quantities were executed without sanction of competent authority which had not been given even after more than two years of submission of proposal.

2.2.5.6 Execution of earthwork below specification

Substandard earthwork for ₹ 56.66 lakh was executed without watering and puddle trench was not executed in work of dam.

Para 2.028 of MPWD Manual provides that an officer according technical sanction to an estimate is responsible for soundness of design and for incorporating all the items required for inclusion in the estimate with reference to the drawings. Para 4.9.9 (section-II, volume-I) of specifications for irrigation projects (of the Unified Schedule of Rates for works) provides that in the earth fill embankment watered, rolled and compacted at optimum moisture content and at dry density, settlement allowance of one *per cent* and two *per cent* of designed height for unyielding (rock) and compressible (soil) foundations, respectively shall be deducted from the executed quantity. According to irrigation specifications, earthwork on bund includes the laying of earth in 15 centimetre layer, watering and compaction of earthwork at optimum moisture content to achieve maximum dry density.

We noticed (April 2012 and May 2012) that:

- In Katni division, the G schedule of the work of Jamunchua MI scheme included an item of watering for earthwork. Payment for 1,17,874.38 cu m of watering was made (March 2010) but in the next running bills, the up to date quantity of watering was shown as nil indicating that no watering was done. Shrinkage allowance deducted at 20 *per cent*, also confirmed that watering was not done. Thus, the execution of earthwork valued at ₹ 56.66 lakh ⁶⁸ was below specification which may result in rapid depletion of water due to seepage.

The E-in-C stated (October 2012) that disciplinary action would be taken against the field staff for non-execution of work as per established norms.

- Technical circular 27 issued (August 1990) by E-in-C provides that alignment of the puddle trench ⁶⁹ should be fixed in such a way that the downstream edge of its bottom width should coincide with the central line of the dam crust throughout its length. Moreover, at sites where the cost of complete seepage cut off is not big, it should always be provided even if the loss of water due to under seepage would have no importance. Thus, puddle trench is required to be executed in the entire length of earthen dam.

In Hiran division, for the balance work of Imlai MI scheme, no work was indicated in measurement book from RD metre 126.70 to RD

⁶⁸ Amount of 118043.18 cu m earthwork at rate ₹ 48 per cu m.

⁶⁹ Puddle trench is excavated for construction of dam

metre 178.35 of the dam indicating gap left for nalla closure. We observed (May 2012) that earth work of 11891.6 cu m was executed (March 2006) at RD metre 150 of bund. The item of puddle trench on the left out distance from RD metre 126.70 to RD metre 178.35 was not executed. This indicated that the earthwork was executed without execution of puddle trench in RD metre 126.70 to RD metre 178.35 which was contrary to the provisions of specifications. An amount of ₹ 4.43⁷⁰ lakh was paid (March 2006) for the earthwork executed at RD metre 150. Thus, non-observance of bund specifications resulted in substandard work of ₹ 4.43 lakh.

The E-in-C stated (October 2012), that original sanction of the scheme was given in January 1982 under relief head and the work of puddle filling was done under relief head. It was further stated that 90 *per cent* head work and 50 *per cent* canal work was completed and the scheme was to be completed up to October 2012.

The reply is not acceptable as there was no evidence to show that the works of puddle trench was earlier executed and remained intact at the time of taking up the said work later. The work was still in progress (March 2013)

2.2.5.7 Excess payments to the contractors

Excess payment were made to contractors due to non-regulation of rates and non-consideration of rebate offered by the contractor.

As per the orders of GOMP (October 1987) forming part of agreement, EE shall have no powers of determining the rates for extra items and prior sanction of CE shall be necessary for execution of and payments for additional quantities of more than 10 *per cent* in case of works for which technical sanction has been accorded by CE. Instances of excess payments to the contractors noted in audit are discussed below;

- In construction of Patharia MI scheme by Seoni division, we observed that the estimated quantity of earthwork of 53691.36 cum was included in the G schedule. The contractor executed 71179.45 cum of earthwork and was paid at the rate of ₹ 50 per cum. Thus, the quantities of the work were exceeded and proposal for approval of rates for payment of quantities in excess of 10 *per cent* was sent (June 2011) to the CE. The CE granted permission for payment of excess executed quantity at 90 *per cent* of the worked out rate of the items under clause 4.3.13.3 (a) of the agreement or the quoted rate of the contractor, whichever was lower. Therefore, the payment for excess quantities of more than 10 *per cent* was to be regulated at the rate of ₹ 36.42 per cum⁷¹ according to orders of the CE. The division however paid the contractor at the rate of ₹ 50 per cu m. Payment at higher rate led to excess payment of ₹ 1.64 lakh⁷² to the contractor. We further observed that an amount of ₹ 7.52 lakh was paid to the contractor for execution of extra items

⁷⁰ 11891.6 cu m * ₹ 37.29 per cu m = ₹ 443438/-

⁷¹ Estimate rate of ₹ 32.39 per cu m multiplied by 24.94 *per cent* being the percentage above the estimated rate = ₹ 40.47 per cu m (at rate of 90 *per cent* = ₹ 36.42 per cu m)

⁷² {71179.36 cu m (1.10*53691.36)} * 13.58 = ₹ 1,64,574.17

without approval of the competent authority. This resulted in irregular expenditure of ₹ 7.52 lakh.

The EE of the division stated (April 2012) that the excess payment would be adjusted after sanction and the sanction granted by the CE for payment of 90 *per cent* rates included the extra items. Further, E-in-C stated that permission for payment of extra executed quantity at 90 *per cent* of the rate of the items under clause 4.3.13.3 (a) or the quoted rate of the contractor, whichever was lower was given for continuity of work. Payment to contractor for extra quantity/extra items is still pending.

The reply is not acceptable as payment should have been made according to the orders of the CE and the sanction of CE did not include approval for payment of extra items.

- In case of construction of Saliwara tank by Seoni division, the contractor offered five *per cent* rebate on all the items of work. Ninth running bill for total value of work done of ₹ 1.22 crore was paid (March 2012) to the contractor. We noticed (April 2012) that the rebate offered by the contractor was not deducted from the running bills. This resulted in excess payment of ₹ 6.09 lakh ⁷³ to the contractor.

The EE stated (April 2012) that the rebate would be recovered from the contractor.

2.2.5.8 Execution of Cement Concrete (CC) lining with higher specification

Adoption of higher specifications for CC lining resulted in avoidable extra cost of ₹ 15.88 lakh.

As per the provisions of technical circular (1/84) issued by the E-in-C in March 1984, canals having discharge up to 3 cumec should be lined with precast slabs with M-10⁷⁴ cement concrete.

In Katni division, in work of restructuring of Dhorsi regulator, the canal section had 0.30 m of full supply depth and bed width of 0.60 m (indicating discharge of much less than 3 cumec). The contractor was paid (June 2011) an amount of ₹ 47.64 lakh for 1588.27 cu m of M-15 grade cement concrete (a richer specification) for CC lining. Adoption of richer specification of CC lining resulted in extra cost of ₹ 15.88 lakh⁷⁵. We further noticed that the Chief Technical Examiner, Bhopal has also pointed out (November 2010) that lining with M-10 grade for such small section would be sufficient.

The EE stated (April 2012) that looking to the experience of precast lining, cast *in situ* lining had been provided to prevent theft of lining in panels and

⁷³ Five *per cent* of ₹ 12189114.00.

⁷⁴ This represents cement, sand and coarse aggregate in the ratio of 1:3:6.

⁷⁵	1. Executed Qty. of CC 1:2:4	1588.27 cu m
	2. Rate paid	₹ 3000 per cu m
	3. Rate for CC 1:3:6 payable	₹ 2000 per cu m
	4. Difference in rate	₹ 1000 per cu m
	Extra cost of lining work	₹ 15,88,270

there was a letter dated 9 January 2012 issued by E-in-C in which it was clearly stipulated that there was heavy theft of CC precast (tiles) and therefore *in situ* lining should be adopted. Further, E-in-C also agreed (September 2012) with the reply of the EE.

The reply is not acceptable as the circular was issued after the execution of the said work and the reply does not explain the reason for adoption of M-15 cement concrete in place of M-10 cement concrete.

2.2.5.9 Constitution of less number of territorial constituencies in farmers organisation

Less number of territorial constituencies were constituted.

The National Water Policy 2002 stresses participatory approach in water resources management. Participation of beneficiaries helps in the optimal upkeep of irrigation system and effective utilisation of irrigation water. According to the provisions of Madhya Pradesh Krishak Sangthan Gathan Niyam, 1999, (Rule 10), command area of the schemes are to be divided in territorial constituencies (TCs) for effective utilisation of water by Water User Associations (WUAs) in case of MI schemes as detailed below:

Table 2.18

Area in ha	Number of TCs
200 ha	4
201 to 400 ha	6
401 to 600 ha	8
601 to 2000 ha	10

We noticed (February 2012 to May 2012) that territorial constituencies for WUAs were not constituted according to the said provisions as detailed in table below:

Table 2.19

Name of division	Total schemes	Schemes covered by WUAs	Nos of WUAs	Total required TCs	Constituted TCs	TCs not constituted	WUAs with less TCs
Narsinghpur	25	18	7	60	37	23	6
Hiran Jabalpur	47	38	16	110	88	22	7
Seoni	112	86	45	314	266	48	20
Dindori	81	64	23	184	138	46	17
Katni	106	87	30	270	227	43	14
Total	371	293	121	938	756	182	64

As evident from the above table, the WUAs were constituted for 293 MI schemes against the 371 total MI schemes in five test checked divisions. Further, only 756 TCs were constituted against the required 938 TCs. Out of total 121 WUAs, in 64 WUAs less number of TCs were constituted with respect to the above said provisions. Thus, the objectives of optimal upkeep of irrigation system and effective utilisation of irrigation water were not fulfilled to that extent.

The EEs of the five divisions stated (February 2012 to May 2012) that irrigation was done in total command area through TCs and as far as possible the number of TCs was constituted keeping in view the command area slab

fixed for TCs. It was further stated that a few WUAs had more than one project associated with it and that constitution of less TCs had no relation with less utilisation of irrigation potential, while in some places command area was overlapping with that of other tanks.

The replies of the EEs are not acceptable as the TCs were not formed as required under the norms and all the MI schemes were not covered by formation of WUAs to ensure effective utilisation of water.

2.2.5.10 Irregularities in works through MNREGS funds

Maintenance works of minor irrigation schemes amounting to ₹ 12.96 crore were executed directly by the Department, instead of WUAs resulting in deprival of participation of WUAs in maintenance of MI schemes.

As per directions issued (order no 4823, dated 20 December 2007) by the Panchayat and Rural Development Department, the Water User Associations shall be the executing agency for the maintenance work of minor irrigation tanks and canals undertaken through MNREGS funds.

We noticed (February 2012 to April 2012) that:

- In Dindori division, the works amounting to ₹ 12.96 crore for maintenance of minor schemes were executed departmentally by the division using the MNREGS funds. There were 14 WUAs constituted for 44 minor irrigation schemes in the year 2010-11 and 23 WUAs were constituted for 64 minor irrigation schemes in the year 2011-12 covering 8627.270 ha and 12574.27 ha respectively. Execution of works of MNREGS directly by the sub-divisional authorities was thus irregular. This deprived the WUAs from participating in the works under MNREGS which was against the requirement of the said provision of Panchayat and Rural Development Department.

The E-in-C *inter alia* stated (October 2012) that WUAs did not propose any work under MNREGS and the EE was fixed as executing agency for MNREGS works.

The reply is not acceptable as the Department could not get WUAs associated in execution of works as required in the directives of the Panchayat and Rural Development Department.

The form of muster roll prescribed in directions issued (January 2006) by Panchayat and Rural Development Department provides for signature of witnesses at the time of payment to labourers and name of banks where accounts of labourers are maintained. Further, according to para 4.013 of MPWD Manual, muster roll is not used within three months of issue, it should be reissued. Cutting and use of correction fluid in the muster roll is restricted.

In four divisions, an amount of ₹ 49.43 lakh ⁷⁶ was paid to the labourers through nominal muster rolls (NMRs) but NMRs were used after three months, signature of witnesses were not found recorded and the name of the bank was not recorded against the payment made to the

⁷⁶ Dindori ₹ 12.90 lakh, Hiran Jabalpur ₹ 12.68, Katni ₹ 7.45 lakh and Seoni ₹ 16.39 lakh = ₹ 49.43 lakh

labourers. Thus due to non-observance of the instructions issued by the GOMP, the propriety of expenditure could not be ensured.

The E-in-C stated that the work wise muster rolls were provided by the Janpad Panchayat, name of work, name of department etc. were mentioned in the muster roll which could not be utilised on other works, post office/bank of all the labourer engaged were mentioned.

The reply is not correct as signatures of witnesses were not found on the enlisted muster rolls and muster rolls were used after issue of more than three months.

According to para 2.075 (b) of the MPWD Manual, tenders must be invited for all works proposed to be given on contract unless the amount of work is ₹ 15,000 or less. Supply of road material such as moorum, metal, sand etc. and building materials such as masonry stones, rubble, material for puddle filling, bricks, metal, moorum, sand and timber shall be treated as work⁷⁷ and not as purchase of store materials.

In three divisions irregular expenditure of ₹ 1.36 crore was incurred.

- In three divisions,⁷⁸ the divisional officers incurred (March 2011 to March 2012) an expenditure of ₹ 1.36 crore on procurement of boulders, moorum, sand, stone and metal etc. for maintenance of 54 schemes without inviting tender, resulting in irregular expenditure of ₹ 1.36 crore.

The E-in-C stated that sand, moorum, aggregate and earth for puddle were utilised after procuring at rate sanctioned by the Chief Executive Officer, Jila Pachayat.

The reply is not acceptable as works were to be executed as per provisions of MPWD Manual.

- In Seoni division, an expenditure of ₹ 28.22 lakh was incurred (June 2011 to March 2012) on transport of material through tractor and trolley on petty vouchers on 21 schemes. Tender was not invited for the said work as required in the Manual. Thus, the execution of work was irregular and contrary to the said guidelines.

The EE stated (April 2012) that the work was carried out through tractors being the work beyond the capacity of labourers as the lead was more than 200 metre provided in the Current Schedule of Rates (CSR).

The reply does not address the point raised by Audit.

2.2.6 Monitoring and quality control

2.2.6.1 Inadequate monitoring of MI schemes

The MPWD Manual (paras 8.001 and 8.006) provides that maintenance of dam and canal should be undertaken keeping in view the design assumptions and completion drawings.

⁷⁷ It means that procedure for awarding works shall be followed instead of MP Store Purchase Rules.

⁷⁸ Dindori ₹ 81.31 lakh, Katni ₹ 4.27 lakh and Seoni ₹ 50.25 lakh

Utilisation of irrigation potential remained low due to non-adherence to provisions of WD manual.

The utilisation of irrigation potential in six⁷⁹ test checked divisions is detailed in the table below:

Table 2.20

Year	Total MI schemes	Created IP in ha	Utilisation in ha	Percentage utilisation
2007-08	411	89727	22155.45	24.69
2008-09	434	92969	26308	28.30
2009-10	452	96851	22873	23.62
2010-11	489	105554	27613.9	26.16
2011-12	520	113068	45501.9	40.24

As detailed in the table, utilisation of irrigation potential ranged between 23.62 per cent and 28.30 per cent during the years 2007-08 to 2010-11 and 40.24 per cent in the year 2011-12. The reasons for short utilisation of irrigation potential, as analysed by us, are discussed below;

- As per para 8.009 of the MPWD Manual, if the water way (discharge of water) at the designed full supply level decreases or increases by 20 per cent, the SDO shall prepare estimate for remodelling of canal and submit it to EE who will then obtain approval of the competent authority.

We noticed (February 2012 to April 2012) that no remodelling⁸⁰ work was carried out by four⁸¹ of the five divisions despite deteriorating condition of water way.

- As per para 8.015 (b) of MPWD Manual, irrigation of the command area depends upon the performance of the canal system. Performance of the canals shall, therefore, be watched through the canal guage register and performance table for canals.

We noticed (February 2012 to April 2012) that canal gauge register and performance table for canals were not being maintained.

- Para 7.004 of MPWD Manual provides that printed field books⁸² and level books⁸³ having machine numbered pages shall only be used. Account of level books/field books shall be maintained as that of measurement books. The same importance as for measurement book is prescribed for level/field books. The level/field books shall be returned to division office for record after plotting of level is done.

We noticed (February 2012 to April 2012) in four⁸⁴ out of six test checked divisions that no field books and level books were maintained. In Katni division, review of the field books/level books was not done

⁷⁹ Chhindwara, Dindori, Jabalpur, Katni, Narsinghpur and Seoni,

⁸⁰ Reconstruction of canals according to original drawing and specifications.

⁸¹ Dindori, Hiran Jabalpur, Narsinghpur and Seoni

⁸² Field books are used to record details of detailed survey for later reference.

⁸³ Level books are used to record the levels at time of survey for later reference.

⁸⁴ Dindori, Hiran Jabalpur, Narsinghpur and Seoni

as required under para 7.007 of MPWD Manual in accordance with the checklist given in appendix 7.01 of MPWD Manual.

As detailed above, the performance of canals could not be watched by the higher authorities due to non maintenance of records as required under the MPWD Manual and remodeling work was not carried out which resulted in deteriorating condition of canal network and short utilisation of irrigation potential.

The E-in-C stated (October 2012) that utilisation of irrigation potential was dependent on availability of water and sanction for schemes under Repair, Renovation and Restoration head were being given for works of repair, strengthening and re-establishment of canals. He further stated that computerised management information system had been adopted for monitoring running of canals and its flow capacity and as a result there was increase in actual irrigation and instructions were being issued by E-in-C for maintenance of level books and field books.

The fact remains that non-compliance of provisions of MPWD manual in undertaking remodeling work resulted in deteriorating conditions of canals, which ultimately resulted in short utilisation of irrigation potential.

2.2.6.2 Inadequate inspection of works at division level

Inspections for MI schemes at division level was inadequate.

Para 8.016 of WD Manual prescribes that annual/periodical inspection of:

- (I) All head works of major/ medium /minor projects with culturable command area above 500 hectares annually and head works of other minor projects once in four years and
- (ii) Canals with carrying capacity of more than three cumecs annually and canals carrying less than three cumecs at least once in four years should be carried out by the Executive Engineer.

We noticed (March 2012 and April 2012) in four divisions out of the six test checked divisions that during 2007-12, inspections by the EE were not done according to the required frequency as detailed in the table below:

Table 2.21

SI No	Name of Division	MI schemes inspected	Total MI schemes
1	Hiran Jabalpur	4	47
2	Katni	5	106
3	Narsinghpur	13	25
4	Seoni	6	112
	Grand Total	28	290

The E-in-C stated in exit conference (September 2012) that provisions of MPWD Manual was not practical and EEs were overburdened and did not have time for inspections as per the required frequency. He further stated that the Department had amended (September 2012) the provision and work of inspections had been distributed among SEs, EEs, and SDOs and Sub-Engineers.

2.2.6.3 Inadequate quality control due to inadequate sampling

Quality control over cement concrete work was inadequate due to shortage of samples.

Para 15.2.2 of IS 456: 2000, prescribes minimum frequency of sampling of concrete of each grade for quality test of cement concrete with reference to the quantity of concrete in the work as below;

Table 2.22

Quantity of concrete in the work (cu m)	Numbers of samples
1 – 5	1
6 – 15	2
16 – 30	3
31 – 50	4
51 and above	4 plus one additional sample for each additional 50 cu m or part thereof

Further, standard clause 14.0 of agreements for Madhya Pradesh Water Sector Restructuring Programme (MPWSRP) provides that contractor shall arrange to take sample of cement concrete as directed by Engineer-in-Charge at random to evaluate the quality of concrete lining laid in respective reaches of canal and frequency of taking sample core shall be determined by the Engineer which should be one sample from bed lining and another sample from side lining for every 250 M length for core test.

We noticed (March 2012 and April 2012) in Katni and Narsinghpur divisions out of the six divisions test checked, that in three works, only 51 samples were taken against the required 105 samples for testing the compressive strength. In six works of the Katni division, no test was carried out. The details are given in **Appendix 2.20**.

The EE of Katni division stated (April 2012) that work was done according to specification and field tests carried out such as, slump etc. He further stated that in the absence of test results, appropriate amount had been deducted from contractors bills.

The reply does not explain the reason for not conducting test for compressive strength and the fact remains that deduction of amount for not conducting the tests for prescribed samples indicated that the works were accepted without proper quality control.

Similarly, in respect of the work of restructuring of head work, main canal and RBC of Dhorsi regulator under MPWSRP (Katni division), the prescribed core tests were not done for the work of lining. Thus, divisional authorities accepted the work without assuring the quality of the work.

The EE stated (April 2012) that the test results were awaited from the contractors. Further, E-in-C stated (October 2012) that new structure for quality control is being proposed. It was also stated that work of quality control was affected due to lack of trained officials and lack of equipment, though it does not mean that quality of works have been affected.

The reply is not acceptable as the quality control over the work could not be assured due to lesser tests than the required frequency of tests or non-testing.

2.2.7 Conclusion

The construction of Minor Irrigation schemes in Wainganga Basin of Water Resources Department was affected due to inadequate survey, non-synchronisation of process of land acquisition with tendering process and award of work in mid-way of acquisition of land. Performance of Lift Irrigation Schemes was poor due to lack of participation of users. Overlapping of command area of Minor Irrigation schemes with other Irrigation Schemes was not identified within time resulting in wasteful expenditure. Monitoring and quality control mechanism were deficient as basic records were not maintained and inadequate samples were being taken for testing.

Narmada Valley Development Department

2.3 Thematic paragraph on Distribution Network of Rani Avanti Bai Lodhi Sagar Project

2.3.1 Introduction

Rani Avanti Bai Lodhi Sagar (RABLS) Project previously known as Bargi Multipurpose Project, located in Jabalpur district was the first project on Narmada River under Narmada Valley Development Programme. The Project consisting of dam and distribution network was initiated with the objective to irrigate 1.57 lakh hectare (ha) through Left Bank Canal (LBC). Right Bank Canal (RBC) is separate project and it was not examined in this review.

The distribution network consisting of LBC including main canal, branch canal, distributaries, minors, sub-minors, water course and field channels⁸⁵ under RABLS Project is a major irrigation project to provide irrigation facilities in Jabalpur (95000 ha) and Narsinghpur (62000 ha) district. The cost of LBC was initially met out by the State funds but due to paucity of fund it was taken up under National Bank for Agriculture and Rural Development (NABARD) loan since 1996-97. Construction of 135.50 km long left bank main canal along with its 1915.04 km distribution network was taken up by the Irrigation Department (renamed as Water Resources Department in July 1985) in 1982 at a cost of ₹ 251.85 crore and was to be completed in 1990. The RABLS project was still incomplete after spending ₹ 1099.66 crore as of March 2012. Irrigation potential of 1.23 lakh hectare was created till January 2012 against the target of 1.57 lakh hectare as compiled by us. However, balance works for creation of IP have not been started till March 2012.

The Narmada Valley Development Authority (NVDA, hereinafter referred to as the Authority) was constituted under Narmada Valley Development Department (NVDD) in 1985 with a view to give special attention for development of irrigation facilities in the Narmada Basin. The Authority took over the construction of distribution network in 1992 from Water Resources Department (WRD). The Minister of Narmada Valley Development Department in Madhya Pradesh is the ex-officio chairman of the Authority, who is assisted by a Vice Chairman and five full time members (Engineering, Finance, Power, Environment and Forest & Rehabilitation). The distribution network of the RABLS project is being executed under the Chief Engineer, RABLS Project, Jabalpur. The Chief Engineer (CE) is assisted by three Superintending Engineers (SEs) and four Executive Engineers (EEs) at the field level.

2.3.2 Audit scope and methodology

The audit of distribution network of RABLS Project was undertaken with a view to assess whether the funds were available and utilised effectively,

⁸⁵ The definition of main canal, branch canal, distributary, minors, sub-minors, water course and field channel are explained in the glossary to the report.

irrigation potential was created and utilised as envisaged in the Detailed Project Report and contract management was effective in ensuring timely completion of work in an economical manner. Records of offices of the Member (Engineering) of NVDA, CE, RABLS Project and all the four divisions⁸⁶ engaged in construction of distribution network of LBC were reviewed between December 2011 and March 2012 covering the transactions during 2007-12.

An entry conference was held in October 2011 with Member (Engineering), NVDA to explain the audit objectives, scope and methodologies of audit. Exit conference was held in June 2012 with the Vice Chairman, NVDA and other officials of the Authority. Views of the Authority expressed during exit conference have been incorporated at appropriate places.

This report was issued to Government (August 2012). However, the reply has not been received so far (March 2013).

2.3.3 Financial Management

Excess expenditure over AA was incurred without obtaining revised Administrative Approval.

After taking over the construction work of the distribution network from WRD, the Administrative Approval (AA) for the project amounting to ₹ 309.81 crore was obtained from Government of Madhya Pradesh (GOMP) in 1992 by the Authority. The revised estimate of ₹ 1060.97 crore was submitted by the Authority to the Government (June 2002) for which AA had not been received till March 2012. Another revised estimate for ₹ 1552.85 crore was submitted in March 2012, which has also not been approved by the Government so far (March 2013). The Authority incurred total expenditure of ₹ 1099.66 crore on the distribution network up to 2011-12. Thus, revised AA was not obtained prior to incurring excess expenditure over the AA as required under Para 2.005(1) of Madhya Pradesh Works Department (MPWD) manual which stipulates that when the expenditure exceeds 20 per cent of the sanctioned estimate, revised AA should be obtained.

During 2007-12, the funds allotted were not fully utilised.

An amount of ₹ 846 crore was incurred during the years prior to 2007-08 and ₹ 253.66 crore has been incurred during the five years period from 2007-08 to 2011-12, as shown in the table below:

Table 2.23: Allotment and Expenditure

(₹ in crore)

Year	Budget provision	Allotment	Expenditure				Percentage of unspent balance
			State Govt.	NABARD Loan	Total	Unspent balance	
Up to 2006-07	873.25*	808.43*	459.54	386.46	846.00	----	---
2007-08	60.67	60.40	24.14	31.87	56.01	4.39	7.27
2008-09	58.70	58.70	25.24	36.90	62.14	----	----
2009-10	66.50	66.50	41.10	11.06	52.16	14.34	21.56
2010-11	42.36	49.81	47.29	0.84	48.13	1.68	03.37
2011-12	57.87	38.66	35.22	----	35.22	3.44	8.90
					1099.66		

*Note: Budget Provision & Allotment from 1979-80 to 1985-86 was not available. However, expenditure was taken since beginning i.e. 1979-80.

(Source: Information provided by the CE RABLS Project and Authority)

⁸⁶ (1) Canal Dn. No.-2 Jabalpur, (2) Canal Dn. No.-2 Gotegaon, (3) Canal Dn. No.-1 Kareli and (4) Disnet Dn. Narsinghpur

It would be seen from the table that utilisation of allotment was short by three to 22 *per cent* during 2007-08 to 2011-12. The original allotments were reduced in the last five years due to non-utilisation of allotted fund. The reasons for non-utilisation of available funds were delays in completion of works due to lack of monitoring, delays in acceptance of tenders and award of works and contractors leaving the work incomplete, as discussed in detail in paragraphs 4 and 6.1 to 6.4.

2.3.3.1 Non-availing of NABARD loan

Out of
₹ 576.96 crore
sanctioned by
NABARD,
the Authority
could obtain
reimbursement
of only
₹ 467.13 crore.

According to the schedule II, special terms and conditions of NABARD, Government of Madhya Pradesh (GOMP) shall ensure timely execution of projects by meticulous planning and adequate monitoring in view of the limited period available for construction of canal for irrigation.

Loans aggregating ₹ 576.96 crore were sanctioned under Rural Infrastructure Development Fund (RIDF)⁸⁷ by NABARD in six phases between 1996-97 and 2005-06. According to the schedule of disbursement of the loan, the whole of the sanctioned amount was to be disbursed by the end of 2006-07 by way of reimbursing expenditure already incurred by the project Authorities. Status of sanctions of NABARD loan, claims and reimbursement is shown in the table below:

Table 2.24: Sanction and utilisation of NABARD loan

(₹ in crore)					
Phase and year of sanction	Amount Sanctioned	Claimed	Reimbursement by NABARD	Disallowed by NABARD	Percentage of utilisation
RIDF-II-1996-97	43.26	47.73	40.57	7.16	93.78
RIDF-V-2000-01	87.61	91.06	81.44	9.62	92.96
RIDF-VI-2000-01	83.64	54.03	49.14	4.89	58.75
RIDF-VIII-2002-03	171.23	167.79	153.99	13.80	89.93
RIDF-IX-2003-04	58.35	59.72	56.68	3.04	97.13
RIDF-X-2005-06	132.87	94.42	85.31	9.11	64.21
Total	576.96	514.75	467.13	47.62	80.96

(Source:- Information provided by NVDA)

We noticed that:

- The NABARD sanctioned the last loan in April 2005 with the condition to complete the project by March 2007. As the works could not be completed within the schedule period, the NABARD extended the completion period up to March 2010, for reimbursement of loan for the last phase (RIDF-X-2005-06). The Authority, however, could not complete the work even in the extended period.
- According to the reimbursement schedule of sanctioned loans, an amount of ₹ 576.96 crore was to be disbursed by the end of March 2010. The Authority, however, obtained reimbursement of only ₹ 467.13 crore against claimed amount of ₹ 514.75 crore as of March 2010 leaving a shortfall in reimbursement of ₹ 47.62 crore. Thus, there was a shortfall of

⁸⁷ Rural Infrastructure Development Fund (RIDF) was instituted by NABARD during 1995-96 with the main objective of providing loans to State Government and State-owned corporations to enable them to complete ongoing rural infrastructure projects.

19 per cent in getting loan from NABARD which finally stopped the loan after March 2010. Less utilisation of NABARD loan by the Authority of 41 per cent and 36 per cent for RIDF-VI and X phase respectively was significant.

- According to general terms and conditions of NABARD loan, any cost escalation was to be borne by the GOMP. NABARD disallowed the claims of ₹ 47.62 crore of the Authority on grounds, such as, expenditure incurred on excess quantities and in excess of the sanctioned amount which shows poor planning and estimation by the Authority.

The reasons for shortfall in utilisation of the loan were delays in completion of work due to lack of monitoring, poor planning, delay in land acquisition and non-synchronisation of the works of canal network with the main canal and contractors leaving the work midway.

The CE, RABLS project stated (March 2012) that the reason for non-utilisation of fund was the contractors leaving the work incomplete. The CE, however, did not explain the other factors contributing to delay in completion of work as stated above.

2.3.4 Creation of Irrigation Potential (IP) targets and achievement

Specific targets and milestones were prescribed in the Detailed Project Report (DPR) for execution and creation of the specified irrigation potential to avoid delay and ensure timely accrual of the intended benefits. The works were to be executed according to the provisions of the Madhya Pradesh Works Department Manual.

As against targeted IP of 1.57 lakh ha, the Authority created IP of only 1.23 lakh ha by the end of January 2012. Yearwise creation of IP during the last five years is shown below:

Table 2.25: Creation of Irrigation Potential

Year	Target for creation of IP	Achievement reported	Actual creation of IP	Progressive IP created	(IP in hectare)
					Expenditure (₹ in crore)
Up to 2006-07	156981	111314	111314	111314	846.00
2007-08	20000	16614	4063	115377	56.01
2008-09	16000	19113	4006	119383	62.14
2009-10	9959	4630	1100	120483	52.16
2010-11	500	495	970	121453	48.13
2011-12	---	--	1146	122599	35.22
Total		152166	122599		1099.66

(Source:- Information provided by the CE RABLS Project and field units)

Authority created 1.23 lakh ha IP against targeted IP of 1.57 lakh ha so far and during last five years, only 11 thousand ha IP was created.

The above indicated that only 11,285 ha IP was created in the last five years (2007-08 to 2011-12) by the Authority after incurring expenditure of ₹253.66 crore. In the year 2011-12, no target was fixed for creation of IP. The CE, however, reported (November 2011) creation of 1.52 lakh ha IP to the higher Authority whereas actual creation of IP was only 1.23 lakh ha. The IP reported by the CE is not correct as the Executive Engineer, RABLS Canal division No.1, Kareli intimated (December 2011) to us the fact of non-completion of the main canal from km 130.67 to km 135.50 and its distribution network for IP of 34,223 ha⁸⁸. The shortfall in creation of IP of 34,223 ha deprived of farmers from cultivation in the said reach.

The matter was reported to Government (August 2012) and reply has not been received so far (March 2013).

2.3.4.1 Non-achievement of targets

The lengthwise targets and achievements for creation of IP under LBC are as below:

Table 2.26: Targets and achievements

Reach in km	Designed irrigation (in ha)	Created IP (in ha)	Initial/ current Target	Designed length (in km)	Completed length (in km)	Balance length (in km)	Cost of balance work (₹ in crore)
0 km to 64 km of main canal & 760.89 km distribution system	61587	58330	June 1990	64.00	Completed		163.07
			March 2015	760.89	723.43	37.46	
64 km to 84 km of main canal & 310.58 km distribution system	22204	22105	June 1990	20.00	Completed		47.39
			March 2015	310.58	304.61	5.97	
84 to 130 km of main canal & 508.3 km distribution system	38404	42164	June 1990	46.00	Completed		94.57
			March 2015	508.30	499.23	9.07	
130 to 135.50 km of main canal & 335.27 km distribution system	34786	Nil	June 1990	5.50	5.37	0.13	165.03
			March 2015	335.27	186.79	148.48	
Total	156981	122599		2050.54		201.11	470.06

(Source:- Information provided by the CE RABLS Project)

The reasons for shortfalls in targeted creation of IP of LBC network as observed in audit were paucity of funds, delay in award of work, contractors leaving the work incomplete, work not completed within the scheduled period by contractors and inadequate drainage system as discussed in the succeeding paragraphs:

2.3.4.2 Delay in creation of Irrigation Potential of Left Bank Canal distribution network

(i) Paucity of funds

Canal network could not be completed as per scheduled targets due to paucity of funds up to 1995-96. The work was taken up under NABARD loan in 1996-97 for completion by 2007. After allowing reimbursement of expenditure of ₹ 467.13 crore, the loan assistance from NABARD was stopped from March 2010 as the Authority could not complete the work even in the extended period specified for reimbursement of expenditure by the NABARD. The canal network was still incomplete and now it is targeted to

Paucity of fund up to 1995-96 hampered the progress of work of canal network.

⁸⁸ Against the targeted IP of 1, 56,981 ha, actual created IP was 1, 22,599 ha. Out of the remaining IP of 34,382 ha, IP of 34,223 ha was to be created in canal reach from km 130.67 to km 135.50 and remaining IP of 159 ha in other reaches.

be completed by March 2015. The project is now being executed through State budgetary grants.

The CE accepted the fact (March 2012) that construction activities were stopped during 1992 to 1996 due to paucity of funds.

(ii) Delay in award of work

In respect of 12 works, there were delays in award of work due to delay at different levels and stages.

Clause 4.7 of Appendix 2.10 of MPWD Manual stipulates that tender should be accepted within four months from the date of tender. Clause 8.1.1 of Appendix 2.10 of MPWD Manual as well as agreement (clause 2.10) further stipulates that the contractor will execute the agreement within 30 days of the date of acceptance of his tender.

We noticed in respect of 12 works (design IP 52,111 hectare) out of 21 works test checked in four divisions⁸⁹ that there were delays in issue of work order (three to 11 months) in four cases⁹⁰ and delays at EE level in sending Notice Inviting Tender (NIT) programme to higher authority (eight to 36 months) in other four cases⁹¹. There were delays of five to 12 months in five cases⁹² for finalising NIT and delays of four to 13 months in ten cases⁹³ in acceptance of tenders at the Authority level. In two cases⁹⁴, tenders for balance work were not finalised even after a delay of 24 to 36 months from the date of rescission of original work. Thus, in respect of these works, there were delays at different levels and stages as detailed in **Appendix 2.21**.

In particular, four works (Sl. No. five to eight of Appendix 2.21) of construction of LBC from km 130.67 to km 135.50 with its distribution system (design IP 34,223 hectare) were taken up in 2005-06 to be completed between July 2008 to December 2009 which was still incomplete (March 2012). All the four works were rescinded between July 2009 and October 2010 due to slow progress of works by the contractors. Tenders for three balance works were accepted with the delays of seven to 13 months and in one case the decision of rejection and invitation of tender with splitting the work in four parts, was taken after delay of nine months.

Regarding delay in finalising of tender, the EE Canal division no. 1 Kareli replied that it was only a procedural delay which was not attributable to the department. The reply is not correct because tender for all balance works (Sl. No. five to 12 of Appendix 2.21) were not finalised even after delays of 19 to 39 months from the date of rescission. In two balance works (Sl. No. 11 and 12 of Appendix 2.21), tenders were not invited even after a lapse of 24 to 36 months.

⁸⁹ (1) Canal Dn. No.-2 Jabalpur, (2) Canal Dn. No.-2 Gotegaon, (3) Canal Dn. No.-1 Kareli and (4) Disnet Dn. Narsinghpur

⁹⁰ Sl. No. One to four of Appendix-A

⁹¹ Sl. No. Nine to twelve of Appendix-A

⁹² Sl. No. Five to eight and eleven of Appendix-A

⁹³ Sl. No. One to ten of Appendix-A

⁹⁴ Sl. No. Eleven and twelve of Appendix-A

(iii) Contractors leaving the work incomplete

Non-observance of penal/contractual provision resulted in contractors leaving the work incomplete.

Eight works for construction of canals (for creation of IP of 50,321 ha) out of 21 works test checked by us, were awarded to various contractors from April 2003 to March 2008 for completion by October 2004 to December 2009 (within 13 to 21 months). All the eight works were rescinded between June 2007 and October 2010 due to poor progress by the contractors. Out of this, one work (Nagna distributary) was completed (June 2011) through another contractor with a delay of seven years and extra cost of ₹ 2.93 crore which is recoverable from original contractor. Balance seven works were still incomplete (July 2012).

As the Authority did not have adequate security deposit in their contracts, which could have been adjusted if the contractor failed to complete the work, it was unable to ensure completion of works by the contractors, which are discussed in paragraphs 6.1 to 6.4. Thus, the works for creation of 50,321 hectare IP were delayed from two to seven years as the contractors left the works incomplete as detailed in **Appendix 2.22**.

(iv) Non-completion of work in scheduled period

None of the construction works of LBC were completed in schedule period.

Time schedule is the essence of any agreement. It was, however, observed that none of the works awarded to contractors for construction of distribution network was completed within the scheduled time. Scrutiny of all the 10 completed works during May 2006 to March 2012 indicated that there were delays ranging up to six years in completion of works due to delay in acquisition of land, shifting of electric lines, handing over drawing & design and execution of excess quantities. Delays in acquisition of land in all 10 cases were significant as detailed in **Appendix 2.23**.

2.3.4.3 Inadequate planning resulting in non-creation of IP

According to paragraph 2.025 and 2.026 of the MPWD Manual, project reports are required to be prepared on the basis of detailed survey and investigation. The designs and estimates should also conform to the relevant Indian Standards. Para 2.028 of the MPWD Manual further provides that the officer according the technical sanction to an estimate is responsible for ensuring the soundness of design.

(i) Inadequate drainage system

Hareri branch canal breached due to poor drainage and below specification work resulting in wasteful expenditure of ₹ 1.60 crore.

Hareri branch canal from km 31.30 to km 52.83, constructed between 1992 and 2002 at a cost of ₹ 1.60 crore to irrigate 3,093 ha of Narsinghpur district, was an unlined canal. After a lapse of five years, the canal was tested for the first time in 2007. During testing, the canal breached at km 33.18. After rectification, the canal was tested in the year 2008-09 but failed again and breached at km 37.50 km. It was also rectified in 2008-09. During running of water in 2009-10, the canal again breached at km 43.500, 47.700, 48.100, 52.400. During rains, various other reaches of canal also got damaged.

G.S. Institute of Technology & Science, Indore authorised by the department for analysing the reasons for damage of canal, reported that the canal was

damaged due to the absence of properly designed cross drainage and use of unsuitable soil in the embankment. The technical advisor of the Authority also reported (December 2009) in his inspection report that the canal was not constructed according to earth dam specifications although it was passing through the local ridges and the valleys of the ravines near the river Narmada.

We further noticed that Hareri Branch canal from km 31.30 to km 52.83 was completed during 1992 to 2002 but it was not run immediately and was lying idle due to non-completion of previous reaches (km 00 to km 31.30). As a result, maintenance work is also not being undertaken between km. 31.30 and km. 52.83. Besides, the canal was aligned along the ridge, only one Cross Drainage⁹⁵ (CD) was provided at km 33.19 in the entire reach. In the estimate (December 2011) for reconstruction of breached canal, two additional CDs in km 38.50 & km 41.50 were provided which indicates that the previously planned design for drainage was deficient. Tenders of ₹ 3.20 crore, to correct the damaged work was yet to be invited (March 2012). Therefore, the expenditure of ₹ 1.60 crore on construction of the canal became substantially unfruitful and 3,093 ha IP could not be utilised so far.

The Vice Chairman of the Authority agreed with the audit contention and stated in the exit conference (June 2012) that breach of the canal was a technical failure and the reconstruction work would be done as per Central Water Commissions recommendation.

(ii) Non-planning for outlets and re-sectioning work

Defective estimation resulted in non-creation of 1,791 ha IP and extra cost of ₹ 5.17 crore for completion of balance work.

Earth work, lining, structures and outlets between km 66 and km 84 of main canal, and its branches and distributaries was awarded by the EE Canal Dn. no. 2 Gotegaon in March 2002 for ₹ 17.26 crore to be completed by September 2004. After execution of work valued at ₹ 15.68 crore by the contractor, the Authority withdrew the balance work (₹ 1.58 crore) in September 2008 stating that:

- (i) The outlets could not be constructed due to the reason that the exact place of the outlet shall be decided during execution of the field channels.
- (ii) Cement Concrete (CC) lining could not be completed as the earth work of the minor canal, which was completed long back, had settled down and required re-sectioning work which was not in the scope of agreement.

The reasons on which the work was withdrawn indicate that the work was taken up without properly determining place of outlets and items of work that would be required to be executed. Inadequate planning for the work, thus resulted in avoidable extra cost of ₹ 5.17 crore⁹⁶ for the balance work and non-creation of IP of 1,793 ha. We further noticed that there was no provision for re-sectioning of the canal system even in the revised estimate.

⁹⁵ The alignment of the canals crosses the natural drainage valleys and provision has to be made to take the drains safely across the canal without damaging it.

⁹⁶ Difference of estimated cost for execution of balance works (₹ 6.75 crore) and value of work withdrawn (₹ 1.58 crore)

The EE canal Dn. no. 2 Gotegaon accepted (February 2012) the audit observation and stated that item of re-sectioning of canal system was to be provided at the time of inviting the tender. The reply confirms that estimate was prepared without conducting adequate survey.

2.3.5 Poor utilisation of created Irrigation Potential

Utilisation of created IP was only eight to 25 per cent during last five years (2007-12).

The Authority had created IP of 1.15 lakh ha up to March 2008 which was increased to 1.23 lakh ha up to January 2012 but against this utilisation ranged from 7,903 ha to 30,923 ha. Thus, the utilisation was only eight to 25 per cent during 2007-08 to 2011-12 of the created IP as detailed below:

Table 2.27: Creation and utilisation of Irrigation Potential (In hectare)

Year	IP created	IP utilised during the year	Percentage of utilisation
Up to 2007-08	115377	7903	10
Up to 2008-09	119383	9980	8
Up to 2009-10	120483	15516	13
Up to 2010-11	121453	30923	25
Up to 2011-12	122599	29721	24

(Source: Information provided by CE RABLS and field units)

The reasons for poor utilisation of created IP were non-construction of Water Courses⁹⁷ (WC) and Field Channels⁹⁸ (FC) and non-running of completed canal in full swing due to various reasons such as silting, non-construction of structures, damages of structures and breach of canal in various places as discussed in the succeeding paragraphs.

2.3.5.1 Non-construction of Water Course/Field Channel simultaneously with canal network

Non-construction of Water Course/Field Channel caused less utilisation of created IP.

The canal system comprises of Main Canal, Branch Canal, Distributaries, Minors, Sub-Minors, WC and FC. Approved DPR (1989) of LBC network provided for construction of WC/FC in 1.57 lakh ha for maximum utilisation of created IP.

We noticed that WC/FC essential to carry water from the canal to the fields were not constructed simultaneously with the canal network. The work of WC/FC for 17,870 ha out of 1.23 lakh ha created IP was completed through Command Area Development Authority⁹⁹ (CADA) between 1991 and 2004. Thereafter, the work of WC/FC was stopped and no effort was made by the Authority to complete the balance work. In 2009-10, the work of WC/FC was again taken up under National Rural Employment Guarantee Scheme (NREGS) and CADA. The works of WC/FC were completed only for 10,194

⁹⁷ Water course: A channel taking off from a canal which conveys water to the turn out

⁹⁸ Field channel: A channel taking off from the Government outlet and leading to the farm gate

⁹⁹ GOI launched a Centrally Sponsored Scheme of Command Area Development Programme in 1974-75 with the objective to bridge the gap between the irrigation potential created and that utilised through developing the command area. This programme is monitored by constituting a multi-disciplinary team under the overall control of the Command Area Development Authorities.

ha between 2009-10 and 2011-12, WC/FC works were ongoing for 4,830 ha and for remaining 89,705 ha, works were not started (as of March 2012). Irrigation was being done by cultivators by lifting the water from the canal or by using their own arrangements. Thus, the benefit of irrigation was available only to cultivators having fields near the canal. Non-construction of WC/FC simultaneously with canal system deprived the cultivators from the benefit of irrigation even after completion of the canal.

In the exit conference, the Vice Chairman of the Authority stated (June 2012) that non-construction of WC/FC was not the only reason for less utilisation of IP but non accounting of utilisation of irrigation potential, irregular rain and unwillingness of farmers to change crop pattern (requiring more water) also caused lesser utilisation of IP. He further added that delay in completion of the work of WC/FC was mainly due to frequent changes in the policy of the Central Government regarding development of command area for such project and the work of WC/FC would be completed early.

The fact remains that due to delay in completion of the work of WC/FC, the cultivators who were not in proximity to the canal were deprived of the facility of irrigation and resulting in less utilisation of IP of 92,878 hectare.

2.3.5.2 Non-running of completed canal

For maximum utilisation of created IP (1.23 lakh ha), it was necessary to run the canal in full capacity up to the tail.

We noticed that 17 *per cent* of the created IP was not utilised due to non-running of completed canal in full capacity. Out of 590 minors/sub-minors, 143 minors/sub-minors having IP of 20,437 ha were not in a condition to carry water due to silting in bed (58 minors/sub-minors; IP 9,852 ha), non-construction of structures like head regulator, village road bridge and cross drainage (55 minors/sub-minors; IP 6,636 ha), breach of canal (24 minors/sub-minors; IP 3,093 ha) and damage in canal structures (six minors/sub-minors; IP 856 ha). The main reason for silting in canal bed of minors/ sub-minors was its non-maintenance. Action for rectifying damage and construction of incomplete structures was also not initiated on time, which caused lesser utilisation of Irrigation Potential.

The matter was reported to Government (August 2012) and reply has not been received so far (March 2013).

2.3.6 Deficiencies in management of Contracts

Instances of violation of the provisions of the agreements and the Manual leading to inadmissible payment, excess payment and irregular release of Security Deposit (SD) /Performance Security Deposits (PSD) were noticed which are discussed in the succeeding paragraphs.

2.3.6.1 Non-adherence to contractual provisions resulting in excess payment

Non-adherence of contractual provision resulted in recoverable amount of ₹ 5.35 crore from defaulting contractor.

The Executive Engineer Canal Dn. no. 2, Jabalpur awarded (April & July 2003) two works¹⁰⁰ to a contractor. The works were scheduled to be completed by January 2005 and April 2005 respectively. The contractor failed to complete the works even within the extended period (31 March 2008). The works were rescinded in December 2008 and final bills of incomplete works were passed (November 2010) for recoverable amount of ₹ 5.35 crore (₹ 3.09 crore for Agreement no. 01/03-04 and ₹ 2.26 crore for Agreement no. 02/03-04), whereas only ₹ 1.53 crore was available with the division in the form of security for both the agreements.

We noticed that recovery arose due to various irregularities like erroneous payment of escalation, payment for sub-standard work, execution of excess quantity and non-recovery of royalty charges for the material consumed in canal works by the Authority in running payment to the contractor as detailed below:

Table 2.28: Recoveries to be effected due to mistakes in payments

Description	Agreement no. 1 Amount (in ₹)	Agreement no. 2 Amount (in ₹)
Escalation erroneously paid	85,96,376	92,70,528
Penalty for unfinished work	7,40,000	9,10,000
Penalty for bad work	13,88,300	--
Royalty not deducted	66,44,198	44,97,237
Amount of quantity reduced from previous bill due to sub-standard work	96,22,573	43,14,415
Amount of quantity reduced from previous bill due to excess quantity	46,47,113	47,95,439
Total	3,16,38,560	2,37,87,619
Amount payable in final bill	(-) 6,165	(-) 2,40,444
Amount released in final bill	(-) 7,40,000	(-) 9,10,000
Net recoverable amount	3,08,92,395	2,26,37,175
Total recoverable amount		535.30 lakh

(Source:- Information provided by the EE Canal dn. 2 Jabalpur)

The Executive Engineer Canal Dn. no. 2, Jabalpur stated (March 2012) that:

- the contractor was not entitled for escalation as time extension was granted under penal clause,
- in some places lining of canal were damaged and the contractor promised to rectify the damaged work but the same was not rectified by him. He further stated that quantities of damaged works were deducted from the final (paid) quantity and

¹⁰⁰ Belkhedi distributary from km 0.00 to km 34.00 and its distribution system (Agt. 01/03-04)
Pipariya sub-distributary km 0.00 to km 12.00, Belkhedi tail minor km 0.00 to km 15.00 and its minors & sub-minors (Agt. 02/03-04)

- (iii) the extra executed quantities were reduced up to agreed quantities due to non-sanction of these by the competent authority.

The reply confirms that the payments on account of escalation initially made were wrong. Extensive damage of lining work was indicative of sub-standard material/ workmanship and extra works should have been executed after obtaining sanction from the competent authority to avoid such situation and any dispute with contractor at later stage.

Irregular release of Security Deposit/Performance Security Deposit

Performance security of ₹ 1.54 crore was irregularly released though the work was rescinded under risk and cost of the defaulting contractor and ₹ 5.35 crore was recoverable from him.

In terms of the standard clause 4.3.17.2 of the agreement, SD/PSD of the contractor shall be released only after twelve months from the date of completion of the work. Clause 4.3.3.3 of the agreement stipulates that if the contractor fails to complete the works, competent authority shall have power to measure up the work of the contractor and entrust the unexecuted part of the work to another contractor. Any extra cost in the execution of the balance work shall be borne and paid by the original contractor which may be adjusted from SD/PSD of the contractor and any money due to him by the Government.

We noticed that both the above agreements were rescinded on 22.12.08 under clause 4.3.3.3 of the agreement due to slow progress of work. Therefore, the balance work was to be completed through another agency and the extra cost should have been adjusted from the contractors deposits. Contrary to this, the EE Canal division no-2, Jabalpur irregularly released two Fixed Deposit Receipts (FDRs) deposited by the contractor towards PSD for ₹ 1.54 crore¹⁰¹ to the contractors on 22 November 2009, that is, after recession of the agreements as detailed in the table below:

Table 2.29: Details of security deposits and performance security deposits

(₹ in lakh)					
Agreement no.	PSD in the shape of FDR	SD deducted from RA Bills	Total Amount	PSD released	Balance SD available
1/2003-04	122.95	35.63	158.58	73.65	84.93
2/2003-04	99.96	48.25	148.21	79.85	68.36
		Total	306.79	153.50	153.29

(Source:- Information provided by the EE Canal dn. 2 Jabalpur)

The Authority, therefore, lost the opportunity to adjust the recoverable amount to the extent of ₹ 1.54 crore out of the net recoverable amount of ₹ 3.82 crore (₹ 5.35 crore - ₹ 1.53 crore). Recovery of balance amount of ₹ 3.82 crore was yet to be effected. Besides due to slow progress of work and subsequent rescission of the contract, the completion of the project has suffered delays and consequently the cultivators were deprived of the irrigation facilities as the canal work is still incomplete (March 2013).

¹⁰¹

Agt. No.1 FDR No. 770083 dated 10.04.03 for ₹ 73.65 lakh

Agt. No.2 FDR No. 770642 dated 14.07.03 for ₹ 79.85 lakh

Total ₹ 153.50 lakh

The CE accepted (March 2012) the audit observation and replied that release of SD and PSD was not according to the agreement clause. It was also stated that departmental enquiry had been initiated against the concerned Executive Engineer.

2.3.6.2 Inflated measurement of works resulting in excess payment

Inflated measurements led to excess payment of ₹ 62.05 lakh to the defaulting contractors.

The MPWD Manual envisaged that running payments to the contractor should be made after recording measurements by the Sub Divisional Officer. 10 per cent of such measurements should be test checked by the Divisional Officer.

Two works¹⁰² were awarded (August 2004 and November 2006) by the EE Canal Dn. no. 1 Kareli to contractors for ₹ 32.87 crore with the scheduled completion period by May 2006 and July 2008 respectively. Due to slow progress, the works were rescinded in March 2010 and July 2009, respectively.

We noticed in the examination of final bills of the said incomplete works that the executed quantities of several items of work in final bills were less than the quantities for which payments were made up to the penultimate bills. The reason was non-deduction of excavated soil used in embankment from earth work, non-deduction of shrinkage allowances, excavated quantities of Cohesive Non-swelling Soil (CNS)¹⁰³ material not deducted from execution of CNS and wrong calculation in previous bills.

The excess payment of ₹ 62.20 lakh (**Appendix 2.24**) due to inflated measurement up to the penultimate bills signifies that the EE failed to exercise control over the measurements recorded in the measurement books.

The EE Disnet Division, Narsinghpur accepted (January 2012) the excess payment due to inflated measurement and stated that it would be adjusted from the contractors deposits. The payments on inflated measurement also resulted in cost overrun of the project without creating tangible assets for the project.

2.3.6.3 Avoidable payment of escalation

Delay in acquisition of land led to avoidable payment of escalation of ₹ 4.81 crore besides delaying irrigation facility in 25,675 ha.

According to the Appendix 1.25 (vi) of the MPWD Manual it is the responsibility of the Executive Engineer to work out the requirement of land for work, quarries and draw up programme for land acquisition/land transfer with a view to ensure transfer of required land before target date set for starting of works.

In three agreements (**Appendix 2.25**) of canal works intended to provide irrigation in 25,675 ha, we noticed that works were not completed within the stipulated period due to delay in acquisition of land. The competent authority granted time extension to the contractors on this ground. According to the clause 2.40.2 of the agreements, the contractors were entitled for escalation in

¹⁰² (i) Construction from km 126.190 to km 130.670 of LBC and its distribution system
(ii) Construction of Sadumar Branch Canal from km 0.0 to km 4.5 & Dungaria Distributary km 5 to km 23

¹⁰³ They are soils possessing the property of cohesion of varying degree and having non-expanding type clay minerals such as illite and kaolinite and their combination with low plasticity with liquid limit not exceeding 50 per cent.

the extended period for delay not attributable to them. We further observed that works were awarded either without initiating the process of land acquisition or land were acquired after 27 to 39 months from the date of award of work to the contractors. This had resulted in increase in schedule completion period and avoidable payment of escalation for the period beyond the stipulated period to the contractors of ₹ 4.81 crore. Thus due to delay in completion of work from one year to three and a half years as detailed in **Appendix 2.25**, there was consequential delay in providing irrigation facility in 25,675 ha.

The EE Disnet Dn, Narsinghpur (January 2012) stated that the proposal of land acquisition for branch canal was submitted before start of the work, whereas the proposal of minors and sub-minors was submitted later due to paucity of funds as the work was sanctioned under NABARD in February 2003. The reply however does not give explanation for award of works without acquisition of land. Other two divisions did not give any reply. The excess payment of escalation would also increase the cost of the project.

The matter was also reported to the Government (August 2012) and reply has not been received so far (March 2013).

2.3.6.4 Non-observance of terms and conditions of contracts resulting in undue financial benefits to contractors

We noticed that the Authority, on many occasions, failed to enforce the provisions of the contracts to secure its interest or avoid loss to the Government, which also resulted in undue financial benefits to the contractors as summarised below:

Nature of Irregularities	Audit observation
(i) Non-invoking of clause for defaulting contractors in termination of contracts	<p>Clause 4.3.2 of the agreement stipulated that if the contractor fails to complete the work and the contract is terminated, the amount of SD/PSD shall stand forfeited to the Government. The balance work shall be got executed through another agency, at the cost of the contractor and extra cost if any shall be recovered from the original contractor.</p> <p>Further, clause 4.3.3.3 of the agreement stipulated that if the contractor failed to complete the works, competent authority shall have power to debar the defaulting contractor from taking part in any other new tender/contract, to blacklist and cancel registration of the contractor in addition to forfeiture of security deposit and performance security.</p> <p>We noticed in the scrutiny of eight rescinded agreements that in four agreements for construction of main canal (km 130 to km 135), branch canal and its distributaries, the contractors failed to achieve the milestones and the</p>

Nature of Irregularities	Audit observation
	<p>contracts were rescinded under clause 4.3.3.3 of the agreement instead of clause 4.3.2. The rescission of contract under 4.3.2 was more advantageous to the Government because the additional expenditure incurred for the completion of balance work was also recoverable from the original contractor, in addition to forfeiture of the security deposit and black listing of contractors for award of further works. Thus, by not invoking clause 4.3.2, the Authority lost the opportunity to recover extra cost incurred on completion of balance work from the original contractor, resulting in overall increase in the project cost and avoidable loss to the Government of ₹ 37.06 crore as detailed in Appendix 2.26.</p> <p>We further noticed that though the contracts were terminated under clause 4.3.3.3 of the agreement, the division forfeited SD and PSD of ₹ 1.82 crore only out of ₹ 7.02 crore of the contractors, which was available with the Authority.</p> <p>During the exit conference, the Vice Chairman of the Authority accepted and stated (June 2012) that legal advice would be taken to revise the order of rescission of the contracts issued by the EE, so that the extra cost could be recovered from defaulting contractors. The fact remains that rescinding the works in non-panel clause resulted in cost overrun of the project.</p>
<p>(ii) Excess payment to contractors due to non-deduction of additional security deposit for unbalanced items</p>	<p>Clause 3.26 of the agreement provided that if the rates quoted by the contractor for different items are disproportionately high as compared to the estimated rates of such items, payment for those items is to be made at the estimated rate <i>plus/minus</i> overall tender percentage. The balance payments are to be withheld as additional security deposit until completion of the entire work. The withheld amount will, however, be forfeited if the contractor abandons the work. Besides the provision in the agreement, the tender approving authority also specifically directed (in their acceptance letters) to regulate payment of unbalanced items as per clause 3.26 of the agreement.</p> <p>In scrutiny of 12 agreements of LBC and its distribution network, we noticed that the contractor had quoted higher rates than the estimated rates for some items of work, for which an amount of ₹ 9.51 crore was required to be retained towards additional security deposit. Out of the 12 agreements, seven agreements were rescinded due to slow</p>

Nature of Irregularities	Audit observation
	<p>progress of work. In the two cases¹⁰⁴ where additional security deposits of ₹ 1.01 crore were recovered, ₹ 92 lakh was subsequently released to the contractor before rescinding the work. Non-recovery of additional security deposit as per the provisions of the agreement and specific instructions of the tender approving authority, resulted in unrecoverable amount of ₹ 8.56 crore¹⁰⁵ from the contractors in seven rescinded cases and undue financial aid to the contractors of ₹ 86 lakh in five completed works (Appendix 2.27). Evidently, due to not invoking this clause, the deterrent effect on contractors to ensure completion of work within the estimated time and cost remained unrealised.</p> <p>The EE LBC Dn. No. 2 Jabalpur stated (March 2012) in reply that since the contractor was executing both lower and higher rate items simultaneously, in the interest of work, additional security for unbalanced items was not retained. The reply does not justify the non-recovery of additional security deposit in respect of unbalanced items as the terms of the agreement provided for this. The tender approving authority also identified the unbalanced items in his approval letters and directed to enforce the unbalanced item clause of the agreement.</p>
(iii) Non-imposition of penalty on contractors for delay in completion of works	<p>Clause 4.3.5.3 of the agreement stipulates that grant of time extension shall be without prejudice to the rights to recover liquidated damages as per terms of the agreement. Further, Clause 4.3.2 of Appendix 2.14 (Standard format of Item rate tender) of MPWD Manual provided the quantum of the penalty.</p> <p>We noticed that three contracts of Canal division no. 1 Kareli, were rescinded as the contractors failed to achieve the milestones specified in the contracts. Time extensions were granted under penal clause 4.3.5.3 but the quantum of penalty was not specified in the contracts as clause 4.3.2 was amended by the Authority. Since the time extensions were granted under penal clause, liquidated damages (LD) amounting to ₹ 4.62 crore (Appendix 2.28) should have been imposed on the contractors. The Authority, however,</p>

¹⁰⁴ (i) Agreement No. 1/07-08, construction of LBC from 130.670 km. to 135.50 km. and Renuka distributary from 0 to 5 km. (ii) Agreement No. 2/07-08, construction of Sadumar branch canal from 4.50 to 9.00 km. and Amoda distributary.

¹⁰⁵

Amount to be recovered from seven rescinded cases	₹ 8.64 crore
Available amount with the division	₹ 92 lakh
Recoverable amount	₹ 8.56 crore

Nature of Irregularities	Audit observation
	<p>did not impose LD on the defaulting contractors. Thus, the defective penalty clause facilitated the contractors to escape from the liability of LD thereby impacting the overall project cost.</p> <p>The EE of the division stated (January 2012) that there was no provision in the agreement to recover liquidated damages, hence it was not recovered. From the reply, it is clear that contracts were defective.</p>
(iv) Short recovery of secured advance from contractor	<p>As per clause 3.25 of the agreement, recovery of secured advance is to be effected in each succeeding bill to the extent materials are consumed in the finished items.</p> <p>We noticed in construction of Sadumar branch canal from km 0.0 to km 4.5 that secured advance of ₹ 58.95 lakh was paid (December 2006 to November 2008) to the contractor. While recovery of ₹ 37.45 lakh was made (March 2007 to February 2009) from his bills, the contractor left the work incomplete (July 2009) and balance amount of ₹ 21.50 lakh remained unrecovered in the last bill of the contractor taking into account the erroneous adjustment of ₹ 10.19 lakh in that bill.</p> <p>The Government replied (December 2012) that only ₹ 11.31 lakh of secured advance was outstanding for recovery in the final bill against which precast tiles amounting to ₹ 18 lakh was available with the division. The reply was not correct as ₹ 10.19 lakh was erroneously adjusted in the final bill and therefore, ₹ 21.50 lakh (₹ 11.31 lakh plus ₹ 10.19 lakh) was outstanding for recovery. Further, value of lying material on site cannot deem adjusted against the recoverable amount unless it was consumed in the works as such adjustments inflate the cost of the project without corresponding benefits in terms of irrigation potential.</p>

2.3.7 Conclusion

Though the Authority had no financial constraints between 1996-97 and 2009-10, the canal construction work could not be completed within the targeted date due to delay in award of work, delay in acquisition of land and slow progress of works. The RABLS project rescheduled to be completed by 2015 has not achieved the desired objectives of providing irrigation due to non-synchronisation of work of distribution system and field channels with the main canal, as only 29,721 ha out of the created IP of 1.23 lakh ha was utilised as of March 2012. Abnormal delay in execution of main canal from km 130.67 to km 135.50 and its distribution network would be a major

bottleneck in achieving the objective of irrigating 34,382 ha in Narsinghpur district.

Contract management at the field level was defective and as a result, progress was not achieved as targeted. There were instances of non-invoking of contractual provisions like non-retention of security amount for unbalance items, excess payment to contractors, non-invoking of risk and cost clause and non-levy of penalty.