Report of the Comptroller and Auditor General of India

on

Economic Sector

for the year ended 31 March 2016

Government of Rajasthan

Report No. 1 of the year 2017

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PREFACE

This Report for the year ended 31 March 2016 has been prepared for submission to the Governor of the State of Rajasthan under Article 151 of the Constitution of India.

The Report contains significant results of the performance audit and compliance audit of the departments of the Government of Rajasthan under the Economic Services carried out under the provisions of the Comptroller and Auditor General of India (DPC) Act, 1971 and the Regulations on Audit and Accounts, 2007 issued there under by the Comptroller and Auditor General of India.

The instances mentioned in this Report are those which came to notice in the course of test audit during the period 2015-16 as well as those which came to notice in earlier years but could not be reported in the previous Audit Reports; instances relating to the period subsequent to 2015-16 have also been included, wherever necessary.

The audit has been conducted in conformity with the Auditing Standards issued by the Comptroller and Auditor General of India.

Chapter I
Introduction

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Introduction

1.1 About this Report

This Report of the Comptroller and Auditor General of India (CAG) relates to matters arising from performance audit of selected programmes and activities and compliance audit of economic sector departments and autonomous bodies.

Compliance audit refers to examination of the transactions relating to expenditure of the audited entities. This is to ascertain whether the provisions of the Constitution of India, applicable laws, rules and regulations, various orders and instructions issued by the competent authorities are being complied with. Performance audit examines whether the objectives of the programme or activity are achieved economically, efficiently and effectively.

The primary purpose of the Report is to bring to the notice, important results of audit to the State Legislature. Auditing Standards require that the materiality level for reporting should be commensurate with the nature, volume and magnitude of transactions. The findings of audit are expected to enable the Executive to take corrective measures. This would enable them to frame policies and directives to improve financial management of the organisations for better governance.

This chapter, in addition to explaining the planning and extent of audit, provides a synopsis of the significant deficiencies noticed in Performance and Compliance Audit. Chapter II of this Report contains findings arising out of performance audit of Irrigation potential created in Narmada Canal Project. Chapter III contains observations arising out of compliance audit of the Government Departments.

1.2 Profile of Audited Entities

The Accountant General (Economic and Revenue Sector Audit), Rajasthan, Jaipur conducts Audit of the expenditure of Twelve economic sector department. These Departments are headed by Additional Chief Secretaries/Principal Secretaries/Secretaries, who are assisted by Commissioners/Deputy Secretaries and subordinate officers.

The comparative position of expenditure incurred by the Government of Rajasthan during 2013-14 to 2015-16 is given in **Table 1** as follows:

Table 1: Comparative position of expenditure

(₹ in crore)

Particulars	2013-14	2014-15	2015-16
Revenue expenditure			
General services	23,339	27,868	31,016
Social services	31,486	37,754	43,349
Economic services	20,436	28,920	31,874
Grants-in-aid and Contribution	249	-*	-**
Total	**75,510**	**94,542**	**1,06,239**
Capital and other expenditure			
Capital Outlay	13,665	16,103	21,985
Loans and Advances disbursed	811	701	36,602
Payment of Public Debt	4,116	4,960	4,959
Contingency Fund	-	300	-
Public Accounts disbursement	1,05,605	1,22,061	1,40,432
Total	**1,24,197**	**1,44,125**	**2,03,978**
Grand Total	**1,99,707**	**2,38,667**	**3,10,217**

Source: Audit Reports on State Finances of the respective years

* ₹ 9 lakh only ** ₹ 10 lakh only

1.3 Authority for Audit

The authority for audit by the CAG is derived from Articles 149 and 151 of the Constitution of India and the CAG's Duties, Powers and Conditions of Service (DPC) Act, 1971.

The Accountant General (Economic and Revenue Sector Audit), Rajasthan, Jaipur conducts audit of expenditure of Economic Sector Departments, including Public Sector Undertakings and Autonomous Bodies of the Government of Rajasthan under the provisions of the CAG's DPC Act, 1971 and the C&AG's Regulations on Audit and Accounts, 2007 issued there under. The principles and methodology for the performance and compliance audit are prescribed in the guidelines and manual issued by the CAG.

1.4 Organisational Structure of the Office of the Accountant General (Economic and Revenue Sector Audit), Rajasthan

Under the directions of the CAG, the office of the Accountant General (Economic and Revenue Sector Audit), Rajasthan, Jaipur conducts audit of Revenue and Economic Sector Departments, including Public Sector

Undertakings and Autonomous Bodies of the Government of Rajasthan through three groups.

1.5 Planning and conduct of audit

Audit process starts with the assessment of risk exposure of various Government departments/organisations/autonomous bodies and schemes/ projects, *etc.* Risk assessments are based on expenditure, criticality of activities, level of delegated financial powers, assessment of overall internal controls and the concerns of stakeholders. Previous audit findings are also considered in this exercise.

After completion of audit of each unit, an Inspection Report containing audit findings is issued to the head of the unit. The units are requested to furnish replies to the audit findings within one month of receipt of the Inspection Report. Whenever replies are received, audit findings are either settled or further compliance is advised. The important audit observations arising out of these Inspection Reports are processed for inclusion in the Audit Reports.

1.6 Significant audit observations

During the last few years, Audit has reported several significant deficiencies relating to implementation of various programmes/activities as well as the quality of internal controls. These findings had impacted the successful implementation of programmes and functioning of the departments through Performance Audit. The deficiencies noticed during compliance audit of the Government departments/organisations were also reported.

The present report contains one Performance Audit on Irrigation Potential created in Narmada Canal Project, three Compliance Audits covering themes on Planning, Implementation and Monitoring of Common Effluent Treatment Plants, Rajasthan Minor Irrigation Improvement Project and Soil and water conservation in catchments of River Valley Projects and 10 individual paragraphs. The highlights are given in the following paragraphs.

1.6.1 Performance Audit of programmes/activities

Performance Audit of Irrigation potential created in Narmada Canal Project.

The Narmada Canal Project is an inter-state project shared by the States of Gujarat and Rajasthan. The Narmada Canal starts from the Sardar Sarovar Dam and after traversing 458 km in Gujarat enters in Rajasthan. The total length of the main canal, distributaries and secondary canal system in Rajasthan is 1792.67 km. The Narmada Canal Project in Rajasthan was approved (January 1996) by Government of India with stipulated date of completion as March 2003. The Culturable Command Area was taken as 1.35 lakh hectares which were subsequently increased from 1.35 lakh hectares to 2.46 lakh hectares.

The Narmada Canal Project has some unique features like irrigation through micro-irrigation system, delivery of irrigation water to farmer groups through

Water User Associations, plantation along canal for bio-drainage and conjunctive use of surface and ground water for prevention of water logging. The concerns in implementation of key aspects of the project are highlighted below:

In the progress reports, the Department had shown the irrigated area as 2.15 lakh hectares (87.40 *per cent*) against 2.46 lakh hectares as envisaged in project report. Till March 2016, only 1193 *diggies* (55 *per cent*) were electrified which showed that the command area shown as irrigated was not actually irrigated through sprinkler or drip irrigation system. This was an important aspect of the project. The land acquired for construction of canal, distributaries, minors and sub-minors was not mutated in the name of the Water Resources Department.

The Department had formed 2145 Water User Associations against 2236 to be formed and handed over assets like *diggies*, pipelines and mono block pumps to 1885 Associations. The Distributary and Project Committees were not formed in any of the water user areas. In absence of electrification of *diggies* (45 *per cent*), the Water User Associations remained largely non-functional. Necessary amendments in rules framed under 'Rajasthan Farmers' Participation in Management of Irrigation Systems Act, 2000' were not carried out to strengthen Participatory Irrigation Management. Water charges were not recovered by Water User Associations as required and absence of recovery/less recovery of water charges indicated lack of monitoring by the Department. The Narmada Main Canal and its distributaries and minors suffered the problem of water theft by nearby cultivators who lifted water from canals to irrigate their fields by using their own water pumps.

The objective of providing bio-drainage in the command area suffered due to lesser plantation and planting of species other than the species mentioned in the project report. No action was taken by the Department to ensure the conjunctive use of ground and surface water for prevention of water logging.

(Paragraph 2.1)

1.6.2 Significant audit observations arising out of Compliance Audit

Planning, Implementation and Monitoring of Common Effluent Treatment Plants

Under the Water (Prevention and Control of Pollution) Act, 1974, every industry has to provide adequate treatment of its effluent before disposal irrespective of whether it is discharged in stream, land, sewerage or sea. The Common Effluent Treatment Plants are considered a viable treatment solution for collective or centralized treatment of effluent, particularly generated from small and medium scale industries. Common Effluent Treatment Plants potentially help in achieving treatment of combined waste water from various industries at lower unit cost and to facilitate compliance with waste water discharge standards.

Rajasthan State Pollution Control Board is the facilitator to coordinate and provide financial assistance, technical guidance and monitoring of the Common Effluent Treatment Plants.

The Rajasthan State Pollution Control Board had neither prepared any comprehensive programme for establishing Common Effluent Treatment Plants in areas where large number of small and medium scale industries were functioning without proper treatment of effluent. It also did not prepare a policy for conducting periodical survey to identify industries which were contributing to water pollution. The Board had also not taken any concrete action for setting up of Common Effluent Treatment Plant in Sanganer, Jaipur in a timely manner.

In Pali district, the functioning of all Common Effluent Treatment Plants was not satisfactory. The treated waste water did not conform to the prescribed standards and was being discharged into *Bandi* river. In Bhiwadi, dried hazardous sludge was lying on open *Kaccha* land in huge quantity without covering shed near a residential area. The Common Effluent Treatment Plant, Jodhpur never operated at its optimum capacity and excess effluent discharged by industrial units was being discharged into *Jojri* river. The Plant also discharged treated waste water into same channel from where it was withdrawing untreated water resulting in mixing of treated waste water with untreated waste water.

Consent to operate/authorization was being given with retrospective effect without ascertaining the compliance of the conditions included in the consent letter. No third party monitoring mechanism was evolved. There was huge shortfall in collection and analysis of samples to ensure that the prescribed effluent standards were met.

(Paragraph 3.1)

Rajasthan Minor Irrigation Improvement Project

The Rajasthan Minor Irrigation Improvement Project was approved (March 2005) by the Government of Rajasthan. The main objective of the project was to rehabilitate the existing minor irrigation facilities and improve water management and agricultural practices, thereby enhancing agriculture income and alleviating poverty. In order to achieve the desired objectives, three components i.e. civil works, technical and institutional support services and consulting services were determined. The main executing agency and the focal point in implementation of the project was the Water Resources Department. The Agricultural Department was responsible for implementation of agriculture extension activities and Medical and Health Department was responsible for controlling malaria.

The delay in appointment of Engineering and Management Consultant adversely affected all activities under civil work component. As a result, the project was delayed and the objective of utilizing surface water through rehabilitation of sub-projects was not fully achieved. Loan from Japan International Cooperative Agency could not be fully availed due to less utilization of budget by implementing agencies. Premature closure of sub-

projects resulted in less creation of capacity for storage of water and less irrigation of Culturable Command Area. Non-completion of work of construction of watercourse structures resulted in non-achievement of the objectives to check the water losses, enhance cultivable area up to the desired extent and extend the benefit of irrigation facilities to the farmers. The failure of Water User Associations in realizing water charges resulted in non-availability of funds for operation and maintenance of sub-projects. The consultant clearly indicated in its report that the evaluation of the impact of the project was premature and the system to succeed would require financial base, enforcement of power and experience of running the system.

(Paragraph 3.2)

Soil and water conservation in catchments of River Valley Projects

The soil and water conservation scheme in the catchments of River Valley Projects was undertaken under 'Macro Management of Agriculture' up to 2012-13. Thereafter this scheme was under 'Rashtriya Krishi Vikas Yojana'. The main objectives of the scheme were to prevent land degradation; soil loss by adoption of multi-disciplinary integrated approach of soil conservation and watershed management; improvement of land capability and moisture regime in the watersheds; promotion of land use to match land capability from the catchments to reduce siltation of multipurpose reservoirs.

In absence of the constitution of Watershed Development Teams, the project was deprived of the expertise required for execution of watershed and other activities. Unplanned construction of permanent structures without ensuring that the vegetative soil conservation works had taken shape. This resulted in non-achievement of the objective of the project to prevent siltation and enhance surface rainwater storage in the multipurpose reservoirs. In absence of the constitution of Self Help Groups, the revolving fund was not disbursed for executing the farming. The allied activities to improve the living standards of the beneficiaries and the objective of the scheme to develop livelihood activities for the landless persons, production system and micro enterprises, therefore, got defeated.

The work of operation and maintenance of assets created under the project suffered due to non-constitution of User Groups. The objective to enhance knowledge and skill of functionaries could not be achieved as workshops and training programmes were not held. Non-utilisation of Corpus Fund and non-collection of user charges affected the maintenance of assets created under the project. Due to non-development of online web-based monitoring system, watershed-wise and activity-wise data for ongoing watershed works were not fed on the website. Third party evaluation of the projects was not done.

(Paragraph 3.3)

Public Works Department (PWD), Rajasthan included *pro-rata* charges of ₹ 7.44 crore on works executed by Rajasthan State Road Development Construction Corporation Limited in contravention to the Rules 5(a) and (d) of Appendix V of Public Works Financial and Accounting Rules (Part-II). According to Rule, when the construction works are executed by an agency

other than the Public Works Department, then agency charges should not be recovered by PWD.

(Paragraph 3.4)

Lack of proper assessment of diversion of traffic from other roads, degree of overloading and non-preparation of cost estimates for normal traffic led to infructuous expenditure of ₹ 3.99 crore on upgradation of road, before the lapse of defect liability period, under Pradhan Mantri Gram Sadak Yojana.

(Paragraph 3.5)

Non-levy of compensation of ₹ 4.66 crore for not maintaining the span-wise progress of work and irregular payment of price escalation of ₹ 0.44 crore.

(Paragraph 3.6)

The construction of road under *Gramin Gaurav Path* Scheme had to be undertaken on already existing Cement Concrete/bitumen roads. A new sub-base on preparation of ground for fresh Cement Concrete roads was not required. The Public Works Department, Rajasthan incurred an avoidable expenditure of ₹ 2.05 crore by inclusion of items of excavation of earth, construction of granular sub-base and laying of compacted graded stone aggregate in the estimates prepared under *Gramin Gaurav Path* Scheme.

(Paragraph 3.7)

The work of construction of bituminous road was awarded above the administrative and financial sanction without proper fund arrangements. This resulted in failure to complete the work and non-fulfilment of the objective of road connectivity even after incurring an expenditure of ₹ 1.78 crore under Pradhan Mantri Gram Sadak Yojana.

(Paragraph 3.8)

The Public Works Department, Rajasthan utilised funds of ₹ 1.72 crore for maintenance of urban roads under 13th Finance Commission. This was unauthorised as the funds released were meant only for the maintenance and renovation of village roads.

(Paragraph 3.9)

Out of 30 roads, 3 roads had already been sanctioned and constructed five to 15 months earlier under other schemes and were under guarantee period. These roads were again sanctioned by the Public Works Department and constructed by incurring an avoidable expenditure of ₹ 1.42 crore against the rule of financial propriety.

(Paragraph 3.10)

The excavated material such as the muck including soil and hard/soft rock generated on account of tunnel excavation was to be used in the construction of road. The cost of the same was required to be deposited by the user agency to the Forest Department. The Forest Department did not raise the demand/realise the cost of excavated material of ₹ 1.52 crore.

(Paragraph 3.11)

Lack of proper watch and ward and non-transfer of the surplus land costing ₹ 9.12 crore by Water Resources Department to Revenue Department resulted in encroachment of the land.

(Paragraph 3.12)

The work was awarded by Water Resources Department before finalisation of the detailed technical estimates. This resulted in avoidable expenditure of ₹ 6.85 crore on price escalation and also delayed the work for more than five years.

(Paragraph 3.13)

1.7 Response of the Departments to Performance Audit /Compliance Audit Paragraphs

The draft paragraphs are forwarded to the Additional Chief Secretary/Principal Secretary/Secretary of the departments concerned, drawing their attention to the audit findings and seeking their response on these findings. It is brought to their personal attention that in view of likely inclusion of such paragraphs in the Audit Reports of the Comptroller and Auditor General of India, which are placed before State Legislature, it would be desirable to include their comments. They are also advised to have meetings with the Accountant General to discuss the performance audit/draft paragraphs proposed for inclusion in the Audit Report. Accordingly, the performance audit/draft paragraphs proposed for inclusion in this Report are forwarded to the Additional Chief Secretary/Principal Secretary/Secretary concerned.

All the replies to draft paragraphs and performance audit furnished by the State Government have been appropriately incorporated in the Report.

1.8 Follow-up on Audit Reports

The Finance Department of the State Government decided (December1996) that Action Taken Notes on all paragraphs/performance audits that have appeared in Audit Reports be submitted to the Public Accounts Committee, duly vetted by Audit, within three months from the date of laying of the Reports in the State Legislature. A review of the outstanding Action Taken Notes on paragraphs/performance audits included in the Reports of the Comptroller and Auditor General of India pertaining to various Economic Sector Departments as of December 2016 revealed that three Action Taken Notes were pending from the concerned Departments.

Chapter II
Performance Audit

Chapter II

Performance Audit

This chapter includes the performance audit of Irrigation potential created in Narmada Canal Project.

Water Resources Department

2.1 Irrigation potential created in Narmada Canal Project

Executive Summary

The Narmada Canal Project in Rajasthan was approved (January 1996) by Government of India with March 2003 as stipulated date of completion. The Culturable Command Area was taken as 1.35 lakh hectares. On the basis of findings of the Water and Power Consultancy Services Limited, pressure irrigation using sprinkler/drip irrigation system was made mandatory and Culturable Command Area was increased from 1.35 lakh hectares to 2.46 lakh hectares. The plantation along canal for bio-drainage and conjunctive use of surface and ground water were also proposed to prevent water logging.

The irrigated area was shown as 2.15 lakh hectares (87.40 *per cent*) whereas only 1193 *diggies* (55 *per cent*) were electrified till March 2016. It showed that the command area shown as irrigated was not actually irrigated through sprinkler or drip irrigation system. The area irrigated by farmers by taking water from minors by arranging their own water pumps instead of micro irrigation system was incorrectly included in the achievement of Culturable Command Area irrigated. The land acquired for construction of canal, distributaries, minors and sub-minors was not mutated in the name of the Water Resources Department.

Out of 2236 Water User Associations to be formed, only 2145 Associations were formed and 1885 Associations were handed over assets like *diggies,* pipelines and mono block pumps. The Distributary and Project Committees were not formed in any of the water user areas. In absence of electrification of *diggies* (45 *per cent*) and collection of water charges, the Water User Associations remained largely non-functional. Necessary amendments in rules framed under 'Rajasthan Farmers' Participation in Management of Irrigation Systems Act, 2000' were not carried out to strengthen Participatory Irrigation Management. Absence of recovery/less recovery of water charges indicated lack of monitoring by the Water Resources Department. The Narmada Main Canal and its distributaries and minors suffered the problem of water theft by nearby cultivators who lifted water from canals to irrigate their fields by using their own water pumps.

Due to lesser plantation and planting of species other than the species mentioned in the project report, the objective of providing bio-drainage in the command area suffered. Further, no action was taken by the Department to ensure the conjunctive use of ground and surface water for drainage of low lying areas.

Introduction

The Narmada Canal Project (NCP) is an inter-state project shared by the States of Gujarat and Rajasthan. The annual share of water for Rajasthan was fixed by the Narmada Water Dispute Tribunal as 0.5 Million Acre Feet (MAF) water out of total 28 MAF utilisable quantity of water in Narmada Canal. The storage reservoir 'Sardar Sarovar Dam' is located in Gujarat from where the Narmada Canal starts and after traversing 458 km in Gujarat enters in Rajasthan near Silu village in Sanchore Tehsil of Jalore district. The discharge capacity of the canal at the border of Rajasthan is 73.5 m^3/second. The total length of main canal in Rajasthan is 74 km. There are nine major distributaries and the total length of the main canal, distributaries and secondary canal system is 1792.67 km. The NCP has some unique features in comparison to other projects:

- Irrigation water is to be delivered to farmer groups through Water User Associations (WUAs) and not to individual farmers.
- WUAs are responsible for the operation and maintenance of field water channels.
- Micro-irrigation system such as drip and sprinkler irrigation system has been envisaged for efficient water usage.

The NCP in Rajasthan was approved (January 1996) by Government of India (GoI) at an estimated cost of ₹ 467.53 crore with stipulated date of completion as March 2003. The Culturable Command Area (CCA) was taken as 1.35 lakh hectares. The method of irrigation adopted was flow irrigation system. Under this system, the water allowance was taken as 7.41 cusecs[1] per one thousand acres.

According to the suggestions made by the Ministry of Environment and Forests (MoEF), GoI an environment action plan should be prepared and implemented *pari-passu* with the construction work. Water and Power Consultancy Services Limited (WAPCOS) conducted the study for environment impact assessment, ground water quality and drainage design and submitted (September 1998) its report which envisaged that:

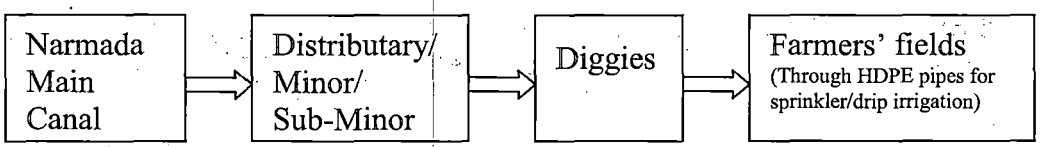
(i) the static groundwater table was high and still higher in the 'Ned'[2] area where sweet groundwater flows as a sheet of narrow thickness above saline ground water underneath,
(ii) the soil in the area was saline/alkaline, and
(iii) the canal irrigation might lead most of the command area to get water logged in few years which might render fertile land unfit for agriculture.

Necessitated by the findings of the WAPCOS, pressure irrigation by using sprinkler/drip irrigation system was made mandatory in the entire command area to prevent water logging. The CCA was increased from 1.35 lakh hectares to 2.46 lakh hectares and water allowance for irrigation was reduced to 1.31-2.51 cusecs against 7.41 cusecs per thousand acres. The plantation along canal for bio-drainage and conjunctive use of surface and ground water were also proposed to prevent water logging.

[1] Cubic feet per second
[2] Deltaic region of Luni river

Due to revision in the scope (from 1.35 lakh hectares to 2.46 lakh hectares) and introduction of additional items of works like construction and electrification of *diggies*[3]; laying of pipelines and installation of pumps; construction of wells and plantation along canal side; the cost of the project was revised (August 2007) to ₹ 1541.36 crore. The stipulated date of completion was decided as March 2014. The cost of the project was further revised (July 2010) to ₹ 2481.49 crore on account of abnormal increase in cost of labour, material, fuel, etc. and the stipulated date of completion was advanced to March 2013. Against the revised cost of ₹ 2481.49 crore, an amount of ₹ 2368.90 crore had been incurred up to March 2016. The Department has sought further extension up to March 2017 for completion of the project.

Flow chart of the project



Organisational Set-up

At State level, the Secretary is the administrative head of the Water Resources Department (WRD). At Department level, the Chief Engineer (CE) WRD functions as an Additional Secretary for technical matters. There is a CE for NCP at Sanchore at the field level. There are six[4] divisions headed by Executive Engineers (EEs) which are supervised by two Superintending Engineers (SEs).

Audit objectives

The performance audit of irrigation potential created in Narmada Canal Project in Rajasthan was conducted to assess whether:

- the irrigation potential through sprinkler/drip irrigation system as envisaged was created and utilised;
- participatory irrigation management activities were able to achieve the objectives of 'Rajasthan Farmers' Participation in Management of Irrigation Systems Act, 2000';
- the activities like bio-drainage and conjunctive use of ground and surface water were implemented effectively; and
- the financial control and monitoring was effective.

[3] Water storage tanks.
[4] Executive Engineer, NCP Division-I, NCP Division-II, NCP Division-III, NCP Division-IV, NCP Division-V and Regional Workshop, NCP, Sanchore

Audit Criteria

The audit criteria were derived from:

- Detailed Project Report of NCP
- Public Works Financial and Accounts Rules
- Rajasthan General Financial and Accounts Rules
- Annual Progress Report of the WRD/NCP
- Rajasthan Farmers' Participation in Management of Irrigation Systems Act, 2000.

Scope and Methodology

The field study of the Performance Audit for the period from 2011-12 to 2015-16 was conducted in the offices of the CE, WRD Jaipur, NCP, Sanchore and EEs, NCP, Sanchore. Apart from these, records of Deputy Conservator of Forests (DCFs) at Jalore and Barmer were also scrutinized as funds for the plantation were allotted to these DCFs.

The broad audit objectives, scope and methodology of Performance Audit were discussed in the Entry Conference held (April 2016) with the Secretary, WRD, Rajasthan, Jaipur. The audit findings were discussed in the Exit Conference held (October 2016) with the Additional Secretary cum Chief Engineer, WRD. The replies of the State Government received (October 2016) have been considered while finalising the Performance Audit Report.

Audit Findings

2.1.1 Irrigation through sprinkler/drip irrigation system

Originally, flow irrigation system was adopted in the NCP. On the basis of findings of WAPCOS, as discussed above, pressure irrigation by using sprinkler/drip system was made mandatory in the entire command area.

2.1.1.1 Non-utilisation of irrigation potential in Culturable Command Area as envisaged in project report

One of the unique features of the NCP was to adopt micro-irrigation system such as drip and sprinkler irrigation system. This was envisaged in the project report for efficient water usage. The area was to be considered as CCA on completion of all civil and mechanical works relating to construction of canal, *diggies* and installation of micro-irrigation system.

The progress reports of the divisions selected disclosed that the civil works[5] up to the extent of 97.32 *per cent* and mechanical works[6] up to the extent of 88.06-96.02 *per cent* were completed as of March 2016. The CCA irrigated was shown as 2.15 lakh hectares (87.40 *per cent*) against the total command area of 2.46 lakh hectares. The fact that the 2.15 lakh hectares area shown as irrigated was not correct as out of 2183 *diggies* completed, only 1193 *diggies*

[5] Construction of *diggies*, pump room, sump well, boundary wall, etc.

[6] Supplying, laying, jointing, testing and commissioning of pipeline and installation of mono block pumps.

(55 *per cent*) were electrified till March 2016. The area irrigated by farmers by taking water from minors by arranging their own water pumps instead of sprinkler/drip irrigation system was also incorrectly included in the CCA irrigated. The irrigation potential created, therefore, could not be utilized as envisaged in the project report because of non-electrification of *diggies* (45 *per cent*).

The State Government stated that the irrigated area had increased from 0.18 lakh hectares in 2006 to 1.60 lakh hectares in 2016 but target of electrification of *diggies* could not be achieved due to educational and economic backwardness and lack of understanding and faith among the cultivators. It was also stated that utmost efforts at departmental level were being made to accelerate the pace of electrification of *diggies*. The reply of the State Government contradicts with the facts mentioned in the progress report that the CCA of 2.15 lakh hectares was irrigated. The actual area irrigated only through drip and sprinkler irrigation system was to be adopted in the CCA irrigated. In the absence of electrification of *diggies*, the CCA was being irrigated through flow system. It had the serious risk of water logging due to excessive recharge of ground water by overdrawal of water thereby defeating the objective of economic use of water and preventing of water logging.

It is recommended that electrification work should be executed simultaneously with the canal works. The remaining diggies (45 per cent) should be electrified on priority basis.

2.1.1.2 Actual availability of culturable command area not ensured before construction of canal

The construction of Surachand minor of Bhimguda Distributary having discharge capacity of water of 0.715 cumecs[7] was completed in September 2011 at a cost of ₹ 3.71 crore. The CCA proposed for the minor was 6369.31 hectares and 51 *diggies* in the command area were to be constructed.

To utilize the water of this minor for irrigation, the work of laying, jointing, testing and commissioning of distribution network was awarded (February 2011). The work was scheduled to be completed by 4 March 2012. The contractor when submitted the drawing and design for laying pipeline in the command area, it was found that 3391.04 hectares of CCA covering the area of 25 *diggies* were Government land. In the command area of these *diggies*, sprinkler irrigation system was not developed. In the remaining area (2978.27 hectares), the work of laying of pipeline, installation of pump set and construction of 26 *diggies* was executed by incurring an expenditure of ₹ 4.93 crore up to October 2015.

It showed that proper survey was not conducted before preparing the Detailed Project Report (DPR) for assessing the actual availability of CCA at site and the Surachand minor was constructed without proper planning and assessing the actual requirement of *diggies*. This resulted in avoidable expenditure on construction of canal of higher discharge capacity. The avoidable expenditure on the minor could not be worked out in Audit since the minor was constructed long back.

[7] Cubic metre per second

The State Government stated that in the sanctioned DPR of the project, CCA of each *diggi* was taken as determined by the consultancy firm[8]. In the instant case, when the work of laying of High-Density Polyethylene (HDPE) pipeline was taken up as per the alignment fixed by the Consultant, the Department for the first time noticed that the area of 25 *diggies,* out of 51 was lying either under forest land or was saline but prior to this, the construction of Surachand minor had been completed.

2.1.1.3 Award of civil and mechanical works separately resulted in deprivation of irrigation benefit to farmers for more than five years

Para 14 (vi) of the revised guidelines (1998) of Central Water Commission for environment monitoring of water resources projects envisaged that Command Area Development (CAD) plan should be prepared and implemented in such a manner that gap between irrigation potential created and utilized was minimized. This was meant to ensure that the outlay on the project was converted into enduring outcome in the form of assured and sustainable irrigation benefits to farmers.

It was noticed that the civil works of various minors/sub-minors were awarded between February 2007 and October 2009 and completed in 2011. The mechanical works were, however, not completed (May 2016) due to awarding of the works separately to other contractors during the period between December 2007 and November 2008. This resulted in blocking of funds of ₹ 72.11 crore[9] incurred on civil works and depriving the farmers of assured and sustainable irrigation benefits for more than five years. It was also noticed that in compliance to the order issued (July 2010) by WRD, the civil and mechanical works were being awarded simultaneously to the single bidder on turnkey basis. Keeping in view the CWC guidelines, had the decision to award the civil and mechanical works simultaneously to single bidder been taken earlier by WRD, blocking of funds on the civil works could have been avoided and could have provided the benefit of irrigation to the farmers side by side.

The State Government stated that awarding of civil and mechanical works separately resulted in lack of coordination between civil and mechanical contractors and therefore, composite civil and mechanical works were awarded from 2010-11. It was also stated that during 2008-12, available canal water was utilized because of the completion of civil works. The fact remained that the farmers utilized the water using their own water pumps and timely benefit of irrigation to the farmers as envisaged in the project report was not provided.

2.1.1.4 Non-acquisition of land before awarding of work resulted in non-completion of works

Rules 298 and 351 of Public Works Financial and Accounts Rules (PWF&AR) provide that the availability of land is a pre-requisite and it should be acquired well in advance. No work should commence on land which has

[8] M/s Tahal Consultancy

[9] Division-I ₹ 17.29, II- ₹ 15.24, III- ₹ 21.06, IV- ₹ 11.26, V- ₹ 7.26

not been physically in possession or has not been duly made over by the responsible civil officer.

It was observed that the works of execution of earth work, single precast cement concrete (PCC) block lining, *pucca* structure, *diggies*, pump room, sump well and boundary wall of Malwar sub-minor and Karawadi minor were awarded (February 2010) to the contractor for ₹ 1.33 crore. The stipulated date of completion was November 2010. The work of Karawadi minor could not be completed within stipulated time, as owner of the land created obstacles and obtained a stay order from the Court. As the matter could not be finalized, the work was withdrawn (April 2011) under clause 32 of the Agreement. The contractor was paid ₹ 1.12 crore for 84 *per cent* completion of work. Subsequently, after a gap of five years, the remaining work of Karawadi minor was awarded (June 2015) to another contractor for ₹ 20.88 lakh with scheduled date of completion as 19 September 2015. The contractor was paid ₹ 11.95 lakh (March 2016).

Due to not following the governing rules for ensuring the availability of land before commencement of work, the work was delayed for more than five years. This also postponed the benefit of irrigation to the farmers.

The State Government stated that the works were allotted after issuance of land award but due to court stay and non-vacating of land by a cultivator till September 2016, the works remained incomplete. The fact remained that works were allotted without ascertaining clear title of land.

2.1.1.5 Non-mutation of land

The Department had acquired 4833.353 hectares land for construction of various canals/distributaries/minors/sub-minors, etc. The compensation of ₹ 65.45 crore was paid up to March 2016 but mutation of the land in the name of the Department was not done. As a result, the land acquired had not come under the clear title of the Department.

The State Government stated that the process of mutation of acquired land was in progress.

It is recommended that land acquired should be mutated in the name of the Department as early as possible to avoid any possible encroachment and legal complications.

2.1.2 Participatory Irrigation Management activities

The Rajasthan Farmers' Participation in Management of Irrigation Systems Act, 2000 (RFPMIS Act) was introduced (July 2000) to govern the distribution of water among the farmers. Accordingly, farmers' organizations had to be constituted in the command area of any irrigation project. For operation and management of irrigation system, elected bodies of farmers namely WUAs at primary level[10]; Distributary Committee at secondary

[10] For preparing plan for maintenance, extension, improvement, renovation and modernization of irrigation system including distributary and field drains

level[11]; and the Project Committee at project level[12] had to be formed. The Government of Rajasthan (GoR) also framed Rules, 2002 under the Act.

2.1.2.1 Lack of Participatory Irrigation Management

According to Section 4 of RFPMIS Act (Act), there shall be one WUA for every water user area, consisting of all the water users who are land owners in such area as members. Section 17 of the Act stipulates that the WUA shall prepare and implement a plan of maintenance, extension, improvement, renovation and modernization of irrigation system; regulate the use of water among the various outlets; promote economy in use of water; monitor flow of water in irrigation, etc. Similarly, under Section 6 and 8 of the Act, one Distributary Committee for two or more water user areas and one Project Committee for the project area shall be formed for execution of the functions as given in section 18 and 19 of the Act.

It was observed that against the requirement of 2236 WUAs to be formed, only 2145 WUAs were formed (March 2016) and only 1885 WUAs were handed over the assets. It was also observed that in absence of electrification of *diggies* (45 *per cent*) and collection of water charges, the WUAs were largely not functional. Similarly, no Distributary and Project Committees were formed in any of the water user areas. As a result, the work to be assigned to these committees under the Act could not be performed.

Section 17 of Act stipulates that WUAs shall prepare and implement a w*arabandi* schedule[13] for each irrigation season. For this, WUAs were also required to maintain certain registers, inventory of irrigation system, accounts, etc. It was observed that no w*arabandi* schedule had been prepared by any of the WUAs formed and no mechanism existed in the Department for verification of records, registers, inventory of irrigation system, etc.

The State Government stated that WUAs were not supposed to prepare the *warabandi* schedules but had to implement the *warabandi* schedules. The Department had prepared the *warabandi* schedules according to the HDPE pipeline design and capacity of motor pumps. The reply was not tenable as section 17 of RFPMIS Act stipulated that WUAs should prepare and implement *warabandi* schedule. The *warabandi* schedules were not implemented by WUAs even in areas where *diggies* were electrified. The State Government did not address on the formation of Distributary and Project Committees.

The Department should ensure formation of Water User Associations, Distributary and Project committees and transfer of assets to the Water User Associations according to provisions of RFPMIS Act.

[11] For preparing operational plan for the extension, improvement, renovation, modernization and annual maintenance of both distributaries and medium drains and to regulate the use of water among various WUAs

[12] For approving plan for the extension, improvement, renovation, modernization and annual maintenance of irrigation system including major drains.

[13] *Warabandi* schedule is a system of water allocation to water users by turn according to an approved schedule indicating the day, duration and time of supply.

2.1.2.2 Lifting of irrigation water from canals by farmers by using motor pumps

One of the consequences of lack of participatory irrigation management was the problem of water theft from the main canal, distributaries and minors.

In the NCP, compulsory pressure irrigation was adopted by using sprinklers or drip. It was observed that the Narmada Main Canal and its distributaries and minors suffered the problem of water theft by nearby cultivators who lifted water from canals to irrigate their fields by using motor pumps. A campaign was launched (28 April to 30 April 2016) to remove motor pumps and other encroachments from Narmada Main Canal and a number of motor pumps/engines and pipes were seized. It was observed that no such campaign was undertaken for checking drawal of water from distributaries and minors, although these also suffered the problem of water theft.

The Government stated that utmost efforts were being made to remove all encroachments from the canal system.

The Department should develop monitoring mechanism to prevent lifting of irrigation water from canals by farmers till the Water User Associations become fully functional.

2.1.2.3 Collection of Water Charges

Section 17 of RFPMIS Act stipulates that the WUAs should prepare demand and collect water charges. Section 32 stipulates that all the amount payable or due to farmer's organization, if not paid on demand, should be recovered as arrears of land revenue.

It was noticed that against an outstanding demand of ₹ 18.75 lakh and ₹ 60.80 lakh raised by Divisions-II and IV, NCP, Sanchore, only ₹ 0.17 lakh and ₹ 1.65 lakh respectively were recovered from farmers during 2011-2015. Division-V did not even raise the demand of water charges and Division-I and III did not have the information of collection of water charges.

According to section 24 of the Act, the funds of the farmer's organisation would comprise grants received from the Government as a share of water tax collected in the area of operation. It was observed that no mechanism was developed to make available the share of water tax to the WUAs. In addition, as per the data pertaining to Narmada Main Canal, 227.63 mcum[14] to 597.01 mcum water was received during July 2011 to June 2015 and 0.80 lakh to 2.15 lakh hectares area was irrigated. No demand for water charges was, however, raised by Division-V and only an amount of ₹ 1.82 lakh was collected by Divisions-II and IV.

The State Government stated that due to presence of mistrust and politics among the cultivators, the recovery of water charges for elected body was a very difficult job. It further added that *patwaris* were not available in the project for recovery of water charges. The reply of the State Government indicated the lack of persuasion and monitoring by the Department as the collection of water charges was an important element in participatory

[14] Million cubic metre

management. Absence of recovery/less recovery also had an adverse impact on the upkeep and sustainability of the project.

2.1.2.4 Necessary amendments in rules were not carried out to strengthen Participatory Irrigation Management

The RFPMIS Rules, 2002 were framed for flow system of distribution of water. In NCP, drip/sprinkler irrigation system was adopted under which water was to be distributed through *diggies* and WUAs were to manage the distribution of water from *diggies*. Therefore, some amendments as suggested in project report *(Appendix-2.1)* like *diggi*-wise formation of WUAs, responsibility of WRD for maintenance and repair of pre-*diggi* canals till formation of Distributary Committees, formation of Consultancy Committee for providing all nature of consultations, etc. required to be made in the rules were not carried out. The State Government accepted the facts.

The State Government may carry out necessary amendments in Rajasthan Farmers' Participation in Management of Irrigation Systems Rule, 2002 for strengthening of Water User Associations.

2.1.3 Bio-drainage and conjunctive use of ground and surface water to prevent water logging

Plantation of trees along canal system and on the boundaries of the fields of farmers had been proposed in the project report. This was required for bio-drainage to drain out any excessive ground water. Besides, for vertical drainage, conjunctive use of surface and ground water had been proposed in the project command to prevent water logging.

2.1.3.1 Non achievement of target of plantation

Pursuant to the suggestions of the MoEF, GoI stipulated that environment action plan be prepared, a study was conducted (September 1998) by WAPCOS. WAPCOS found that introduction of flow irrigation[15] might lead to water logging in most of the command area in a few years. This might pose a serious threat to agriculture. One of the measures to be adopted for drainage in the low lying area was planting of trees of certain species[16] along canal system. These species have deep roots and provide adequate bio-drainage to drain out the excessive ground water. For the purpose of planning for plantation, an average consumptive tree water use of 30 litre per day/per tree in the flow area and 20 litre per day/per tree in the Ned area was proposed. A provision of ₹ 74.88 crore for plantation along canal side was made in the project report.

It was observed that against the alloted budget of ₹ 9.57 crore for Barmer and ₹ 37.46 crore for Jalore between the period December 2010 and January 2016, ₹ 5.11 crore and ₹ 17.75 crore respectively were utilized for plantation. The physical targets for plantation along the main canal, distributaries and minors were fixed (July 2011) in 3941 running km for DCF, Barmer and DCF Jalore

[15] It is a method of irrigation in which water is transported by natural flow.
[16] *Arjun, Babul, Jangli keekar, Farash, Khejri* etc.

which were to be achieved up to 2012-13. Against the target fixed, the plantation was done in only 1977 running km (50.67 *per cent*) up to March 2016. In addition, plantation of species other than the species mentioned in project report was done.

Due to lesser plantation and planting of species other than the species mentioned in project report, the objective of providing bio-drainage in the command area suffered. The project authorities had also not monitored the plantation of species of plants with reference to the aim of bio-drainage.

The CE NCP, Sanchore stated (May 2016) that budget allotment for plantation work was directly made to the Forest Department. Therefore, the number of plants and species were decided by Forest Department. The DCF, Jalore stated (June 2016) that plantation was done as per budget allotted. The replies were not convincing as the very purpose of planting specific species was to ensure bio-drainage. By shifting the onus in this regard to the Forest Department, the WRD abdicated its responsibility of monitoring and supervising the project. Besides, only 47 *per cent* of the budget allotted for plantation was utilized by DCF, Jalore which indicated inadequate plantation done. The reply of the State Government was awaited (October 2016).

2.1.3.2 Conjunctive use of ground and surface water not ensured

There was a great possibility of water logging within a few years because of the high static ground water table; saline/alkaline soil in the command area and with the introduction of canal irrigation. It was, therefore, proposed (August 2007) by WAPCOS that one of the measures to be adopted for drainage of low lying area may be conjunctive use of surface and ground water. This would drain out the entire annual ground water recharge including the water recharged due to irrigation application. A mandatory provision of conjunctive use of ground and surface water (30:70 ratio) was proposed in the command area. Ground water was to be used by the farmers with surface water for vertical drainage and to prevent rise in ground water table. It was also stated in the project report that the cultivators would have wells in their fields for ground water and would be taking surface water from *diggies* through sprinkler pipes. As per project report, the position of existing Dug cum Bore (DcB) well against required number of wells for pumping out ground water was as under:

Particular	Flow area[17]		Lift area[18]	Total
	Normal	Ned		
Number of required DcB well in zone area	5063	3428	9134	17625
Number of existing wells	3068	87	3694	6849
Difference in number of required wells	1995	3341	5440	10776

Source: Project report and information provided by CE, NCP, Sanchore.

The above position indicated that large numbers of wells were required to be dug. It was envisaged in the project report that motivation would be provided to the farmers to dig more wells and make greater use of ground water.

[17] Area in which water is transported by natural flow.
[18] Area in which water is lifted from lower level to higher level with the help of pumps.

It was also observed that no action was taken by the Department to ensure the conjunctive use of ground and surface water.

The State Government stated that due to availability of limited staff in the project, the data regarding number of wells existing in the project area was not available. The reply indicated lack of action by the department to ensure implementation of conjunctive use of ground and surface water to prevent water logging.

It is recommended that conjunctive use of ground and surface water as per provisions of the project report should be ensured besides the plantation of specified species of trees.

2.1.3.3 Recharge and quality of ground water not monitored

Paragraph 17.23 of the project report envisaged establishment of piezometer wells for regular monitoring of quality and recharge of ground water in the project area. For this purpose, a provision of ₹ 2.14 crore was taken in the project report for establishing 277 piezometer wells in the project command but no piezometer wells were established.

The State Government stated that the level of ground water was being measured by the Ground Water Department. The Department, however, intimated (June 2016) that no piezometer wells were established. The reply did not mention that in the absence of establishing piezometer wells, how the quality and recharge of ground water in the project area was being monitored by the Department.

2.1.4 Contract Management

2.1.4.1 Avoidable expenditure on construction of additional lamina

The technical estimate of work for construction of additional lamina[19] on Arniyali Lift Minor at km 16.700 to 17.000 was sanctioned (July 2014) by EE, NCP Division-IV, Sanchore for ₹ 38.64 lakh. As per its technical report, the reason for providing additional lamina was that the canal portion in this particular reach was in heavy filling[20] and strong winds blowing in the region damaged the banks of the canal. The work of additional lamina was completed (December 2014) and payment of ₹ 38.34 lakh was made (February 2015) to contractor.

It was observed that as per communication (14 June 2013) of the SE, NCP Circle-II to CE, NCP, Sanchore, the reasons stated for providing additional lamina in the project report were not based on facts. The main reason for taking additional lamina was that the net head difference calculated for canal syphon[21] was worked out as 0.640 metres[22] whereas at site, it was only 0.380 metres. This caused that the designed discharge of water could not pass through the canal syphon. It was also noticed that the decision taken for

[19] A layer of sedimentary rock, organic or other material.
[20] Filling of earth by more than three meters.
[21] A tube used for drawing liquid from one container to another on a lower level
[22] Difference between full storage level of canal at km 17.000 (45.555 metres) and at km 18.850 (44.915 metres)

construction of additional lamina was a temporary solution of the problem and for remedial measures, an estimate of ₹ 3.70 crore submitted (August 2014) to SE, NCP Circle II, Sanchore. The approval of the same was pending (October 2016) for approval. Had the canal been designed properly, it would have avoided an expenditure of ₹ 38.34 lakh incurred as a temporary measure. Besides, action to fix responsibility for faulty design of the canal was not taken.

The State Government stated that the work of additional lamina was taken up to keep the canal banks stable and safe. The reply was not tenable as stated above, additional lamina would not have been required if canal banks were constructed after proper design.

2.1.4.2 Lack of action under clause 2 and 5 of the Agreement

Under clause 2 of the Contract Agreement, the contractor was liable to pay compensation for not maintaining the *pro-rata* progress of the work. Under clause 5, on the ground of unavoidable hindrance in execution of work, the contractor should apply for extension of time for completion of work to the engineer-in-charge within 30 days of the date of the hindrance. The competent authority would grant such extension within a period of 30 days from the date of receipt of application from contractor and should not wait for finality of work.

It was observed that 18 works *(Appendix-2.2)* were in progress even after expiry of the stipulated date of completion. The Department, however, had neither taken action under clause 2 of the Agreement against the contractors for not maintaining the *pro-rata* progress of the works nor was any time extension granted under clause 5 of the Agreement.

The State Government stated that 12 out of 18 works were pending due to not providing electricity for testing. In five works, civil works were in progress along with mechanical works and in respect of one work, time extension was under consideration. The reply was not tenable as span-wise time extension was to be granted as per provision of the Agreement or the contractor had to be penalized for not maintaining the progress of work accordingly.

Similarly, the execution of works[23] of the different minors, sub-minors of Balera Distributary (off taking from km 16) and Basan sub-minor of Vank Distributary (off taking from 7.88 km) of NMC was awarded (December 2011) on turnkey basis to a contractor[24] for ₹ 12.48 crore. The stipulated dates of commencement and completion were 22 December 2011 and 21 December 2012 respectively. The contractor, despite issuance of several notices by the Department, failed to commence the work. As a result, compensation of ₹ 1.25 crore was imposed (August 2012) on the contractor under clause 2 of the Agreement. The action to get the work completed at the risk and cost of the contractor under clause 3(c) of the Agreement was also taken by the Department. It was observed that recovery of only ₹ 7.65 lakh had been made on account of compensation out of the earnest money and the remaining

[23] Earth work, single PCC block lining, *pucca* structure, pump room, sump well and supplying, laying, jointing, testing and commissioning of distribution network including designing and layout of mechanical works.

[24] M/s Banco Construction, Gwalior

amount of ₹ 1.17 crore was yet to be recovered from the contractor (October 2016).

The State Government stated that action under Public Demand Recovery (PDR) Act was being taken for recovery of balance amount of ₹ 1.17 crore from the contractor.

2.1.4.3 Overpayment made due to adoption of wrong Basic Schedule of Rates

The work of construction of pumping stations at km 0.400 of Kothra Lift Minor and at km 17.100 of Gudamalani Lift Minor was awarded (August 2009) for ₹ 1.41 crore. The work was completed (November 2011) at a cost of ₹ 1.01 crore.

It was observed that during construction of pumping stations, payment of earthwork (29747.73 cum) was made on the basis of rates given in the Basic Schedule of Rates (BSR), 2008 of Public Works Department (PWD). The rates of earth work in BSR of PWD were higher in comparison to the BSR of WRD which resulted in extra payment of ₹ 25.12 lakh to the contractor.

The State Government stated that it had been clearly provided in the BSR of WRD that rates given in BSR of PWD would be applicable for building works and since the construction of pumping station was a building work, the rates of BSR of PWD were applied. It further stated that if BSR of WRD was adopted, the Department would have to allow extra lead for disposal of excavated earth. The reply was not tenable as in the case of pumping station, earthwork was done in large area and not in trenches as provided in BSR of PWD. Besides, there was uniform provision of initial lead in both BSRs and, therefore, application of BSR of PWD was not in order.

2.1.4.4 Mix design test not conducted for cement concrete works

Clause 4.5 of specific condition of contract provides that concrete mix shall be designed on the basis of preliminary test.

In the works[25] awarded to various contractors, the ratios of ingredients i.e. cement, water, sand and aggregate in concrete mix material were pre-determined in the estimates. Preliminary test was, however, not conducted and the concrete mix was not designed accordingly.

The State Government stated that in the contracts where cement concrete was in lesser quantity, the provision of design mix being impracticable was not included in the agreement. It was added that where minimum level of cement consumption per cubic metre was less than 250 kilograms, mix design was not to be conducted. The reply was not tenable as concrete mix was not designed despite inclusion of the above specification in the agreement. In absence of the concrete mix design, the right proportion of ingredients could not be determined and specific strength, workability and durability of concrete could not be ensured.

[25] Earth work, *pucca* structure and single PCC block lining of various distributaries/ minors/sub-minors and construction of *diggies*, pump room, sump well boundary wall, etc.

2.1.5 Financial control and Monitoring

Funds for NCP are provided through regular budget allotment by State Government under capital head of accounts. Funds under Accelerated Irrigation Benefit Programme are also received as central assistance from GoI.

2.1.5.1 Short realization of share cost from Public Health and Engineering Department

The project report envisaged that share cost of ₹ 246.65 crore was payable by Public Health and Engineering Department (PHED) for utilization of Narmada water for drinking water supply scheme. It was observed that against the share cost, only ₹ 10 crore was adjusted to NCP head, ₹ 100 crore was lying unadjusted under head 8443-Deposit-III in NCP Division-I, Sanchore since April 2013 and ₹ 136.65 crore had not been realized from PHED.

The Department stated that ₹ 5 crore had further been received from the PHED and efforts at the level of the State Government were being made for recovery of the remaining amount of ₹ 131.65 crore.

2.1.5.2 Diversion of funds

Expenditure on items without provision in project report

Provision of plantation of trees on either side of main canal, distributaries and minors had been taken under sub-head M-plantation of the project report with the objective of controlling the ground water recharge through bio-drainage.

It was observed that an expenditure of ₹ 1.22 crore was incurred from sub-head M-Plantation on construction of buildings such as residence of Assistant Conservator of Forest, Forest chowki, Forester's office, etc. and purchase of vehicles, computers and printers as detailed below for which no provision was made in the project report.

(₹ in lakh)

S.No.	Name of work	DCF Barmer	DCF Jalore
1	Building construction	12.52	53.21
2	Vehicles	14.02	29.96
3	Office and Communication Management	1.00	10.96
	Total	27.54	94.13

Source: Information provided by DCF, Barmer and Jalore.

Finance Department, GoR had directed (September 2014) the Department not to incur any expenditure on these items but prior to this, the above mentioned expenditure of ₹ 1.22 crore had already been incurred on the above items. This resulted in extra financial burden on the project.

2.1.5.3 Bank Guarantee expired due to lapse in monitoring

The work of execution of earth work, *pucca* structure and block lining of Bhimguda Distributary was awarded (December 2005) to a contactor[26] by EE, NCP Division-V, Sanchore for ₹ 19.67 crore. The work was to be completed by 18 June 2007. The contractor firm furnished (December 2006) Bank Guarantee of ₹ 75.00 lakh and ₹ 50.00 lakh (February 2007) issued by Bank of Baroda, KFTZ Branch (Kutch) in support of the security deposit. The bank guarantees were valid up to 18 June 2008.

The WRD extended (October 2007) the stipulated date of completion of work up to 28 February 2008. The contractor firm did not complete the work and as such, compensation of ₹ 35.17 lakh was imposed (January 2011) under clause 2 of the agreement and action to get the work completed at the risk and cost of the contractor under clause 3 (c) of the agreement was taken. The remaining work was allotted to another contractor for ₹ 9.33 crore.

The validity of the bank guarantees was, however, not extended beyond 18 June 2008. The bank denied encashment of bank guarantees stating that it was not its responsibility to make payment after expiry of validity of the bank guarantees. Had the bank guarantees been renewed, ₹ 1.25 crore could have been recovered out of the amount of compensation of ₹ 6.18 crore levied under clause 3 (c) of agreement.

Note-1 below Rule 595 of PWF&AR provides that register of bank guarantees should be kept in Division office in the personal custody of the EE. He would review the register to take timely action for extension of the period or encashment of the bank guarantees, as required. The requisite action was not taken at the level of concerned officer.

The State Government stated that disciplinary action against officials at fault was in process.

2.1.5.4 Enquiry not conducted for damages due to flood

An administrative sanction was issued (October 2015) by Disaster Management and Relief Department, Rajasthan for immediate relief/ rehabilitation of main canal/distributaries damaged due to heavy rains in monsoon season of 2015.

State Government allotted (March 2016) budget of ₹ 15.96 crore. Against the sanction issued, an expenditure of ₹ 15.87 crore was incurred during 2015-16 on immediate repair and rehabilitation of flood damaged canals.

As per Rule 21 of General Financial and Accounts Rules (GF&AR), an enquiry about the quantum and extent of loss should be conducted in case of flood; cyclone, fire, earthquake etc., and its report should be submitted to Department concerned/Government. It was, however, observed that no such enquiry had been conducted and the Department had not even taken action to probe the reasons of the flood and take remedial measures to prevent future recurrence.

The State Government accepted the facts.

[26] M/s Mepa Bhai Mandan (now MMC Project), Gandhi Dham

2.1.5.5 Administrative Inspection

Paragraphs 3.4.9 and 3.5.5 of Manual of Water Resources provide that SE and EE would inspect all important and major construction works. The Department issued (May 2009) a circular fixing the yearly norms[27] for inspection of works and night halts outside the headquarter. The details of achievements against norms are given in table below:

Table-1: Details of achievement against norms in respect of inspections and night halts

Year	Achievement (Inspection)			Achievement (Night halt)		
	EE-II (percentage of shortfall)	EE-IV (percentage of shortfall)	EE-V (percentage of shortfall)	EE-II (percentage of shortfall)	EE-IV (percentage of shortfall)	EE-V (percentage of shortfall)
2011-12	88 (8.33)	75 (21.88)	96 (-)	24 (66.67)	35 (63.54)	72 (-)
2012-13	91 (5.21)	81 (15.63)	96 (-)	22 (69.45)	56 (22.23)	72 (-)
2013-14	88 (8.03)	72 (25.00)	101 (-)	24 (66.67)	71 (1.39)	11 (84.73)
2014-15	86 (10.42)	48 (50.00)	113 (-)	30 (58.34)	40 (44.45)	52 (27.78)
2015-16	89 (7.30)	102 (-)	84 (12.5)	28 (61.11)	72 (-)	77 (-)

Source: Information provided by CE, NCP, Sanchore.

During 2011-16, the targets of inspections and night halts were not achieved by EEs. The shortage of night halts in Division-II was from 58.34 to 69.45 *per cent;* in Division-IV, the shortage was up to 63.54 *per cent;* and in Division-V, it was up to 84.73 *per cent*. The SEs and EE-I and EE-III did not provide the information.

The State Government stated that all the engineers were inspecting the works as per norms. The reply was not based on facts as record maintained in various NCP Divisions showed shortfall in inspections/night halts.

2.1.6 Conclusion

The change in scope of work resulted in extension in completion period from 2003 to 2013 and more than five times increase in overall cost. Various activities like civil work of distributaries, minors and sub-minors; land acquisition; earth work; mechanical works like supplying, laying, jointing, commissioning of pipeline and installation of mono block pump sets; and electric connection to *diggies* were, however, not fully completed as of March 2016.

The irrigated area was shown as 2.15 lakh hectares (87.40 *per cent*) whereas only 1193 *diggies* (55 *per cent*) were electrified till March 2016. It shows that the command area shown as irrigated was not actually irrigated through

[27] Norms for inspection of work CE-30, ACE-90, SE-90, EE-96 and for night halt CE-20, ACE-60, SE-60, EE-75.

sprinkler or drip irrigation system, which was the key element of the project. The areas irrigated by farmers by taking water from minors by arranging their own water pumps, instead of micro irrigation system, were incorrectly included in achievement of Culturable Command Area irrigated. The land acquired for construction of canal, distributaries, minors and sub-minors was not mutated in the name of the Water Resources Department.

Out of 2236 Water User Associations to be formed, only 2145 Associations were formed and 1885 Associations were handed over assets like *diggies*, pipelines and mono block pumps. The Distributary and Project Committees were not formed in any of the water user areas. In absence of electrification of *diggies* (45 *per cent*) and collection of water charges, the Water User Associations remained largely non-functional. Necessary amendments in rules framed under 'Rajasthan Farmers' Participation in Management of Irrigation Systems Act, 2000' were not carried out to strengthen Participatory Irrigation Management. Collection of water charges was an important element in participatory management and absence of recovery/less recovery indicated lack of monitoring by the Department. Besides, it would have an adverse impact on the upkeep and sustainability of the project. The Narmada Main Canal and its distributaries and minors suffered the problem of water theft by nearby cultivators who lifted water from canals to irrigate their fields by using motor pumps.

Due to lesser plantation and planting of species other than the species mentioned in the project report, the objective of providing bio-drainage in the command area suffered. The project authorities had not monitored the plantation of species of plants with reference to the aim of bio-drainage. There had no action been taken by the Department to ensure the conjunctive use of ground and surface water for drainage of low lying areas.

Chapter III
Compliance Audit

Chapter III
Compliance Audit

Environment Department

3.1 Planning, Implementation and Monitoring of Common Effluent Treatment Plants

Introduction

The Common Effluent Treatment Plants (CETPs) are considered a viable treatment solution for collective or centralized treatment of effluent, particularly generated from small and medium scale industries. CETPs potentially help in achieving treatment of combined waste water from various industries at lower unit cost. These also help to facilitate better monitoring and compliance with waste water discharge standards.

Under the Water (Prevention and Control of Pollution) Act, 1974 (Act), every industry has to provide adequate treatment of its effluent before disposal, irrespective of whether it is discharged in stream, land, sewerage or sea. Rajasthan State Pollution Control Board (RSPCB) is the facilitator to coordinate and provide financial assistance, technical guidance and monitoring of the CETPs. As per section 17 (1) (f) of the Act, the functions of the State Board are to inspect sewage/trade effluent, works and plants for the treatment of sewage and trade effluent, to review plans, specifications or other data relating to plants set up for the treatment of water and the system for the disposal of sewage or trade effluent or the grant of any consent as required by this Act.

In order to manage the CETP, there should be a Special Purpose Vehicle registered under an appropriate statute. The operation and maintenance of CETP are done by the Trust registered under the appropriate statute.

Funding pattern

The MoEF, GoI initiated an innovative scheme in 1991 for CETPs to promote common facilities for treatment of effluent generated from Small Scale Industries (SSIs) located in clusters. The scheme was revised in March 2012, according to which Central, State and proponent share was fixed as 50:25:25. Prior to this, the share was 25:25:50. The current central share is restricted to ₹ 1.50 crore per Million Litre Daily (MLD) for a CETP without Zero Liquid Discharge (ZLD) subject to a ceiling of ₹ 15 crore and for project with provision of ZLD, it was restricted to ₹ 4.50 crore per MLD subject to a ceiling of ₹ 20 crore.

In Rajasthan, 14 CETPs were established in five districts, five in Pali, six in Barmer and one each in Alwar, Jaipur and Jodhpur between the period 1983 and March 2016.

Scope of Audit and objectives

The scrutiny of records for the period from 2011-12 to 2015-16 was conducted (March-May 2016) in respect of all 14 CETPs at Regional Offices[1] (ROs), Head office of RSPCB and Central Laboratory. The records were examined to ascertain whether assessment of requirement of CETPs and planning for establishment of CETPs were adequate. The impact of the scheme on environmental pollution and the role of the RSPCB in monitoring the working of CETPs were also scrutinised.

The reply received from the State Government (August 2016) has been considered while finalising the paragraph.

Audit Findings

3.1.1 Planning

According to the Water (Prevention and Control of Pollution) Act, 1974, one of the main functions of the RSPCB was to make a comprehensive programme for the prevention, control or abatement of pollution of streams and wells in the State and to secure the execution thereof. The Board was also required to collect and disseminate information relating to water pollution and to advise the State Government on any matter concerning the prevention, control or abatement of water pollution.

3.1.1.1 Lack of data and absence of comprehensive programme for establishment of CETPs

It was observed that the Board did not prepare any comprehensive programme for establishing CETPs in areas where large number of SSI and medium scale industries were functioning without proper treatment of effluent. The RSPCB also did not prepare a policy for conducting periodical survey for identifying industries which were contributing to water pollution in the State. The RSPCB did not provide information like category wise number of industries running in the state; number of industries connected either with the Effluent Treatment Plants (ETPs) or CETPs; quality/volume of effluent discharged per day; steps taken to adopt better treatment option after examining the compatibility, etc. In absence of relevant data and information, the RSPCB was not in a position to fulfil its mandate regarding prevention, control or abatement of water pollution. This was also manifested in absence of any policy or comprehensive programme for establishing CETPs, as discussed in succeeding paragraphs.

The State Government stated that identification of polluting units was a continuous process and new units were identified by the Regional Officers during their routine inspections. It further stated that the Board also maintained records of all the water polluting units established in major textile clusters of the State. The reply of the State Government was not convincing as data/records relating to quality/volume of effluent discharged per day and steps taken to adopt better treatment option, etc. were not maintained by the Board.

[1] Jaipur, Pali, Bhiwadi, Balotra and Jodhpur

The Board should prepare a comprehensive programme for establishing CETPs in areas where large number of small/medium scale industries are functioning without proper treatment of effluent. There should be a proper system for periodic survey and identifying the polluting units.

3.1.1.2 Lack of planning for establishing CETPs

Non establishment of CETP in Sanganer, Jaipur

The Sanganer area in Jaipur district is well known as a centre for production of traditional hand-printed textile fabric. As per joint survey conducted (29 April 2013 to 2 May 2013) by the team members of RSPCB, District Administration, District Industries Centre and Revenue Department, about 893 textile dyeing and printing units were in operation in and around Sanganer area. About 12.3 million litres of effluent per day were being discharged by these units on open land and in *Dravyawati* river without any treatment.

In absence of effluent treatment plants, industrial waste was being released continuously without treatment on open land causing deterioration in quality of ground water. There was discharge of hazardous chemicals by the textile units into the *Dravyawati* river. Various studies[2] manifested that heavy metals like Nickel, Lead and Cadmium concentrations were above the various national and international permissible limits in the vegetables and cereal crops. Consumption of foodstuff with elevated level of heavy metals may lead to high level of accumulation in the body and thereby cause health disorder like nausea, vomiting, hypertension, sporadic fever, anaemia, cardiovascular collapse and death.

Hon'ble High Court of Rajasthan had passed order (May 2015) that in compliance of its previous order (March 2004), the polluting units should have been shut down till installation of CETP or relocated to a different place. The High Court also ordered (April 2015) that all such units which were running without obtaining 'No objection Certificates' (NOC) from the RSPCB should be shut down immediately. In compliance of these, the RSPCB issued (between 2010-14 and April 2015) directions for closure and disconnection of electricity and water supply to all 893 units. Electricity connection of only 51 units out of 893 was disconnected during April 2015 to August 2015.

The RSPCB, therefore, except issuing notices had neither taken any concrete action against all such polluting units nor taken any concrete measure for setting up of CETPs by polluting units in a timely manner.

Non-operation of Effluent Treatment Plants

The Sanganer Kapda Rangai Chhapai Association assured (August 2015) by way of an affidavit in Hon'ble High Court of Rajasthan that till the installation of CETP within a period of one year (August 2016), each and every unit would establish individual ETP in two phases:

- Major units discharging more than 1000 Kilo Litre per Day effluent would have their functional ETPs within 30 days.

[2] (i) International Journal of innovative research in science, engineering and technology (July 2015).
(ii) International Journal of geology, earth and environmental sciences. (January-April 2014).

- All other units would have their ETPs within next 30 days.

The Hon'ble High Court ordered (August 2015) that the RSPCB would continue to inspect and supervise the establishment of ETPs as well as construction of CETP. RSPCB would also submit a report immediately on the expiry of two months about the progress made.

In compliance of the Court's directions, a joint team comprising officials of District Administration, Jaipur Vidyut Vitran Nigam Limited, RSPCB and representative of Association inspected 221 units out of 776 member units of the Association during October 2015 to January 2016, though the deadline had already passed in October 2015. Of these, 165 units had installed ETPs, 21 units were in process of installing ETP and 35 units did not install ETPs. Further, out of 165 installed ETPs, only 22 (13 *per cent*) ETPs were found operative. In order to evaluate the performance of ETPs, samples of 24 units were collected and analysed by the Board during December 2015 and January 2016. The results of 23 out of the above 24 units indicated that the samples exceeded the parameters of pollutants. Action taken by the RSPCB against defaulters was not found on record.

The State Government stated (November 2016) that all 776 member units had installed individual ETPs and the work order for installation of CETP at Sanganer had been awarded (September 2016) but the construction had not yet started. The reply was not in consonance with the facts as out of 776 ETPs installed, only 296 ETPs were in operation (November 2016). In absence of establishing CETP, and non-operation of ETPs, the textile industries were continuously releasing effluent into *Dravyavati* river or on open land.

3.1.1.3 Non establishment of CETPs in three districts

The Annual Report (2010-11) of RSPCB envisaged plan to establish eight new CETPs in industrial clusters of three districts[3]. The RSPCB was required to motivate the industries for setting up of CETPs.

It was observed that no progress for setting up of CETPs had been made so far. Information regarding number of ETPs installed in these districts, volume of effluent discharged, physical and chemical characters of the effluent and the site where the effluent was being discharged was not provided by the RSPCB.

The State Government did not address on establishment of these eight CETPs.

Due to non-establishment of CETPs in these districts as required, the objective of prevention, control and abatement of water pollution suffered.

3.1.2 Implementation

We noticed the following significant points during test check of records of CETPs in the concerned Regional Offices.

CETPs in Pali District

The Industrial Town, Pali has SSIs, which are largely located in its four industrial areas namely Mandiya Road, RIICO[4]-I and II and Punayata. There

[3] Alwar (five), Bikaner (two) and Hanumangarh (one)
[4] Rajasthan State Industrial Development and Investment Corporation

are about 550 red category[5] units engaged in textile processing like bleaching, mercerizing, dyeing and printing of cotton and synthetic fabric. All five CETPs in Pali were operated by Pali Water Pollution Control Treatment and Research Foundation (PWPCTRF). The CETP units I and III (Mandiya and Punayata Road) were closed presently (July 2016) due to upgradation work since July 2015 and November 2015 respectively.

3.1.2.1 Conveyance system

Conveyance system plays an important role in cost effectiveness of the treatment besides ease in plant operation. In Pali district, where about 550 red category textile units were connected with CETPs, the effluent discharged by these units (except Punayata road located units) was being carried through tankers to CETPs. The industries of Pali were being incurring around ₹ three crore every month on conveyance which was more expensive than conduit pipeline. After treatment, water was being discharged into *Bandi* river through open *Nallah*.

It was observed that in the meeting (July 2011) headed by the Principal Secretary, Environment in the presence of Chairman, RSPCB directed PWPCTRF to lay a conduit pipeline in RIICO industrial area I, II and Mandiya Road industrial area. Subsequently, a decision to lay pipeline by the PWPCTRF in RIICO industrial area I, II and Mandiya road was taken (September 2013) in the meeting of Monitoring Committee chaired by the District Collector. No work was, however, executed despite lapse of about five years since decision (July 2011) was taken by the Government. The National Green Tribunal also recommended (8 October 2015) that RIICO should construct closed conduit system for conveyance of effluent from individual industries.

In Pali, conveyance through piping system could have been feasible, appropriate and economic as all homogeneous member industries are located close to each other. In absence of conduit pipeline and transportation of effluent by tankers, the possible discharge of effluent or left into river or open drains without treatment could not be ruled out. There was no mechanism evolved by the RSPCB to ensure that effluent were discharged in the CETP inlet and not elsewhere.

The State Government stated that it was vigilant about the issue and following up with the Trust to ensure to lay down closed conduit pipeline in the remaining areas also.

3.1.2.2 Overflow of effluent

It was observed from the records of Regional office, Pali that the industrial units at Pali had discharged effluent in excess of the quantity prescribed by RSPCB, due to which overflowing effluent got mixed with city sewerage and flowed into the river *Bandi*. In many instances, RIICO drains and many of the city roads were also full of effluent due to overflow.

To overcome the overflow problem and to ensure that member units should not contribute their effluent in excess of the prescribed quantity and to treat the trade effluent up to the conforming limits of the prescribed standards, the

[5] Highly polluting units

Board had issued directions (September 2013) to the PWPCTRF. The directions were to operate the CETPs at 50 *per cent* of the capacity so that it would be able to meet the standards as prescribed under Environmental (protection) Act, 1986 and to ensure that the member units run at reduced capacity (50 *per cent*). The RSPCB further enhanced (February 2014) this limit up to 60 *per cent.*

The PWPCTRF did not make available any record regarding implementation of discharge restriction on member units. In absence of which, compliance of the order could not be ensured. The results of various reports of RSPCB indicated that treated effluent discharged by CETPs contained pollutants in excess of the prescribed standards. There was no mechanism developed by the RSPCB to check whether the discharge restriction was being adhered to by the CETPs and member units.

The State Government stated that it had directed the Trust to ensure that the member units did not discharge effluent beyond the allowed quantity. It was also stated that RO, Pali was conducting regular inspections and monitoring to ensure that the quantity of effluent remains within the restricted quantity. The reply was not tenable as the order issued (October 2016) by National Green Tribunal for closure of units discharging effluent in river *Bandi* till the joint inspection of CETPs was carried out. This showed that the problem of overflowing persisted (October 2016).

3.1.2.3 Non-achievement of prescribed parameters

According to MoEF, GoI guidelines (March 2012), the inlet and outlet effluent standards of the CETP should be complied with irrespective of the degree of treatment i.e. primary, secondary or tertiary. The RSPCB prescribed (26 November 2015) parameters in the 'consent to operate' to the concerned CETP Trust.

Scrutiny of analysis results prepared by Central Laboratory revealed that out of 240 samples collected during August 2012 to January 2016 from CETP-I, II, III and IV and four samples during 2015-16 from Unit VI, 87 per cent samples were not in consonance with the prescribed parameters and Total Suspended Solids (TSS), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Oil and Grease exceeded the set standards ***(Appendix-3.1)***. This showed that the functioning of CETPs in Pali District was unsatisfactory and waste water was not being treated so as to conform to the prescribed standards. Resultantly, CETPs were still discharging polluted water into *Bandi* river. No concrete steps were taken by the Board to ensure that effluent standards were achieved.

The State Government reply did not address the audit observation.

3.1.2.4 Upgradation of technology

According to reports of Infrastructure Leasing and Financial Services Ecosmart Limited (September 2009), the appropriate technologies were to be identified based on the characteristics of effluent to arrive at the probable combination of treatment technologies.

The CETP Units I, II, III and IV, Pali District were designed for treatment upto secondary[6] level and Unit VI upto tertiary[7] level. It was also observed that Units I and III were not in operation due to upgradation work for tertiary treatment. The only Units II, IV and VI were running and Unit V was under construction (July 2016). The CETP Trust proposed (February and March 2016) upgradation of technology upto tertiary level for Units II and IV and Units V and VI were proposed (January 2015) for ZLD. Most of the CETPs were established between 1983-2009 and were required timely upgradation to ensure to meet the prescribed norms for treated effluent.

The State Government stated that the State Board was continuously pursuing the Trust to upgrade and retrofit the CETPs so that the treated effluent was able to meet the prescribed norms. It was also apprised that the upgradation and retrofitting of CETP unit-III had recently been completed and results of newly constructed CETP-VI were continuously improving. The reply of the Government, however, was not specific as to whether the treated waste water was within the prescribed norms.

Treated water discharged by CETPs into *Bandi* river failed to achieve the outlet parameters thereby causing risk of deterioration in quality of river water.

The Board should initiate action against units which regularly failed to achieve the prescribed parameters and should ensure that no treated water was released into the main stream unless prescribed standards were met. It should closely monitor the problem caused by excess discharge and overflow of effluent and take concrete action against defaulter units.

CETP in Bhiwadi (Alwar)

A CETP with the capacity of 6 MLD was established (2004) in the Bhiwadi Industrial Area to treat industrial effluent, by RIICO. The operation and maintenance of CETP was handed over (June 2007) to Bhiwadi Jal Pradushan Nivaran Evam Anusandhan Samiti (Samiti). The Samiti executed (February 2011) a trust deed and was named as Bhiwadi Jal Pradushan Nivaran Trust (BJPNT). The CETP was upgraded (2009) for treatment up to tertiary level and the capacity was being upgraded upto 9 MLD.

3.1.2.5 Unscientific disposal of treated water

Scrutiny revealed that the effluent after treatment from CETP (Industrial area, Bhiwadi) was being pumped through a closed conduit pipeline upto the *Sabi* river. As the outlet parameters[8] were not fulfilled by the CETP since 2012-13 and polluted water continuously affected the farmers land, closed conduit pipeline in *Khushkhera* industrial area was blocked by the local farmers as a mark of protest. The treated water was flowing on vacant plot of RIICO in *Khushkhera* industrial area (March 2016). Scrutiny of inspection reports[9]

[6] Secondary treatment involves purification of waste water primarily with microbial action.
[7] Tertiary treatment includes sand filters, activated carbon filters, micro filtration, ultra filtration, nano filtration, reverse osmosis, ion exchange, evaporation, uv filtration etc.
[8] TSS, COD, BOD *etc*
[9] Inspection report of Assistant Environment Engineer, Regional Office, Pollution Control Board, Bhiwadi

further revealed that the treated water was getting mixed with untreated water released by industrial units of *Khushkhera* industrial area.

It was also noticed that the results of outlets did not improve though the RSPCB had issued notices[10] to the Trust. Unscientific disposal of treated water on open land in *Khushkhera* industrial area and its mixing with untreated hazardous waste water, thus, defeated the objective of setting up of CETP in the area.

The State Government stated that Board had been taking all possible steps to resolve the issue related with disposal of treated effluent. The BJPNT had commenced tertiary treatment and upgraded processes and had also attained the norms of discharge prescribed by the State Board for about last two months. The reply was not convincing as CPCB and RSPCB in their test reports (September 2016) confirmed that outlet parameters were not being achieved by CETP.

3.1.2.6 Unscientific storage of hazardous sludge

As per condition given in the consent to establish, the sludge generated from the CETP was to be stored under the covered shed and disposed of as per the provisions of the Hazardous Waste (Management and handling) Rules, 2000.

Review of records and site inspection (April 2016) by audit for examining the working of CETP disclosed that huge quantity of dried hazardous sludge was lying on open *Kaccha* land without covering shed near a residential area. There was a covered tin shed built for the purpose of keeping sludge lying vacant. This practice was continuously being adopted by the CETP operators. RSPCB also in its various inspection reports[11] had mentioned that hazardous waste was being kept on open land. RSPCB issued (December 2014) a show cause notice to the CETP. The position, however, remained unchanged (July 2016).

The State Government confirmed the facts and stated (August 2016) that the RO, Bhiwadi had written a letter to the Trust (May 2016) directing it to stop the practice of storing the sludge in open area.

[10] 5 September 2011, 13 December 2012, 31 March 2014, 4 June 2014, 7 September 2015 and 13 January 2016

[11] 13 November 2014, 28 February 2015 and 12 January 2016

Picture: Dried hazardous sludge lying near a residential area outside CETP Bhiwadi

In Bhiwadi, treated water was being released on open land where it was getting mixed with untreated effluent. Besides, there was no scientific storage of sludge as huge quantity of hazardous sludge was found lying on open *Kaccha* land without shed. This posed danger to the environment and could be harmful to the residents.

CETP Jodhpur

The CETP with hydraulic treatment capacity of 20 MLD in Jodhpur by Jodhpur Pradushan Niwaran Trust (JPNT) was established (2004) to treat 15 MLD alkaline effluent of textile mills and 5 MLD acidic effluent of steel re-rolling mills. Acidic waste water is received through HDPE pipeline and alkaline waste water through RIICO open drain and conduit pipeline laid in July-August 2015. The open RIICO drain near the CETP collects alkaline waste water from industrial drains apart from collecting industrial sewage and domestic waste water generated from residential colonies enroute. The CETP presently treats the effluent up to tertiary level.

3.1.2.7 Under-utilization of CETP

According to MoEF, GoI guidelines (March 2012), guarantee of performance at full design load should be ensured by the RSPCB.

Scrutiny revealed that CETP was never operated at the optimum capacity of 20 MLD. During the year 2013-14, 2014-15 and 2015-16, average treated effluent was only 9.32, 9.16 and 11.59 MLD respectively which was far below its capacity.

On being pointed out, JPNT intimated that inlet parameters of Potential of Hydrogen (pH) of CETP did not match with the designed criteria of CETP. One by one upgradation works were undertaken and in absence of stand by arrangements, CETP did not utilize its full capacity in the past. The reply itself admitted the fact that there was under-utilization of CETP due to non-adherence of inlet parameters by member units of CETP. No punitive action was, however, taken by RSPCB against defaulter units.

The State Government stated that the Trust had now engaged an expert agency to ensure proper operation and maintenance of CETP and it was expected that CETP would be operated at its optimum capacity in near future.

3.1.2.8 Overflowing effluent being discharged through open drain

During scrutiny of records of Regional Office, Jodhpur, a major problem of overflowing of untreated effluent was noticed. In the inspection report (June 2014) of Regional Officer, RSPCB, Jodhpur, it was mentioned that the total flow of alkaline waste water was 46.478 MLD[12]. The treated alkaline waste water during the same period was only 10.468 MLD and remaining 36 MLD effluent was discharged into *Jojri* river through RIICO open drain. Other inspection reports and documents also confirmed the discharging of effluent without treatment. During June 2010 to November 2015, RSPCB in 37 out of 50 samples analyzed, found that outlet parameters were not achieved. It was, thus, evident that release of untreated waste water was leading to pollution in *Jojri* river.

It was further noticed that the Zonal Officer, CPCB also pointed out (August 2012) that around 50 *per cent* of the effluent load received through RIICO drain was discharged into *Jojri* river without any treatment. The CPCB issued directions (April 2013) to the RSPCB for preventing discharge of effluent. RSPCB was expected to issue directions to the CETP Trust and compliance was to be ensured. RSPCB issued show cause notices[13] to the CETP Trust. The problem of discharging of untreated waste water, however, continued (March 2016). RSPCB, thus, failed to take concrete steps to prevent overflows by industrial units. Resultantly, huge quantity of untreated waste water was being discharged into *Jojri* river.

The State Government stated that waste water flowing in open RIICO drain was mostly domestic effluent from the industrial units or nearby residential areas. The reply of the State Government was not tenable as it was evident from the Inspection Report (September 2016) of RSPCB that untreated industrial effluent was flowing in RIICO open drain.

Overflowing untreated effluent discharged by industrial units flowed through open RIICO drain into *Jojri* river thereby causing water pollution.

3.1.2.9 Absence of pre-treatment by member industries

Effluent from industrial processes requires some form of pre-treatment prior to sending the effluent for further treatment at CETP to minimize corrosion and clogging and to prevent reduction in biological treatment process efficiency due to toxic constituents.

In Jodhpur, where heterogeneous industries were operating, pre-treatment at individual industries would have been more conducive in the operation and maintenance of CETP. In a joint inspection with the representative of the RSPCB, audit observed (April 2016) that pre-treatment was not being done by the member industries and effluent received at CETP was not in consonance

[12] From 16 June 2014 (1 pm) to 17 June 2014 (12 pm)
[13] 31 March 2010, 4 February 2011, 30 November 2012 and 22 May 2015

with the inlet parameters. It was observed that pH of effluent in Acidic Grit Chamber was only one instead of between 5.5 and 9 as required and the chamber was full of solid sludge up to about 3 feet. In absence of pre-treatment, CETP had never utilized its full capacity of treatment and outlet parameters were also not achieved. No monitoring mechanism to check the inlet parameters of member industries on a regular basis was evolved by the Board. Action taken against defaulting units was also not found on record.

The State Government stated that it would ensure that primary treatment facilities were properly operated by the units so that operation of CETP did not get affected adversely.

3.1.2.10 Lack of re-use of treated waste water

According to the directions (May 2014) of Department of Environment, Government of Rajasthan, the entire waste water after treatment upto tertiary level should be reused.

It was observed that CETP, Jodhpur was upgraded up to tertiary level. The CETP was discharging treated waste water into the same channel from where it was drawing untreated water resulting into mixing of treated waste water with untreated waste water. During visit of CETP campus, it was found that the treated waste water was flowing into RIICO drain. The CETP operator intimated that treated water was being used in chemical preparation and horticulture. This was not convincing as there was no evidence to support that the entire treated water was being re-used for the above purposes.

The State Government stated that the treated effluent could be utilized for agriculture/horticulture purpose and the Trust had been directed to make necessary arrangements.

3.1.3 Financial management

3.1.3.1 Delayed release of funds by RSPCB

The MoEF, GoI sanctioned (March 2010) Central share of ₹ 7.02 crore for construction of two CETPs (V & VI) at Pali. The RSPCB sanctioned (February 2010) State share of ₹ 7.58 crore. Against the sanctioned amount, GoI released (March 2010) first instalment of ₹ 41.13 lakh each for both CETPs. This amount was, however, released (January 2013/January 2014) by the RSPCB to implementing agency with delays ranging between 35 and 45 months. The RSPCB released State share of ₹ 2.00 crore to implementing agency (₹ 1.00 crore each for two CETPs) in February 2010 and ₹ 3.13 crore during 2015-16. Thus, GoI share and State share was less received by ₹ 6.20 crore and ₹ 2.45 crore respectively.

The State Government stated that GoI released ₹ 41.13 lakh in March 2010 for each CETP which was subsequently transferred to the Trust after ascertaining the progress as notified under the scheme. It further stated that the State share of Unit VI, Pali was pending with the State Board for want of extension in the date of validity for release of payment from Department of Environment, GoR.

The fact remained that this also caused delay[14] in construction of CETPs V and VI which were scheduled to be constructed by 2010.

3.1.4 Monitoring

3.1.4.1 Lack of Laboratory

In December 2009, State Government accorded sanction for establishing eight[15] new Regional Laboratories for analysing samples of air and water as part of restructuring and strengthening of RSPCB.

It was observed that the laboratories in Balotra and Pali were not established (May 2016) whereas out of total 14 CETPs established in Rajasthan, 11 CETPs were being operated in Balotra and Pali districts. The District Magistrate, Pali had also directed (July 2013) the Regional Officer, Pali to establish a laboratory within three days. No laboratory, however, had yet been established (May 2016).

The State Government stated that regional laboratories were under construction and would be made operational by January 2017.

3.1.4.2 Motivational camps/workshops not organized

As per MoEF communication (March 2012) to RSPCB, RSPCB was expected to publicise Centrally Sponsored Scheme. Camp/workshop was also to be organized, if needed, with the SSIs to familiarize them with the nuances of the scheme so that maximum SSIs could be benefitted.

It was observed that no such camps/workshops were organized. In absence of this, the required publicity to generate awareness of the benefits of scheme could not be made.

The State Government stated that it had taken all possible action to educate the industries about various funding schemes. There was no supporting evidence noticed which confirmed that motivational camps/workshops were organized by the RSPCB.

3.1.4.3 Consent to operate issued with retrospective effect

Consent to establish/operate a CETP is given by the RSPCB to the proponent under Section 25 and 26 of Water (Prevention and Control of Pollution) Act, 1974 and under Section 21(4) of Air (Prevention and Control of Pollution) Act, 1981. Authorization for operating a facility for collection, disposal, storage, transportation and treatment of hazardous waste is given under Hazardous Waste (Management, Handling and Trans-boundary movement) Rules, 2008. The consent to establish/operate is to be given within four months and authorisation for sludge management within 120 days from the date of application. This is valid for the period specified therein.

It was observed that in 30 cases during the period 2009-10 to 2014-15, there was an inordinate delay in issuing consent which ranged between 24 and 1612 days. In six cases, there was delay of 72 to 1863 days in issuing authorization

[14] CETP-V under construction and VI completed in August 2015

[15] Balotra (Barmer), Bharatpur, Bhilwara, Bikaner, Chittorgarh, Kishangarh (Ajmer), Pali and Sikar.

for sludge management. It was also observed that the consent to operate/authorization were made effective retrospectively from the date of application for the period under which CETPs remained operational.

The State Government stated that the Board was putting all possible efforts to address this issue.

3.1.4.4 Absence of third party monitoring

As per paragraph 7.10.7 of MoEF guidelines (March 2012), a three tier[16] monitoring mechanism was to be evolved. It was noticed that no third party monitoring mechanism was evolved. The RSPCB stated that there was no provision for third party monitoring, which was not correct.

The State Government, however, stated that it would ensure submission of analysis report from third party by the CETP.

3.1.4.5 Non-submission of quarterly report to CPCB regularly

Under Section 18 (1) (b) of Water (Prevention and Control of Pollution) Act, 1974, the CPCB issued directions (September 2008) to the RSPCB for initiating monitoring programme of all CETPs at least every quarter. It was also directed to take up follow up action against industries/CETPs which were not complying with the prescribed standards. The Action Taken Reports (ATRs) were to be submitted to the CPCB regularly.

The CPCB had written (December 2013 and August 2015) letters to RSPCB about non-receipt of ATRs regularly.

The State Government apprised that online data was being transferred to State and CPCB server. The reply was not convincing as the information required to be furnished as per quarterly ATR was not being transferred online on CPCB server.

3.1.4.6 Delayed commissioning of GPRS based flow meters and non-setting up of IT based linkage

As per MoEF, GoI guidelines (March 2012), member industries of CETP were to monitor specified quality parameters and flow rate of the effluent on daily basis. They had to submit the monitoring data to CETP operator on regular basis. The CETP operator was to monitor specified quality parameters and flow rate at outlet of CETP on daily basis and IT based linkage was to be provided by the CETP operator to the RSPCB. The CETP operator was also required to submit the monitoring data to the RSPCB on a regular basis. The RSPCB was to ensure display of 24 hour data on its website. The RSPCB had issued instructions (December 2014) for installation of GPRS based flow meters at inlet and outlets of CETPs as well as of all member industries.

It was observed in twelve[17] CETPs out of 14 that GPRS based flow meters were installed (January 2016) with an inordinate delay of five years. Further, it was observed that in three districts,[18] IT based linkage was not set up by

[16] At industry level, SPCB level and third party level.

[17] CETP-II, IV, VI Pali, CETP-I, II, III Balotra, CETP Bithuja, CETP-I & II Jasol, CETP- Jodhpur, CETP-Bhiwadi, CETP-Machedi, Jaipur

[18] Alwar, Jaipur and Jodhpur

member industrial units of CETPs while in Barmer District, though a Supervisory Control And Data Acquisition system (SCADA) was established by the member industrial units, no data was being generated (May 2016). As such, the RSPCB was not in a position to adequately monitor the adherence to inlet parameters and flow rate of effluent.

The State Government stated that the CPCB issued directions (March 2014) and imposed final deadline as 31 March 2015 which was further extended to September 2016. The process was delayed due to limited internet connectivity and now the online data from CETPs was being received at the State Boards server. The Government did not apprise about non-setting up of IT based linkage by member industries of CETPs.

3.1.4.7 Shortfall in sample testing by Central and Regional Laboratory

As per RSPCB's directions (March 2014), the samples of treated effluent from CETPs[19] were to be collected and analyzed every week by Central Laboratory, Jaipur and Regional Laboratory, Jodhpur. The Chief Scientific Officer (CSO) was to monitor the same on a weekly basis.

It was observed that Central (Jaipur) and Regional Laboratory (Jodhpur) did not achieve their targets. During 2014-15 and 2015-16, only131 samples of 11 CETPs were collected and analysed against required 941 samples leading to shortfall ranging between 64 and 100 *per cent*.

In reply, CSO stated (February 2016) that in absence of required manpower, targets had been revised and analysis was to be done on a monthly basis. The reply was not convincing as targets were revised in December 2015 and were to be made applicable subsequently. The huge shortfall in sample testing indicated failure on the part of the RSPCB to monitor the sample and ensure that prescribed effluent standards were met.

The Board should ensure that samples of treated effluent from Common Effluent Treatment Plant are collected and analyzed by Central and Regional Laboratories as per norms and prescribed standards are met.

3.1.5 Conclusion

The Rajasthan State Pollution Control Board had not prepared any comprehensive programme for establishing Common Effluent Treatment Plants in areas where large number of Small Scale and medium scale industries were functioning without proper treatment of effluent. It did not have a policy for conducting periodical survey to identify industries which were contributing to water pollution in the State. The Board also failed to take any concrete step for setting up of Common Effluent Treatment Plant in Sanganer, Jaipur in a timely manner.

The functioning of Common Effluent Treatment Plants in Pali District was unsatisfactory as the treated waste water did not conform to the prescribed standards. As a result, Common Effluent Treatment Plants were discharging polluted water into *Bandi* river. In Common Effluent Treatment Plant, Bhiwadi, huge quantity of dried hazardous sludge was lying on open *Kaccha*

[19] Pali, Jodhpur, Balotra, Bithuja and Jasol.

land without covering shed near a residential area. The Common Effluent Treatment Plant, Jodhpur never operated at its optimum capacity. Further, there was excess discharge of effluent by industrial units and large quantity of untreated waste water was discharged into *Jojri* river. Common Effluent Treatment Plant, Jodhpur discharged treated waste water into same channel from where it was withdrawing untreated water resulting in mixing of treated waste water with untreated waste water.

Consent to operate/authorization was being given with retrospective effect without ascertaining the compliance with the conditions included in the consent letter. No third party monitoring mechanism was evolved. There was huge shortfall in collection and analysis of samples to ensure that the prescribed effluent standards were met.

Water Resources Department

3.2 Rajasthan Minor Irrigation Improvement Project

Introduction

Rajasthan Minor Irrigation Improvement Project (RAJAMIIP), assisted by Japan International Cooperative Agency (JICA), was approved (March 2005) by GoR. The objective of the project was to increase agriculture productivity in south eastern region of the State by rehabilitating existing minor irrigation facilities and improving water management and agricultural practices, thereby enhancing agriculture income and alleviating poverty. In order to achieve the desired objectives, three components i.e. civil works, technical and institutional support services and consulting services were determined. The main executing agency and the focal point in implementation of the project was the Water Resources Department (WRD). The Agricultural Department was responsible for implementation of agriculture extension activities and Medical and Health Department was responsible for controlling malaria.

As per the minutes of discussions (November 2004) among JICA, Government of India and Government of Rajasthan, 393 sub-projects having CCA of 1.54 lakh hectares were selected for rehabilitation. Of these, in 353 sub-projects having CCA of 1.48 lakh hectares, civil works[20] and capacity building[21] programmes were executed and in remaining 40 sub-projects, only capacity building programmes were organized. The project scheduled to be completed by March 2013 was actually completed in June 2015.

[20] (i) Rehabilitation, renovation, and upgradation of dams and distribution systems of minor irrigation schemes (ii) related survey, investigation and design works.

[21] To help WUAs to build their capacity in book keeping, water management, technical matters, leadership, equal water distribution, agricultural activities with a view to enabling them to perform their functions and to enhance agriculture productivity.

Financial Management

The original cost of the project was ₹ 612.29 crore, of which ₹ 481.45 crore was to be financed by the JICA on the terms and conditions[22] envisaged in the Loan Agreement (31 March 2005) between JICA and GoI. The remaining ₹ 130.84 crore (administrative cost and taxes) was to be borne by the GoR. Under the project, ₹ 431.34 crore was spent up to June 2015.

The position of allocation of funds and expenditure incurred on sub-projects during 2005-06 to 2015-16 was as under:

Table 1: Position of allocation of funds and expenditure incurred

(₹ in crore)

Year	Water Resource Department		Agriculture		Medical and Health		Total	
	Allotment	Expenditure	Allotment	Expenditure	Allotment	Expenditure	Allotment	Expenditure
2005-11	178.17	27.64	0.36	0.19	0.09	0.00	178.62	27.83
2011-12	104.07	79.61	4.90	1.32	0.22	0.05	109.19	80.98
2012-13	141.52	131.73	3.40	2.00	0.25	0.03	145.17	133.76
2013-14	131.10	98.86	3.00	2.71	0.45	0.13	134.55	101.70
2014-15	92.34	70.82	2.38	1.45	0.28	0.23	95.00	72.50
2015-16	15.00	14.57	-	-	-	-	15.00	14.57
Total	662.20	423.23	14.04	7.67	1.29	0.44	677.53	431.34

Source: Information provided by SE, PMU, RAJAMIIP, Jaipur.

Audit Scope and Methodology

The scrutiny of records for the period 2011-12 to 2015-16 was conducted (February-May 2016) in eight[23] out of 35 divisions selected by adopting simple random sampling method. In addition to this, records of CE, Investigation, Design and Research, Irrigation Management and Training Institute (IMTI), Kota and SE, Project Management Unit (PMU), RAJAMIIP were also examined. As the project was started in 2005, the main focus of audit was to ascertain whether the project was fully implemented in accordance with the action plan prepared; the technical and institutional support services were provided to ensure successful implementation of the project and progress of the project was monitored with reference to the action plan.

The replies (August 2016) of the State Government has been considered while finalizing the issue.

Audit Findings

3.2.1 Implementation

The deficiencies noticed in implementation of action plan are narrated in succeeding paragraphs.

[22] The loan provided by the Government of Japan is an Overseas Development Agency loan at favorable conditions of an interest rate of 1.3 *per cent* per annum and repayment period of 30 years including grace period of 10 years.

[23] Ajmer, Bhilwara-II, Bundi, Chittorgarh, Dausa, Dungarpur, Sawai Madhopur and Sirohi

3.2.1.1 Part availment of JICA loan

According to Minutes of Discussion (MoD) (November 2004), GoR should ensure timely execution of project by meticulous planning and adequate monitoring in view of the limited period available for improvement of sub-projects.

It was observed that loan amounting to ₹ 481.45 crore was sanctioned by JICA under RAJAMIIP. Out of this, ₹ 304.18 crore (63.18 *per cent*) only was utilized and reimbursed between March 2007 and July 2015. The shortfall in utilization of loan was due to under-utilization of budget by all the three implementing agencies i.e. Water Resources, Agriculture and Medical and Health Department.

The State Government stated that provision for price escalation, physical contingency and interest during construction amounting to ₹ 79.34 crore was made in MoD and due to awarding of most of the works below G-schedule[24] rate this amount could not be utilized and reimbursed by JICA. The reply was not tenable as total cost of all civil works as per DPR shown in Final Completion Report (May 2015) of the project was ₹ 303.47 crore whereas the amount of contract value of these works was shown as ₹ 364.89 crore which was higher than the G-schedule rates. Besides, the Department had paid price escalation in many cases and there were many incomplete projects, discussed in succeeding paragraphs.

3.2.1.2 Delay in completion of project

According to Term of Reference[25] (Attachment 10) of MoD, Engineering and Management (E&M) Consultants were to be appointed to assist GoR in carrying out: (a) screening and appraisal of sub-projects in terms of technical, economic, social and environmental aspects; (b) engineering works including survey, investigation, design, estimate, tender preparation, evaluation, construction supervision and monitoring; (c) review, monitoring and evaluation of training and institutional strengthening activities; (d) guidance and monitoring of WUAs, information and capacity building; (e) review and monitoring of agriculture extension, pro-poor and health components; and (f) overall project management.

[24] It is a schedule of quantities and prices included in contract document.

[25] The E&M Consultant shall assist the GoR in smooth communication and coordination with JICA for the project implementation and provide necessary advice to GoR about JICA procedures and also help in preparation of disbursement request to JICA.

The contemplated date of completion as per action plan enclosed with MoD and actual date of completion of various activities are as per table given below:

Sl. No	Name of activity	Responsible Person/Agency	Target date of completion as per MoD	Actual date of completion
1	Selection of Management and Engineering Consultant	CE (ID&R) and PMU	October 2005	March 2008
2	Execution of Survey, investigation and design	PMU	January 2008	December 2011
3	Completion of rehabilitation work	PMU	December 2011	June 2015
4	Start of WUA formation	PMU	February 2006	October 2007
5	Agriculture extension	Agriculture Department	March 2012	March 2015
6	Health Component	Medical & Health Department	March 2012	March 2015
7	Training WUA/ Government officials	PMU & IMTI	March 2012	June 2015

Source: Final completion report of consultant as on May 2015 and information provided by SE, PMU, RAJAMIIP, Jaipur.

It could be seen that there was a delay of 30 months in appointment of E&M Consultant which adversely affected all activities under civil work component like screening and appraisal of sub-projects, survey, investigation, design, estimate and tender preparation. As a result, the project was delayed and completed in June 2015 against the stipulated completion date (March 2013). The delay in appointment of E&M Consultant was due to delay in procedure of tendering and lack of coordination between WRD and JICA.

The State Government stated that E&M Consultant was engaged for the first time in WRD and for getting necessary approval for the appointment of E&M Consultant, normally 12 to 18 months were required. The fact was that the target date for appointment of E&M consultant as per MoD was October 2005 and it took abnormally long time to appoint the E&M consultant.

3.2.1.3 Awarding of work of construction of buildings without availability of land

As per attachment 6 of MoD, the project would support formation and capacity building of WUAs in the project area. WUAs would take over the management and maintenance of the whole system of the minor irrigation scheme. For smooth functioning of WUAs, provision for construction of buildings was included in the action plan. Rule 351 of PWF&AR stipulates that no work should be commenced on land which had not been duly made over by the responsible civil officer. Rule 298 (1) also stipulates that availability of land was a pre- requisite for planning and designing of a work.

It was noticed that 16 WUA buildings[26] costing ₹ 24.15 lakh could not be constructed due to non-availability of land. The work orders for construction of WUA buildings were issued without ascertaining the availability of land in these cases. This also hampered the plan of strengthening of WUAs in discharge of their duties of management and maintenance of sub-projects.

The State Government stated that suitable land was not provided by the respective *Gram Panchayats* due to non-availability of land and dispute among farmers.

3.2.1.4 Premature completion of sub-projects

As per Final Completion Report (Civil Works) prepared by Consultant[27], out of 353 sub-projects covering CCA of 1.48 lakh hectares selected under RAJAMIIP for rehabilitation in the State, work of 295 sub-projects was completed. Work of five sub-projects was completed without additional works stipulated in scope of work. Three sub-projects were completed without ancillary works and work of 14 sub-projects was in progress. 36 sub-projects covering 14,678.7 hectares (9.94 *per cent*) area of cultivable land with contract value of ₹ 27.22 crore were closed prematurely/dropped after incurring an expenditure of ₹ 15.31 crore (56.2 *per cent*) leaving incomplete works of 23 dams, 36 irrigation systems, 15 WUA offices, 33 linkages to watercourses, 29 fixing of outlets, 18 installation of measurement devices and 21 watercourse rehabilitation works. Due to dropping and premature closure of sub- projects, the objective of the project to provide irrigation to the farmers in the CCA as envisaged could not be achieved completely.

In two selected divisions[28], improvement of minor irrigation projects was approved at contract price of ₹ 9.32 crore. It was noticed that these projects could not be completed within the stipulated period of project. After completion (June 2015) of the project period, these incomplete projects were treated as finalized. An expenditure of ₹ 3.91 crore was incurred on these projects. No concrete steps were taken by the Department to complete the minor irrigation projects within the prescribed time.

The State Government stated that 23 sub-projects at incomplete stage were treated as finalized due to non-receipt of bids in remaining works even after repeated invitation. Eight sub-projects were dropped with the concurrence of JICA. The facts remained that despite having financial assistance at a low interest rate the Department could not complete the projects as envisaged. This resulted in non-accrual of desired benefits to the people in the command area.

3.2.1.5 Non-completion of watercourse rehabilitation works resulted in non-enhancement of cultivable area up to the desired extent

One of the major objectives of the project was to improve the performance efficiency of the surface irrigation system and strengthen support to agricultural through increased involvement of users. The watercourse rehabilitation works of the sub-projects commenced after signing of MoU

[26] Ajmer-I (11), Sawai Madhopur (1) Bhilwara-II (2) and Bundi (2)
[27] GITEC Consult GmbH, Germany
[28] Dausa and Sawai Madhopur

between WRD and WUAs. WUAs were to participate in survey, planning, designing and execution of works related to watercourse rehabilitations.

As per reports of the Consultant, the zone wise status of work of watercourse rehabilitation completed up to 31 May 2015 was as given below:

Name of Zone	Number of watercourse structures[29]		*Shortfall* of completion (in *per cent*)	Length of watercourses (in kms)		*Shortfall* of completion (in *per cent*)
	Planned	Completed		Planned	Completed	
Jaipur	13,679	1,497	89.06	1,755.25	954.80	45.60
Jodhpur	4,132	166	95.98	583.21	343.00	41.19
Kota	2,755	95	96.55	468.73	404.05	13.80
Udaipur	5,241	198	96.22	1,711.43	954.20	44.25
Total	25,807	1,956	92.42	4,518.62	2,656.05	41.22

Source: Status report of consultant as on 31 May 2015.

It is evident from the above table that between 89.06 *per cent* and 96.55 *per cent* construction of structures remained incomplete in the above zones. The shortfall in terms of length of watercourses completed ranged between 13.80 *per cent* and 45.60 *per cent* up to 31 May 2015. The reasons for shortfall as mentioned in the report of the Consultant were lower sanctioned rates than market rates; no provision of advance payment to WUAs; farmers did not see merit in rehabilitation works; and unwillingness of farmers to give up land for watercourses. Non-completion of works of construction of watercourse structures resulted in failure to check the water losses and, non-enhancement of cultivable area to the desired extent. The farmers were deprived of benefits of irrigation facilities within the scheduled time.

The State Government stated that WUAs had expressed their unwillingness to execute the watercourse rehabilitation works because watercourses already existed. It was also stated that existing watercourses were being maintained by the respective farmers. It appeared from the reply that steps were either not taken to motivate farmers and address the issues pointed out by Consultant or the action plan was flawed.

3.2.1.6 Non-achievement of the objective to ensure optimum utilization of water through use of measurement devices

Measurement devices[30] help in accurate accounting for proper allocation of water.

It was noticed that in selected divisions, ₹ 1.10 crore was spent on installation of measurement devices. In order to ensure the utilization of measurement devices, *warabandi* schedule[31] was to be prepared and record related to flow of water was to be maintained by WUAs. SE (PMU) had issued (October 2012) directions for use of measurement devices. There was also a provision in DPR of sub-projects for installation of measurement devices to ensure optimum

[29] It includes cross drainages and *Nakas* constructed by farmers for irrigation of land.
[30] Instrument that shows the extent, quantity or degree of something.
[31] *Warabandi* schedule is a system of distribution of water allocation to water users by turn according to an approved schedule indicating the day, duration and time of supply.

utilization of water. It was also directed by SE (PMU) to submit the progress of installation of measurement devices and the calibration mechanism adopted for measurement at Junior/Assistant/Executive Engineer level.

The information furnished by divisions in relation to measurement devices revealed that *warabandi* schedule was not prepared and implemented by any WUA. The record relating to the monitoring of flow of water as well as distribution of water to the different land users was not maintained by WUAs. As a result, optimum utilization of water was not ensured. The expenditure of ₹ 1.10 crore incurred on installation of measurement devices, thus, did not yield any benefit.

The State Government stated that *warabandi* schedule was not directly related to measuring devices. It was applicable only after water distribution below the outlet. The reply was not convincing because *warabandi* schedule was necessary for judicious and economic use of water and WUAs were to measure and control the flow of water through measuring devices.

3.2.1.7 Creation of liability after completion of the project

The project was scheduled to be completed in March 2013 but due to non-completion of works within scheduled time, the completion period was extended up to June 2015. The WRD issued (July 2015) directions for final submission of claims up to 23 July 2015 failing which individual liability was to be fixed. It was noticed that EE, WRD Bhilwara-II did not submit claims of ₹ 67.66 lakh. In absence of timely submission of claims, the Department had created State Government's liability of ₹ 67.66 lakh.

The State Government stated that the pending liabilities would be paid from its fund after getting permission from the Finance Department. It added that disciplinary action against the defaulting officers/officials was in process.

3.2.1.8 No safety measures taken for checking theft and mixing of polluted water into the canal

During physical verification by audit (April 2016) with the officers of the Department, it was noticed that the Left Main Canal of Guvardi Minor Irrigation Project passed through a textile factory[32] and polluted water of the factory was being discharged in the canal. Also, there was a possibility of theft of canal water for industrial use. The concerned Assistant Engineer accepted (April 2016) that no arrangements to prevent theft of water and mixing of polluted water in the canal were made. It was also intimated that directions were issued to the factory to stop discharging of polluted water in the canal. The pollution of canal water has serious consequences for the farmers as well as the consumers of the farm products.

The State Government apprised that necessary action against the owner of the factory under Rajasthan irrigation and drainage Act, 1954 was in process (August 2016).

[32] Super Gold Suiting Mandpiya.

3.2.1.9 Recovery of risk and cost and compensation of delay

As per clause 2 of contract agreement, the time allowed for carrying out the work should be strictly observed by the contractor. If the contractor failed to complete the work in accordance with the time schedule and the delay in execution of work was attributable to the contractor. The contractor should be liable to pay compensation for every time span. Clause 3(c) provides that the engineer-in-charge had power to measure the work of the contractor which remained unexecuted and give it to another contractor to complete it. Any expenses incurred in excess of the sum to be paid to the original contractor, should be borne and paid by the original contractor and might be deducted from any money due to him.

During review of selected divisions, it was observed that in 12 sub-projects, the contractors did not execute the works within the stipulated time and works were executed through another contractors. The compensation under clause 2 of ₹ 48.94 lakh and under clause 3 (c) of ₹ 3.02 crore levied by the Department was not recovered from contractors.

The State Government stated that efforts were being made for early recovery of the compensation amount.

3.2.2 Technical and institutional support activities

3.2.2.1 Non-achievement of target of health component

As per S.No. IX (3) of Annexure-II of MoD, the health component focused on implementation of measures to control malaria including treatment of depressions[33] and introduction of specific fish into tanks rehabilitated under the project. Breeding of malaria vectors was to be controlled through construction of hatcheries for fish in the vicinity of tanks.

It was observed that against the target of 38 hatcheries to be constructed by the Medical and Health Department during the period 2011-12 to 2014-15, only 33 hatcheries were constructed. The CE, WRD allotted ₹ 1.20 crore to Director, Medical and Health for construction of hatcheries but only ₹ 44.26 lakh was spent.

Further, in order to verify the usefulness and effectiveness of constructed hatcheries, Audit conducted (August 2016) physical verification of eight hatcheries constructed in Ajmer, Dausa and Jaipur districts with the officials of the Department of Medical and Health. During physical verification, it was learnt that Chief Medical and Health Officers (CM&HO) of the respective districts were not acquainted with the areas to be benefited under the scheme. In absence of the knowledge of the area and tanks rehabilitated under the project, training was not imparted to the WUAs for transfer of fish from hatcheries to the tanks. No fish were supplied to the WUAs of the relevant areas for introduction into tanks. No record relating to detection of malaria cases was maintained and no impact assessment on infestation was done by the respective CM&HO. In absence of fulfilment of targets for construction of hatcheries and introduction of fish into tanks, the objective to control malaria

[33] Low level area

in the specified areas could not be achieved. The report of the Consultant also confirmed that medical and health component was not properly implemented.

3.2.2.2 Non-accrual of benefit of training due to transfer and retirement of overseas trained officials before completion of project

Scrutiny of records of IMTI Kota revealed that Senior Representative, JICA conveyed (August 2012) 'no objection' to the proposal for undertaking overseas training in Germany by 24 participants. The condition was that WRD might endeavour to ensure that each participant serve the project for a period of three years (till expiry of loan) after return from the overseas training. In compliance, IMTI Kota organized two foreign training programmes from 24 September 2012 to 4 October 2012 and 22 October 2012 to 1 November 2012 for 24 officers in Germany.

During scrutiny of information provided by PMU, it was observed that out of 24 officers who got overseas training, 15 officers retired and 3 officers were transferred to a post not related to the project before completion of the stipulated period of three years. The knowledge gained by the officers through training, therefore, could not be utilized fully and the expenditure of ₹72 lakh incurred on it was rendered partially unfruitful.

The State Government stated that out of 24 participants, two were from administrative service whose transfers were done by State Government and 22 were from WRD who were serving/served the project during their service period. The reply was not acceptable as JICA allowed only those officers for overseas training whose services could exclusively be utilized in the project for three years.

3.2.2.3 Non-collection of water charges

As per attachment 6 of MoD, the project would support formation and capacity building of WUAs in the project area. WUA consisting of all the water users would take over the management and maintenance of the whole system of the minor irrigation scheme including assessment and collection of water charges.

During review of selected divisions, it was observed that water charges were not being collected by WUAs. Only one WUA in Govta village of Bhilwara-II division realized ₹ 1.13 lakh during 2011-13.The failure of WUAs in realizing water charges resulted in non-availability of funds for operation and maintenance of sub-projects which would ultimately burden the State exchequer.

The State Government stated that some WUAs had started collecting water tariff and with passage of time they would be more sustainable and would perform their responsibility effectively. The fact was that out of 393 sub-projects, water charges were collected in only 13 sub-projects in the absence of strengthening the WUAs.

The State Government should carry out an assessment of requirement of funds for operation and maintenance of the structures created under the project. Water User Associations should be strengthened and water charges should be realised for operation and maintenance of sub-projects.

3.2.3 Monitoring and Evaluation

3.2.3.1 Impact Assessment

The task of monitoring and evaluation was entrusted on 23 February 2010 to DHV India Private Limited and the contract agreement was signed on 2 March 2010. The aim of assignment was to assist the GoR in monitoring and evaluation of project. This included preparation of design, planning and conduct of baseline study and then to undertake mid-term evaluation and impact evaluation of sample sub-projects.

The Consultant submitted the Project Completion Report on 26 May 2015. The Consultant clearly indicated in its report that the evaluation of the impact of the project was premature due to the following reasons:

- In few cases, the system had started degenerating and getting damaged even before its handing over.
- The system along with other infrastructures like WUA office buildings, etc., could not be formally transferred to the WUAs.
- The WUA functionaries would need intensive follow up and guidance for at least one year after the system was formally handed over. In absence of such a situation, the project as a whole based on WUAs might collapse.

It was stressed that in its present form with no financial base, enforcement power and authority, the system could not succeed in long term. None of the sample projects could be formally and fully transferred to WUA. The experience of managing the system independently was almost nil. The structure before transfer showed the symptoms of damage which in long run would affect the sustainability of the project. The minor irrigation projects were very small and might not have adequate revenue and therefore even to remain sustainable would regularly need external financial support from Government or any other body.

The State Government stated that the project had been completed with remarkable success and the impact of the project was quite impressive and positive in achievement of objectives. The reply was not borne out by the Final Completion Report prepared by the Consultant which indicated that the evaluation of the outcome of the project was premature. No other impact evaluation study was carried out by the Department and, therefore, the Department was not in a position to conclude on achievement of basic objectives of the project.

3.2.3.2 Non-compliance of quality observations resulted in execution of sub-standard work

It was essential that the works were executed in conformity with the construction standards to achieve durability, reliability and sustainability in their functioning. In order to ensure the quality measures in execution of work, quality control manual was prepared by E&M Consultant.

During review of records and reports of Consultant, it was noticed that out of 16014 observations made in respect of poor quality of work by the Site Supervising Engineer of Consultant during inspection of works, compliance

with 2465 quality observations was not made (May 2015) by the WRD Officers. The quality management and control system was, therefore, deficient and compliance to quality observations could not be ensured.

The State Government stated that compliance with the observations had been ensured by Quality Control Officers of WRD before completion of project. The reply was not convincing as the project completion report was submitted by the Consultant in May 2015 and project ended in June 2015. The Department held an amount of ₹ 0.74 crore to be paid to the contractors due to non-compliance of quality observations which supported the view that compliance of quality observations was not made.

3.2.4 Conclusion

The objective of utilizing surface water through rehabilitation of sub-projects was not fully achieved due to delay in completion of activities under civil work component. Loan from Japan International Cooperative Agency could not be fully availed due to less utilization of budget by implementing agencies. Premature closure of sub-projects resulted in less creation of capacity for storage of water and irrigation of Culturable Command Area. Non-completion of work of construction of watercourse structures resulted in non-achievement of the objectives to check the water losses, enhance cultivable area up to the desired extent and extend the benefit of irrigation facilities to the farmers. The failure of WUAs in realizing water charges resulted in non-availability of funds for operation and maintenance of sub-projects. The consultant clearly indicated in its report that the evaluation of the impact of the project was premature and the system to succeed will require financial base, enforcement of power and experience of running the system.

Forest Department

3.3 Soil and water conservation in catchments of River Valley Projects

Introduction

The scheme of soil and water conservation in the catchments of River Valley Projects was started in the third five year plan (1962). This scheme was centrally sponsored. In Rajasthan, there are four River Valley Projects[34] in which watershed[35] activities were carried out in 52 watershed areas[36].

The soil and water conservation in the catchments of River Valley Projects was undertaken under the scheme 'Macro Management of Agriculture' (MMA) up to 2012-13 and thereafter under 'Rashtriya Krishi Vikas Yojana' (RKVY). The main objectives of the scheme were to prevent land degradation and soil loss by adoption of multi-disciplinary integrated approach of soil conservation and watershed management. This included improvement of land capability and moisture regime in the watersheds, promotion of land use to match land capability from the catchments to reduce siltation of multipurpose reservoirs.

[34] Dantiwara, Sabarmati, Mahi and Chambal

[35] A region or area bounded peripherally by a divide and draining ultimately to a particular watercourse or body of water.

[36] Abu Road (24), Banswara (11), Begun (15), Jhalawar (2)

The GoI developed (2008) Operational Guidelines for Centrally Sponsored Scheme of Soil conservation in the catchments of River Valley projects perceiving the problems in implementation of the programme based on different guidelines at different intervals.

Under the scheme, the activities were divided into following three phases:

Preparatory Phase: It included Entry Point Activities[37] for creating rapport with the rural community, preparation of detailed project report and institutional and capacity building.

Watershed Works Phase: It included activities like watershed development works such as treatment of land, contour bunding, construction of *Gabion*[38] structure, silt detention structures and water harvesting structures for ground water recharge, development of livelihood activities for the asset less persons and production system and micro enterprises such as livestock improvement, fisheries development, etc.

Consolidation: It included activities for completion of various works and sustainable management of natural resources during post project period.

Organizational Set-up

Forest Department, Rajasthan was the implementing agency of the Scheme. The Additional Principle Chief Conservator of Forest (APCCF), (Soil Conservation) exercised administrative control over the scheme and maintained liaison with the GoR and GoI. The Chief Conservator of Forest (CCF) and Director, Project (Soil Conservation), Kota was the overall in charge for implementation and supervision of the scheme. He was assisted by Deputy Conservator of Forest (DCF) Project, Abu Road (Sirohi), Banswara, Begun (Chittorgarh), and Jhalawar.

Funding Pattern

The expenditure on developmental activities in the MMA scheme was shared by Ministry of Agriculture, GoI and GoR in the ratio of 90:10 during the year 2011-13. During 2013-14 and 2014-15, the Central share was revised to 100 *per cent* and from October 2015, the Central and State share was in the ratio of 60:40. The details of allotment of budget and expenditure incurred are given in table below:

[37] It includes the activities based on urgent needs of local communities, repair, restoration and upgradation of existing structures and productivity enhancement activities.

[38] Wall for retention of water

Table 1: Details of allotment of budget and expenditure incurred

(₹ in crore)

Year	Allotment			Expenditure
	Central	State	Total	
2011-12	11.68	1.30	12.98	12.98
2012-13	11.59	1.29	12.88	12.88
2013-14	05.88	-	05.88	5.64
2014-15	16.82	-	16.82	16.14
2015-16	11.75	5.10	16.85	15.98
Total	57.72	7.69	65.41	63.62

Source: Information provided by CCF, Kota and three divisions.

Audit Coverage

Audit for the period from 2011-12 to 2015-16 was undertaken (February-May 2016) by covering all four Divisions i.e. Abu Road, Banswara, Begun and Jhalawar[39]. Besides, records of APCCF, Soil Conservation, CCF and Director, Project (Soil Conservation), Kota were also examined. The audit was conducted with a view to ascertain the adequacy of institutional arrangements in successful delivery of project and to assess whether soil and water conservation activities were carried out as envisaged in guidelines and adequately monitored.

The reply of the State Government (September 2016) has been considered while finalizing the issue.

Physical Status

The targets and achievements in respect of the area fixed for land treatment and the structures to be created under the scheme are given below.

Table 2: Year-wise position of physical targets and achievement

Year	Target		Achievement		Percentage of shortfall	
	Area (hectare)	Structures (number)	Area (hectare)	Structures (number)	Area	Structures
2011-12	16085	8053	11635	4536	27.66	43.67
2012-13	13449	9187	7980	4343	40.66	52.73
2013-14	5469	4900	1494	2632	72.68	46.29
2014-15	11792	6628	11420	6577	3.15	0.77
2015-16	10800	5163	10023	4775	7.19	7.52

Source: Information provided by CCF, Kota and three divisions.

[39] In Jhalawar, watershed activities concluded in 2012-13.

During 2012-13 and 2013-14, there was shortfall of 40.66 *per cent* and 72.68 *per cent* respectively in respect of area fixed for land treatment. In respect of structures constructed, the shortfall was from 43.67 *per cent* to 52.73 *per cent* during 2011-12 to 2013-14. The achievement during 2014-15 and 2015-16 in respect of land treatment was 96.85 *per cent* and 92.81 *per cent* respectively and in respect of structures constructed, the achievement was 99.23 *per cent* and 92.48 *per cent* respectively. The shortfall in achievement was mainly due to short release of funds against the budget allotted as per replies furnished by DCF, Abu Road and Begun. The DCF, Banswara did not furnish any reply.

Audit Findings

3.3.1 Planning

The annual work plans for executing the watershed activities were prepared by the Project Implementing Agency (PIA), Forest Department and approved by the Ministry of Agriculture, GoI, under the scheme MMA up to 2012-13. From the financial year 2013-14 onwards, the work plans were approved by State Level Nodal Agency (SLNA) i.e., Agriculture Department, GoR, under RKVY to provide flexibility and autonomy to the State in planning and executing the activities.

3.3.1.1 Lack of institutional arrangements at Project Level

As per paragraph 5.3 of Common Guidelines for Watershed Development Projects and paragraph 14 of Operational Guidelines, the PIA had to set up watershed development team (WDT) for providing guidance to Watershed Committees (Committees) in preparation of watershed action plans, assisting Gram Sabha in formation of Committees and their functioning, organising and nurturing Self Help Groups and User Groups, conducting participatory base line survey, training and capacity building. Each WDT was required to be constituted with at least four members having broad knowledge and experience of agriculture, social science, water management, soil mobilization and institution building. The WDT was required to have at least one woman as member.

It was observed that out of four divisions, in two divisions i.e. Banswara and Begun, WDTs were not constituted during 2011-16. In Abu Road and Jhalawar, WDTs were not constituted during 2011-12 and 2012-13. In Jhalawar, watershed activities concluded in 2012-13. In Abu Road, during 2013-14, WDT was constituted but not as per norms. The employees of the Department were included as members of the WDT. The preparation of detailed resource development plans was not done by the subject experts. The Committees deprived of the expert guidance in preparation of annual action plans and functioning of watershed activities.

The State Government replied (September 2016) that Common Guidelines for Watershed Development Projects issued in 2008 was not applicable on the works executed under the projects as all River Valley Projects were sanctioned prior to the issuance of the guidelines. It added that revised guidelines on Macro Management of Agriculture, 2008 were applicable on the works and it had no provision for constitution of WDTs. It was also stated that there was no

need to appoint separate subject specialists as departmental employees had wide knowledge of soil and water conservation works.

The reply was not convincing. Perceiving the problems in implementation of the programme based on three sets of guidelines[40], the Operational Guidelines for Centrally Sponsored Scheme of Soil Conservation in the catchments of River Valley Projects were developed in the XI Five Year Plan. These aimed to make the treatment more focused, cost effective and also to promote multi-disciplinary approach involving greater public participation in the programme with active involvement of *Gram Panchayat*/Watershed Committees. The Operational Guidelines issued had provision for constitution of WDTs. In addition to this, all watershed projects were sanctioned after 2008 and project reports prepared for the watershed projects clearly provided that Operational and Common Guidelines would be applicable for implementation of the projects. Thus, non-constitution of WDTs was against the guiding principle of decentralization envisaged in the guidelines. Also, the project was deprived of expertise required for execution of watershed and other activities. The works were executed in an unplanned manner and the project suffered as observed in succeeding paragraphs.

It is recommended that as per provisions of Common Guidelines and Operational Guidelines, Watershed Development Teams should be constituted to avail knowledge of subject experts.

3.3.1.2 Unplanned construction of permanent structures.

As per paragraph 10.3 of Operational Guidelines, 2008, permanent structures[41] have to be constructed in the second or third year of the implementation of the project. This was to ensure that vegetative soil conservation measures like construction of contour/graded bunds supported by vegetation and drainage line treatments initiated in the first year acquired some definite shape before supplemental engineering structures were put up in the second or third year.

Scrutiny of records in three divisions i.e. Abu Road, Banswara and Begun, disclosed that 192[42] permanent structures costing ₹2.36 crore were constructed in the first year of the project contrary to the guidelines.

The State Government stated that all the *pucca* structures were constructed in the first year after stabilization of watersheds and 61 Gabion structures were loose stone structures which were constructed for detention of silt. The reply was not convincing. The construction of *pucca* structures, excluding Gabion structures, in the first year of treatment defeated the objective of the project of preventing siltation and enhancing surface rainwater storage in the multipurpose reservoirs.

It is recommended that permanent structures should be constructed after ensuring that the vegetative soil conservation works had taken shape to prevent siltation and enhance surface rainwater storage in the reservoirs.

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[40] Comprehensive guideline for planning, implementation and monitoring of RVP and FPR, Macro Management of Agriculture, 2008, Common Guidelines for Watershed Development Projects, 2008

[41] Gabion, Silt Detention structures, Water Harvesting structures.

[42] Abu Road (12; ₹ 10.37 lakh), Banswara (81; ₹ 1.09 crore), Begun (99; ₹ 1.17 crore)

3.3.2 Implementation

3.3.2.1 Non-constitution of Self Help Groups and User Groups

As per paragraph 6.1 and 6.2 of Common Guidelines for Watershed Development Projects, the Committees shall constitute Self Help Groups (SHGs) and User Groups in the watershed areas with the help of WDTs. The members of the SHGs would be small and marginal farmers, landless/asset less poor agricultural labourers, women, shepherds and schedule caste/schedule tribe persons. The SHGs should be homogenous, having common identity and interest and dependent on the watershed area for their livelihood; and the SHGs would be provided with a revolving fund of an amount to be decided by the nodal Ministry for improvement in living standard and building up of financial resources. The User Groups would be responsible for the operation and maintenance of all assets created under the project in close collaboration with the *Gram Panchayat* and the *Gram Sabha.*

It was noticed that in all the divisions, SHGs were not constituted in the watershed areas. In their absence, the revolving fund was not disbursed for executing the farming and allied activities to improve the living standards of the beneficiaries. The objective of the scheme to develop livelihood activities for the landless persons, production system and micro enterprises was not fulfilled. It was also noticed that in all divisions, no User Groups were constituted. The work of operation and maintenance of assets created under the project, therefore, suffered.

The State Government stated that SHGs and User Groups were not constituted due to absence of any provision for constitution of SHGs and User Groups in Revised Guidelines of Macro Management of Agriculture. The reply was not acceptable as Common Guidelines issued had provision for constitution of SHGs and User Group. The DCFs of all the divisions had also accepted (March/April/May 2016) that SHGs and User Group were not constituted. The DCF, Begun stated that SHG would be constituted during 2016-17.

It is recommended that Self Help Groups need to be constituted to improve the living standards of the beneficiaries and User Groups should be formed for operation and maintenance of assets.

3.3.2.2 Constitution of Watershed Committees not done as per the norms

As per paragraph 6.3 of Common Guidelines for Watershed Development Projects and paragraph 16 of Operational Guidelines, the *Gram Sabha* would constitute the Committees to implement the watershed projects with the technical support of the WDTs. The Committee would comprise at least 10 members, half of whom would represent SHGs and User Groups, SC/ST community, woman and landless persons in the village. One member of WDT should be represented in the Committee.

It was noticed that contrary to the guidelines, there was no representation of SHGs and User Groups in the 52 Committees formed in 52 watersheds in the

four divisions. In nine Committees[43], the number of members included was less than 10; in five WCs[44], there was no participation of woman and in Abu Road, there was no representation of WDT during 2011-12 and 2012-13. Due to non-constitution of Committees as per norms, community participation and involvement of primary stakeholders in the planning, budgeting, implementation and management of watershed projects could not be ensured.

The State Government replied that the Revised Guidelines of Macro Management of Agriculture had no provision for constitution of Committees and therefore instead of Committees, Watershed Development Committees (WDCs) were constituted. The reply was not convincing as Committees were not constituted as per the norms provided in guidelines.

3.3.3 Capacity Building

Capacity building support is a crucial component to achieve the desired results from watershed development projects. The Common Guidelines for Watershed Development Projects included, inter-alia, annual action plan for capacity building, pool of resource persons, well prepared training modules, reading materials and mechanism for effective monitoring and follow-up.

3.3.3.1 Workshop and training programmes were not conducted

➢ As per paragraph 19.1 of Operational Guidelines and paragraph 10.1 of Common Guidelines, capacity building and training to the officials, non-governmental organizations and farmers would be given the highest priority. A state level workshop for leaders of the project, team in charge of implementation of each watershed project and officers monitoring the River Valley Projects should be held once in a year to discuss the new thrust areas and future action plan for implementation of the project. The workshop was meant to provide an opportunity for in-depth analysis of problems and measures in relation to the individual watershed project.

Scrutiny of records disclosed that APCCF, Jaipur did not conduct even a single State level workshop for capacity building of the officials during last five years i.e. 2011-16. As per paragraph 19.2 of Operational Guidelines and paragraph 10.1 of Common Guidelines, Regional/District training programmes would be conducted for the PIAs (in-charge of execution of various Sectoral pragrammes) and at least one training programme would be organized annually for each catchment area. Regional/District level training programmes for PIAs were, however, not conducted during last five years i.e. 2011-16.

➢ As per paragraph 19.3 of Operational Guidelines and paragraph 10.1 of Common Guidelines, farmers' workshop at the project level would be held once in a year, wherein Government functionaries, in-charge of the watershed management projects and the members of the local community would participate. About 25 participants per watershed projects were to be covered in the workshop every year.

[43] Watera (Abu Road), Hariyagari (Banswara), Kulantiya, Dhamancha, Dhaurakuri, Muwanda, Phut talab, Rath kankra and Naya gawn (Begun)

[44] Kankarli, Watera, Kalakheter (Abu Road), Dhamancha, Sodarshanpura (Begun)

No farmers' workshop at project level was held by the Banswara, Begun and Jhalawar divisions during 2011-15. As the workshops and training programmes as above were not held, the objective to enhance knowledge and skill of functionaries could not be achieved.

The State Government stated that state level workshop was conducted during 2011-12 and 2013-14; regional level training programmes were conducted and officers trained; and farmers' workshop at project level was conducted in Banswara division during 2015-16. The reply was not convincing as no evidence in support of the workshops/training programmes conducted was made available and farmers' workshops at project level were also not conducted during 2011-15 in any of the divisions.

It is recommended that workshops and training programmes should be held for enhancement of knowledge and skill of functionaries

3.3.3.2 Non-utilisation of Corpus Fund

During scrutiny of records at Abu Road, Banswara and Begun divisions, it was observed that the Corpus Fund deposited in the bank accounts of the Committees during the period from 1990-91 to 2012-13 for maintenance of constructed structures was lying unutilized in the form of Fixed Deposits (FDs). The amount of FDs including interest as on March 2016 was ₹2.08[45] crore.

The State Government stated that Corpus Fund could not be utilized as no structures were damaged or reported damaged by any of the WDCs for repair and, therefore, it was lying in banks as fixed deposits. The fact remained that due to non-formation of user groups, the maintenance of the assets was not ensured and the corpus fund meant for maintenance of assets was thus lying unutilised.

3.3.3.3 Non-recovery of user charges

As per paragraph 9.5 of Common Guidelines for Watershed Development Project 2008, the Gram Sabha through the Committees should put in place a mechanism for collecting user charges from the beneficiaries. No charges would be taken from landless, disabled/widow for work done on private or public land. The user charges collected should be credited to the Watershed Development Fund for maintenance of assets.

It was observed that in all four divisions, the user charges were not collected from the users of the assets created under the project.

The State Government stated that User Groups were not constituted and user charges were not collected due to absence of any provision for constitution of User Groups and collection of user charges in Revised Guidelines of Macro Management of Agriculture. The reply was not convincing as Common Guidelines had provision for constitution of User Groups and, therefore, recovery of user charges was necessary for maintenance of assets.

It is recommended that the user charges should be collected for maintenance of assets created under the project.

[45] Abu Road (₹49.67 lakh), Banswara (₹94.64 lakh), Begun (₹64.16 lakh)

3.3.4 Monitoring and Evaluation

3.3.4.1 Non-development of online web-based monitoring system

Paragraphs 21 and 22 of Operational Guidelines and paragraph 11.1 (85) of Common Guidelines provide that for improving the monitoring system, a website on monitoring system for centrally sponsored scheme of soil conservation had been created by GoI and the watershed-wise and activity-wise data for the ongoing watershed activities was to be fed by the State Government on the website. The PIA had to submit quarterly progress reports (countersigned by Committee) to the Watershed Cell cum Data Centre for further submission to the SLNA. The SLNA was required to send the report to GoI.

It was observed that no system was in place either in the Department or at the Committee level (basic level of implementation) to feed/update the data on the website. In absence of any directions from the management, the watershed-wise and activity-wise data for ongoing works were not uploaded on the website. The State Government stated that the monthly progress reports were sent to higher authorities regularly and due to shortage of trained staff and availability of resources, web-based monitoring system could not be developed.

3.3.4.2 Third party evaluation and periodic visits not made

As per paragraph 12.3 of Operational Guidelines of RKVY, out of the projects sanctioned by the State during the year, twenty five *per cent* projects should compulsorily be taken up for third party evaluation.

The State Government stated that the responsibility of third party evaluation vested with the Nodal agency i.e. Agriculture Department. The nodal agency had reported (May 2016) that no third party evaluation was conducted.

As per paragraph 21.7 of Operational Guidelines and paragraph 11.1 (85) of Common Guidelines, periodic visits by the regional, state and national level functionaries were required to be made for inspection of the project. No such periodic visits by the national level functionaries were observed for monitoring the project. As regards regional/state level functionaries, the State Government apprised that inspections were carried out by the CCF and APCCF.

It is recommended that online web-based monitoring system should be developed and watershed-wise and activity-wise data for ongoing watershed works should be uploaded on the website. Third party evaluation should be done for evaluation of various activities of the project.

3.3.5 Conclusion

Lack of institutional arrangements at project and village level led to unplanned execution of project works which defeated the objective of decentralization. Due to non-constitution of Watershed Development Teams, the Watershed Committees were constituted without subject expert/knowledge persons. Unplanned construction of permanent structures without ensuring that the vegetative soil conservation works had taken shape resulted in non-

achievement of the objective of the project to prevent siltation and enhance surface rainwater storage in the multipurpose reservoirs.

Non-constitution of Self Help Groups resulted in non-disbursement of revolving fund for execution of farming and allied activities to improve the living standards of the beneficiaries. User Groups were not formed due to which the work of operation and maintenance of assets created under the project suffered. The objective to enhance knowledge and skill of functionaries could not be achieved as workshops and training programmes were not held.

Non-utilisation of Corpus Fund and non-collection of user charges affected the maintenance of assets created under the project. Due to non-development of online web-based monitoring system, watershed-wise and activity-wise data for ongoing watershed works were not fed on the website. Third party evaluation of the projects was not done.

Public Works Department

3.4 Irregular inclusion of *pro-rata* charges of ₹ 7.44 crore

Irregular inclusion of *pro-rata* charges of ₹ 7.44 crore by the Public Works Department on works executed by Rajasthan State Road Development Construction Corporation Limited

Rules 5(a) and (d) of Appendix V of Public Works Financial & Accounts Rules (PWF&AR) (Part-II) provide for recovery of cost of establishment and tools and plants charges (*pro-rata*) at percentage rates by the Division operating the Capital Major Heads of expenditure and for work done for other departments of the Government, when the cost is chargeable to or recoverable from those Departments.

The Finance Department clarified (February 2012) that if the construction work was executed by an agency other than the Public Works Department (PWD), viz Rajasthan State Road Development Construction Corporation (RSRDCC) Limited, Rajasthan Housing Board, Avas Vikas Limited, etc., then PWD would not recover agency charges.

The PWD, Rajasthan, Jaipur accorded (September 2010) sanction of ₹ 37.86 crore for construction of Negedia High Level Bridge on Kekri-Deoli road in District Tonk. The work was to be executed under Rural Infrastructure Development Fund funded by National Bank for Agriculture and Rural Development (NABARD). An additional sanction of ₹ 22.95 crore was issued on 31 May 2013. The work of construction of High Level Bridge was entrusted (June 2011) to RSRDCC Limited. The scheduled date of completion of work was September 2015. The work was completed in November 2015 after incurring an expenditure of ₹ 59.60 crore.

It was observed that PWD Division, Todaraisingh deposited ₹ 33.50 crore between March 2014 and January 2015 with RSRDCC Limited for execution of this work. The Division, however, debited ₹ 37.86 crore (including *pro-rata* charges of ₹ 4.36 crore) to the Capital Major Head-5054-Capital outlay on Roads and Bridges towards payment made to RSRDCC Limited and simultaneously credited (minus debited) ₹ 4.36 crore to the Revenue expenditure head 2059 and 3054 Establishment, Tools and Plants. As the

Division did not execute the work of High Level Bridge, its action to include *pro-rata* charges on the works executed by RSRDCC Limited was against the prescribed accounting and financial rules and was, thus, irregular. This also led to capital outlay being unauthorisedly used for revenue expenditure.

The State Government stated (April 2016) that rule 5(a) and (d) of Appendix V of PWF&AR provided that recovery of *pro-rata* charges would be made by the Division when cost of the work had been charged to the Capital Major Head of expenditure. It added that Rule 6 (h) also did not prohibit levy of agency charges (*pro-rata*) on these works. The reply was not convincing as in the instant case, the work was not executed by the Department and no establishment, tools and plants were deployed on the work. All activities[46] for executing the work were done by RSRDCC Limited for which it had charged the agency charges from the Department. The action of the PWD to include *pro-rata* charges while debiting the Capital Major Head-5054 was irregular and not as per the instructions (February 2012) of the Finance Department, Government of Rajasthan.

In other case, PWD, Rajasthan, Jaipur accorded sanction of ₹24.36 crore for construction of Road Over Bridge on Mania-Marena Road in district Dholpur[47]. The work was entrusted to RSRDCC Limited.

It was observed (October 2015) that PWD Division, Rajakhera deposited ₹23.62 crore during September 2011 to September 2015 with RSRDCC Limited for execution of this work and ₹3.07 crore was debited as *pro-rata* charges on this road. The Division, debited ₹26.69 crore to the Capital Major Head-5054-Capital outlay Road and Bridges towards payment made to RSRDCC Limited. As the Division did not execute the work of Road Over Bridge, its action to include *pro-rata* charges violated the PWF&AR rule *ibid* and was thus irregular. This also led to capital outlay being unauthorisedly used for revenue expenditure

The matter was brought to the notice of the Department (January 2016). The reply was awaited (October 2016).

3.5 Infructuous expenditure of ₹ 3.99 crore

Infructuous expenditure of ₹ 3.99 crore on upgradation of road under Pradhan Mantri Gram Sadak Yojna.

To resolve the problem of premature failure of roads due to plying of heavy mining vehicles/other heavily loaded commercial vehicles on the roads constructed under Pradhan Mantri Gram Sadak Yojna (PMGSY), Ministry of Rural Development, GoI issued (May 2011) guidelines for preparation of Detailed Project Reports for rural roads which provided that:

- the location of the proposed through road/link road and its connectivity with higher order roads was to be assessed properly in order to get information on possible diversion from such higher order roads in the event of non-maintenance of such roads or the proposed road providing a shorter route;

[46] Execution like tendering, allotment, measurement of actual execution of work, site engineering activities, preparation of bill, etc.

[47] Job No. 1072/5054/Distt&OR (March 2007).

- if the road was taken for upgradation, the normal traffic plying on the road for three continuous days (two working days and one weekend as prescribed for traffic census data analysis) had to be collected with classification of vehicles, laden and un-laden condition for the classified commercial vehicles, degree of overloading, if any, etc;
- very high degree of overloading could be considered in the design as this was a mining area;
- having assessed the expected traffic in the base year, it was to be projected for the design life period. Likelihood of additional mining traffic should also be taken into account;
- due diligence was required in the estimation of possible diversion of traffic due to location of the designed road;
- having designed the road as per the requirements and after making sure that the design was sustainable for the expected heavy vehicle operations, the cost estimation was to be done based on the Bill of Quantities for the designed road with normal traffic as well as traffic due to heavy vehicles used in mining, industry, etc.

The State Government accorded (October 2009) sanction of ₹ 3.77 crore for upgradation of Dhabadeh to Kundayala road in the length of 8.500 km (block Khairabad, district Kota) under PMGSY Bharat Nirman (regular PMGSY[48]). The work was undertaken to strengthen and improve the road as the crust size of the road was inadequate. The work was awarded (March 2010) to a contractor[49] at an estimated cost of ₹ 3.23 crore and with stipulated date to be completed by February 2011. The work was completed (March 2011) after upgradation of the road stretch from 0/0 to 8.150 km. An expenditure of ₹ 3.99 crore was incurred.

It was noticed (April 2015) from the records of Public Works Department (PWD) Division, Ramganj Mandi that the designed life of the aforesaid road was 10 years. Within a period of only 38 months (March 2011 to June 2014), the crust of the road was not able to cope with the requirements of heavy traffic due to diversion of traffic from two nearby roads. Also, the road was adjoining an industrial area (RIICO Industrial Park in Kudayala) where almost all the transport companies of Ramganj Mandi were located.

The failure of crust even before the lapse of defect liability period (up to 29 March 2016) or within one-third of the design life period indicated that at the time of preparation of DPR, the instructions provided in the aforesaid guidelines were not complied with for ensuring construction of quality road which could cope with heavy traffic/heavily loaded vehicles.

Lack of proper assessment of diversion of traffic from other roads, degree of overloading, non-preparation of cost estimates for normal traffic and traffic due to heavy vehicles used in mining, industry, etc. led to expenditure of ₹ 3.99 crore on upgradation of the road being largely infructuous.

The State Government stated (March 2016) that strengthening and upgradation works of two nearby roads were sanctioned in April 2013 and work was in progress up to June 2014. The traffic of both the roads was diverted on this

[48] Package no. RJ-23-BN-UG-18
[49] M/s M.M. Construction Company, Taranagar

road and this was not presumed at the time of preparing the DPR. It was also stated that after completion of this road, 250 new Kota stone industrial units were established in the industrial area located at Kudayala which increased the intensity of traffic. The reply was not convincing as the PWD Division, Ramganj Mandi and PWD Circle, Kota had admitted (June 2014) that out of three roads (including the two referred above) approaching Kota, Dhabadeh to Kundayala road was the shortest. This fact was not taken into account besides likelihood of expected additional traffic due to adjoining industrial area. As such, heavy mining vehicles/other heavily loaded commercial vehicles used the road for going to Kota due to which the crust of the road failed.

3.6 Non-levy of compensation and irregular payment of price escalation

Non-levy of compensation of ₹ 4.66 crore for not-maintaining the span-wise progress of work and irregular payment of price escalation of ₹ 0.44 crore.

General condition number 7 of Clause 45 of contract agreement stipulated that price variation clause would be applicable only for the work that was carried out within the stipulated time or extension thereof on account of reasons not attributable to the contractor. The note below Clause 2 of contract agreement also provided that price variation, if any, under clause 45 would be admissible only on such rates and cost of work, as would be admissible if work had been carried out in that particular time span.

Clause 2 of the contract agreement provided that if the contractor failed to complete the work in accordance with the time schedule and the delay was attributable to the contractor, he should be liable to pay compensation to the Government for every time span. The entire amount of compensation should not exceed 10 *per cent* of the value of the contract. Clause 3 of the contract agreement stipulated that if the contractor did not complete the work and the remaining work was executed by another contractor at higher cost, the difference of cost should be recovered from the previous contractor.

➢ The Executive Engineer, Public Works Department (EE, PWD) Medical Division, Jodhpur, issued seven work orders between March 2011 and April 2012 to various contractors for execution of construction works in S.N. Medical College, Jodhpur. These works were scheduled to be completed between July 2012 and October 2013. The work-wise details of work orders issued and expenditure incurred within the scheduled time are given in ***Appendix-3.2.***

Scrutiny of records of EE, PWD Medical Division, Jodhpur revealed that in seven cases, payment of ₹ 1.02 crore was made to the contractors on account of price escalation ***(Appendix-3.2)***. In all the seven cases, the contractors had neither completed the span-wise quantum of work nor the Engineer-in-charge had granted span-wise time extension on grounds not attributable to the contractors. In view of the above provisions of the contract, the price escalation charges were not payable to the contractors.

Besides, in all the above seven cases, the contractors had not maintained the span-wise progress of work. As such, they were liable to pay compensation under clause 2 of the contract agreement. On review of records of the Division,

it was observed that compensation of ₹3.13 crore as required under the aforesaid clause was not levied on the contractors ***(Appendix-3.3)***.

The State Government replied (August 2016) that in case of price escalation, out of total amount of ₹ 1.02 crore pointed out by audit, ₹ 58.35 lakh were payable to contractors. Action had been initiated for recovery of the balance amount of ₹ 43.57 lakh. In case of non-levy of compensation, the State Government stated that a sum of ₹ 18.45 lakh had been withheld from bills of contractors and after granting of final time extension by competent authority, proper action would be taken.

The reply was not convincing as the contractor had not maintained the span-wise progress of work as required in aforesaid clause. Non levy of compensation and price escalation made without approval of time extension was, therefore, irregular and resulted in undue benefit to the contractors.

➢ The PWD Rajasthan, Jaipur accorded sanction[50] of ₹ 6.55 crore for construction of various roads. The PWD Division, Ratangarh and Bengun awarded (September 2011 to November 2011) works of all packages to a contractor[51] at a cost of ₹ 5.16 crore[52] which were scheduled to be completed by February 2012 and May 2012 respectively.

Scrutiny of records at PWD Division, Ratangarh and Bengun revealed that the contractor had completed (October-November 2012) the works of ₹ 1.21 crore (₹ 0.51crore of package RJ 11-04, ₹ 0.49 crore of package RJ 11-05 and ₹ 0.21 crore of package RJ10-03) only despite issuance of repeated letters/notices by the Department. As such, works were rescinded (October-November 2012) by the Department applying Clauses 2 and 3 mentioned *ibid* and the remaining works were executed through other contractors after incurring an extra expenditure of ₹ 1.18 crore[53].

As per Clauses 2 and 3 of the contract agreement, compensation amounting to ₹ 0.52 crore and ₹ 1.18 crore respectively, aggregating to ₹ 1.70 crore ***(Appendix-3.4)*** was to be levied on the contractor. The concerned divisions, however, levied and recovered compensation of ₹ 0.17 crore[54] only under Clause 2 of the contract agreement. The balance amount of ₹ 1.53 crore was unrecovered (October 2016) since October 2012.

The State Government stated (February 2016) that District Collector, Churu and Jaipur had been informed (January/February 2016) to register a case under Public Debt Recovery Act for recovery of compensation. The facts remained that the Department initiated action only after pointed out by Audit and did not take any effective steps for recovery of compensation for more than three years.

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[50] ₹ 4 crore for package No. RJ11-04 and 05/RIDF-XVII/ML-III/2011-12 and ₹ 2.55 crore for package No.RJ10-03/SHW/Plan/2011-12

[51] M/S Surya Construction Company, Jaipur

[52] ₹ 2.80 crore for package No. RJ11-04 and 05/RIDF-XVII/ML-III/2011-12 and ₹ 2.36 crore for package No. RJ10- 03/SHW/Plan/2011-12

[53] RJ11-05 ₹ 33.17 lakh, RJ11-04 ₹ 33.85 lakh and RJ 10-03 ₹ 51.17 lakh

[54] ₹ 0.14 crore against package No. RJ11-04 & 05 and ₹ 0.03 crore against package No. RJ 10-03

3.7 Avoidable expenditure of ₹ 2.05 crore

Avoidable expenditure of ₹ 2.05 crore by inclusion of items of excavation of earth, construction of granular sub-base and laying of compacted graded stone aggregate in the estimates prepared under *Gramin Gaurav Path* Scheme

As per circular (December 2014) of, Public Works Department (PWD), Rajasthan, Jaipur, the construction of Cement Concrete (CC) roads under *Gramin Gaurav Path* Scheme (GGPS) would be undertaken on already existing CC/bitumen road and, therefore, a new sub-base or preparation of ground for fresh CC roads would not be required. It was stipulated that while giving the work orders under GGPS, Department would ensure that items like excavation of earth, construction of granular sub-base and laying of compacted graded stone aggregate were not included in the estimates. This would exhaust the entire budget of the Phase-I of the Scheme given for the purpose without having quality construction. According to the circular, avoidable expenditure on items as mentioned above, was to be taken care of at all stages to reduce the cost and use the money to connect more areas with CC roads.

The, PWD Rajasthan, Jaipur accorded (December 2014) sanction for construction of CC roads under GGPS in Merta City and Nagaur divisions of Nagaur district and Rajakhera division of Dholpur district. The work orders for execution of the works were issued (November-December 2014) by respective divisions.

Scrutiny of records (September-October 2015) of the divisions revealed that, the Department included the items of excavation of earth, construction of granular sub-base and laying of compacted graded stone aggregate in the estimates of works. The works were awarded/executed accordingly. The Department could have avoided an expenditure of ₹ 2.05 crore ***(Appendix-3.5)*** by not including these items in the estimates and constructed the CC roads on already existing CC/bitumen roads as per the existing instructions.. This would have helped the Department to use the money to connect more areas with CC roads.

The State Government in respect of Merta City and Nagaur divisions replied (January 2016) that the design of CC roads was prepared by Malviya National Institute of Technology (MNIT), Jaipur. It was further stated that the roads executed under GGPS were badly damaged and hence provision of said items was taken in the technical estimates. In respect of Rajakhera division, the Government stated (April 2016) that provision of these items was taken to prepare the base for CC road.

The reply of the State Government was not convincing as inclusion of these items was against the directions of the Government. No survey reports, in support of the roads badly damaged or other reasons were furnished by the Government/available in the records. The contention of the State Government as regards the the design of the CC roads, prepared by the MNIT was also not convincing as it was for new alignment of road as per specifications of Indian Road Congress-62.

3.8 Unfruitful expenditure of ₹ 1.78 crore

Non-achievement of intended objective due to non-completion of work led to unfruitful expenditure of ₹ 1.78 crore

Paragraph 4.1 of guidelines of Pradhan Mantri Gram Sadak Yojna (PMGSY) provided that proper planning was imperative to achieve the objective of the programme in a systematic and cost effective manner. Paragraph 11.5 of the guidelines also provided that in case the value of tenders received was above the estimates that had been cleared by the Ministry of Rural Development, the difference (tender premium) pooled for the entire District/State for works cleared in a phase/batch would be borne by the State Government.

The State Government accorded (March 2013) sanction of ₹ 1.83 crore for construction of bituminous road from Indira Gandhi Nahar Project/General Reserve Engineering Force road to Bangrala km 0/0 to 9/0[55] under PMGSY. Technical estimate for the work was sanctioned (April 2013) by Public Works Department, (PWD), Zone, Bikaner for ₹ 1.82 crore. The work was awarded (March 2014) at an estimated cost of ₹ 2.46 crore and was stipulated to be completed by November 2014. Note below the work order provided that the work was to be restricted up to the amount of administrative and financial sanction. As of October 2014, the contractor had executed the work in the length of 6.9 km (from 0/300 to 7/200 km) after incurring an expenditure of ₹ 1.78 crore. The remaining work in the length of 2.1 km could not be executed due to paucity of funds.

Test check of the records of the Superintending Engineer (SE), PWD Circle, Bikaner revealed that value of tenders received was above the estimate sanctioned and additional funds were required to complete the remaining work. In spite of repeated requests (July 2014 onwards) by field officers, additional funds for completing the remaining work were not provided by the State Government. The Department finalized the incomplete work after incurring an expenditure of ₹ 1.78 crore.

Awarding of work above the administrative and financial sanction without proper funds arrangement resulted in failure to the work and non-fulfilment of the objective of road connectivity to that extent even after incurring an expenditure of ₹ 1.78 crore.

The State Government accepted (March 2016) the facts and stated that the work was restricted up to the amount of sanction issued. There was no provision in the guidelines for revised administrative and financial sanction. It was further stated (June 2016) that out of proposed 9 km road, construction was completed in 7 km and habitations on both sides of the road were benefitted. It was also stated that saving of ₹5.00 lakh in package no. RJ-08-WB-10-01 would be used to construct gravel road in the remaining reach of 2 km. The reply was not convincing as technical report enclosed with the estimate provided that no habitation except Bangrala was to be connected by this road. Further, Construction of gravel road in the remaining reach of 2 km would also not serve the purpose of providing all weather road connectivity to the habitation (Bangrala) as required under PMGSY guidelines.

[55] Package No. RJ-08-WB-10-01.

3.9 Unauthorised utilisation of funds of ₹ 1.72 crore

Unauthorised utilisation of funds of ₹ 1.72 crore sanctioned under 13th Finance Commission

Rule 11 of General Financial and Accounts Rules (GF&AR) provided that a controlling Officer should see that the funds allotted to expending units were expended in public interest and upon objects for which the money was provided.

The Public Works Department (PWD), Rajasthan, Jaipur accorded (November 2012) sanction of ₹ 1.78 crore for maintenance and renovation of eight roads[56] in Jodhpur city under 13th Finance Commission. As per the sanction, the expenditure was chargeable to the budget head 3054-Roads & Bridges – 04 District & Other Roads - 800 other expenses - (02) village roads – (03) Maintenance work on recommendation of 13th Finance Commission – 54 Maintenance (Material). The Executive Engineer (EE), PWD City Division, Jodhpur issued (January 2013) work order for ₹ 2.07 crore with scheduled date of completion as 5 July 2013. The work was completed in December 2013 after incurring an expenditure of ₹ 1.72 crore.

During scrutiny (January 2015) of records of EE, City Division, Jodhpur, it was observed that these roads were urban roads within the Jodhpur Municipal area. The funds sanctioned under 13th Finance Commission under above mentioned budget head were meant for maintenance and renovation of village roads. As such, funds of ₹ 1.72 crore utilised for maintenance of urban roads under 13th Finance Commission were diverted in contravention to the sanction issued.

The State Government stated (February 2016) that the work was executed as per the sanction issued by the competent authority under 13th Finance Commission. The reply was not tenable as roads constructed were urban roads within the Municipal limit of Jodhpur City and funds released under 13th Finance Commission were meant only for the maintenance and renovation of village roads.

3.10 Avoidable expenditure of ₹ 1.42 crore

Avoidable expenditure of ₹ 1.42 crore incurred against the rule of financial propriety on roads already constructed five to fifteen months earlier

Rule 10 of General Financial and Accounts Rules (GF&AR) provided that every Government servant incurring or authorising expenditure from public funds should be guided by high standards of financial propriety. Every Government servant should also enforce financial order and strict economy at every step. He was expected to exercise the same vigilance in respect of

[56] (1) Puri Tiraha to Bombay Motor Circle, (2) Jalori gate circle to olyampic, (3) Jalori gate to Gol building and chopasni road,(4)Paota choraha to circuit house,(5) Ashuji ki piau to Mandore railway station, (6) BDO office Mandore to Gokulji ki piau, (7) Kayalana to chopasni area (8) Nagori gate to vidyashala road

expenditure incurred from public money as a person of ordinary prudence would exercise in respect of expenditure of his own money.

The Chief Engineer (CE), Roads, Public Works Department (PWD), Rajasthan, Jaipur accorded (December 2014) sanction of ₹ 20.54 crore for executing 30 CC roads in village portion under *Gramin Gaurav Path Scheme* (GGPS) in Jhalawar District. The work of construction of roads was awarded (December 2014) for ₹ 16.76 crore which was scheduled to be completed by August 2015.

Test check of records of Executive Engineer (EE), PWD, Division, Jhalawar revealed that out of 30 roads sanctioned, three roads[57] had already been sanctioned and constructed 5 to 15 months earlier under other schemes. These roads were under guarantee period. Despite knowing this fact, these roads were again sanctioned under GGPS and completed in July 2015 after incurring an avoidable expenditure of ₹ 1.42 crore against the rule of financial propriety.

The State Government replied (June 2016) that these CC roads were not removed due to their being under guarantee period and instead of construction of these CC roads, new roads[58] in village area had been constructed.

The reply is not acceptable as there was no administrative and financial sanction for the construction of new roads as intimated by the Department. The payments were made against the amount booked for the roads sanctioned under GGPS. This was irregular as in disguise of construction of sanctioned CC roads under GGPS, new roads were constructed for which no sanction existed.

Forest Department

3.11 Non-recovery of ₹ 1.52 crore

Non-recovery of cost of excavated material of ₹ 1.52 crore

A Memorandum of Understanding (MoU) was entered (November 2009) between the Department of Road Transport and Highways, GoI and Public Works Department (PWD), Government of Rajasthan for rehabilitation and upgradation of existing two lane road, Gomati Chauraha-Udaipur section of National Highway-8[59] to four lane road. This work was awarded on Design, Build, Finance, Operate and Transfer basis. The scope of work included the provision of construction of 450 meter length tunnel at Chirva Ghat.

As per MoU and an undertaking given by the user agency National Highways Authority of India, the muck including soil and hard/soft rock (112230 cubic metre approximately) generated on account of tunnel excavation was to be used in the construction of road. The cost of the same was required to be deposited by the user agency before commencement of the work on demand of the Forest Department.

Scrutiny of records (May 2015) at the office of the DCF (North), Udaipur disclosed that the department did not raise the demand for recovery of cost of ₹ 1.52 crore[60] (as per rates of BSR July 2013) of usable quantity of excavated

[57] Dhabli se Gailani (₹ 0.48 crore), Pidawa Rampuria via Kalyanpura (₹ 0.45 crore), Osaw-Mathania (₹ 0.49 crore)

[58] In village Sangria, village Rampuria and in village Mathuria

[59] km 177/000 to km 260/100

[60] ₹ 450 x 33669 cum (30 *per cent* of 112230 cum)

material. The construction work of the tunnel was completed (December 2015) at a cost of ₹ 100.83 crore.

The DCF (North), Udaipur accepted (July 2015) the fact and raised (July 2015) the demand on NHAI, Udaipur, the recovery of which was awaited (October 2016).

Water Resources Department

3.12 Encroachment on Government land

Non-surrender of Government land costing ₹ 9.12 crore to Revenue Department resulted in encroachment of the land

As per rule 324 (2) of General Financial and Accounts Rules (GF&AR), any land which was in the possession of a Department for departmental use only and when any portion of the land assigned to it ceased to be required for departmental purposes, it should be surrendered to the Revenue Department.

The non-agriculture land (471.17 *bighas*) acquired (1975-76) by Water Resources Department (WRD) for rehabilitation of residents of Galiacoat town of Dungarpur District. This land was evacuated from the site of submergence of the Kadana Dam and was allotted to the evacuees free of cost. The whole process of rehabilitation was completed during the period from 1975 to 1980. Later on, after more than twenty eight years, the Executive Engineer (EE), Mahi Project, Sagwara informed (August 2008) Chief Engineer (CE), Mahi Project, Banswara that after completion of the process of rehabilitation, 100 *bighas* surplus land costing ₹ 47.68 crore had under the possession of the Water Resources Department.

The, Revenue (Rehabilitation) Department and Finance (Revenue) Department issued (October 2009 and April 2010) general directions to all Departments for transferring the surplus land to local bodies for further allotment. The District Collector, Dungarpur and Sub-Divisional Officer, Sagwara further directed (January 2012 and May 2012) EE, Kadana Mahi Rehabilitation Division, Sagwara for demarcation and surrender of surplus land to Tahsildar, Sagwara for transfer to local bodies for further allotment. EE, Sagwara took (May 2012) stock of surplus land and measured it as 76 *bighas* and 4 *biswas* which was 23 *bighas* and 16 *biswas* less than the land measured in August 2008.

During the State Government programme 'Prashashan Apke Dwar' (August 2014), a public complaint was received about encroachment on this land and issuance of fake *pattas* by the officers of the WRD. In various inter-departmental correspondences, EE, Sagwara had accepted that due to shortage of staff and budget, it was difficult to have a proper watch on land and there were frequent cases of encroachment. On directions of the District Collector, Dungarpur, EE proposed (December 2014) to constitute a Departmental committee for examining the matter. No further action in this regard had been taken by the Department (April 2016).

As the WRD was not in a position to arrange watch and ward, therefore, the Government land should have been surrendered to the Revenue Department in 1980 itself soon after completion of the process of Rehabilitation instead of

retaining it for three decades without any use. This resulted in that 23 *bighas* and 16 *biswas* Government land costing ₹9.12 crore[61] did not remain in the possession of the Department and had either been encroached or allotted by issuing fake *pattas*.

The matter was referred (October 2015) to State Government, the reply was awaited (October 2016).

3.13 Avoidable expenditure on price escalation of ₹ 6.85 crore

Avoidable expenditure on price escalation of ₹ 6.85 crore due to awarding of work before finalisation of technical estimates

As per Rules 285 (b) and 348 (a) of Public Works Financial & Accounts Rules (PWF&AR), detailed technical estimates should be prepared and sanctioned after working out all technical details, completion of surveys, investigations and formulation of working drawings/designs. It was a fundamental rule that no work should be commenced unless a properly detailed design and estimate had been sanctioned. The Water Resource Department (WRD) had issued office orders/standing orders/circulars (May 2004 and June 2008) about preparation of estimates only after detailed geological investigations.

The WRD, Zone, Kota issued (October 2007) technical sanction of ₹ 20.57 crore for construction of earthen dam, chute spillway, wing wall, training wall and head out sluice at Lhasi Medium Irrigation Project in district Baran. This was further revised (September 2011) to ₹ 47.64 crore. After tendering process, the work was allotted (January 2008) to a contractor for ₹ 24.14 crore and was scheduled to be completed by January 2011. An expenditure of ₹ 56.02 crore was incurred till February 2016 and the work was in progress.

Scrutiny of records at WRD, Chabra-II revealed that after conducting geo-technical investigation (March 2007), Geological Survey of India (GSI) recommended that the foundation of spill way might be decided on the basis of permeability and geo-mechanical tests on sub-soil in the field as well as in the laboratory.

The WRD allotted (August 2007) the soil investigation work to a private Soil Investigating firm[62] which conducted the investigation work between December 2007 and January 2008. The firm advised the WRD to get the foundation depth confirmed by Geotechnical Engineer/Geologist after excavation of foundation trenches. The Senior Geologist from GSI visited (March 2008) the site, and found calcareous decomposed sandstone which was dispersible and hence not a suitable foundation media under water charged condition. Considering the complex nature of soil stratum and adverse nature of foundation, Chief Engineer (CE), Investigation, Design and Research (IDR), WRD, Jaipur advised (April 2008) CE, WRD Zone, Kota to get the opinion of Central Water Commission (CWC), New Delhi. The CE, WRD, Zone Kota, referred (May 2008) the case to CWC, New Delhi to investigate and suggest the remedial measures as well as to provide the design and drawing for the

[61] 23.16 bigha x17424 = 414691 square feet x ₹ 220 (at the DLC rate effective from 1 October 2014)

[62] M/s PNT Design (P) Limited, Kota.

spillway. After detailed investigations, visits and model testing, CWC finalised (June 2011) the drawing and design and thereafter the work was started.

The awarding of work, without finalisation of drawing, design and foundation strata of spillway and issuing of technical sanction was in violation of the rule mentioned *ibid.* This had not only delayed the work for more than five years but also led to avoidable payment of price escalation of ₹ 6.85 crore to the contractor.

The State Government stated (March 2016) that effective geological investigations were done before approval of drawing and design. It further added that geological investigation was always carried out in a small area which was representative of the large area.

The reply was not tenable because detailed technical estimates were to be prepared and sanctioned after working out all technical details and after completion of surveys and investigations as per rules mentioned *ibid.* In the instant case, the work was awarded despite conclusive recommendations by GSI, Soil Investigation Firm and IDR wing of the Department. It was also pertinent to mention that the State Level Empowered Standing Committee accorded revised sanction of work subject to the condition that charge sheet of responsible officers under Conduct Rule 16 be submitted to the Department of Personnel. No action in this regard had been initiated (February 2016).

(S. ALOK)
Accountant General
(Economic & Revenue Sector Audit), Rajasthan

JAIPUR,
The 10 FEB 2017

Countersigned

(SHASHI KANT SHARMA)
Comptroller and Auditor General of India

NEW DELHI,
The 17 FEB 2017

Appendices

Appendix 2.1

(Refer paragraph 2.1.2.4; page 18)

List of amendments to be made in RFPMIS rules as per project report

- Since the formation of territorial rules constituencies in Narmada project can not be according to rule 3 of 'Rajasthan Farmers' Participation in Management of Irrigation Systems Act, 2000' as every *'diggi'* has to have a WUA to manage distribution of water from the *diggi,* the territorial constituency for a WUA will be one *chak* in which *'diggi'* is situated.
- In addition at the primary level WUAs, there can be a committee of such WUAs of the entire village area where minimum one representative of each WUA will be a member. This committee will look after the interests of all WUAs of the village and each WUA will act as a constituency of voters for this committee. Then there will be distributary and project committees with their already defined functions. The modalities for the rights, responsibilities and functioning of WUAs and the village WUA committees will have to be worked out.
- Rule 50 may have to be revised according to the pattern of water distribution in the project. Responsibility of pre-*diggi* water course in this system will be initially of the Irrigation Department till the distributary committees are constituted after which the M&R role upto distributary level could be taken by the distributary committee.
- A constant assistance from Irrigation Department officials is recommended. Farmers opined that the department representative (AEN level) should be present in the WUA committee meetings. This will ensure discipline in the organization. This will also facilitate funds collection and punishment to defaulters.
- Representation of all castes in the WUA management committee should be ensured. This is a suggestion that came from the farmers from the point of view of harmony.
- System of reward and punishment should be introduced. There should be clear norms to punish the defaulters. Rights of WUA president and managing committee should be clearly defined in this respect. Reward and punishment can be either in the form of cash incentive or disincentive (penalty) or in the form of appreciation or deprivations.
- A consultancy committee should be available to the WUA office bearers for 'as and when needed' consultations of all nature. The committee should have experts from various fields like irrigation, agriculture, environment, legal advisor and other related specialists.
- Capacity building of WUA is very important to get results. Training of WUA officials should be made mandatory in every project.
- Clear norms for allocation of water should be defined. Three type of suggestions came forward during discussions.
  a. Since the water is limited, all farmers big or small should get equal allocation of water. This is important for social justice.
  b. In one round equal water can be given and then the remaining water be distributed according to requirement.
  c. Water should be allotted on the basis of land size.
- As the number of women farmer is limited, there is a possibility that they are deprived of representation in WUA management committee. To ensure their representation as in *Panchayat* system, reservation for women farmers is recommended for inclusion in rules.
- Similarly, reservation for small farmers will give them proper deal.

Appendix 2.2

(Refer paragraph no. 2.1.4.2; page 21)

Details of cases in which time extension not desired or granted under clause 5 and action not taken under clause 2 of agreement

Sr. No.	Name of work	Stipulated date of commencement	Stipulated date of completion	Status of work	Action taken by Department	Reasons of delay
	EE Division-IV Sanchore					
1.	Execution of earthwork, single PCC block lining, *pucca* structure, *diggies*, pump room, sump well and boundary wall of Halibav Minor, sub-minor km 0.000 to 7.600, Halibav "A" sub-minor km 0.000 to 1.000 and "B" km 0.000 to 1.425 of taking from km 3.900 left from Virawa minor.	14.12.2012	13.12.2013	Work in progress	Provisional extension granted by EE upto 31.08.2014, but not sanctioned by competent authority.	Standing of crop, permission sought for road cutting from GREF, land compensation, ban on shifting of utilities.
2.	Execution of earthwork, single PCC block lining, *pucca* structure, *diggies*, Pump room, sump well & different minors, sub-minors of Bhadrai Lift Distributary off-taking from 55.600 km and supplying, jointing, testing and commissioning of distribution network. HDPE pipe with electrically operated motor with accessories on the minors, sub-minors of Arniyali Lift Minor off-taking from 6.310 km.	08.07.2012	07.01.2014	Work in progress	Extension proposed by EE upto 30.09.2014 but not sanctioned by competent authority.	Land acquisition, standing of crops, supply of material like bajri.
3.	Execution of earthwork, single PCC block lining, *pucca* structure, *diggies*, pump room, sump well and supplying, jointing, testing and commissioning of distribution network. HDPE pipe with electrically operated motor on Sanawada Khurd minor off-taking from Dangariya minor km 0.050.	17.08.2013	16.08.2014	Work in progress	-	-

	EE Division-II Sanchore					
4.	Supplying, laying, jointing, testing and commissioning of distribution network (main and sub-main) of HDPE pipes for semi permanent sprinkler system of command area of Ranoder minor of Ratoda Distributary	08.08.2008	07.12.2008	Work abandoned by contractor	-	Contractor withheld the work but no action under clause 2 and 3 (c) was taken.
5.	Execution of earth work, *pucca* structure, pump well, sump well, *diggies* and Supplying, laying, jointing, testing and commissioning of distribution net work (main and sub-main) of HDPE pipes with electrically operated motor with desired accessories on minor and sub-minors of Ratoda Distributary off taking from 44.225 of NMC including designing and layout of mechanical works on turnkey basis	08.07.2012	07.01.2014	Work in progress	-	-
	EE Division-III Sanchore					
6.	Supplying, laying, jointing, testing and commissioning of distribution net work of HDPE pipe with electrically operated motor, desired accessories on different minors, sub-minors upto 34.00 km of SLD off taking from 7.88 of NMC including designing and lay out of mechanical work on turnkey basis	17.03.2010	17.03.2012	Work in progress	Applied but not sanctioned by competent authority	Standing of crops, non-construction of pumping house of Choura system and non-electrification of pumping houses.
	EE Div.-V Sanchore					
7.	Execution of earth work, *pucca* structure, pump room, sump well, *diggies* and supplying, laying, jointing, testing and commissioning of distribution net work of HDPE pipe with electrically operated motor with desired accessories on Surachand minor and sub-minor of Bhimguda Distributary off taking from 74.400 of NMC	04.03.2011	03.03.2012	Work in progress	Applied but not sanctioned by competent authority	Due to excess rain, fields were filled with water.

8.	Execution of earth work, single PCC block lining, *pucca* structure, pump room, sump well, *diggies*, boundary wall and supplying, laying, jointing, testing and commissioning of distribution net work of HDPE pipe with electrically operated motor with desired accessories on Pantail minor and other minors/sub minors of Panoriya Lift Distributary off taking from 5.375 of Bhimguda Distributary of NMC	01.10.2011	30.09.2013	Work in progress	Applied but not sanctioned by competent authority	-
9.	Execution of earth work, *pucca* structure, single PCC block lining, pump room, sump well, *diggies*, boundary wall and supplying, laying, jointing, testing and commissioning of distribution net work of HDPE pipe with electrically operated motor with desired accessories on different minors/sub-minors of Panoriya Lift Distributary off taking from 5.375 of Bhimguda Distributary of NMC.	02.10.2011	01.10.2013	Work in progress	Applied but not sanctioned by competent authority	-
10.	Execution of earth work, single PCC block lining, *pucca* structure, pump room, sump well, *diggies*, boundary wall and supplying, laying, jointing, testing and commissioning of distribution net work of HDPE pipe with electricity operated motor with desired accessories on system of Arwa, Ogala, Dudhwasan minor of Panoriya Lift Distributary off taking from 5.375 of Bhimguda Distributary including mechanical work	21.07.2012	20.01.2014	Work in progress	Applied but not sanctioned by competent authority	Change in structure of GREF road, court case regarding land acquisition and standing of crops.
11.	Execution of earth work, single PCC block lining, *pucca* structure, pump room, sump well, *diggies*, boundary wall and supplying, laying, jointing, testing and commissioning of distribution net work of HDPE pipe of Bhakhasar minor of	19.07.2013	18.07.2014	Work in progress	Applied but not sanctioned by competent authority	Delay in payment of compensation to farmers, standing of crops.

	Panoriya Lift Distributary off taking from 5.375(R) of Bhimguda Distributary of NMC including mechanical work					
	EE Division-I NCP Sanchore					
12.	Supply, laying, jointing and commissioning of distribution network (mains and sub-mains) of HDPE pipe for semi-permanent sprinkler system of command area of Vank Distributary *Chak* VNK 3(R) Km 4.625 to *Chak* 5(L), Km 5.750 Bhadwal minor *Chak* BHW1(L) to BHW10(T) and new minor *chak* new1(L) to new5(T) total 18 *chaks* of NCP	05.08.2007	04.11.2007	Work in progress	Time extension sanctioned	Standing of crops, civil works not completed
13.	Supply, laying, jointing and commissioning of distribution network(mains and sub-mains) of HDPE pipe for semi-permanent sprinkler system of command area of Isrol Distributary, Siwara minor *chak* SWD 1(R) to SWD-8 and Paldi minor *chak* PLD-1 to PLD-7 of Narmada Canal	28.12.2007	27.06.2008	Work in progress	EE recommended for withdrawal of work under clause 32 and action to be taken u/c 3(c) against contractor on12.12.2011 but no action had yet been taken	
14.	Supply, laying, jointing and commissioning of distribution network(mains and sub-mains) of HDPE pipe for semi-permanent sprinkler system of command area of Isrol minor and Isrol 'A', 'B' & 'C' minor and Isrol Distributary on *chak* 1 to 16 total ch-40 and 4886 ha of Isrol Distributary System of Narmada Canal	31.07.2008	30.01.2009	Work in progress	EE submitted time extension case to competent authority. Time extension had yet not been sanctioned by competent authority.	Standing of crops, electric connection on *diggies* not done.
15.	Supply, laying, jointing and commissioning of distribution network(mains and sub-mains) of HDPE pipe for semi-permanent sprinkler system of command area of Vank minor and Bhuwana minor and Vank Distributary, on *chak* VNK 6 to	31.07.2008	30.01.2009	Work in progress	CE vide letter dated 05.06.2014 sanctioned ex post facto time extension but work was still in progress	Standing of crops Civil work not completed in Vank Distributary

	31 (R) total *chak* 49 and 4951.28 ha. of Vank Distributary System of Narmada Canal					
16.	Supply, erection, testing and commissioning of electrically operated motor with horizontal centrifugal mono block pump set including all necessary mechanical and electrical accessories, control panel, filters on various *diggies* total no.81 and CCA 8278.71 ha. on Bambi minor, Bawarla minor, Jetha minor, Lalji minor, Janvi minor off taking at km. 16.00 of NMC including designing on turnkey basis	03.12.2012	02.06.2012	Work in progress	EE submitted time extension case to competent authority but not yet sanctioned	Election of WUAs not held, electric connection not done in *diggies*
17.	Supply, laying, jointing and commissioning of distribution net work (main and sub- mains) of HDPE pipe for semi-permanent sprinkler system and electrically operated motor with horizontal centrifugal mono block pumping set including all necessary mechanical and electrical accessories, control penal, filter etc. of command area of Akoda and Dhingpura minor of Ballera Distributary of NMC including designing and layout on turnkey basis.	21.02.2010	20.11.2010	Work in progress	EE submitted time extension upto 31.03.2012 but not yet sanctioned by competent authority	Civil work not completed
18.	Supply, laying, jointing and commissioning of distribution net work (main and sub-mains) of HDPE pipe for semi-permanent sprinkler system and electrically operated motor with horizontal centrifugal mono block pumping set including all necessary mechanical and electrical accessories, control penal, filter etc. of command area of Bandiya, Tail minor and Naldhar sub-minor of Ballera Distributary of NMC including designing and layout on turnkey basis.	21.02.2010	20.11.2010		EE submitted time extension up to 31.3.2012 but not yet sanctioned	Civil work was not completed

Appendix 3.1

(Refer paragraph 3.1.2.3; page 32)

Statement showing position of samples analysed and result thereof

CETP	Period of samples taken	Total no. of Tests	No. of samples failed	No. of samples passed	Parameters not fulfilled
CETP-I, Pali	3.8.2012 to 18.6.2015	53	44	09	TSS,COD,BOD
CETP-II, Pali	3.8.2012 to 9.1.2016	60	51	09	TSS,COD,BOD
CETP-III, Pali	3.8.2012 to 8.9.2015	59	49	10	TSS,COD,BOD
CETP-IV, Pali	3.8.2012 to 9.1.2016	64	62	02	TSS,COD,BOD, Oil & Grease
CETP-VI, Pali	8.9.2015 to 9.1.2016	04	04	00	TSS,COD,BOD
Total		**240**	**210**	**30**	

Appendix 3.2

(Refer paragraph 3.6; page 63)

Work-wise details of work orders issued, expenditure incurred and price escalation paid to contractors

Sl. No.	Name of work	Name of Firm	Agreement No.	Work Order No.	Date of commencement	Stipulated date of completion	Actual date of completion	Amount of work done	Price escalation paid
1.	Construction of Lecture Theatre	M/s Sayad Lukman and Sons	01/2012-13	EE M/JU/11-12/05 dated 5.04.2012	15.4.2012	14.01.2013	6.4.2015	1,27,62,605	2,02,116
2.	Construction of PG hostel at MDM Hospital	M/s Anandi Lal Lalpuria	116/2011-12	EE M/JU/11-12/1651 dated 29.03.2012	8.4.2012	7.10.2013	Work in progress	10,38,02,343	8,87,613
3.	Construction of Emergency and OPD Block at MG Hospital	M/s Anandi Lal Lalpuria	16/2011-12	EE M/PWD Med Dn JU/365 dated 5.9.2011	15.9.2011	14.12.2012	January 2016	8,83,35,737	13,26,003
4.	Construction of UG Boys Hostel Building at MDM Hospital	M/s Jai Baba Construction Company	117/2011-12	EE M/PWD Med Dn JU/1661 dated 30.3.2011	9.4.2012	8.04.2013	25.8.2015	2,73,56,888	3,23,007
5.	Construction of Mother and Child wing at MDM Hospital (Gynaecology OPD and PaediatricEmergency)	M/s Neevn Infra. Mumbai	09/2011-12	EE M/PWD Med Dn JU/09/2011-12	18.7.2011	17.10.2012	30.9.2013	10,74,57,285	32,90,597
6.	Construction of Mother and Child wing at MDM Hospital (OT, Common Nurses and Labour Room and two floor OT for three floors)	M/s Anandi Lal Lalpuria	10/2011-12	EE M/PWD Med Dn JU/162 dated 8.7.2011	18.7.2011	17.10.2012	30.9.2013	10,49,13,921	29,88,875
7.	Construction of Sankramak Rog Sansthan at KN Chest Hospital, Jodhpur	M/s Fazlur Rehman	17/2011-12	EE M/PWD Med Dn JU/400 dated 10.9.2011	20.9.2011	19.07.2012	23.12.2013	6,20,79,366	11,73,880
Total									**1,01,92,091**

Appendix 3.3

(Refer paragraph 3.6; page 64)

Details of works in which span-wise progress not maintained by contractor

Construction of Lecture Theatre

Time Span	I 15.04.2012 to 21.05.2012	II 22.05.2012 to 29.08.2012	III 30.08.2012 to 6.11.2012	IV 7.11.2012 to 14.1.2013
Work to be executed	19,67,020	59,01,062	1,18,02,123	1,57,36,165
Amount of work executed	-	37,87,864	45,60,561	1,15,80,195
Amount of work not executed	19,67,020	21,22,198	34,58,438	41,55,970
Amount of compensation	49,176	1,06,110	2,59,383	4,15,597
Total compensation				8,30,266

Construction of PG Hostel

Time Span	I 8.04.2012 to 23.08.2012	II 24.08.2012 to 07.01.2013	III 8.01.2013 to 24.05.2013	IV 25.05.2013 to 7.10.2013
Work to be executed	1,30,54,730	3,91,64,191	7,83,28,382	10,44,37,843
Amount of work executed	3,10,69,720	5,34,09,599	7,41,50,768	8,42,08,722
Amount of work not executed	-	-	41,77,614	2,02,29,121
Amount of compensation	-	-	3,13,321	20,22,912
Total compensation				23,36,233

Construction of Emergency and OPD Block

Time Span	I 15.09.2011 to 6.01.2012	II 7.01.2012 to 29.04.2012	III 30.04.2012 to 21.08.2012	IV 22.08.2012 to 14.12.2012
Work to be executed	1,04,51,335	3,13,54,004	6,27,08,007	8,36,10,676
Amount of work executed	65,23,019	1,17,47,452	1,91,41,118	1,91,41,118
Amount of work not executed	39,28,316	1,96,06,552	4,35,66,889	6,44,69,558
Amount of compensation	98,208	9,80, 328	32,67,517	64,46,957
Total compensation limited to ten *per cent* of work order				83,61,068

Construction of UG Boys Hostel Building

Time Span	I 9.04.2012 to 08.07.2012	II 09.07.2012 to 07.10.2012	III 8.10.2012 to 06.01.2013	IV 07.01.2013 to 8.04.2013
Work to be executed	40,90,756	1,22,72,267	2,45,44,533	3,27,26,045
Amount of work executed	52,23,282	1,24,36,933	1,83,65,160	2,43,08,359
Amount of work not executed	-	-	61,79,373	84,17,686
Amount of compensation	-	-	4,63,453	8,41,769
Total compensation				13,05,222

Construction of Mother and Child wing, Entrance Hall, Gynaecology OPD and Paediatric emergency for two floor and Child OPD for first floor

Time Span	I 18.07.2011 to 8.11.2011	II 9.11.2011 to 1.03.2012	III 2.03.2012 to 24.06.2012	IV 25.06.2012 to 17.10.2013
Work to be executed	1,48,24,000	4,44,72,000	8,89,45,000	11,85,93,000
Amount of work executed	53,95,000	4,47,66,000	5,86,76,000	7,02,06,000
Amount of work not executed	94,29,000	-	3,02,69,000	4,83,87,000
Amount of compensation	2,35,725	-	22,70,175	48,38,700
Total compensation				73,44,600

Construction of Mother and Child wing ICU Ward, Operation Theatre, Common Nurses and Labour Room and (two floor) Operation Theatre for three floors

Time Span	I 18.07.2011 to 08.11.2011	II 09.11.2011 to 02.03.2012	III 3.03.2012 to 24.06.2012	IV 25.06.2012 to 17.10.2012
Work was to be executed	1,45,63,036	4,36,89,109	8,73,78,218	11,65,05,106
Amount of work executed	2,03,69,981	4,06,02,525	5,34,23,923	6,60,05,106
Amount of work not executed	-	30,86,584	3,39,54,295	5,04,99,185
Amount of compensation	-	1,54,329	25,46,572	50,49,919
Total compensation limited to ten *per cent* of work order				75,96,491

Construction of *Sankramak Rog Sansthan* at KN Chest Hospital

Time Span	I 20.09.2011 to 4.12.2011	II 5.12.2011 to 17.02.2012	III 18.02.2012 to 4.05.2012	IV 5.05.2012 to 19.07.2012
Work to be executed	79,61,123	2,38,83,370	4,77,66,740	6,36,88,987
Amount of work executed	69,46,786	2,63,78,910	3,33,46,004	3,92,20,140
Amount of work not executed	10,14,337	-	1,44,20,736	2,44,68,847
Amount of compensation	25,358	-	10,81,555	24,46,885
Total compensation limited to ten *per cent* of work order				35,51,798
Grand Total of compensation				3, 13, 25,678

Appendix 3.4

(Refer paragraph 3.6; page 64)

Details of compensation paid to contractor under clause 2 and 3 of agreement

Compensation under clause 2

(₹ in lakh)

Span	First span up to			Second up to			Third span up to			Fourth up to			Total	Total	Total
	6.11.2011		9.1.2012	14.12.2011		24.2.2012	21.1.2012		9.4.2012	29.2.2012		24.5.2012			
Package	11-05	11-04	10-03	11-05	11-04	10-03	11-05	11-04	10-03	11-05	11-04	10-03	11-05	11-04	10-03
Work to be executed	17.97	17.00	78.73	53.91	50.99	157.96	107.81	101.99	177.15	143.75	135.98	236.19			
Work executed	-	-	-	-	15.65	20.80	22.11	29.15	20.80	42.91	39.70	20.80			
Work not executed	17.97	17.00	78.73	53.91	35.34	137.16	85.70	72.84	156.35	100.84	96.28	215.39			
Percentage of compensation	2.5		2.5	5		5	7.5		7.5	10		10			
Compensation	0.45	0.42	1.97	2.70	1.77	6.86	6.43	5.46	11.73	10.08	9.63	21.54	19.66	17.28	42.10
Limited to ten *per cent* of Total work													**14.38**	**13.60**	**23.62**
Grand Total														**51.60**	

Compensation under clause 3

Name of Package	11-05	11-04	10-03	Total
Work not executed	103.51	92.10	198.94	
Difference of T.P in percentage	32.05	36.75	25.72	
Amount of compensation	**33.17**	**33.85**	**51.17**	**118.19**

Appendix 3.5

(Refer paragraph 3.7; page 65)

Statement showing inclusion of items of excavation of earth, GSB and WBM under *Gramin Gaurav Path Scheme*

S. No.	Name of Division	Name of Package	Excavation Earth	GSB	WBM	Total
1.	Merta City	RJ-24-03/5054/GGP/P/2014-15		1486.93 @ ₹516.00 = ₹ 7,67,255.88	1402.777 @ ₹1136.00 = ₹15,93,554.67 1110.277 @ ₹1193.00 = ₹13,24,560.46	36,85,371.01
				Less : Tender Premium	22.87 *per cent*	(-) 8,42,844.35
				Total		**28,42,527.00**
1.	Nagaur	RJ-24-01/5054/GGP/P/2014-15	20621.64 @ ₹32.00 = ₹6,59,892.00		5010.50 @ ₹1136.00 = ₹56,91,928.00 5010.50 @ ₹1193.00 = ₹59,77,526.00	12329346
				Less : Tender Premium	16.71 *per cent*	(-) 2060234.00
				Total		**10269112.00**
1.	Rajakhera	RJ-3-02/5054/GGP/P/2014-15	3106.25 cum @ ₹57.00 = ₹1,77,056	6813.57 cum @ ₹448.00 = ₹30,52,479	4688.66 cum @ ₹1252.00 = ₹58,70,202	9099737
				Less : Tender Premium	18.54 *per cent*	16,87,091
				Total		**74,12,646.00**
				Grand Total		**20524285.00**

Glossary of Abbreviations

Abbreviation	Expanded form
	A
APCCF	Additional Principle Chief Conservator of Forest
ATR	Action Taken Report
	B
BJPNT	Bhiwadi Jal Pradushan Nivaran Trust
BOD	Biological Oxygen Demand
BSR	Basic Schedule of Rates
	C
CAD	Command Area Development
CAG	Comptroller and Auditor General of India
CC	Cement Concrete
CCA	Culturable Command Area
CCF	Chief Conservator of Forest
CE	Chief Engineer
CETP	Common Effluent Treatment Plant
CM&HO	Chief Medical and Health Officers
COD	Chemical Oxygen Demand
CSO	Chief Scientific Officer
CWC	Central Water Commission
	D
DCB	Dug Cum Bore
DCF	Deputy Conservator of Forest
DPR	Detailed Project Report
	E
E&M Consultant	Engineering and Management Consultant
EE	Executive Engineer
ETP	Effluent Treatment Plant
	G
GF&AR	General Financial and Accounts Rules
GGPS	*Gramin Gaurav Path Scheme*
GoI	Government of India
GoR	Government of Rajasthan
GSI	Geological Survey of India
	H
HDPE	High-Density Polyethylene
	I
IDR	Investigation, Design and Research
IMTI	Irrigation Management and Training Institute
IOC	Indian Oil Corporation
	J
JICA	Japan International Cooperative Agency
JPNT	Jodhpur Pradushan Niwaran Trust

M	
MAF	Million Acre Feet
MLD	Million Litre Daily
MMA	Macro Management of Agriculture
MNIT	Malviya National Institute of Technology
MoD	Minutes of Discussion
MoEF	Ministry of Environment and Forests
MoU	Memorandum of Understanding
N	
NCP	Narmada Canal Project
NOC	No Objection Certificate
NGT	National Green Tribunal
P	
PCC	Precast Cement Concrete
PDR Act	Public Demand Recovery Act
PHED	Public Health and Engineering Department
PIA	Project Implementing Agency
PMGSY	Pradhan Mantri Gram Sadak Yojana
PMU	Project Management Unit
PWD	Public Works Department
PWF&AR	Public Works Financial and Accounts Rules
PWPCTRF	Pali Water Pollution Control Treatment and Research Foundation
R	
RAJAMIIP	Rajasthan Minor Irrigation Improvement Project
RFPMIS Act	Rajasthan Farmers' Participation in Management of Irrigation Systems Act
RKVY	Rashtriya Krishi Vikas Yojana
RO	Regional Office
RSPCB	Rajasthan State Pollution Control Board
RSRDCC	Rajasthan State Road Development Construction Corporation
S	
SE	Superintending Engineer
SHG	Self Help Group
SLNA	State Level Nodal Agency
SSI	Small Scale Industry
T	
TSS	Total Suspended Solids
W	
WAPCOS	Water and Power Consultancy Services Limited
WDC	Watershed Development Committee
WDT	Watershed Development Team
WRD	Water Resources Department
WUA	Water User Association
Z	
ZLD	Zero Liquid Discharge