CHAPTER II

COMPLIANCE AUDIT

Important audit findings that emerged from the test check of transactions of the Departments of the Government of Gujarat in the Economic Sector are included in this Chapter.

NARMADA, WATER RESOURCES, WATER SUPPLY AND KALPSAR DEPARTMENT

2.1 Implementation of Extension, Renovation and Modernisation (ERM) of Irrigation Projects

2.1.1 Introduction

The Water Resources Department under Narmada, Water Resources, Water Supply & Kalpsar Department (the Department), Government of Gujarat (GoG) is responsible for construction, operation and maintenance of Major, Medium and Minor irrigation projects in Gujarat, besides planning and execution of water conservation activities relating to these projects with the objective to harness the water resources optimally and provide reliable irrigation facilities.

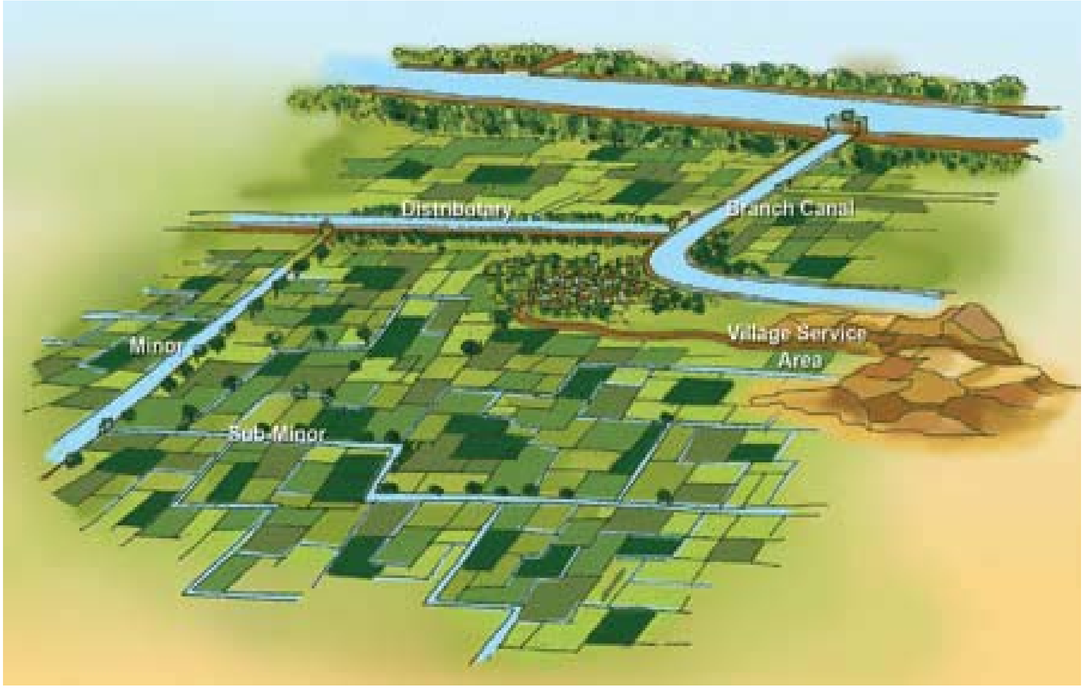
The Water Resources Department administers 19 Major, 70 Medium and 836 (105 with the Department and 731 with the Panchayats) minor irrigation projects with a total Culturable Command Area[1] (CCA) of 18.88 lakh hectares (ha). The utilisation of CCA in 2012-13[2] was only 3.48 lakh ha for Rabi season, 2.12 lakh ha for Kharif season and 0.63 lakh ha for hot season. The utilisation of CCA in 2016-17 was 3.64 lakh ha for Rabi season, 2.80 lakh ha for Kharif season and 1.66 lakh ha for Hot season. Thus, as against the created CCA of 18.88 lakh ha the maximum utilisation during any season in 2012-13 was 3.48 lakh ha (18 *per cent*) and 3.64 lakh ha (19 *per cent*) in 2016-17, which indicated sub-optimal utilisation of irrigation potential created in the State as a whole. The information in respect of 2017-18 was yet to be finalised by the Department.

Realising the need for renovation and modernisation of the old canal systems to minimise the gap between irrigation potential created and irrigation potential utilised and to provide users at tail end their fair share of water, the Department has taken up Extension, Renovation and Modernisation (ERM) works[3] of existing canal systems since 2006-07. The Department incurred ₹ 2,122.78 crore on ERM works of the canal system during the period 2012-13 to 2017-18 in respect of irrigation projects under its jurisdiction. The

1 The area which can be irrigated from a scheme and is fit for cultivation is called Culturable Command Area.
2 As per information available in the Department's website.
3 These include works like lining of canals in unlined canal systems, widening of existing road bridges or construction of new bridges, repair/ restoration/ construction of control structures of the canal network system and canal service roads. Further, these works are different from the routine repairs and maintenance works.

ERM works of minor irrigation projects under the jurisdiction of Panchayats are separately taken up by the Panchayats through its budgetary allocations.

The schematic layout of canal network is given below:



2.1.2 Scope and coverage of audit

The Department is organised geographically into five regions namely North Gujarat, South Gujarat, Central Gujarat, Saurashtra and Kachchh, each headed by a 'Chief Engineer & Additional Secretary'. These Chief Engineers are in turn assisted by Superintending Engineers (SE), Executive Engineers (EE) and Deputy Executive Engineers (DEE) heading circle offices, division offices and sub-divisions respectively.

Out of five regions, projects located in three regions namely, South Gujarat, Central Gujarat and North Gujarat were selected for detailed audit examination to assess the efficacy of planning, implementation and monitoring of ERM works undertaken by the Department between 2012-13 and 2017-18. The projects located in Saurashtra region were covered under Performance Audit on "Water Conservation at Major and Medium Irrigation Projects in Saurashtra Region" in Audit Report of Economic Sector, Government of Gujarat for the year 2015-16 and no ERM works had been taken up in Kachchh region. Therefore, Saurastra and Kachchh regions were not selected in the current review period. Audit examined the records (between February 2018 and May 2018) of 12 projects out of 47 projects (seven major, four medium and one minor) consisting of all 273 works (estimated cost more than ₹ 25 lakh each) executed by 10 Divisions **(Appendix II)**. The tendered cost of these works was ₹ 1,055.46 crore. Of the 273 works test-checked in Audit, 222 works were completed between March 2013 and April 2018 at a cost of ₹ 829.18 crore. The remaining 51 works were in progress after incurring ₹ 112.44 crore (March 2018).

Audit Findings

Audit findings are discussed in the succeeding paragraphs under financial management, planning, execution of work and monitoring and evaluation.

2.1.3 Financial management

During the financial year 2012-13 to 2017-18, the Government allotted grant of ₹ 2,124.92 crore against the budget estimate (BE) of ₹ 1,899.30 crore and the Department incurred ₹ 2,122.78 crore for ERM works in the State. Audit noticed that during 2013-14, as against BE of ₹ 209.23 crore the Department released grant of ₹ 579.92 crore and thus incurred excess expenditure of 177 *per cent* which is yet to be regularised by the Public Accounts Committee (December 2018). In the remaining years during 2012-13 to 2017-18, the saving in expenditure against the BE ranged between six *per cent* and 29 *per cent*.

During test-check in Audit of financial management relating to ERM works, the following issue was observed.

2.1.3.1 Diversion of fund

As per Paragraph 311 of Gujarat Public Works Manual, capital expenditure bears all charges for the first construction and charges for such subsequent additions and improvement as sanctioned by the competent authority.

Audit noticed that three Executive Engineers (EE[4]) booked expenditure of ₹ 1.05 crore relating to annual maintenance of offices, computers, vehicle maintenance, fuel, light bill of dam & offices *etc.*, under capital outlay of ERM. Similarly, EE, Ambica Division, Navsari made advance payment of ₹ 1.97 crore during 2012-13 to 2017-18 to EE, Mechanical Division, Ukai for regular maintenance and repair works like earthwork on canal bank, jungle cutting *etc.*, by utilising ERM funds.

The Government stated (October 2018) that to meet the miscellaneous expenses, provision of contingency expenditure was made in administrative approval of various ERM works and therefore, expenditure of such miscellaneous works have been booked under ERM funds. It was further stated that in case of Ambica Division Navsari works were required to be executed to prevent canals from breaching, for strengthening of banks and raising of banks, to restore canal capacity to designed capacity and desilting of canals. Hence, the works executed by Mechanical Division mentioned *ibid* were of renovation type.

The reply is not correct as the provision for contingency expenditure is made to cover unforeseen expenditure of capital nature whereas divisions booked expenditure of revenue nature. Thus booking of regular expenses of revenue nature against the capital grant for executing ERM works was not correct. This resulted in extra financial burden on the project.

[4] (i) EE, Ukai Left Bank Canal Investigation Division No. 2, Valod, (ii) EE, Dharoi Head Works Division, Dharoi and (iii) EE, Ahmedabad Irrigation Division, Ahmedabad.

2.1.4 Planning

2.1.4.1 Planning, Targets and Achievement for ERM works

There were 19 major, 77 medium and 105 minor (excluding 731 projects with panchayat) irrigation projects with the Department. During the period 2012-13 to 2017-18, the Department undertook ERM works in 90 irrigation projects (19 major, 44 medium and 27 minor) with a total CCA of 12.96 lakh ha in a phased manner. As against the targeted CCA of 12.96 lakh ha, 7.96 lakh ha (61 *per cent*) had been covered under ERM since 2006-07.

In 12 projects test-checked in Audit, as against the created CCA of 5.60 lakh ha, CCA utilised in any season (Kharif, Rabi and Hot) during 2007-08 to 2011-12 *i.e.,* during pre-review period ranged between minimum of 1.90 lakh ha (34 *per cent*) in 2009-10 and maximum of 2.13 lakh ha (38 *per cent*) in 2007-08. Even after ERM, CCA utilised in any season ranged between 1.93 lakh ha (34 *per cent*) and 2.17 lakh ha (39 *per cent*) during 2012-13 to 2017-18. Thus, there was consistent suboptimal utilisation of created irrigation potential (**Appendix III).**

Audit observed that the Department did not prepare any long term plan for ERM works. Instead, the Department undertook works based on immediate needs for improvement of irrigation canals in a piece meal manner. Thus, there was a lack of holistic planning for realising ultimate objective of utilisation of the CCA created.

Audit further noticed that the shortfall in utilisation of CCA was due to works not being completed in time, works remaining incomplete due to not deciding the closure period[5] of canals, absence of project-wise plans and Detailed Project Reports, improper planning of works *etc.* As a result of these, the gap between created CCA and utilised CCA could not be bridged as discussed in the succeeding paragraphs.

2.1.4.2 Absence of project-wise plan

The canal systems in respect of the 12 test-checked irrigation projects were constructed between 1954 and 2005. Due to continuous operation over a long time and considerable seepage loss from the canals, the canal systems lost their designed shape. This led to considerable gap between irrigation potential created and utilized. With a view to reduce the gap and to ensure tail-enders receive their fair share of water, the Department took up extension, renovation and modernization works in the existing canal systems.

In any project, a Detailed Project Report (DPR) showing the project components with milestones and a timeframe for implementation of the project works is required to facilitate effective monitoring of the project activities and to achieve the envisaged objectives within the targeted timeframe. As per paragraph 166 of Gujarat Public Works Department Manual (Manual), field investigation and collection of other data should be carried out

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5 The closure period is the period in which water does not run in the canal. This is fixed by the Department in consultation with the farmers and concerned district authorities.

and a DPR be prepared for irrigation projects. ERM works aim at restoring the lost potential of canal networks so as to provide water up to the tail end of the canals. The Department provided a separate capital budget for these works so as to plan and take up these works in a manner different from regular maintenance works.

Audit scrutinised nine original irrigation project reports available with the Department. These original irrigation project reports included the components of canal distribution networks. The original project reports were not available with the Department for three test-checked irrigation projects. The details of planned and executed distributary network as per original projects report is given in **Table 1** below:

Table 1: Details of distributary network planned and executed for the original canal network of the test-checked Irrigation Project

Sl. No.	Name of Irrigation Project	Details of execution of distributary networks as per approved project reports
1.	Waidy (Original Project Report in 1971)	Main Canal length: 13.92 km Distributary networks: 10.10 km No variation was noticed in canal lengths planned and executed.
2.	Jhuj Irrigation Project (Original Project Report in 1980)	Main Canal length: 7.92 km Branch Canal length: 7.4 km Distributary networks: 108.30 km Extremely minor variations were noticed in canal lengths planned and executed
3.	Kakrapar Left Bank Main Canal (Original Project Report in 1949)	Main Canal length: 60.10 km Branch Canal length: 242.81 km Distributary networks: 1,789.93 km Only minor variations were noticed in canal lengths planned and executed.
4.	Kakrapar Right Bank Main Canal (Original Project Report in 1949)	Main Canal length: 60.98 km Branch Canal length: 37.65 km Distributary networks: 748.49 km Only minor variations were noticed in canal lengths planned and executed.
5.	Ukai Left Bank Main Canal (Revised Project Report in 1974)	Main Canal length: 73.55 km Branch Canal length: 47.68 km Distributary networks: 777.29 km Only minor variations were noticed in canal lengths planned and executed. Distributary network was not mentioned in the original project report due to which the revised Project Report was prepared.
6.	Kadana (Original Project Report in 1960 and Revised in 1969)	Main canal length: 42.05 km (Left Bank) and 16 km (Right Bank) Distributary networks: 154.81 km (Left Bank) and 80 km (Right Bank) Only minor variations were noticed in canal lengths planned and executed for left bank. The canal network of right bank was planned and executed in the revised report.
7.	Watrak (Revised Project Report in 1976)	Main Canal length: 7.50 km (Left Bank) and 19.76 km (Right Bank) Branch Canal length: 34.85 km Distributary networks: 68.7 km

Sl. No.	**Name of Irrigation Project**	**Details of execution of distributary networks as per approved project reports**
		Only minor variations were noticed in Main canal and Branch canal lengths planned and executed. Distributary network was not mentioned in the original project report due to which the revised Project Report was prepared.
8.	Meshwo (Original Project Report in 1955, revised in 1966)	Main Canal length: 37.86 km Distributary networks: 48.56 km The planned main canal length was 32 to 41 km and distributary network was 56 to 132 km.
9.	Sabarmati Reservoir Right Bank Main Canal (Original Project Report in 1971 and Revised in 1976)	Main Canal length: 52.92 km Branch Canal length: 85.40 km Distributary networks: 1,277.91 km Only minor variations were noticed in Main canal and Branch canal lengths planned and executed. Distributary network was not planned initially due to which the revised Project Report was prepared.

These projects were completed before the scheme of Extension, Renovation and Modernisation (ERM) launched in 2006-07.

In the test-checked projects, DPR for ERM works was prepared for Fatewadi canal system (March 2011) and three other projects of Ukai-Kakrapar canal system (October 2010). However, in remaining eight projects[6] in place of DPRs for ERM works, estimates were prepared after inspections of the canals and the Department accorded approval based on availability of funds. Thus, the Department failed to do vertical planning for coverage of the entire canal network of a project (from main canal to minor canals) in eight out 12 test-checked projects for taking up the ERM works.

Not preparing the DPRs for execution of ERM works carries the risk of works not being completed in a time bound manner and ineffective monitoring. In the absence of DPRs, no specific time frame for completion of ERM works could be fixed.

Government stated (May 2018) that works under ERM were of routine nature to restore deteriorated canals to their original condition by reducing leakage/ losses and hence these works were executed as per budget provisions and priorities decided by the Divisions without preparing the DPR. It was also stated that though for best results, all canals of a project should be renovated from head to tail at one go, it was not possible to do so because Division wise irrigation area and work load had to be considered while planning the ERM works.

The reply is not convincing as the ERM works are capital in nature and therefore, different from the routine maintenance works. It is worth mentioning that the four projects where DPRs were prepared the achievement was 141 *per cent* as on 30 November 2018 (1.96 lakh ha CCA covered as against planned CCA of 1.39 lakh ha). On the other hand, in the remaining

[6] Kadana, Watrak, Meshwo, Mazam, Dharoi, Jhuj, Keliya and Waidy irrigation projects.

eight projects, where DPRs were not prepared the achievement was only 72 *per cent* as on 30 November 2018 (0.53 lakh ha CCA covered as against planned CCA of 0.74 lakh ha).

2.1.4.3 Under utilisation of created CCA due to lack of integrated approach for ERM works

In three projects (out of 12) test-checked in Audit, the utilisation of CCA was less because certain works were not accorded priority while carrying out ERM works as discussed in **Table 2** below:

Table 2: Details of works not accorded priority

1. Jhuj Irrigation Project

CCA of project (in ha.)	Expenditure during 2012-13 to 2017-18 (₹ in crore)	Maximum CCA utilised (in ha) during any season from			
		2007-08 to 2011-12	Percentage of utilisation	2012-13 to 2017-18	Percentage of utilisation
4,138	5.59	800	19	1,103	27

Field channels in 1,155 ha were not constructed, field channels in 2,983 ha were damaged due to efflux of time and construction of remaining field channels and restoration of damaged field channels was not proposed.

Government stated (October 2018) that major renovation works were taken up after 2015-16 in stages from head reach to tail reaches. Initially the works were completed in the main canal and thereafter distributaries and minors works were taken up. As a result, there was an increase in area under irrigation compared to previous years.

The reply of the Government neither explains why field channel works were not taken up nor provides an assurance on whether these would be taken up subsequently.

2. Branch Canal No. 2 of Sabarmati Right Bank Main Canal (SRBMC)

CCA of project (in ha.)	Expenditure during 2012-13 to 2017-18 (₹ in crore)	Maximum CCA (in ha) utilised during any season from			
		2007-08 to 2011-12	Percentage of utilisation	2012-13 to 2017-18	Percentage of utilisation
7,662	0.70	3,008	39	3,079	40

The canal lining works in Branch Canal No. 2 started since 2007-08 and completed in 2013-14. However, the Division did not renovate 24 canal structures[7] required for regulating the flow of water along side the canal lining works. The Department accorded (September 2017) approval for renovation of 17 structures, the estimates were prepared by the Division (February 2018) but sanction is still awaited from the Department (October 2018).

The Government stated (October 2018) that proposal for lining work and canal structure works was submitted simultaneously but due to budget constraints, lining work estimate only was approved. After completion of lining works, Government sanctioned proposal of structure works but due to not deciding the closure period of the canal by the Division, it was not taken up. The Government also assured to take up the same in 2018-19.

[7] Structures consisted of canal syphons, village road bridge (VRB), head regulators, cross regulators *etc.*

The reply is not convincing because the lining works were completed in 2014 but the Department was yet to renovate the canal structures till date (November 2018) due to its indecision on canal closure period. Further, the contention of the Department about budgetary constraint was not acceptable as there were savings under ERM head during 2012-13 to 2017-18 (except 2013-14).

3. Kadana Right Bank Main Canal (Kadana RBMC) of Kadana Project

CCA of project (in ha.)	Expenditure during 2012-13 to 2017-18 (₹ in crore)	Maximum CCA (in ha) utilised during any season from			
		2007-08 to 2011-12	Percentage of utilisation	2012-13 to 2017-18	Percentage of utilisation
3,344	Nil	450	13	600	18

In Kadana RBMC, no ERM works were executed during 2012-13 to 2017-18 despite the fact that the Division had noticed damages in main canal linings and in the minors during pre-monsoon inspection in May 2014. Further, field channels were also not constructed (October 2018) though main canal was completed in August 2009.

The Government, while accepting the audit observation, stated (October 2018) that routine repair works were carried out under the repairs and maintenance budget head. The field channels were not constructed because farmers did not agree for open channels. It was also added by the Government that the existing minors were too old and the study for modification in canal work was already in progress through Water And Power Consultancy Services (WAPCOS) Limited.

2.1.5 Under utilisation of CCA due to improper planning of project works

Audit noticed under utilisation of CCA due to improper planning in four test-checked projects as discussed in succeeding paragraphs.

2.1.5.1 Waidy Minor Irrigation Project

The Irrigation Project Division, Modasa (Aravali district) submitted (November 2008) a proposal to renovate the existing canal system of Waidy Irrigation Project which was approved by the Department in February 2009 for ₹ 2.99 crore. The tender was invited in September 2010. By the time the Department approved the lowest bid (March 2011) the validity period of the bid had expired. Audit noticed that since the contractor did not agree to extend the bid validity period, the tender had to be cancelled (June 2011).

The Division submitted (September 2011) revised estimates amounting to ₹ 4.27 crore to the Department. However, the Department instructed (January 2012) the Division to conduct the site visit and submit the proposal afresh. The estimates were revised three times (between August 2013 and December 2016) based on the changes in applicable SoR. Finally, the Department accorded (July 2017) Administrative Approval for ₹ 11.04 crore for which technical sanction was yet to be obtained (October 2018).

The delayed decision making resulted in cost escalation of ₹ 8.05 crore besides time overrun for 10 years. Thus, due to non-execution of ERM works, maximum CCA utilisation of the Waidy Project during any season of the year was only 325 ha against created CCA of 1,235 ha during the period 2012-13 to 2017-18.

The Government while accepting the audit observation about cost escalation and time overrun stated (October 2018) that the tender was approved by the Department after expiry of the validity period of the bid. After following the due procedure, approval of ₹ 11.04 crore was granted in July 2017. The preparation of estimate is under progress to get the technical sanction from the Department.

2.1.5.2 Kakrapar Right Bank Main Canal

The Kakrapar Right Bank Canal (KRBC) Division, Surat awarded (January 2013) the work of earthwork in chainage (ch) 46,758 m to 60,980 m for improvement of Kakrapar Right Bank Main Canal (KRBMC). The work was completed (July 2013) at a cost of ₹ 2.02 crore. The Division awarded bed lining work (December 2013) in the same chainage to another contractor, which was completed (March 2014) at a cost of ₹ 11.92 crore. The Division further awarded (December 2015) work for slope lining for the same chainage, which was completed in June 2016 at a cost of ₹ 12.72 crore. The work for slope lining awarded in December 2015 included earthwork and compaction of earthwork of 1.49 lakh cubic meter (cum) costing ₹ 2.34 crore.

Audit noticed that since the slope lining works were taken up two years after execution of the earthwork in July 2013, the same was damaged due to continuous operation of the canal. Therefore, at the time of slope lining, the Division had to again execute (between December 2015 and June 2016) earthwork and compaction of earthwork at the cost of ₹ 2.34 crore. This could have been avoided if all the works (earthwork, bed lining and slope lining) were executed simultaneously in an integrated manner.

The Government stated (October 2018) that if the earthwork on the canal was initially considered as part of lining work of the canal section in 2012-13, the quantum of earthwork required was 3.20 lakh cum against which only 1.94 lakh cum earthwork was executed. Due to bed lining of the canal, the flow of water in KRBMC increased which eroded 0.17 lakh cum of the earthwork. The remaining earthwork along with the eroded earthwork totalling 1.49 lakh cum was re-executed during 2015-16. Therefore, there was only nominal re-execution of earthwork.

The reply is not correct as the scrutiny of records indicated that the original estimates for earthwork of 2.26 lakh cum was prepared for the entire canal length.

2.1.5.3 Fatewadi Canal System

The Fatewadi canal system consists of two canals *viz*., Moti Fatewadi Canal (MFC) and Nani Fatewadi Canal (NFC) of length 13.72 km and 10.03 km respectively. The ERM works of the Fatewadi canal system was completed at a cost of ₹ 111 crore between June 2014 and June 2015 except one work[8] which was in progress as of October 2018. However, the initial reach of MFC between chainage 0 to 8,200 m and NFC between chainage 0 to 5,500 m were not taken up due to highly plastic nature of the soil making it susceptible to swelling and therefore, canal linings were likely to be damaged.

The Ahmedabad Irrigation Division found (July 2011) that the soil in the initial reaches of MFC and NFC was not suitable for lining of bed and slopes. The initial estimates were prepared in October 2013 by the Division but the works had still not been taken up (October 2018) even after lapse of five years. Therefore, the objective of ERM could not be fully achieved even after incurring an expenditure of ₹ 111 crore. As a result of this as against the envisaged CCA of 96,883 ha, the maximum utilisation during any season was 28,100 ha (29 *per cent*) during the period 2012-13 to 2017-18.

The Government stated (October 2018) that lining in canals of Narmada network in that region had failed. Hence, the estimates were not approved and instructions were issued (July 2016) to take up a stretch of 100 m length as a pilot project and on the basis of its success, detailed estimates was to be prepared. The Government further added that non-completion of these works neither hampered irrigation flow in the canal nor affected the irrigation in the command area.

The reply of the Government is not correct. Though the Department instructed to take up a stretch of 100 m length as a pilot project in July 2016, the same was yet to be executed (October 2018). Therefore, delay in taking up the pilot project further delayed execution of the ERM works.

2.1.5.4 Tail Extended Distributary of Watrak Project

The Department accorded (August 2012) approval of ₹ 19.71 crore for works to enhance the discharge capacity of Watrak Right Bank Main Canal (WRBMC) and Tail Extended Distributary (TED) of Watrak Reservoir Project with the objective to create an additional CCA of 2,400 ha. The approval was subject to the condition that network planning should be got approved from the Central Design Organisation (CDO). The CDO advised (June 2016) that network planning be finalised at the divisional level. The Division invited (September 2016) tenders for ERM works of WRBMC including TED. Out of the 11 works awarded, 10 works were completed in December 2017 at a cost of ₹ 11.42 crore and one work[9] was still in progress (March 2018). The CCA utilisation of WRBMC during the period 2012-13 to 2017-18 ranged from 1,138 ha (20 *per cent*) to 1,425 ha (25 *per cent*) against the envisaged CCA of 5,639 ha.

In TED, earthwork was completed (December 2017) for the canal length of 3,309 m length[10] and canal lining for the length of 3,070 m[11] at a cost of

[8] Distributary of Section C and E of Fatewadi Canal.

[9] ERM work of WRBMC from chainage 10,150 m to 13,440 m.

[10] Earthwork in 0 to 380 m (380 m), 5,941 to 6,330 m (389 m), 6,330 to 7,900 m (1,570 m) and 12,340 to 13,310 m (970 m).

[11] Lining in 0 to 380 m (380 m), 5941 to 6091 m (150 m), 6,330 to 7,900 m (1,570 m) and 12,340 to 13,310 m (970 m).

₹ 2.47 crore. However, no earthwork and canal lining for length of 4,440 m (between chainage 7,900 m to 12,340 m) of TED was planned.

Audit noticed (March 2018) that the Division failed to finalise the complete canal network plan of TED though it was a pre-condition for execution of ERM work. As a result 4,440 m length of the TED along with 26 structures[12] required were not constructed/ renovated. Thus, there was no flow of water in the TED and CCA in the tail end could not be brought under irrigation even after completing ERM works in the main canal at a cost of ₹ 12.11 crore.

The Division confirmed (March 2018) that water had not been released in TED till date. The Government stated (October 2018) that ERM works of WRBMC (except TED) was completed and the water was reached up to 8 km of TED in April 2017 but the farmers were not ready to lift the water for irrigation. The Government also added that further planning of ERM work of TED is under progress and after its completion; the irrigation could be done in additional 2,400 ha by lifting the water from canal.

The reply of the Division and Government is contradictory regarding water flow in TED. Further, the Government reply on ERM works of TED itself indicated that additional CCA of 2,400 ha could not be brought under irrigation even after incurring an expenditure of ₹ 12.11 crore.

2.1.6 Contract Management

Deficiencies in contract management such as acceptance of unworkable tenders, splitting up of works, incomplete works *etc.*, in the test-checked works have been discussed in the succeeding paragraphs.

2.1.6.1 Acceptance of unworkable tenders

As per paragraph 214 of Gujarat Public Works Department Manual, the rates of the items which are 25 *per cent* and above/ below the Schedule of Rate (SoR) of the year in which tenders are received, will be considered unusually high/ low rates. Further, according to Roads and Buildings Department circular (December 1987), if rates received for a tender are below or above 10 *per cent* of the estimated cost (EC), Superintending Engineer (SE)/ Executive Engineer (EE) should ascertain the workability and reasonability of the rates through Rate Analysis (RA) process before awarding the work.

The Dharoi Canal Division No. 3, Visnagar invited (September 2012) tenders for two works for improvement in Sabarmati Right Bank Main Canal (SRBMC). The details are given in **Table 3** below:

[12] Wells to lift the water from canal passing in deep cutting and canal structures such as village road bridge (VRB), cross regulators and head regulators.

Table 3: Details of unworkable tenders

Particulars	Improvement of lining work in ch. 41 to 43.47 km of SRBMC (Work 1)			Improvement of lining work in Branch Canal No. 3 of SRBMC ch. 0 to 18.70 km (Work 2)	
	1st Invitation	2nd Invitation	3rd Invitation	1st Invitation	2nd Invitation
Tender Invitation (month/ year)	09/2012	12/ 2014	11/ 2016	09/ 2012	12/ 2014
Estimated Cost (EC) (₹ in crore)	1.03	1.03	0.24	1.25	1.25
Bid cost (₹ in crore)	0.88	0.79	0.15	1.08	0.77
Percentage of Bid cost below EC	15	23	38	14	38
Percentage of Bid cost below the SoR of the applicable year of tender	38	38	38	36	38
Work order (Month/Year)	Not issued	12/ 2015	01/2017	Not issued	12/ 2015
Work done (₹ in crore)	0	0.66	0.04	0	0.23
Date of termination/ withdrawal	NA	09/2018	Completed in May 2018	NA	Not terminated

(Source: As per information furnished by the Department)

In both the works, the same contractor submitted the lowest bid in the first invitation. As the lowest bids were below 25 *per cent* of the SoR, the EE sought (October 2012) rate analysis (RA) from the contractor to justify the quoted rates. Since the contractor did not provide the RA the tenders for these two works could not be finalised. In the second invitation as well, the lowest bids were lower than 25 *per cent* below the SoR. The contractor again failed to provide RA. The EE intimated (January 2015) the SE that in the absence of the RA, the workability of the quoted rates could not be ascertained. Despite the EE expressing his opinion on workability of quoted rates in absence of RA, the SE referred the matter again (January 2015) to EE for his re-opinion whether work could be awarded to the lowest bidder or not. The EE in his re-opinion recommended (January 2015) that the tenders may be accepted as the works had been held up for more than two years. Accordingly, the Department accepted (April 2015) the bids. The contractors after executing these two works valued at ₹ 0.66 crore and ₹ 0.23 crore abandoned them in August 2016 and June 2016 respectively. The tender in respect of **Work-1** was invited for the third time in November 2016 for completing the remaining work. The work was awarded without RA for ₹ 15 lakh in January 2017 but the contractor again abandoned it after executing the work valued at ₹ 4 lakh.

Audit noticed that though the quoted rates were not workable in both the tenders, the tenders were awarded citing urgency. Due to unworkability of rates quoted in the tenders, the contractors abandoned the works mid-way. Thus, due to acceptance of unworkable rates resulted works remaining incomplete as of October 2018 after incurring expenditure of ₹ 0.93 crore.

The Government stated (October 2018) that during first invitation, RA was received belatedly from the contractor which delayed the approval of tender. Due to this, the contractors refused to extend the validity of bids and therefore the work was not awarded. It was further added that during second invitation, tenders were approved after assessing workability of rates but contractors could not complete the works because the closure period of the canal was not decided by the Division. The Government also stated that **Work-1** was completed in May 2018.

However, the reply of the Government is not acceptable because the RAs stated to have been submitted by the contractor was not produced to audit for verification. Also, **Work-1** was completed after a delay of 52 months and Work 2 was in progress (October 2018).

2.1.6.2 Splitting up of estimates

GPWD Manual provides that power to split the work into smaller units is vested in the authorities who have got power to accept the tender for the whole work. As per delegation of financial powers (August 2011), the Superintending Engineer (SE) and Executive Engineer (EE) are empowered to accord technical sanction to works amounting to ₹ three crore and ₹ 50 lakh respectively. Similarly, SE and EE are competent to accept the tenders having cost of ₹ one crore and ₹ 25 lakh respectively.

Audit randomly test-checked 56 works (having estimated cost below ₹ 25 lakh) in five Divisions. Audit observed that in 25 works costing ₹ 9.26 crore pertaining to Ambica Division, Navsari and Ukai Right Bank Canal Investigation Division, Ankleshwar, the Department accorded permission to split up the four canal works between October 2011 and November 2013 as per Manual provision *ibid*.

However, in remaining 31 works having estimate value of ₹ 4.45 crore, splitting of 11 canal works without prior approval of the Department was allowed **(Appendix IV)**. Audit observed that estimates for works to be undertaken in a Division in respect of stretches of the same canal, distributary or minor prepared during the same month were split into more than one work in such a way that the technical sanction and tender acceptance remained with the EE or only the tender acceptance went to the SE as shown in **Table 4** below:

Table 4: Details of splitting up of works

Name of Division	Name of canal work	No. of estimates	Estimates ranged (₹ in lakh)	Total cost (₹ in lakh)
Dharoi Head Works Division, Dharoi	Sabarmati Right Bank Main Canal	4	4.99 to 15	49.89
	Chimnabai Sarovar Main Canal	2	14.97 to 14.98	29.95
	Valasana Distributory	2	14.76 to 14.98	29.59
Surat Canal Division, Surat	Ubharat Branch	2	18.18 to 18.30	36.48
	Calthan Branch	3	14.79 to 14.91	43.19
	Udhna Distributory	2	14.95 to 14.98	29.05
	Palsana Distributory	2	13.82 to 14.87	27.86
	Afwa Minor	3	10 each	28.81
	Vankner Minor	3	7.21 to 9.74	25.73
	Kathodra Minor	2	13.55 to 14.69	27.41
KRBC Division, Surat	Khanjroli Minor & 2L sub-minor	6	6.41 to 46.13	117.01
Total		**31**		**444.97**

In 31 cases mentioned in the **Table 4** above, had the combined estimates been prepared for each canal works, the technical sanction would have been with the EE and SE and the tender acceptance would have with the SE and Department. The splitting of works allowed the EE to exercise the power both as a technical sanctioning authority and tender accepting authority. This deprived scrutiny and monitoring of tenders at higher levels.

The Government stated (October 2018) that the Administrative Approval (AA) of six works of Khanjroli Minor was obtained separately and as per site condition it was difficult to execute the same as a single work during small closure of 10 to 15 days only and there were chances of receipt of higher rates if invited as a single work. It was also stated that separate Administrative Approval was obtained in two works, but tender was invited by clubbing two works of KRBC Division, Surat. Regarding works of Surat Canal Division, it was stated that looking at the urgency of work, giving timely benefit to the farmers and to encourage water co-operative societies, splitting of works was done. However, no reply for works of Dharoi Division was furnished by the Government.

Reply of the Government is not convincing as two Divisions had obtained permission for splitting up of works from the Department but remaining divisions resorted to splitting up works to avoid sanction at higher level. As replied by the Government, audit noticed no urgency in respect of six works of Surat Canal Division. The administrative approval was accorded in September 2013, the estimates were prepared in October/ November 2014 and works were finally awarded in December 2014 after lapse of 14 months from the administrative approval.

2.1.6.3 Expiry of Performance Bond due to lapse in monitoring

GPWD Manual stipulates that the Security Deposit shall include the performance bond (PB), which can be accepted in the form of Bank Guarantee (BG). Further, it will be the responsibility of the contractor to renew the BG at least one month before its expiry. If he fails to do so, the Department shall recover the entire amount from the contractor's bills or any other payment due to him. Moreover, the PB shall remain valid for at least one year beyond the stipulated date of completion of the work in case of work exceeding value of ₹ 50 lakh. The records relating to Bank Guarantee was maintained at the Division level, which should keep a check on the validity of the same.

Audit observed that out of 273 test-checked works in five works of four Divisions, the Divisions had obtained PBs amounting to ₹ 63.22 lakh which either expired before the scheduled date of completion of the work or remained valid for the period less than one year after the scheduled date of completion of work. In all the cases neither the contractor renewed the PB nor did the Division recover the same from the contractor’s bills. As a result, sufficient security deposit was not available with the Divisions though the works were not completed or abandoned.

The Government stated (October 2018) that in two works PBs were renewed in May 2018. It was also stated that in one work each of Visnagar and Valod

Divisions, the works were completed in August 2016 and May 2018 and hence, PB was not renewed. As regards the work of Kadana Division, it was stated that amount of PB will be recovered from the final bill of the contractor.

The reply of the Government is not acceptable as works of Visnagar and Kadana Divisions were abandoned by the contractors. At the instance of Audit, the EE Ankleshwar Division renewed the PBs in two works. Further, Ankleshwar and Valod Divisions failed to obtain PBs having validity period of one year beyond the stipulated date of completion of the work. It may be mentioned that the above instances were observed among the cases test-checked in Audit. The Department should check other similar cases to safeguard the financial interest of the Government.

2.1.6.4 Execution of excess and extra items without prior approval

GPWD Manual stipulates that information of excess and extra items is required to be furnished in specified proforma to the competent authority. Further, as per tender conditions, prior approval of the competent authority has to be obtained before execution of excess quantity. Execution of both, excess quantity and extra items, require prior approval of the Department. Excess quantity up to 30 *per cent* of the tender quantity was to be paid at the tendered rate and beyond 30 *per cent* was to be paid as per Schedule of Rate (SoR) applicable at the time of execution of the work. Extra items were to be paid as per SoR applicable at the time of execution of the work.

Audit observed that out of 273 test-checked works, in nine works of Ahmedabad Irrigation Division (AID) ₹ 11.38 crore[13] was paid by the EE between March 2015 and March 2018 to the contractors for excess as well as extra items without prior approval of the Department on the ground that the works were required to be completed on top priority to avail maximum irrigation benefit.

In four works of Ukai Right Bank Canal Investigation (URBCI) Division, Ankleshwar, the contractors had executed excess quantities valued at ₹ 1.64 crore during March 2017 to June 2017 without prior approval of the Department. The proposal for approval of excess items in one work was submitted (May 2018) to the SE but in three works proposals were yet to be submitted (October 2018). The payment for excess items was yet to be made (October 2018).

The Government stated (October 2018) that after completion of the nine works of AID, EE submitted the proposals in respect of eight works for *post facto* approval of the Department. It was further stated that the approval in four of eight works was accorded between June 2018 and August 2018. In respect of four works of URBCI Division, the Government stated (October 2018) that restoration/ renovation works were required to be carried out within short canal closure period of 55 days and hence prior approval was not sought.

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13 ₹ 10.64 crore for excess items and ₹ 0.74 crore for extra items.

The reply is not convincing because the time limit allowed for execution of eight works of AID was 36 months hence there was no urgency. The Government did not furnish any reply on Kharicut canal work. The approval in remaining four works of AID, Ahmedabad is still pending (October 2018).

2.1.6.5 Not conducting soil test led to damage in canal

Eleven ERM works of Kakrapar Right Bank Main Canal (KRBMC) in chainage 0 to 46,758 m and Ukai Right Bank Main Canal (URBMC) in chainage 0 to 35,060 m were completed between January 2014 and May 2014 at a cost of ₹ 207.97 crore. During routine inspection (July/ August 2014) by the EE, it was found that the canal linings of KRBMC and URBMC were damaged shortly after completion of canal lining works at different chainages mentioned above due to swelling of soil strata. As the works were covered under Defect Liability Period[14] (DLP) up to May 2015, the defects were rectified (July/ August 2014) by the contractors. The EE again noticed damages in different tranches of the same chainage in URBMC in August 2014. Later, the Divisions took up these rectification works during 2015-18 by incurring additional expenditure of ₹ 1.63 crore. Similarly, in KRBMC, works for repair of damaged canal noticed during 2014 was carried out during 2015-17 at an additional cost of ₹ 1.06 crore.

Audit noticed that the canals were passing mostly through black cotton soil was in the knowledge of the Department. Thus, it was imperative to provide a cohesive non-swelling soil (CNS) layer[15] wherever canal encountered black cotton soil. The division, however, executed the works in black cotton soil without providing cover of CNS layer. This led to damage in slope and bed lining of canal which had to be rectified at an additional cost of ₹ 2.69 crore.

The Government stated (October 2018) that damages in slopes and bed occurred due to inletting of rain water, poor quality of sub grade soil in some reaches and illegal insertion of pipes by farmers in lined canal. It was also stated that because special treatment was required due to poor soil strata, new sub grade treatment was carried out in portion where major damages occurred, which was not in original tender scope. The Government further stated that in the remaining length, damage was minor and restoration works were done by contractors in DLP without any extra cost to the Government.

The reply is not convincing because due to swelling nature of the soil, restoration works done by contractors under DLP were damaged and the Divisions had to carry out restoration works again at an additional cost of ₹ 2.69 crore. Had the Divisions factored in the nature of soil strata in the canal while awarding the initial works in 2014, the additional costs could have been avoided.

[14] As per tender condition defect liability period was defined for a specified period from the date of completion of work. In case, any defects are noticed during this period, the contractor shall rectify it at his own cost. If the contractor failed to rectify it, the Division should rectify the same at the risk and cost of contractor.

[15] In this method, expansive soil is removed and replaced by a cohesive non-swelling soil layer.

2.1.6.6 Unproductive expenditure on ERM works of Projects

The Department accorded (December 2008) approval for ERM works of Meshwo and Mazam Projects. The tenders were awarded (March/ May 2010) to a contractor[16] at cost of ₹ 4.29 crore and ₹ 2.85 crore respectively for the two projects with stipulated completion by April 2011. After executing works valued at ₹ 2.96 crore and ₹ 1.70 crore respectively, the contractor requested (November 2011) the EE to relieve him from the works due to continuous running of water in the canals as closure period had not been decided.

The EE, Irrigation Project Division, Modasa submitted (June 2012) proposal to relieve the contractor from the work stating that majority of the work had been completed and only pitching work was left. The Department approved (July 2012) relieving of the contractor from both the works. However, in his excess/ saving proposals (May 2013) to the Department, it was stated that works valued at ₹ 1.92 crore and ₹ 1.26 crore were still to be executed by the contractor. This was contrary to the earlier (June 2012) proposal of the EE. The Department approved (January 2014) the excess and saving proposals and EE paid final bills in March 2014 and September 2014 respectively.

Audit noticed that the EE failed to decide the closure period of the canal in consultation with the farmers, though similar decision for fixed closure period were decided by other Divisions (Ukai-Kakrapar Project). It was also noticed that the contractor had not executed earthwork, lining work and structures work as per scope of work as shown in **Table 5** below:

Table 5: works to be executed and actually executed

Item of work	Mazam Project			Meshwo Project		
	To be executed	Actually executed	Remaining	To be executed	Actually executed	Remaining
Earthwork (in km)	23.64	13.39	10.25	37.86	30.86	7.00
Lining work (in km)	18.20	2.72	15.48	32.08	6.60	25.48
Structures (in Nos.)	19	0	19	17	0	17

(Source: As per information furnished by the Division)

Thus, apart from the pitching works in canals, other items such as earthwork, lining and structures which were under the scope of work were not executed in both the projects. Further, no action was initiated after September 2014 by the EE to get these works completed through the contractor. Thus, unproductive expenditure of ₹ 4.66 crore (Meshwo: ₹ 2.96 crore and Mazam: ₹ 1.70 crore) was incurred on ERM works without any increase in utilisation of CCA[17] under Meshwo and Mazam projects.

The Government stated (October 2018) that the lining work and earthwork was completed wherever necessary as per site condition. It was further stated that now earthwork, lining work and structures were not required.

[16] MMC Project (India) Private Limited, Gandhidham.

[17] **Meshwo project**: 2009-10: 2,400 ha, 2010-11: 2,726 ha, 2011-12: 2,223 ha, 2012-13: 2,200 ha, 2013-14: 2,300 ha, 2014-15: 1,700 ha, 2015-16: 2,000 ha, 2016-17: 1,200 ha and 2017-18: 1900 ha and **Mazam project**: 2009-10: 428 ha, 2010-11: 132 ha, 2011-12: 564 ha, 2012-13: 550 ha, 2013-14: 500 ha, 2014-15: 500 ha, 2015-16: 500 ha, 2016-17: 400 ha and 2017-18: 500 ha.

The reply of Government is contradictory to the EE excess/ saving proposals (May 2013) to the Department wherein it was stated that works valued at ₹ 1.92 crore and ₹ 1.26 crore were still to be executed by the contractor in both the projects. As the works remained incomplete, the very purpose of ERM work was defeated.

2.1.6.7 Incomplete ERM works due to failure to decide canal closure period

The Department ordered (June 2015) that before taking maintenance works like restoration of canal lining and structures, the EE should take farmers into confidence and after intimating closure period of canals to the farmers by fixing short time limit, canal lining works should be taken up. Audit noticed that all works of Ukai-Kakrapar Project during the year 2012-13 with pre-decided closure period were completed in time.

It was noticed by Audit that out of the 13 works of Kadana, Watrak, Jhuj, Kelia, Ukai and Fatewadi projects **(Appendix V)** awarded (February 2016 to May 2017) at a cost of ₹ 6.41 crore to be completed between August 2016 and March 2018, two works were not started (March 2018) and 11 works remained incomplete after incurring ₹ 3.62 crore (June 2018). It was observed that EE awarded the works without deciding the canal closure period and therefore contractors were not able to complete the works till date (June 2018) due to continuous flow of water in the canals and the CCA of 9,432 ha could not be achieved as envisaged.

The Government stated (October 2018) that nine works were completed, two works were terminated between June 2018 and September 2018 and one work was yet to be completed by the contractor. For one work of Watrak Project under Modasa Division, Government stated that work was completed in 2017 as per schedule.

The reply of the Government is incorrect as the work stated to have been completed in 2017, was not found completed during joint site visit (November 2018) by Audit and officials of the concerned division.

2.1.7 Monitoring and evaluation

The Department stated (May 2018) that the primary responsibility of monitoring the ERM works is that of the concerned engineers at field level. Besides, there is also a separate quality control unit headed by Chief Engineer, Quality Control at the Department level for quality control inspections. Considering the magnitude of work, if felt by the Department, an independent agency, Project Management and Quality Assurance Consultancy (PMC) is also engaged for project monitoring and quality assurance. No exclusive evaluation committees were formed to assess the impact of ERM works but the circle offices monitored the impact of ERM works to record irrigation done and water consumed. Observations noticed in relation to monitoring and evaluation are discussed below:

2.1.7.1 Appointment of Project Management Consultancy

In Ukai-Kakrapar Project 27 ERM works were executed under five Divisions[18]. The Kakrapar Right Bank Canal (KRBC) Division, Surat issued (December 2016) work orders to a consultant[19] for Project Management Consultancy (PMC) services for all 27 works at a cost of ₹ 1.69 crore after following the due tender process. The scope of PMC included consultancy services, technical guidance, quality assurance, *etc*.

During inspection of ERM works carried under EE, Ukai Right Bank Canal Investigation (URBCI) Division, Ankleshwar, the quality control (QC) wing of the Department observed (January 2017) that the engineers appointed by the PMC did not have adequate technical knowledge, experience and their working was not satisfactory. The EE, Surat Canal Division (SCD) also intimated (August 2017) the Superintending Engineer, Surat Irrigation Circle (SIC) that the engineers deployed by the PMC were not adequate and works were carried out under the supervision and monitoring of the staff of the Department.

Audit noticed that besides the technical knowledge of the engineers deployed by the PMC, the average number of personnel deployed by it was 117 per day against the requirement of 157 personnel per day, which was less in number with reference to the contract. The EE, KRBC Division, Surat certified (October 2017) works of ₹ 1.02 crore of the PMC and released ₹ 0.69 crore to the PMC. Audit observed that this expenditure was unfruitful as works were executed under the supervision and monitoring of the technical staff of the Department.

EE, KRBC Division, Surat confirmed (May 2018) the facts and stated that the PMC had not performed its duties and not provided engineers as per the tender agreement. It was also stated that a proposal was submitted for blacklisting the PMC. The Government stated (October 2018) that due to less numbers of technical staff and less experienced staff with reference to tender provision, Department paid only ₹ 0.69 crore and not the full tender amount.

Audit is of the view that violation of the tender conditions by the PMC was clear to the Department from the beginning of the work and therefore, the *pro-rata* payment made for lesser staff deployed by it was not justified. The Department needs to take appropriate action against the PMC.

2.1.7.2 Pre-monsoon and Post-monsoon inspection of canals

As per the Operation and Maintenance Guidelines for Canals issued by the Department in April 2009, the Deputy Executive Engineer shall ensure that all officers working under him perform their duties properly and shall carry out the inspection of the entire reach of the canal including structures within his

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18 (i) Kakrapar Right Bank Canal Division, Surat (Package 10 to 13 and 19 to 20), (ii) Surat Canal Division, Surat (Package 14 to 18 & 21), (iii) Ambica Division, Navsari (Package 5 to 9, 27), (iv) Ukai Right Bank Canal Investigation Division, Ankleshwar (Package 1 to 4) and (v) Ukai Left Bank Canal Investigation Division No. 2, Valod (Package 22 to 26).

19 M/s. Multi Mantech International Private Limited, Ahmedabad.

jurisdiction every six months *i.e.*, in March and October. The EE shall do the same every year in May and October so as to ensure that the system as a whole is running satisfactorily.

In nine out of ten test-checked Divisions, Audit noticed that pre monsoon and post monsoon inspections were not conducted regularly by the Divisions. The details of inspection conducted by the Divisions are given in **Table 6** below:

Table 6: Details of Pre and Post monsoon inspection

Pre and Post monsoon inspection not conducted for canal network (including structures)	Pre and Post monsoon inspection conducted only for major structures instead of entire canal network	Post monsoon inspection not conducted
Four Divisions namely (i) Irrigation Project Division, Modasa, (ii) Dharoi Head Works Division, Dharoi, (iii) Ahmedabad Irrigation Division, Ahmedabad and (iv) Kadana Division No.1, Diwada Colony in case of Kadana Right Bank Main Canal (Pre monsoon after 2015-16 and post monsoon during 2012-13 to 2014-15 and 2016-17 to 2017-18).	**Four Divisions** namely (i) Ambica Division, Navsari, (ii) URBCI Division, Ankleshwar, (iii) ULBCI Division No. 2, Valod and (iv) KRBC Division, Surat	**One Division** namely Dharoi Canal Division No. 3, Visnagar.

(Source: As per information furnished by the Department)

The Government stated (October 2018) that during irrigation seasons all concerned technical officers are moving along the canal for inspection and management. Therefore, as and when any damage is noticed in the canal network, it is repaired immediately to ensure continuous flow of water in canal system for irrigation. It was also assured that the pre and post monsoon inspections would be conducted regularly every year henceforth.

Audit is of the view that not conducting the pre and post monsoon inspections led to the possibility of damaged canal lining, bed lining and structures remaining unnoticed by the Division as discussed below.

2.1.7.3 Defects in canals

Audit conducted (February 2018/ May 2018) joint site visit of canal system of Fatewadi Canal, Hadmatiya Distributary of Kadana Left Bank Main Canal and Ukai Right Bank Main Canal in which ERM works were executed. During the visit it was noticed that lining was damaged in slopes and bed of the canal at various stretches, structures were either not present or were in damaged condition besides other issues like asphalt roads on service side of the canal not being constructed or vegetation growth and siltation in the canals. Some photographs of the above are given below:

Damaged lining of Moti Fatewadi Canal at ch 10,670 m, Ahmedabad (2 June 2018)

Damaged lining at ch 45,370 m of URBMC, Ankleshwar (15 May 2018)

Siltation in extended canal of MFC at ch 10,670 m, Ahmedabad (2 June 2018)

Vegetation in NFC at ch 100-500 m of Fatewadi Canal System, Ahmedabad (2 June 2018)

Audit observed that due to lack of meticulous attention to pre and post monsoon inspections of canals at the Division and Sub-division level, the defects went unnoticed and therefore, no rectification works were carried out. This indicated monitoring of the canal system at the Division level was inadequate.

The Government stated (October 2018) that work of removing silt and vegetation growth from Hadmatiya Distributary of Kadana left bank canal has been completed. It was further stated that the URBMC was damaged as people used the canal bank for bathing and washing. It was added that for the damages observed in canal lining and structures in the Fatewadi canal system, the estimates have been prepared which is under process of approval and accordingly corrective measure would be taken in due course.

The reply indicates the corrective action taken by the Division/ Department subsequent to Audit's observation. However, it did not address the issue of regular monitoring highlighted in the audit observation.

2.1.7.4 Evaluation by the Department

Audit viewed that 'Water Audit' gives a fair idea of total water drawn from the source, its actual use and the water loss in the system. Water audit includes scrutiny of records relating to the amount of water earmarked, water delivered and water loss in the system. It also suggests the measures to reduce water loss. The Department instructed (February 2010) all Divisions to undertake Water Audit of canal network system.

The Department awarded (January 2017) the consultancy work for water accounting of Sabarmati Reservoir Project (including its canal network) to Water And Power Consultancy Services (WAPCOS) Limited. The scope of work included (i) Benchmark the performance of the project against past year performance of the project and (ii) Evaluate the performance of existing conveyance and distribution canal system through Rapid Appraisal Process[20] (RAP). WAPCOS carried out the study and submitted its Report to the

[20] To inspect the entire canal system including main canal and distribution network and to assess present discharge carrying capacity between various control points as compared to design discharge, identify spots which require desilting, repair, remodelling *etc.*

Government in February 2018. The major conclusions of the Report were as under:-

- the performance of the project was not good;
- average achievement of irrigation potential utilisation of last 15 years was 31.42 *per cent*;
- distribution system of the project was not in good condition and 50 *per cent* of minors and sub-minors suffered from issues like weed growth, silting, damaged outlets, damaged lining *etc*., and
- non-functional canals were also observed either partly or fully at minor/ sub-minor level.

Besides other recommendations, WAPCOS recommended that all efforts should be made for improvement of efficiency of canal distribution system.

Audit noticed that concerned Divisions of the Department executed various ERM works on the Sabarmati canal network during 2009-10 to 2017-18 incurring an expenditure of ₹ 39.24 crore. Despite this, there were many deficiencies in the canal system.

Audit further noticed that no such study was conducted for other canal networks in the State to evaluate the effectiveness of the ERM works. In its absence, the Divisions could not properly assess the problem areas for taking adequate measures to improve the efficiency in storage and distribution network.

Audit also noticed that though the Department executed ERM works since 2006-07 and even the instructions were issued in February 2010 to undertake Water Audit of canal network system, but no evaluation to know the benefits accruing after execution of these works was carried out.

2.1.8 Conclusion

The Department undertook ERM works of existing canal systems to minimise the gap between irrigation potential created *vis-a-vis* irrigation potential utilised and to provide those at the tail end their fair share of water. Culturable Command Area (CCA) of 7.96 lakh ha has been covered under ERM works up to March 2018 against the total CCA of 12.96 lakh ha (61 *per cent*). Absence of project wise plans in eight out of 12 test-checked projects, not preparing the Detailed Project Reports, improper planning for works *etc.*, were observed during the course of Audit. Thus, gap between the CCA created *vis-a-vis* utilised was not bridged even after taking up works under ERM of canal systems.

In Jhuj Irrigation Project; Sabarmati Right Bank Canal of Dharoi Project; and Kadana Project, the utilisation of CCA was less as compared to the CCA created, due to works required for enhancing utilisation not being accorded priority while carrying out the ERM works. Similarly, in four projects namely Waidy Minor Irrigation Project, Kakrapar Right Bank Main Canal, Fatewadi Canal System and Tail Extended Distributary of Watrak Main Canal, improper planning in taking up of

works led to under utilisation of the created CCA. The Department also accepted unworkable rates tender in two works leading to those works remaining incomplete. In 31 works, the Divisions split up the works without obtaining approval from the competent authority and allowed the EE to exercise the power both as a technical sanctioning authority and tender accepting authority besides depriving scrutiny and monitoring of tenders at higher levels. In nine works, Division had irregularly paid for excess and extra items to the contractors though the approval of the Department was not received. Further, due to not fixing the closure period for the canals in Meshwo and Mazam Projects and in 13 other works, the ERM works could not be completed. The Divisions had not conducted pre and post monsoon inspections of the canals as per the Department's own Guidelines relating to it. As a result, damages in the canals went unnoticed. No evaluation study was conducted after completion of the works to assess the adequacy, effectiveness and efficiency of the ERM works undertaken by the Department.

2.2 Non-recovery of Annual rent, Maintenance and Repair Charges

Twenty three Divisions of the Department did not recover the prescribed annual rent and annual charges for maintenance & repair from licensees who had been given permission for laying of pipelines crossing rivers, canals and drains which led to non-recovery of revenue of ₹ 7.35 crore.

Government Resolution (GR) of October 2004 issued by the Narmada, Water Resources, Water Supply & Kalpsar Department (the Department), Government of Gujarat (GoG) laid down procedures/ conditions to be fulfilled by the licensee for laying gas/ oil/ effluent/ water pipeline crossing the rivers/ drains/ canals. The GR stipulated levy of security deposits, annual rent and annual charges for Maintenance and Repairs (M&R). The annual rent and M&R charges had to be paid in advance in the first week of April every year by the licensee. The rent and M&R rates for canal crossing were revised[21] in June 2010 with 10 *per cent* annual increase from April 2011 onwards. The rates were further revised in January 2015 to ₹ 133.23 per meter per annum with 10 *per cent* increase from April 2015 (for financial year 2015-16).

As per GR of January 2015, a format was prescribed by the Department for maintenance of details of recovery of rent and M&R charges. The format was to be maintained by the concerned Division. As per this format, date of Government approval, name of utility owners, total length of crossing, total number of crossings, date of agreement, total rent and M&R recovered and outstanding was to be maintained.

The Department granted permission to 200 licensees (637 agreements) between August 1990 and March 2018 to lay pipelines across the canals which were under jurisdiction of 37 Divisions of the Department. As per information

21 The rent rates and M&R rates were increased from ₹ 51 per meter per annum to ₹ 91 per meter per annum.

furnished by the Department, recoverable amount was ₹ 69.27 crore from the licensees till 2017-18 on account of annual rent, maintenance and repair charges in 37 divisions. Out of this, the Department recovered ₹ 61.92 crore leaving an outstanding recoverable amount of ₹ 7.35 crore in 23 divisions (May 2019).

Out of 37 divisions, audit test checked the records of five divisions[22]. Audit observed (between May 2017 and September 2017) that notwithstanding the direction in the GR of January 2015 the Divisions either did not maintain the records showing the permissions granted by the Department and agreements executed between the concerned parties or, the records maintained were inadequate. Consequently, there was no system of regular monitoring of the charges recoverable from the licensees at the Government level. Audit also observed that there was no practice of issuing regular demand notices for the outstanding dues. Audit worked out ₹ 5.78 crore as the charges recoverable from 57 licensees[23] since the commencement of their agreement till the date of audit. Based on the audit's observation, the Divisions reviewed the outstanding amount and issued demand notices to these licensees for ₹ 9.06 crore in respect of the demand for the period upto 2017-18. Against this, the Department recovered ₹ 7.37 crore upto March 2018. In respect of Anand Irrigation Division, Anand, the entire amount in respect of 15 licensees (24 agreements) was recovered by the Department. The balance amount of ₹ 1.69 crore[24] was still outstanding in other test-checked Divisions (July 2018).

Division wise observations and the extent of compliance by the Department are given as under:

- Two Divisions[25] did not raise the demand of ₹ 1.60 crore for payment of annual rent and M&R charges upto 2017-18 to their seven licensees (eight agreements). Based on the audit's observation, the Divisions raised demand for ₹ 1.53 crore and recovered ₹ 0.75 crore leaving ₹ 0.78 crore outstanding (July 2018).
- The Executive Engineer (EE) Irrigation Division, Vadodara, raised demand for annual rent and M&R charges in respect of 17 out of 29 agreements[26] for the period upto 2014-15. In other 12 agreements no records of any such demand raised existed. Based on the available records and information, audit worked out the outstanding amount recoverable in 29 agreements as ₹ 3.04 crore (July 2018). Based on the audit's observation the amount recoverable worked out (July 2018) by the

[22] (i) Irrigation Division, Vadodara, (ii) Irrigation Division, Deesa, (iii) Panam Irrigation Division, Godhra, (iv) Ukai Right Bank Canal Investigation Division, Ankleshwar and (v) Anand Irrigation Division, Anand.

[23] (i) Irrigation Division, Vadodara: 12 licensees, (ii) Ukai Right Bank Canal Investigation Division, Ankleshwar: 23 licensees, (iii) Panam Irrigation Division, Godhra: four licensees, (iv) Irrigation Division, Deesa: three licensees and (v) Anand Irrigation Division, Anand: 15 licensees.

[24] (i) Irrigation Division, Vadodara: ₹ 0.47 crore, (ii) Ukai Right Bank Canal Investigation Division, Ankleshwar: ₹ 0.44 crore, (iii) Panam Irrigation Division, Godhra: ₹ 0.27 crore and (iv) Irrigation Division, Deesa: ₹ 0.51 crore.

[25] (i) The EE, Panam Irrigation Division, Godhra and (ii) The EE, Irrigation Division, Deesa.

[26] 29 agreements were signed with 12 licensees.

Divisions was ₹ 6.18 crore of which ₹ 5.71 crore was recovered leaving an outstanding balance of ₹ 0.47 crore (July 2018).

- The EE, Ukai Right Bank Canal Investigation (URBCI) Division, Ankleshwar issued demand notices of ₹ 1.16 crore to 23 licensees (32 agreements) upto 2017-18. Against this, the Division recovered ₹ 0.72 crore from these licensees leaving an outstanding amount of ₹ 0.44 crore (July 2018).

The Government while accepting the audit observation stated (July 2018) that the demand notices are being issued and recoveries made. It was further assured by the Government that balance outstanding amount of ₹ 1.69 crore in would be recovered from the concerned licensees. It was also stated that all the records had been updated with all entries.

The Government may take suitable action to promptly recover the outstanding amount of ₹ 7.35 crore in 23 divisions of the Department. Also, a proper system may be developed to avoid such non-recovery of revenue in future.

SCIENCE AND TECHNOLOGY DEPARTMENT

2.3 Blocking of fund due to non-utilisation of grants

Department of Science and Technology failed to monitor the utilisation of grants-in-aid by its subordinate institutions which resulted in non-utilisation of grants. Further, the funded institutions did not surrender the unutilised grant to the Department which led to blocking of fund of ₹ 109.94 crore during the year 2013-14 to 2017-18.

As per Gujarat Financial Rules (GFR), 1971, the amount of grants payable during any financial year shall be restricted to the amount which the grantee is likely to expend during that year. Further, unless it is otherwise ordered by Government every grant made for a specific object shall be subject to the following conditions:

(i) The grant shall be spent upon the object within a reasonable time, if no time limit has been fixed by the competent officer; and

(ii) Any portion of the amount which is not ultimately required for expenditure upon that object shall be duly surrendered to Government.

GFR also provides that the Utilisation Certificate (UC) should be submitted within twelve months of the closure of the financial year by the institution concerned to the Head of Department.

Department of Science and Technology (DST), Government of Gujarat (GoG) released grants-in-aid of ₹ 1,132.06 crore during 2013-14 to 2017-18 to six scientific institutes[27] to promote growth and development of new and

[27] (i) Gujarat State Bio-Technology Mission (GSBTM), (ii) Gujarat Council of Science City (GCSC), (iii) Institute of Seismological Research (ISR), (iv) Bhaskarcharya Institute for Space Application and Geo-informatics (BISAG), (v) Gujarat Council of Science and Technology (GUJCOST) and (vi) Gujarat Informatics Limited (GIL).

emerging technological areas against which expenditure of ₹ 950.84 crore was incurred by these institutes. As per release order of grant of DST, the grants were to be utilised for the purpose for which it was sanctioned and any unutilised balance of the grant at the end of the financial year should be surrendered to the DST. The details of grants-in-aid released by the DST during 2013-14 to 2017-18 are given in **Table 7** below:

Table 7: Details of grants-in-aid to the Institutes

(₹ in crore)

Sl. No.	Name of Institution	Total Grant received during 2013-18	Grant Utilised	Unspent Grant
1	GSBTM	97.25	97.25	0.00
2	GCSC	133.56	60.95	72.61
3	ISR	69.79	41.46	28.33
4	BISAG	124.95	124.95	0.00
5	GUJCOST	215.29	215.29	0.00
6	GIL	491.22	410.94	80.29
Total		**1,132.06**	**950.84**	**181.23**

(Source: Information furnished by the Department of Science and Technology)

During test-check of the records relating to the utilisation of grants-in-aid by the Gujarat Council of Science City, Gujarat Informatics Limited and Institute of Seismological Research, it was observed that there were cases in which the grants were not utilised for the purpose for which they were sanctioned and were also not surrendered to the DST. In one case, incorrect utilisation certificate was furnished to the DST. These cases are indicated below:

- **Gujarat Council of Science City (GCSC)**

[A] Audit observed (April 2018) that the DST released grants-in-aid of ₹ 106.75 crore during 2013-14 to 2017-18 to the GCSC for civil works[28] related to the Science City Projects. Out of this, the GCSC incurred expenditure of ₹ 41.38 crore during these five years.

Despite non-utilisation of funds during the previous years, more grants were demanded by GCSC and the same were also released by the DST in the subsequent years. Consequently, funds of ₹ 65.37 crore pertaining to 2013-14 to 2017-18 were lying unutilised with GCSC.

The Government stated (September 2018) that non-utilisation of grants were due to administrative delay in tendering. It was further stated that the unutilised grant will be utilised in forthcoming years.

[B] DST releases grants-in-aid to GCSC for "Popularisation of Science Programme". This was meant for State and National level programmes[29] related to science organised on a variety of disciplines round the year.

Audit observed (September 2016 and April 2018) that DST released grants-in-aid of ₹ 26.81 crore to GCSC during 2013-14 to 2017-18 against which GCSC utilised only ₹ 19.57 crore. Various programmes and seminars for

[28] Construction of different pavilions of Science City, internal roads, parking, electrification, drainage, horticulture and development of exhibits in pavilions.

[29] Training, Science Olympiad, Science Carnival, celebrating world famous days such as World Ozone Day, World Water Day, World Environment Day *etc.*

"Popularisation of Science Programme" were proposed in the original estimates but were not conducted (except 2017-18) which led to non-utilisation of the grants. The utilisation was more than the grant released only in 2016-17 and in the remaining years the released amount was not fully utilised. The unutilised grant was deposited by GCSC in Gujarat State Financial Services (GSFS). Moreover, after depositing the fund with GSFS, GCSC continued to demand fresh grant every year and the same was also released by the DST with the approval of the Finance Department. At the end of 2017-18, GCSC was having unutilised grant of ₹ 7.24 crore.

Government stated (September 2018) that the surplus grant of ₹ 7.24 crore would be utilised during the year 2018-19.

- **Institute of Seismological Research (ISR)**

DST released grants-in-aid of ₹ 69.79 crore during the year 2013-14 to 2017-18 to ISR for activities relating to seismic studies against which, the institute utilised ₹ 41.46 crore. Audit noticed that out of ₹ 69.79 crore released to ISR, ₹ 54.75 crore was meant for several research projects[30]. Out of this, ISR utilised only ₹ 20 crore *i.e.*, 36.53 *per cent* leaving unutilised balance of ₹ 34.75 crore as of March 2017. Audit scrutiny of the records revealed (April 2018) that ISR forwarded the Utilisation Certificates to DST for full amount of grants-in-aid during the year 2013-14 to 2016-17. Thus, the UC submitted by ISR was incorrect as it did not reflect the actual expenditure.

Government while accepting the audit observation stated (September 2018) that ISR has started submitting utilisation certificates with actual expenditure incurred from 2017-18 onwards. It was further stated that the remaining unutilised amount would be utilised in ensuing years.

- **Gujarat Informatics Limited (GIL)**

DST released grants-in-aid of ₹ 491.22 crore during the year 2013-14 to 2017-18 to GIL for promoting Information Technology (IT) and accelerating the process of e-governance in the state, against which it utilised ₹ 410.94 crore.

During test-check audit observed that DST decided (June 2014) to provide training in "CCC+" through private empanelled coaching institutes to Government officials. DST released grants-in-aid of ₹ 2.75 crore to GIL for this purpose during 2014-15 to 2016-17. Out of the grant released, only ₹ 0.17 crore was utilised upto March 2017.

Audit observed (February 2018) that GIL provided training to 401 officials during 2014 to 2016 and thereafter no training programme was organised. The expenditure incurred was mainly on electricity charges, maintenance and repairs charges and other miscellaneous expenses. The total expenditure was only 6.18 *per cent* of total grant released during 2014-15 to 2016-17. GIL also did not surrender (September 2018) the unutilised grant of ₹ 2.58 crore to DST.

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[30] Seismicity monitoring of Gujarat, Earthquake Early Warning System, Real-Time monitoring of Crustal-Deformation in Gujarat using Global Positioning System (GPS) network, 3D Magnetotelluric study in Kachchh region of Gujarat *etc.*

The Chief Financial Officer, GIL, while accepting the audit observation, stated (February 2018) that demand for grant is not made by GIL but that the provision is made by DST for future requirement.

Government stated (September 2018) that GIL would be directed to surrender the unutilised grant of ₹ 2.58 crore.

The above instances noticed in test-check show that despite clear provisions for surrendering of grant in case of non-utilisation at the end of the financial year, the three institutions concerned had not surrendered the unutilised grant during the year 2013-14 to 2017-18 which resulted in blocking of ₹ 109.94 crore. DST had also not developed any monitoring mechanism to ensure surrendering of unutilised portion of grants by its institutions after the end of the financial year. Moreover, without reviewing the utilisation of previous grants, DST continued to release the grant in subsequent years. Thus, DST had failed to monitor the yearly utilisation of grants-in-aid by its subordinate institutes.

CLIMATE CHANGE DEPARTMENT

2.4 Non-recovery of annual certification charges from windfarm owners

Gujarat Energy Development Agency failed to recover annual certification charges of ₹ 5.62 crore as of January 2019 due to absence of proper monitoring system for recovery of annual certification charges from windfarm owners.

Windfarms in Gujarat are set up by developers under the Gujarat Wind Power Generation Policy (Wind Policy) notified by the Government of Gujarat (GoG) from time to time. The first Wind Policy was notified by GoG in 2002 while the Policy presently in vogue was notified in 2016. Gujarat Energy Development Agency (GEDA) functioning under the Climate Change Department, GoG is the nodal agency for facilitation and implementation of the Wind Policy.

GEDA issued instructions/ guidelines/ terms and conditions for setting up of the windfarms under these policies. These instructions *inter-alia* lay down that the certificates regarding commissioning were to be submitted to GEDA by the developers, and certification charges to be paid by developer/ transferee to GEDA in advance for issue of monthly certificate of generation of electricity.

As per the above instructions, the developer/ transferee had to pay certification charges of ₹ 10,000 per MW per year towards certification of the monthly generation of electricity to GEDA in advance every year in the month of April. The payment was to be made beginning from the month of commissioning of the windfarm (pro-rata for the year of commissioning) and for this purpose no separate intimation or demand note was to be issued by GEDA. In the event of energy certification charges not being received, the certificate of monthly electricity generated was not to be issued till the receipt of the delayed certification charges with interest of 2.5 *per cent* per month.

Audit observed (February 2018) that the total installed wind generation capacity in Gujarat was 5,316.375 Mega Watt (MW) as on 31 March 2017. During 2016-17, against the total recoverable annual certification charges of ₹ 5.32 crore[31], GEDA had booked an income of only ₹ 3.54 crore. Further as per information provided by GEDA, ₹ 2.69 crore was outstanding from 405 windfarm owners as on 31 March 2017. Out of this, ₹ 2.16 crore was recovered leaving an outstanding recovery of ₹ 0.53 crore (January 2019). Further, after audit observation was raised (February 2018), GEDA also issued demand note of ₹ 6.26 crore to 1,290 windfarm owners for outstanding annual certification charges for the year 2017-18. Out of this, GEDA recovered ₹ 1.17 crore leaving the outstanding balance as ₹ 5.09 crore (September 2018). Thus, there was an outstanding recovery of annual certification charges of ₹ 5.62 crore against the windfarm owners as of January 2019.

Deputy Director, GEDA while accepting the above facts stated (September 2018) that recovery of certification charges from windfarm owners is a continuous process and efforts would be made to recover the remaining outstanding certification charges. It was further stated that since there is no pre-defined condition of charging interest on delayed payment, it was not incorporated in the demand note raised.

The reply is not convincing as GEDA certifies monthly power generation of the windfarm owners based on which they get their due benefit as per the Wind Policy. Therefore, GEDA in accordance with the provisions of the instructions *ibid*, should insist on payment of certification charges in advance before issuing the monthly generation certificates and in case of arrears insist on clearance of outstanding with interest before the issue of further certificates.

Thus, due to lack of proper monitoring by GEDA, annual certification charges of ₹ 5.62 crore as of January 2019 were in arrears from windfarm owners.

The matter was reported to the Government in July 2018. Reminders were also issued in September 2018, November 2018 and January 2019. However, reply is awaited (May 2019).

ROADS AND BUILDINGS DEPARTMENT

2.5 Excess expenditure of star rate difference of asphalt

Non-adoption of star rate prevailing at the time of approval of Draft Tender Papers for payment of price variation for asphalt resulted in excess expenditure on price variation of ₹ 5.84 crore in 11 works of five Divisions.

As per Clause 59 A of model tender conditions of the Roads and Buildings Department (R&BD), the star rate[32] of asphalt was the rate of Koyali refinery

[31] ₹ 10,000 per MW per year x 5,316.375 MW.

[32] Star rate is the rate of asphalt of the month in which draft tender papers are approved and is specified in the tender and used as a base rate for calculation of adjustment of price variation.

prevailing in the month in which the Draft Tender Paper (DTP) was approved by the Government of Gujarat (GoG). The price variation payable to or recoverable from the contractor, as per the clause, was to be calculated based on actual quantity of asphalt consumed by comparing the star rate as per tender with the actual purchase cost of the asphalt.

Test-check in Audit revealed that R&BD accorded approval to six works[33] in respect of three Divisions between August 2013 and June 2015. The DTPs for these six works were approved by R&BD between September 2013 and July 2015. The Divisions awarded these works at a total cost of ₹ 78.66 crore between January 2014 and December 2015 which were completed between October 2014 and June 2017.

Audit observed (April 2017 to November 2017) that though the tender clause clearly required the Division to take star rate of asphalt as the rate for the month in which DTPs were approved, all the three Divisions adopted lower rate of asphalt as star rate than the applicable rate in the month of DTP approval. The work wise details are given in **Appendix VI**.

As a result of adoption of erroneous star rate, in five works at **Appendix VI** (**Sl. No. 1, 2, 3, 4 and 5**) there was short recovery of price variation of ₹ 3.49 crore and in one work (**Sl. No. 6**), there was excess payment of price variation of ₹ 0.21 crore. Thus, there was an overall excess expenditure of ₹ 3.70 crore in respect of these six works resulting in an undue benefit to the contractors to that extent.

Similarly, test check in Audit of the works relating to the *Pravasipath* scheme revealed that in five works pertaining to three Divisions[34], the star rates quoted in the tender and adopted for payment were not the rate of asphalt applicable in the month in which the DTPs was approved. This led to excess expenditure of ₹ 2.14 crore (**Appendix VII**).

Government stated (August 2018/ January 2019) that the lower rate of asphalt was adopted through oversight and necessary correction in the rate was omitted. It was further stated that the lower asphalt rates were discounted by the bidders in their quotations as quoted rates were below estimates.

Reply is not convincing as the contention that the lower rates of asphalt would have been discounted by the bidders in the quotation is only an assumption. The fact is that the Department paid the difference between the actual cost of asphalt and the lower star rate mentioned in the DTP instead of the difference between the actual cost and the higher star rate that should have been adopted based on the date of DTP approval.

The instances mentioned above were observed among the cases test-checked in Audit and thus the Department should review other similar cases to avoid such lapses.

[33] Three works of R&B Division, Palanpur, two works of R&B Division, Ahwa and one work of R&B Division, Modasa.

[34] (i) R&B Division, Ahmedabad, (ii) R&B Division, Palanpur and (iii) R&B Division, Vadodara.

2.6 Avoidable expenditure

Preparation of incorrect estimates by two Divisions of Roads and Buildings Department based on (i) visual inspection in one work; (ii) without considering actual site conditions in the second work; and (iii) adoption of incorrect rate in the third work, led to avoidable expenditure of ₹ 1.95 crore.

Gujarat Public Works (GPW) Manual stipulates that estimates should always be prepared in detail as this ensures that the responsible officer has given proper consideration to the requirement of the work.

Two Divisions of the Roads and Buildings (R&B) Department *viz.*, Surat and Rajkot awarded (between February 2012 and November 2013) three works relating to construction, widening & strengthening of roads and construction of approaches to a bridge at a cost of ₹ 82.38 crore. These works were completed at a cost of ₹ 81.78 crore between December 2014 and July 2017. The contractors had executed excess items of works valued at ₹ 20.55 crore **(Appendix VIII).**

Clause 14.2 of the tender agreement of above works stipulated that when the quantity of any item exceeds the tendered quantity by more than 30 *per cent*, the contractor will be paid for the excess quantity beyond 30 *per cent* at the Schedule of Rates (SoR) of the year during which the excess quantity is executed.

Audit noticed (from August 2016 to February 2018) that after award of works, the contractors executed excess items valued at ₹ 20.55 crore in all works due to absence of detailed survey, not including the items which were essential at the initial stage and additional works executed after award of works. Had the extra works been included in the original tender through proper surveys, estimates and correct rates adopted as per tender provision, the Divisions could have avoided expenditure of ₹ 1.95 crore as discussed below:

- The R&B Division, Rajkot prepared estimates for work of construction of Bypass road around Rajkot City joining Rajkot Morbi Road SH 24 at Bedi and to NH 8B at Village Maliasan called the Maliasan Bedi Ring Road (Rajkot Bypass), based on visual inspection instead of actual site survey at the time of preparing estimates. The work was awarded in November 2013 and completed in July 2017. During execution, in respect of original quantity, one item *i.e.*, hard rock excavation, the quantity increased from 16,673 cubic meter (cum) to 42,333 cum mainly because of the hilly areas of 300 meters in the road length the estimate of which had been prepared based on visual inspection. Due to more than 130 *per cent* increase in the quantity, the contractor had to be paid for excess quantity of 20,658 cum at the SoR rate of ₹ 477.10 per cum against the tender rate of ₹ 189 per cum. This led to avoidable expenditure of ₹ 0.60 crore[35] due to not preparing the estimates based on actual site inspection.

[35] (₹ 477.10 - ₹ 189) x 20,658 cum.

- The work of Railway Over Bridge (ROB) with approaches on Kim-Kosamba Railway line (LC 160) of R&B Division, Surat was awarded (February 2012) at a cost of ₹ 26.59 crore. Audit observed (November 2017) that in the approved design and estimate (based on SoR 2008-09) the construction of retaining (RE) wall was proposed by the Division in the approaches. However, as the RE wall closed the cross road of Kosamba-Kunvards-Padvai Sugar road at the distance of 132 meter, it caused inconvenience to the villagers. Therefore, villagers requested (September 2012) to provide underpass for movement of traffic. Considering the demand of the people, the Division proposed (May 2013) additional works for the same. The Government approved (January 2014) construction of a Reinforced Cement Concrete (RCC) box of 7.50 meter width at the 132 meter distance and also approved (March 2014) excess items ₹ 11.97 crore and extra items of ₹ 65.20 lakh for the said work. The work was completed in December 2014.

  Audit noticed that the position of RE wall and the requirement of an underpass could have been decided at the time of preparing estimates based on the actual site condition and requirement of local people. However, during execution of work, issue of providing of underpass was raised by the people and considered by the department. Consequently, the excess items exceeding 130 *per cent* of the tender quantity had to be paid at the SoR 2011-12, which was higher than the tendered rates. This led to avoidable expenditure of ₹ 0.95 crore.

- In another work of widening & strengthening of Upleta-Kolki-Paneli-Jamjodhpur road km 0/00 to 26/00, the EE, R&B Division, Rajkot issued work order (December 2012) at the tendered cost of ₹ 29.08 crore for completion of the work by December 2014. As the land fell within the protected area of forest department, the division applied for the forest clearance in October 2012 *i.e.,* only two months prior to the issue of the work order. The permission was accorded in February 2015 and the work re-commenced in May 2015. As no treatment was provided up to May 2015, in order to avoid undulation in road surface for want of forest clearance, the EE proposed (May 2015) excess items of ₹ 7.33 crore, which included cost of ₹ 6.05 crore for one additional layer of Bituminous Macadam (BM) of 26,205 Metric Ton (MT).

  Audit noticed that based on the SoR 2015-16, the rate of BM was ₹ 2,080 per MT. However, the R&BD accorded approval (February 2017) for the tendered rate of ₹ 2,310 per MT for the entire quantity of BM used in the contract. This included quantity used exceeding 30 *per cent* of the tendered quantity. The total additional quantity used in excess of tendered quantity was 25,117.39 MT. Considering the original tendered quantity of BM, the excess quantity used exceeding 30 *per cent* of the tendered quantity was 17,255.89 MT. As such, Audit is of the view that as per tender clause, the rate of ₹ 2,310 per MT was to be paid on 7,861.50 MT of additional BM only and the remaining 17,255.89 MT of additional BM should have been paid at the prevalent SoR (2015-16) rate of ₹ 2,080 per MT because the work was executed during 2015-16. Therefore, deviation from the tender clause led to avoidable expenditure of ₹ 0.40 crore[36] to the contractor.

Thus, due to preparation of estimates based on visual inspection, improper consideration of site condition and adoption of erroneous rate led to avoidable expenditure of ₹ 1.95 crore.

Government stated (August 2018) in respect of first work that there were existing hill areas on sanctioned alignment and actual detailed investigation of rock strata was not possible. Hence, the estimates were prepared on the assumption of 50 *per cent* of hard rock and 50 *per cent* soft rock in the strata. In respect of second work, while accepting cost inflation, it was stated that the RE wall was passing through the cross road and this aspect was considered while preparing estimates and therefore service roads were provided on both sides. Further, in respect of third work, it was stated that the estimate was prepared in 2011 and due to absence of forest clearance, no treatment was provided on surface which resulted in highly undulating riding surface. Therefore, excess proposal of one additional layer of BM was considered and approved.

The reply of the Government in respect of the first work is not convincing as the estimate was prepared on the assumption of 50 *per cent* of hard rock quantity and actual site survey was not conducted. As 300 meters of the road length covers hilly area, site survey/ inspection should have been done. In respect of second work, reply is not convincing as there was cost inflation of ₹ 0.95 crore due to the requirement of an underpass not being decided while preparing the estimates. In respect of third work, the reply is not convincing as the Government approved higher tender rate for quantity executed exceeding 30 *per cent* of tendered quantity instead of the SoR rate which resulted in avoidable expenditure of ₹ 0.40 crore. Thus, not observing the due diligence led to avoidable expenditure of ₹ 1.95 crore.

The concerned Executive Engineers/ Superintending Engineers should review the estimates properly to avoid such mistakes and the Government should fix responsibility on concerned officials for lack of due diligence in preparation of the estimates.

2.7 Undue benefit to the contractor

The Government revised the star rate as prevalent on the date of approval of excess items which was lower than the star rate originally adopted in the tender which led to undue benefit of ₹ 1.18 crore to the contractor.

As per Clause 59 A of the model tender conditions of the Roads and Buildings Department (R&BD), the star rate of asphalt was the rate of Koyali refinery prevailing in the month in which the Draft Tender Paper (DTP) was approved by the Government of Gujarat (GoG). The price variation payable to or recoverable from the contractor, as per the clause, was to be calculated based

36 (₹ 2,310 - ₹ 2,080) x 17,255.89 MT.

on actual quantity of asphalt consumed by comparing the star rate as per tender with the actual purchase cost of the asphalt.

R&BD approved DTP for the work of widening and strengthening of Kheroj-Ambaji-Abu Road from 103/6 to 109/225 km under *Pravasipath* with the condition that star rate[37] of asphalt Viscosity Grade (VG)[38] 10 should be considered as ₹ 50,656.23 per MT. The Executive Engineer (EE), Roads and Buildings Division, Palanpur awarded (February 2014) the work at tendered cost of ₹ 3.98 crore.

The road was passing through the Wildlife Sanctuary area and therefore, prior permission from National Board for Wildlife (NBWL) was required before taking up the work. Since the process of obtaining permission from NBWL was lengthy, the Division proposed (December 2015) strengthening of the existing road surface of 7 m width instead of widening it. Thus, execution of asphaltic items such as Built-Up Spray Grout (BUSG), Bituminous Macadam (BM), Semi-Dense Bituminous Concrete (SDBC), alongwith road furnishing, side protection wall and hard side shoulder were proposed in the work. Due to this, the excess items in the work were approved by the Department with a condition that the contractor would be paid for asphalt considering the rate prevailing on the date of approval of the excess items. Consequently, the star rate of asphalt which was ₹ 50,656.23 per MT as per tender got reduced to ₹ 24,865.28 per MT. The contractor executed the work and used 455.413 MT of asphalt. The work was completed in October 2016 at an expenditure of ₹ 3.69 crore which included asphalt work of ₹ 3.03 crore (82 *per cent*).

Audit observed (May 2017) that as per the prevalent tender conditions in case of excess quantity, if need be, additional 30 *per cent* quantity was to be executed by the contractor at the tendered rate. The tender included 418 MT of asphalt to be used in the work for which the star rate of ₹ 50,656.23 per MT was adopted. It was also observed that the entire quantity of asphalt actually used (455.413 MT) in the work was within 130 *per cent* of the tendered quantity. Due to revision of star rate, the R&BD paid ₹ 0.01 crore to the contractor for price variation of asphalt. Had the star rate not been revised to the level of ₹ 24,865.28 per MT, there would have been recovery of ₹ 1.17 crore {(₹ 50,656.23 - ₹ 24,865.28) x 455.413 MT} from the contractor based on the star rate initially kept in the tender. Thus, the R&BD, instead of recovering ₹ 1.17 crore, paid ₹ 0.01 crore to the contractor for price variation which led to undue benefit of ₹ 1.18 crore to the contractor.

Government stated (January 2019) that the star rate of asphalt was adopted which was prevailing at the time of preparation of estimates. It was further stated that the lower asphalt rates were discounted by the bidder in his quotation as quoted rates were received below the estimates.

The reply of the Government is not acceptable as it is silent about the decision taken to consider the star rate prevailing on the date of approval of excess item.

[37] Rate of asphalt at Koyali refinery in the month in which the DTP is approved.
[38] It is the grading of the quality of bitumen on the basis of its viscosity.

Thus, the decision of the R&BD to revise the star rate as on date of approval of excess items led to undue benefit of ₹ 1.18 crore to the contractor.

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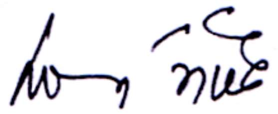
The

Countersigned



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