

WATER RESOURCES DEPARTMENT

3.2 Medium and Minor Irrigation Projects

Highlights

The target of creation of additional irrigation potential of 1.05 lakh hectares (Medium: 0.50 lakh ha; Minor: 0.55 lakh ha) by the end of March 2007 remained largely unachieved. As of 31 March 2005 the additional irrigation potential created was only 0.37 lakh ha (Medium: 0.01 lakh ha; Minor: 0.36 lakh ha). The slow progress was mainly due to faulty site selection, incorrect estimation, command area overlap, non-acquisition of land etc. There were instances of extra expenditure and irregularities in tendering and award of contracts, which raised input costs. There was no monitoring mechanism to ensure utilization of maintenance grants paid to Water Users Associations entrusted with running and maintenance of canal systems. The shortfall in utilisation of irrigation potential was as high as 40 *per cent*.

- **The department spent Rs.803.78 crore during 2000-05 against the budget provision of Rs.992.58 crore. The savings of Rs.188.80 crore were mainly due to delay in according administrative approval by the Government as well as non-receipt of sanction of projects from NABARD.**

(Paragraph 3.2.6)

- **The target of creation of additional irrigation potential of 1.05 lakh hectares through Medium and Minor Irrigation Projects by the end of March 2007 remained largely unachieved. The creation of additional potential out of Medium Irrigation Projects was significantly low (2 *per cent*). The slow pace of progress was mainly due to faulty planning of site, delay in land acquisition and non-obtaining of forest clearance.**

(Paragraph 3.2.10)

- **Commencement of work of Sutiapat Medium Irrigation Project without considering the Geological studies resulted in stoppage of work midway and unfruitful expenditure of Rs.4.70 crore.**

(Paragraph 3.2.11)

- **Wrong assessment of water availability in Kharkhara Mohadipat Canal project (medium) led to substantial reduction of 5155 hectares (42 *per cent*) in the proposed command area.**

(Paragraph 3.2.12)

- **Eleven Minor Irrigation Projects in the test checked districts requiring clearance of 184 hectares of forest land taken up for execution between November 2000 and March 2004 remained incomplete as the required clearance of forest land was not obtained rendering the expenditure of Rs.10.66 crore incurred on these projects unfruitful.**

(Paragraph 3.2.14)

- **Undue benefit of Rs.1.58 crore to contractor in construction of Mongra Barrage Medium Irrigation Project due to post-tender changes in design.**

(Paragraph 3.2.16)

- **Irregular splitting of works in medium/minor irrigation projects to avoid approval of higher authorities resulted in extra cost of Rs.1.83 crore.**

(Paragraphs 3.2.20 and 3.2.21)

- **There was no monitoring mechanism to ensure utilization of maintenance grants paid to the Water User Associations, entrusted with the responsibility of running and maintenance of canal systems.**

(Paragraph 3.2.23)

- **Against the created Irrigation Potential of 7.49 lakh hectares (Medium: 2.25 lakh hectares; Minor: 5.24 lakh hectares) the utilization was only 4.52 lakh hectares (Medium: 1.80 lakh hectares; Minor: 2.72 lakh hectares).**

(Paragraph 3.2.24)

3.2.1 Introduction

The State of Chhattisgarh is predominantly an agricultural state with 80 *per cent* of the people dependent on agriculture. At the time of formation of the State in November 2000, it inherited from Madhya Pradesh, 2013¹ completed irrigation projects and 388² ongoing irrigation projects having a total irrigation potential of 13.28 lakh hectares i.e., 27.5 *per cent* of Net Sown Area (NSA) of 48.28 lakh hectares.

During the period from November 2000 to March 2005, 87 projects including one medium and 86 minor were completed and the total irrigation potential increased by 2.24 lakh hectares to 15.52 lakh hectares. The State Government

¹ Major: 3, medium: 29 and minor: 1981.

² Major: 4, medium: 7 and minor: 377.

sanctioned 162³ new irrigation projects and as on 31 March 2005, the State had 2100 completed projects including three major, 30 medium and 2067 minor and 463 ongoing projects including seven major, eight medium and 448 minor projects.

3.2.2 Organisational Setup

The Water Resources Department (WRD) headed by Principal Secretary was overall responsible for implementation of various schemes/programmes in connection with irrigation projects through the executive formation headed by an Engineer-in-Chief (E-in-C). The Medium and Minor Irrigation Projects were under the charge of three Chief Engineers (CE) assisted by three Superintending Engineers (SE) and 39 Executive Engineers (EE).

3.2.3 Audit Objectives

The main audit objectives were to assess

- Funding arrangement and its utilisation including control over funds;
- The manner in which the Medium and Minor Irrigation Projects were selected for execution;
- Slippages in execution;
- Extent of utilisation of created irrigation potential; and
- Adequacy of maintenance of the created assets.

3.2.4 Audit Criteria

Provisions laid down in the Madhya Pradesh Works Department manual and Madhya Pradesh Irrigation specifications as adopted by the Government of Chhattisgarh were used as audit criteria besides the irrigation statistics of the Government and the prescribed financial rules and procedures of the Government.

3.2.5 Audit Coverage and methodology

The review was conducted during April to August 2005 through test-check of records of the Office of the E-in-C, two CEs and seven⁴ Divisions, which executed three medium and 112 minor irrigation projects, covering the period from November 2000 to March 2005. The primary focus of audit was on ongoing works. The audit methodology was mainly document review and discussions were held at various levels in the Water Resources Department.

³ Major: 3, medium: 2 and minor: 157.

⁴ Project Divisions, Sutiapat, Mongra & Kharkhara and WR Divisions, Durg, Mungeli, Pendra Road & Bilaspur.

Audit findings

Financial Management

3.2.6 Funding arrangement

The funding for ongoing medium and minor projects inherited from Madhya Pradesh as well as for the new projects sanctioned by the Government of Chhattisgarh (GOCG) were available from three sources. Of the eight medium and 448 minor ongoing projects as of March 2005, two medium and 296 minor projects were being financed by National Bank for Agriculture and Rural Development (NABARD) loans. As per NABARD loan arrangement, expenditure on projects cleared by GOCG and NABARD were initially incurred through State Budget. Loans are subsequently sanctioned by NABARD as re-imburement of admissible items of expenditure. Five medium and 152 minor projects were financed under the State Plan and one medium project was financed under Accelerated Irrigation Benefit Programme (AIBP) by GOI.

Of the total expenditure of Rs.803.78 crore on medium and minor projects during 2000-2005, Rs.466.10 crore was funded by the State, Rs.314.40 crore through NABARD loans and Rs.23.28 crore under AIBP. Details are given in **Appendix-3.2**.

The budget allotment, expenditure and savings during last five years were as mentioned below:

<i>(Rupees in crore)</i>			
Year	Budget allotment	Expenditure	Excess (+) /savings (-)
2000-01*	51.00	36.10	(-) 14.90
2001-02	125.63	104.18	(-) 21.45
2002-03	201.78	163.69	(-) 38.09
2003-04	248.11	196.76	(-) 51.35
2004-05	366.06	303.05	(-) 63.01
Total	992.58	803.78	(-) 188.80

* From November 2000

There were savings in each year from Rs.14.90 crore in 2000-01 to Rs.63.01 crore in 2004-05. The E-in-C stated that savings were mainly due to delays in according of administrative approval (2004-05) by the State Government for different projects and non-receipt of sanctions from NABARD. The CEs Hasdeo and Mahanadi Godawari (MG) Basin, attributed savings to receipt of allotment at the end of the year, restrictions imposed on expenditure in February-March each year, receipt of higher allocation than requirement from E-in-C, non acquisition of land, non clearance of forest land, non-framing of estimates for most schemes proposed and included in Budget.

In two Basins, there was expenditure in excess of allotments by Rs.3.98 crore during 2002-05 due to lack of control over allotments.

3.2.7 Control over expenditure and allotments

Scrutiny of annual expenditure statements in the offices of CEs, MG Basin, Raipur and Hasdeo Basin, Bilaspur revealed that against aggregate allotment of Rs.57.06 crore, divisions incurred an expenditure of Rs.61.04 crore during 2002-03 to 2004-05, resulting in expenditure in excess of allotments by Rs.3.98 crore. The CEs stated in reply that the excess expenditure occurred because the E-in-C reduced original allotments made by him in these heads after expenditure had been incurred. This indicated that although the E-in-C was aware of this mismatch continuously for three years, he was unable to regulate the issue of allotments.

3.2.8 Irregular claim of reimbursement from NABARD

Expenditure of Rs.one crore on inadmissible building works was misclassified as masonry works to claim reimbursement from NABARD.

As per terms and conditions of NABARD loans, expenditure incurred on construction of residential and non-residential buildings (K-Buildings) was not reimbursable. Yet, the expenditure of Rs one crore incurred by EE, Sutiapat Project Division on K-Buildings was included in the re-imbursement claim by booking the expenditure under the head "C-Masonry-Unit-II, Canal", which was not only misrepresentation of facts but also irregular.

3.2.9 Misuse of cheque drawing facility

According to Rule 490 of Madhya Pradesh Treasury Code Volume I as adopted by GOCG, expenditure on "Direction and Administrative Offices" (offices of CE /E-in-C) were to be incurred through the treasury drawals. In violation of this provision, the EEs, WRD Raipur, Durg and Bilaspur made contingent payments of CE/E-in-C offices amounting to Rs.1.58 crore through cheques. The E-in-C stated that this procedure was being followed to pay electricity and telephone bills etc., to save penalty on delayed payments. The justification was not acceptable. An irregular practice had been instituted through which the E-in-C/CEs had been bypassing the treasury checks and the cheque-drawing facility was being misused.

Programme Management

3.2.10 Programme objectives

The department had set a target for creation of additional irrigation potential of 50,000 hectares from medium irrigation projects and 55,000 hectares from minor irrigation projects by the end of March 2007. The target also contemplated completion of all the seven medium projects and 377 minor irrigation projects by March 2007.

Against the target of 50,000 hectares in five years for medium projects, the department had designed additional potential of only 11,500 hectares (23 per cent) through sanction of new projects during 2002-05. The additional created potential during this period was 1035 hectares (2 per cent of target). Similarly, against target of 55,000 hectares in five years for minor projects, the department had designed additional potential of 35,875 hectares (65 per cent

of target) during 2002-05. The additional created potential during this period was 36,490 hectares (66 *per cent*) of the target. Thus, while the creation of additional potential for minor projects was in line with target, the creation of potential for medium projects was low and required monitoring and possible re-evaluation of targets.

GOCG adopted Works Department Manual of Madhya Pradesh laying down the procedure for determining viability of projects. All projects must have a feasibility report, established by preliminary as well as detailed surveys. No Objection Certificate from Central Water Commission (CWC) was a pre-requisite for medium projects. After completion of these preliminary processes, a detailed project report (DPR) was prepared for each project and only those projects found viable were to be proposed for according administrative approval (AA). Instructions also provided that land acquisition and forest clearances ought to precede the actual execution of civil works.

Scrutiny of records revealed that the shortfall in creation of irrigation potential was mainly attributable to faulty planning, delay in land acquisition and forest clearances as discussed in succeeding paragraphs.

3.2.11 Faulty Project selection and planning

Sutiapat Medium Irrigation Project included construction of a 450m long and 30m high dam and was targeted to provide 34.10 Million Cubic Metres (MCM) water for providing irrigation to 6960 hectares of land (4060 hectares Kharif and 2900 hectares Rabi crops). The project cost of Rs.43.42 crore was to be funded by NABARD.

The DPR was prepared in October 2002 although the geological studies by the Geological Survey of India (GSI) had not been concluded. Preliminary tests conducted by the EE (September 2002), under directions of GSI, indicated high degree of seepage in the rock formation at the dam site. The interim report of the GSI to CE in December 2002 also indicated unsuitable geological strata and recommended that, techno-economics of the project were required to be evaluated along with effective measures to control seepage in the foundation.

However, instead of making any such re-evaluation, tenders were floated for a lump-sum contract in March 2003 although the Government had not given Administrative Approval (AA). The AA for Rs.36.95 crore was given only in July 2003 and work order of Rs.42.10 crore for construction of dam, canals, colony, building etc., including survey and investigation was awarded to a contractor in September 2003 for completion by August 2005.

The contractor started execution of work without conducting requisite survey or investigation as provided in the contract and could complete only 10 *per cent* works (costing Rs.4.70 crore) till February 2005 and in May 2005, the contract was terminated due to slow progress. Meanwhile the final report of the GSI was submitted in May 2004, which reiterated the problems pointed out in the interim report. The Department also consulted a subject matter expert regarding foundation treatment. The report of the expert (June 2004)

Work of Sutiapat medium project was awarded for Rs.42.10 crore despite adverse geological report of GSI and resulted in unfruitful expenditure of Rs.4.70 crore.

also showed that due to peculiar rock formation and permeability, it was very difficult to find a suitable foundation design. The CWC directed (April 2005) for not taking up earthwork upstream of COT⁵ till seepage control measures were finalised. The CE stated (May 2005) that seepage control through foundation was still under finalisation in consultation with GSI and CWC.

Thus, had the prescribed procedure for ensuring viability of project been followed, the execution would not have started without a suitable solution for the problem of seepage which was a grave technical problem that remained unresolved even after two and a half years. Despite being fully aware of the problem at inception undue haste was shown to start the execution; the DPR was finalized without waiting for GSI reports; tenders were floated before AA and work was started without prescribed survey by the contractor. Consequently, the work was held up indefinitely after incurring expenditure of Rs.4.70 crore at a site, which was found unsuitable as per various geological reports.

3.2.12 Decrease in command area due to defective estimation

Two reservoirs, Kharkhara and Mahanadi, had been supplying 9700 MCft of water to Bhilai Steel Plant (BSP). This requirement was reduced to 6000 MCft. in 1990 due to adoption of water recycling by BSP. Consequently, the committed water utilisation of these two reservoirs was reduced greatly.

As per assessment in 1998-99, Kharkhara reservoir was to provide only 1800 MCft of water to BSP and as per departmental calculation this would leave a surplus of 2140 MCft. of water in the reservoir. WRD of GOMP accorded Administrative Approval (AA) of Rs.23.81crore in February 1999 for construction of 33.75 Km long unlined Kharkhara Mohadipat Canal Project (KMC) to utilize the surplus water. The new canal system would branch out from Km. 8.5 of the existing unlined Kharkhara Feeder Canal (KFC). The AA was revised to Rs. 43.82 crore by GOCG (December 2002). A total amount of Rs.20.82 crore had been spent on execution (April 2005).

The project was envisaged to irrigate 12145 hectares of kharif crops from the assessed surplus of 2140 Mcft water at the rate of six hectares per Mcft.

The departmental assessment of surplus water, however, did not provide for transmission losses in unlined canal system. According to technical circular issued (December 1988) by BODHI⁶, Bhopal, the transmission loss of water in an unlined canal was to be 44 *per cent*, which worked out to 915 Mcft for this project. Further, the irrigation requirement for initial reaches of the canal was not assessed properly. Provision for drawing water to irrigate 345 hectares in these reaches was also subsequently added (November 2004) by inclusion of Sambalpur lift irrigation scheme (LIS). This further reduced the availability in the targeted command area by 60 MCft. Thus, the actual water availability for KMC would be only 1165 MCft against 2140 MCft projected for irrigating the command area.

⁵ Cut-off-trench

⁶ BODHI : Bureau of Design Hydel and Irrigation.

Thus, against the targeted command area of 12145 hectares, actual irrigation would be possible for only 6990 hectares at six hectares. per MCft. Due to reduced command area, the cost of construction per hectare of command area also increased from Rs.36,000 (as per DPR) to Rs.63,000 and benefit arising from the project would be substantially reduced by over 40 *per cent*.

Executive Engineer stated (June 2005) that the standard duty of irrigation at 6 hectares per MCft. adopted in the DPR included all losses of transmission and evaporation and added that there would be no shortfall in the proposed irrigation. The reply was not acceptable as it contradicted the views taken by the EE in other correspondences/records wherein he had admitted in his note that transmission losses to the extent of 44 *per cent* was not foreseen at DPR stage and in his DO letter addressed to the CE, MG Basin, Raipur, he had requested that canal lining was to be considered for KMC because due to transmission losses about 30 *per cent* of the irrigation command would remain un-irrigated.

3.2.13 Works sanctioned and started without requisite land acquisition

Out of 15013 hectares of land identified for acquisition in 32 Water Resources Division in the State for the ongoing medium and minor projects, only 7838 hectares (52 *per cent*) land was acquired as of March 2005. Out of Rs.100.70 crore deposited by the Water Resources Division to the Land Acquisition Officers (LAOs), only Rs.51.36 crore were disbursed towards land compensation as of March 2005. The remaining amount of Rs.49.34 crore was kept by the LAOs in saving bank accounts.

Execution of projects were started without land acquisition.

Test-check of records of four⁷ Water Resources Division revealed that progress of three ongoing medium and 26 minor irrigation projects on which an expenditure of Rs.116.17 crore had already been incurred, was held up due to non acquisition of 1617 hectares of land. The land acquisition advance of Rs.25.37 crore was blocked in the saving bank accounts of the respective LAOs.

3.2.14 Commencement of work without obtaining forest clearance

Under the Forest Conservation Act, 1980, no civil works could be taken up in forest area without clearance of Ministry of Environment and Forest, Government of India. Madhya Pradesh Government had also issued directions (September 1990) that no work should be taken up for execution without forest clearance.

Non-clearance of 184 hectares of forest land resulted in unfruitful expenditure of Rs.10.66 crore.

Test check of records of two CEs revealed that 11 minor irrigation projects taken up for execution between November 2000 and March 2004 required clearance for 184 hectares of forest land which was still awaited (March 2005). An expenditure of Rs.10.66 crore incurred on these projects had not given any benefit or returns till date as the projects were lying incomplete for several years.

⁷ Project Divisions: Sutiapat, Mongra & Kharkhara and WR Division- Durg: Tandula

Execution of projects

Due to various inadequacies in execution, tendering and award of contracts there were instances of excess/extra expenditure and the efficiency of projects was adversely affected and benefits were not commensurate with the expenditure. Specific instances are discussed below:

3.2.15 Extra payment

Extra payment of Rs.9.86 lakh due to erroneous and excess measurement of earthwork

The construction of Kharkhara-Mohadipat Canal (KMC) from km 0 to 6 and km.13.05 to 16 was awarded to two contractors for Rs.56.10 lakh and Rs.1.16 crore in July 2002 and February 2003 respectively. Against gross quantity of earthwork of 2,34,473 cum, the contractors excavated 2,66,504 cum. of earth. Audit observed that while recording measurements, the ground levels were shown to be higher by 0.12 m. to 2.55m. *vis-à-vis* the surveyed ground levels recorded in level book and L-section. Due to this variation from surveyed levels, extra payment of Rs.9.86 lakh was made for excess earthwork of 32,031 cum.

Construction of 26 structures and earthwork (km 19 to 33.50) in KMC was awarded to a contractor through two separate agreements. He was paid Rs.1.27 crore and his contracts were terminated owing to slow progress. Final measurements revealed that excess payment of Rs.8.33 lakh was made in running account bills, which was not recovered (June 2005).

The EE stated (June 2005) that in respect of earth work the ground surface was undulating and the executed levels could not be correlated with surveyed levels which were taken at intermediate positions. The reply was not acceptable because the justification for variation in initial levels *vis-a-vis* the surveyed levels was not borne out by record. In respect of terminated contract, EE replied (March 2005) that the recovery would be adjusted from the dues of the contractor.

3.2.16 Undue benefit to contractor due to post tender changes in design

Undue benefit of Rs.1.58 crore to contractor due to change in design of spillway gates after agreement.

The work of construction of Mongra Barrage Medium Irrigation Project (PAC Rs.40.56 crore) was awarded to a contractor on lump sum contract for Rs.69.82 crore (evaluated at 72.15 *per cent* above PAC) in February 2004 without clearance of drawings by CWC. The agreement provided for fabrication, supply and erection of two tier nine numbers vertical spillway gates (15m x 6m) of aggregate weight 2056.59 MT payable @ Rs.51629 per MT. On receipt of CWC recommendation (December 2004), the item was replaced with 10 radial gates of 14.50m x 8.55m. size. While there was no change in the aggregate weight, the replaced item was payable @ Rs.47175 per MT as per USR (1998). Payment was made at the higher rate and due to the difference of Rs.4454 per MT there was undue benefit of Rs.1.58 crore to the contractor.

The EE stated (June 2005) that the replacement of vertical gates by radial gates was approved by CWC, New Delhi and added that the radial gates required additional parts and fabrication tools. The reply was not acceptable.

Payment for the approved radial gates should have been made as per USR and in case additional payment was justified on account of additional parts and tools, the same should have been assessed and paid for separately, if admissible.

3.2.17 Non-recovery of mobilisation advance and interest.

The contractor for the Sutiapat medium project was paid (January 2004) mobilisation advance of Rs.42 lakh, which was recoverable with seven *per cent* interest. The contract was terminated in May 2005 (due to slow progress) and till that time only Rs.2 lakh was recovered. Balance Rs.44.04 lakh (principal: Rs.40 lakh and interest: Rs.4.04 lakh) was not recovered as of May 2005. EE stated that instructions were being sought for from CE for effecting recovery. Reply was not acceptable as the agreement explicitly required recovery of outstanding advance with interest and no further instructions were necessary.

3.2.18 Undue benefit to contractor

Undue benefit to contractor by advance payment of Rs.2.15 crore.

The Bilaspur Diversion Minor Irrigation Project, required construction of a canal crossing with the Bilaspur-Howrah railway line. As required by the Railway authorities, an agreement was signed with a Railway contractor (RITES) in December 2004 by the Executive Engineer, WR Kharang Division, Bilaspur and work order for Rs.3.37 crore was issued for completion within 12 months including rainy season. The agreement had provided for a maximum advance payment of Rs.1.58 crore. Though work was not started till July 2005, full advance payment of Rs.3.73 crore was made (by March 2005) resulting in undue benefit of Rs.2.15 crore to the contractor. The EE replied (July 2005) that full advance payment was made as demanded by the Railway contractor to speed up the execution. The reply was unacceptable as the full payment was not permissible under the agreement terms regardless of the demands of the contractor. Moreover, the justification for speedy execution was also unacceptable because the contractor had not commenced work even after six months of awarding the work.

3.2.19 Extra cost not recovered from defaulting contractors

Clause 4.3.3 of agreement for works stipulates that works left incomplete by the contractor can be entrusted by EE to another contractor or completed departmentally at the risk and cost of the defaulting contractor. Audit scrutiny revealed that the contract for earth work and 19 number of structures of Right Bank Main Canal from chain⁸ 264 to 497 of Haldimunda Diversion Minor Irrigation Scheme (Jashpur) and earth work and structures from Chain 165 to 203 of Left bank Main Canal of Amdania Diversion Scheme (Rajnandgaon) were awarded to different contractors but left incomplete. These were to be executed through other contractors at the risk and cost of defaulting contractors. Rupees 17.76 lakh as detailed in **Appendix-3.3** was not recovered from defaulting contractors (September 2005).

⁸ Chain : A running distance of 30 metre span.

3.2.20 Irregular award of work

The CE is empowered to award contracts up to Rs.one crore except for single bids wherein the power to award contract lies with the next higher authority. Single tender for construction of Masabhat distributory (minor irrigation scheme) and its five canals with estimated cost of Rs.68.35 lakh was accepted by CE and awarded to a contractor (M/s. R.S. Tiwari) for Rs.91.58 lakh at 33.99 *per cent* above Unified Schedule of Rates (USR) in December 2003 although this was not within his powers. A similar work (Matewa distributory estimated cost Rs.50.07 lakh) in the same project was awarded to another contractor (M/s. S.S. Builders, Durg) in the same month at 6.038 *per cent* below USR. Acceptance of tender at 40 *per cent* higher rates resulted in extra cost of Rs.36.65 lakh. Moreover, it was within the purview of E-in-C, being single tender, but was irregularly decided and accepted by CE, MG Basin Raipur.

3.2.21 Splitting of works

Award of composite work at higher rates by splitting resulted in extra cost of Rs.1.46 crore.

As per instructions, works with estimated cost upto Rs.one crore can be tendered and awarded by CE, from Rs.one crore to Rs.1.5 crore by E-in-C and above Rs.1.5 crore by the Government. Test-check of records showed that in many instances, composite works were being split, tendered separately and awarded by a lower authority, thus completely bypassing sanction of higher authority. This was a total dilution of the framework of applying financial limits to decision-making at different levels and this key financial control was being rendered totally ineffective. Such action was routinely justified citing operational constraints, beneficial factors to the Government like lower rates due to greater competition from many small contractors, non-availability of contractors who can take up large composite works etc. Such justifications were not acceptable. If splitting of composite works was necessary in the interest of works, proposals should have been submitted to the competent authority citing justification for splitting and the same could have been done with his approval. However, lower authorities were arrogating this decision making power to itself which was irregular. A number of cases were noticed in test-check wherein the splitting resulted in extra cost of Rs.1.46 crore as mentioned below:

Tender for construction of structures and earthwork of Kharkhara Mohadipat canal from RD 0 to 13050 m. with estimated cost of Rs.3.93 crore was split into three groups. The tenders, after splitting, were accepted by the CE, MG Basin, WRD, Raipur between December 2001 and August 2003, as given in **Appendix-3.4**. As the composite value of the works was Rs.3.93 crore, the acceptance of tenders was within the purview of the State Government. The splitting also resulted in extra cost of Rs.30.80 lakh by awarding of work at higher rate ranging between 4.74 *per cent* and 22.36 *per cent*.

Earthwork of main canal from RD 0 to 12,000 of Champi minor irrigation tank (WR Division Pendra Road) costing Rs.277.97 lakh) was split into three groups viz. RD 0 to 4500 (PAC Rs.72.98 lakh), RD 4500 to 8,000 (PAC Rs.107.83 lakh and RD 8,000 to 12000 (PAC Rs.97.16 lakh). CE, Hasdeo Basin, Bilaspur between October 2002 and May 2003 respectively, accepted

lowest tendered rates of three contractors for 17.15 per cent, 2.09 per cent and 30.89 per cent above USR. Acceptance of higher rate of tenders in two groups in the same continuous reaches resulted in extra cost of Rs.38.97 lakh. The composite work was in the purview of the Government.

The composite work of construction of main canal of Amner Moti Nalla minor irrigation project from chain 330 m to 815 m costing Rs.3.71 crore was split into six groups and awarded (May 2000-June 2001) to a single contractor on six different item rate agreements at rates ranging between 5.79 per cent below and 8.76 per cent above USR effective from 1998. The sanction of the Government was avoided by splitting the work into six groups. Splitting and awarding them at higher rates with reference to lowest rate of 5.79 per cent below USR resulted in extra cost of Rs.35.63 lakh as shown in **Appendix- 3.5**. CE replied (June 2005) that it was not practicable to execute entire canal stretch at one time due to several problems in certain sites like land acquisition etc. The same reason should have been cited to the Government and approval taken before splitting the contract.

Earth work from Ch-0 to 497 and construction of 39 nos. masonry structures of Right Bank Main Canal (RBMC) of Haldimunda Diversion Minor Irrigation Scheme with estimated cost of Rs.353.26 lakh was split into three tenders and accepted by CE, Hasdeo Basin, WRD, Bilaspur, E-in-C, WRD, Raipur and GOCG between May and June 2002.

Sl. No.	NIT No.	Particulars of work	Estimated cost (Rs. in lakh)	Amount of contract (Rs. in lakh)	Tender percentage
1.	2/SAC/2001-02, dated 30.7.2001	Earthwork on RBMC Ch.0 to 48 4 nos. masonry structures	64.08	76.71	18.04 % above
2.	--do--	Ch.48 to 264, 26 nos. masonry structures	116.06	127.70	10.98 % above
3.	--do--	Ch.264 to 497 with 19 nos. of masonry structures	173.12	157.57	8.98 % below

The entire work should have been awarded by the Government and the splitting of composite work resulted in extra cost of Rs.40.45 lakh by awarding of work at higher rate for Sl. No. 1 and 2. CE in reply stated (August 2005) that on the basis of tendering programme approved by competent authority Notice Inviting Tenders (NIT) were issued. However, the justification for splitting of tenders was not provided.

3.2.22 Irregular execution of earth work and compaction

The Government of Madhya Pradesh (GOMP) instructions (as adopted) provided that earthwork and compaction involving quantities above 5000 cum for irrigation projects were to be executed only by machines of E&M formation. Contractors were to be used in unavoidable circumstances after obtaining no objection certificate (NOC) of E-in-C. During 2002-05, Kharkhara, Pendra Road and Tandula divisions executed earthwork and compaction work amounting to Rs.8.79 crore through contractors without

Irregular execution of compaction works costing Rs.8.79 crore through contractors while Departmental machines remained idle.

obtaining requisite NOC. Records of the E-in-C showed that during the same period 36 machines of Electrical and Mechanical (E/M) Divisions in Raipur, Bilaspur and Rudri remained idle.

The execution of works costing Rs.8.79 crore through contractors without obtaining NOC, when departmental machines were idling, was irregular. In reply the EEs, Pendra Road and Kharkhara-Mohadipat Project Division, Durg, stated that the machines of E&M were very old, inefficient and prone to breakdown.

In view of the constraints stated, the departmental instructions regarding execution of earthwork through E&M formation needs review at the Government level.

3.2.23 Maintenance of medium and minor irrigation projects

The Madhya Pradesh Sinchai Prabandhan Mein Krishakon Ki Bhagidari, Adhinyam, 1999 (adopted) provided for entrustment of the running and maintenance of canal systems of various projects by Water Users Associations (WUAs) on payment of Rs.40 per hectares. During the period November 2000 to March 2005, 732 WUAs were provided total maintenance grant of Rs.6.37 crore.

Test-check of records of five⁹ Water Resources Divisions revealed that although 149 WUAs were paid grants of Rs.1.70 crore, neither accounts/utilisation certificates nor details of maintenance works executed were submitted by the grantee WUAs to the WR Divisions. There was no mechanism either of monitoring whether the grants were being used for maintenance. Audit scrutiny also revealed that the department using funds of other schemes was still maintaining the canal systems. WR Divisions Mungeli, Kharang, and Kharkhara Mohadipat incurred maintenance expenditure of Rs.3.91 crore funded from employment generation programmes during 2000-01 to 2004-05. As there was no information on the maintenance done by WUAs, it was not possible to assess whether there was any overlap in the maintenance works. It was observed that the operative rules and regulations specifying the framework of maintenance by WUAs, specifying their duties and responsibilities, monitoring and accounting mechanisms etc., were not framed to give effect to provisions of the Adhinyam. Thus, the maintenance grant was being disbursed to WUAs without any monitoring or accountability.

3.2.24 Utilisation of Irrigation potential

The State had 38 (30 completed and 8 ongoing) Medium Irrigation Projects and 2515 (2067 completed and 448 ongoing) Minor Irrigation Projects with total designed irrigation potential of 2,68,367 and 6,64,505 hectares respectively in March 2005. The irrigation status during 2000-01 to 2004-05 is given below :

Rupees 1.70 crore paid to 149 Water Users Association for maintenance of canals. No accounts of maintenance works were available.

⁹ *Kharkhara-Mohadipat Project Division, WR Divisions: Tandula- Durg, Kharang-Bilaspur, Pendra Road and Mungeli.*

Against designed irrigation potential of 9.33 lakh hectares, created potential was only 7.49 lakh hectares. Utilised potential was still lower at 4.52 lakh hectares

(Area in hectares)

	2000-01	2001-02	2002-03	2003-04	2004-05	Average percentage utilisation of created potential
Medium Irrigation Projects						
No. of projects	7	7	6	8	8	70.44
Ongoing						
Completed	29	29	30	30	30	
Designed potential	256867	256867	256867	268367	268367	
Created potential	223647	223647	224682	224682	224682	
Utilised potential	99806	187489	157143	165976	179667	
Percentage of utilisation	44.62	83.83	69.94	73.87	79.96	
Minor Irrigation Project						
No. of projects	377	377	416	448	448	43.61
Ongoing						
Completed	1981	1981	2017	2067	2067	
Designed potential	628630	628630	644818	664505	664505	
Created potential	487724	487724	504254	524214	524214	
Utilised potential	171996	267478	202387	188129	272328	
Percentage of utilisation	35.26	54.84	40.13	35.88	51.94	

While the budgetary allocation and expenditure increased almost three fold from 2000-01 to 2004-05 and number of completed projects increased from 2010 to 2097, the utilisation remained almost static over this period and had even decreased in the intervening years. The average percentage utilisation of the created potential of minor irrigation projects (43.61 per cent) was appreciably lower than that of medium projects (70.44 per cent).

Test check of records of three¹⁰ divisions and one CE¹¹ revealed that 127 minor projects having irrigation potential of 19669 ha had nil utilisation during last five years. This was due to lack of maintenance in 12 projects; seepage through dam or basin in nine projects; command overlap in 67 projects; encroachment in catchment area in nine projects; power disconnection due to non-payment of electricity bills in four projects; agreements for irrigation not executed by cultivators in 13 projects. In respect of 13 projects the Kharang WR Division did not furnish the information, since it was not available. EEs of various divisions furnished/admitted the foregoing reasons for low utilisation but did not offer any comment on steps being taken to improve the utilisation.

3.2.25 Monitoring

The Engineer-in-Chief and Chief Engineers were conducting inspections of the sub-ordinate offices according to the periodicity prescribed in the Works Department Manual. However, the reasons for problem areas such as shortfall in irrigation potential, nil irrigation in several irrigation projects, delays in

Reasons for short performance were not adequately monitored and evaluated.

¹⁰ Tandula WR Division, Durg, Kharkhara-Mohadipat Project Division, Durg, Kharang WR Division, Bilaspur.

¹¹ Chief Engineer, Hasdeo Basin, Bilaspur.

various construction activities etc., were not available with the E-in-C/CE and these particulars were invariably requisitioned from executing Divisions in response to audit enquiry. Thus, although inspections were being carried out, they were not very effective and of routine nature as the reasons for problems and short performance were not adequately monitored and evaluated by E-in-C and CEs. Thus, the monitoring mechanism was not functioning properly.

3.2.26 Conclusion

The target of creation of additional irrigation potential of 1.05 lakh hectares (Medium: 0.50 lakh ha; Minor: 0.55 lakh ha) by the end of March 2007 remained largely unachieved. As of 31 March 2005 the additional irrigation potential created was only 0.37 lakh ha (Medium: 0.01 lakh ha; Minor: 0.36 lakh ha). The slow progress was mainly due to faulty site selection, incorrect estimation, command overlap, non-acquisition of land etc. There were instances of extra expenditure and irregularities in tendering and award of contracts, which raised input costs. There was no monitoring mechanism to ensure utilization of maintenance grant paid to Water Users Associations entrusted with running and maintenance of canal systems. The shortfall in utilisation of irrigation potential was as high as 40 *per cent*.

3.2.27 Recommendations

- Issue of allotments to sub-ordinate offices should be properly regulated by E-in-C and CEs.
- Prescribed procedure should be strictly followed in project formulation and execution should be started after complete survey and investigation.
- Land acquisition and forest clearance should be done before starting execution to avoid blocking of funds in projects stalled due to these problems.
- Proposals for reviving incomplete projects should be scrutinized in detail to determine whether problems impeding progress in the past have been dealt with.
- Suitable mechanism should be introduced to monitor the maintenance of completed projects by the Water User Associations.

The foregoing observations were referred to the Government (September 2005); reply was not received (October 2005).