Report of the
Comptroller and Auditor General of India
on
Economic Sector
for the year ended 31 March 2017

Government of Rajasthan

Report No. 5 of the year 2017

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PREFACE

This Report for the year ended 31 March 2017 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 2016-17 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 2016-17 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 (C&AG) relates to matters arising from performance audit of selected programmes and activities and compliance audit of economic sector departments.

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 important results of audit to the notice 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 provide them inputs 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 on Role of Rajasthan State Pollution Control Board (RSPCB) in controlling air pollution in the State. 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 nine economic sector departments. 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 2014-15 to 2016-17 is given in **Table 1** as follows:

Table 1: Comparative position of expenditure

(₹ in crore)

Particulars	2014-15	2015-16	2016-17
Revenue expenditure			
General services	27,868	31,016	39,203
Social services	37,754	43,349	49,372
Economic services	28,920	31,874	38,565
Grants-in-aid and Contribution	-*	-**	-***
Total	**94,542**	**1,06,239**	**1,27,140**
Capital and other expenditure			
Capital Outlay	16,103	21,985	16,980
Loans and Advances disbursed	701	36,602	12,965
Payment of Public Debt	4,960	4,959	5,015
Contingency Fund	300	-	-
Public Accounts disbursement	1,22,061	1,40,432	1,48,886
Total	**1,44,125**	**2,03,978**	**1,83,846**
Grand Total	**2,38,667**	**3,10,217**	**3,10,986**

Source: Audit Reports on State Finances of the respective years

* ₹ 9 lakh only, ** ₹ 10 lakh only, *** ₹ 6 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, 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 through performance audits. The deficiencies noticed during compliance audit of the Government departments/organisations were also reported.

The present report contains one Performance Audit on Role of RSPCB in controlling air pollution in the State, three Compliance Audits covering themes on Adherence to Environmental Issues on Mining Activities in Rajasthan, Development of Water Catchment through Greening of Rajasthan and Implementation of Rajasthan Road Sector Modernization Project and eight individual paragraphs. The highlights are given in the following paragraphs.

1.6.1 Performance Audit of programmes/activities

Chapter II of this Report contains the Performance Audit on Role of Rajasthan State Pollution Control Board in controlling air pollution in the State. The salient features of the performance audit are discussed below:

Role of Rajasthan State Pollution Control Board in controlling air pollution in the State

RSPCB was entrusted with the responsibility of prevention, control and abatement of air pollution under the provisions of Air (Prevention and Control of Pollution) Act, 1981.

The five cities of Rajasthan *i.e*. Alwar, Jaipur, Jodhpur, Kota and Udaipur are in the list of top 100 polluted cities in the world declared by World Health Organisation. These are also considered as 'non-attainment' cities by Central Pollution Control Board (CPCB). These cities have not met the National Ambient Air Quality Standards consecutively over three years' period. Audit

observed that the source apportionment studies were not carried out in these cities to identify and quantify the sources of pollution. In absence of which RSPCB was not in a position to prepare comprehensive programmes for prevention, control or abatement of air pollution.

In the case of National Capital Region (NCR) area or non-attainment cities of the State, no action plans for abatement and control of pollution were submitted by the concerned department/authority to RSPCB. As a result directions issued by CPCB could not be monitored by RSPCB, hence, most of the actions given in the direction could not be initiated.

As of March 2017, only 32 Ambient Air Quality Monitoring Stations and two Continuous Ambient Air Quality Monitoring Stations were operating in six districts while 27 districts having 47.03 million population and 74.50 lakh vehicles were still out of the purview of air quality monitoring. It was also seen that RSPCB and Environment Department did not have meaningful data of the sources of pollution in rural areas also in absence of which planning to mitigate pollution could not be undertaken. The samplers were installed at unapproved locations. The instruments for measuring air quality at monitoring stations were installed in violation of the guidelines. This has the risk of generating inaccurate and non-representative results.

The annual mean value of Respirable Suspended Particulate Matter (PM_{10}) was very high and ranged between 87µg/m^3 and 295µg/m^3 against the prescribed limit (60.00µg/m^3) in test checked 21 Ambient Air Quality Monitoring Stations. There was no follow up action to reduce the pollution levels. Periodic survey to identify the sources of air pollution and the adverse impact on eco-system as well as human health was neither done by RSPCB nor were any action plan prepared with clear timelines to reduce the air pollution.

Information on type and number of vehicles and meteorological data with respect to temperature, relative humidity, wind speed and its directions was neither collected by the RSPCB nor maintained at the 27 Ambient Air Quality Monitoring Stations test checked as required under National Air Quality Monitoring Programme guidelines.

RSPCB does not have consolidated data of category wise number of industrial units covered under consent mechanism in the State. It had neither conducted any survey nor coordinated with other departments to effectively discharge its regulatory functions to cover all industrial units under its consent mechanism.

The RSPCB did not evolve any mechanism to watch the renewal of consent to operate after expiry of the validity period of consent issued earlier. There was inordinate delay in issuing consents and consents were also issued with retrospective effect in some cases. Test check of 573 cases of the selected Regional Offices revealed that 74 industries had run without consent to operate for periods ranging from 14 to 3038 days. During joint inspection, 12 units were found operating though their Consent to Operates had expired.

Number of detection and death cases due to silicosis showed continuous increase. Detection and death cases were 304 and one respectively in 2012-13, which increased to 4931 and 449 respectively in 2016-17.

In compliance with the recommendation of the Rajasthan Human Rights commission, RSPCB had committed to carry out Ambient Air Quality Monitoring periodically near clusters of mines/quarries. However, audit observed that the details of clusters of mines were not provided by the Director Mines and Geology to the RSPCB. In absence of this, the RSPCB had neither prepared any plan for frequency of inspection nor had started ambient air monitoring nearby mining clusters.

All units of Kota Super Thermal Power station (KSTPS) and Chhabra Thermal Power Plant (CTPP) were operating without obtaining consent to operate/renewal of consent to operate which was the violation of provision of the Air Act.

It was also seen that in Jaipur though 33 brick kilns had not even applied for Consent to Establish/Consent to Operates, no concrete steps were taken by RSPCB against these units. Further, three brick kilns were found operating without consent to operate during inspections carried out by the respective ROs despite the fact that closure notices were issued to them about six years ago.

The Transport Department also failed to prepare an action plan to phase out 15-year-old vehicles. No action was taken to ensure that the Pollution Under Control Certificate centres were functioning as per prescribed norms. The Transport Department neither conducted any survey to identify the places with heavy traffic nor was pollution load assessed in major cities of the State. There were only 22 Pollution Flying Squads (PFS) covering 10 out of 12 regions for monitoring of polluting vehicles. Two region comprising six districts had no PFS. Further, Transport Department did not have data of number of vehicles which were found emitting excess pollutants during inspections by the flying squads.

During joint inspection of Pollution Under Control (PUC) centres, it was observed that Transport Department had issued licences without verifying the site and equipment of PUC centres as 20 licensees had not installed equipment but they had the requisite licenses from the Transport Department. In 10 instances, PUC certificates were issued by the operator of PUC centres without testing of vehicles. In Udaipur, one centre was generating computerised certificates on plain paper from computer while these should have been issued on stationery allotted from Rajasthan Petroleum Dealers Association.

There was shortfall in conducting inspection of highly polluting industrial units during 2012-17 to the extent of 48 to 60 *per cent*.

Number of stack samples analysed by Central Laboratory reduced by 50 *per cent* in 2016-17 when compared to the year 2012-13 indicating decreased testing.

(Paragraph 2.1)

1.6.2 Significant audit observations arising out of Compliance Audit

Adherence to Environmental Issues on Mining Activities in Rajasthan

Mineral extraction activities in the State are regulated under the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 and rules/policies made thereunder. Mining leases/quarry licences are granted by the Mines and Geology Department, Government of Rajasthan. The applicant has to obtain approvals before the grant of mining lease/quarry licence for diversion of forest land for non-forest purposes and Environmental Clearance (EC) from Ministry of Environment and Forest, Government of India or State Level Environment Impact Assessment Authority as the case may be along with Consent to Establish and Consent to Operate from Rajasthan State Pollution Control Board (RSPCB). After the grant of Mining Licence, the lessee is required to furnish reports on production of minerals and the measures for environmental protection to the Mines Department and RSPCB.

We observed that Mines were operated without renewing the Consent to Operate. Mineral production was enhanced without obtaining the Environmental Clearance and there was excess excavation of minerals by the lease holders in violation of conditions attached with Consent to Operate.

Illegal mining activity was prevalent in the State. There were inadequacies in preventive measures as well as in follow up of the illegal mining cases detected. There was slackness in implementation of the policy measures enunciated in 2011 for curbing illegal mining. Also, there was lack of deterrence due to delay in issue of notices for raising demand and recovery of the penal amount from illegal miners.

We also noticed violations of the orders of the Hon'ble Supreme Court of India as mining leases falling in Aravalli mountain range were granted, renewed and extended. Besides, the Ministry of Environment and Forest also granted Environmental Clearance for mining lease despite the area falling under the Aravalli hill range.

We also observed that environmental issues related to mining activities were not accorded due attention by the Department and RSPCB. The Department had not prescribed any periodical return requiring the lease holders to furnish information regarding the observance of conditions related with environmental protection as prescribed in Mining Plan, Environment Clearance and Consent to Operate. The inspection reports of the Department also did not focus on the environmental issues. Out of 136 leases under selected Mining Engineers/Assistant Mining Engineers offices, the RSPCB had conducted inspections in 38 leases only during 2010-17. Further, 106 lease holders had not submitted any reports and 118 lease holders had not submitted the Annual Environment Statement during the operative period of the Consent to Operate. Further, the inspection reports were incomplete, incorrect and unreliable as was confirmed through comparison of the findings of joint physical inspection conducted by us *vis-a-vis* the RSPCB inspection reports. The site inspections pointed out serious deficiencies and neglect towards fulfilment of environmental conditions relating to top soil, overburden dumps, plantation, construction of garland drain, air pollution control measures, noise pollution

control measures, reclamation and rehabilitation measures and mining in benches.

The State Government levied Environment and Health Cess in 2008 on selected major minerals. The proceeds of which were to be utilised for protection of environment and health and maintenance of ecological balance especially in the mining areas of the State, but the funds were sanctioned for activities which did not meet the objectives for which the cess was collected. The Department also collected (₹ 295.03 crore) under the 'Environment Management Fund' for environment protection works which was not utilised in absence of any guidelines.

(Paragraph 3.1)

Development of Water Catchment through Greening of Rajasthan

A project 'Development of Water Catchment through Greening of Rajasthan' for rehabilitation of degraded forest was planned by the State Government. It was planned to treat about 52,750 hectares of degraded land during the period 2012-13 to 2016-17. The project was carried out in selected 17 districts[1] out of total 33 districts.

It was noticed that at the time of preparation of micro plans due importance was not given to the base line work which resulted in various shortcomings and discrepancies besides non-review of micro plans even after lapse of prescribed two years' period. The categorization of degraded forest land was not done during the planning stage in absence of which correctness and authenticity of categorization of the same could not be ascertained.

Instances of non-adherence to technical parameters such as distribution of sub-standard/un-certified seeds, execution of plantation works without obtaining technical sanctions, plantation of immature plants were noticed. In case of construction of soil and water conservation structures, there were cases of deviation from micro plans and required permission from state level committee was not obtained before construction of the same.

In case of execution of Joint Forest Management Activities, there were blockage of funds at Village forest protection/management committee (VFPMC) level, lack of sufficient representation of women and lack of adherence of instructions regarding prescribed number of general meetings and inspection of VFPMCs. It was also noticed that an entire package of the project *viz.* Convergence through Mahatma Gandhi National Rural Employment Guarantee Scheme were not implemented. The norms for monitoring and evaluation by internal as well as external agencies were not fulfilled.

(Paragraph 3.2)

Implementation of Rajasthan Road Sector Modernization Project

The State Government decided (2012-13) to connect all the villages having population between 250 and 499 (Census 2001) with all-weather bituminous

[1] Ajmer, Alwar, Baran, Bundi, Bharatpur, Chittorgarh, Dausa, Dholpur, Jhalawar, Karauli, Kota, Pratapgarh, Rajasamand, Sawai Madhopur, Sirohi, Tonk and Udaipur.

roads in a phased manner in the areas of the state not covered by *Pradhan Mantri Gram Sadak Yojana*. To achieve this, the Rajasthan Road Sector Modernization Project was launched by Government of Rajasthan in 2013-14. The project envisaged improvement in rural connectivity**,** strengthening of road sector management and enhancement in road safety.

The department did not provide the information whether all villages having population between 250-499 were taken into account in the plan for providing connectivity with all-weather bituminous roads. A few civil works are yet to be completed pending resolution of disputes on land availability. Norms related to quality control as maintenance of Part-II of quality control register were not fulfilled by some of the selected divisions and required number of inspection at different stages of civil work were also not conducted by State Quality Monitor officers. Works in key areas related to second component *i.e.* road sector modernization and performance enhancement for rural road sector modernization plan were delayed. Similarly, work related to safe corridor demonstration programme related to third component was also delayed.

(Paragraph 3.3)

Non-compliance with provisions of *Pradhan Mantri Gram Sadak Yojana* guidelines and awarding of work without making proper arrangement of funds resulted in non-completion of roads after incurring an expenditure of ₹ 2.61 crore and the objective of providing all-weather road connectivity to the targeted habitations was defeated.

(Paragraph 3.4)

As curing compound was not used by the contractors and curing was done by using water, the payment of ₹ 83.55 lakh by Public Works Department, was irregular and resulted in undue benefit to the contractors.

(Paragraph 3.5)

Work order for construction of bypass road on National Highway-112 (Bar-Bilara-Jodhpur Section) was awarded without ensuring the availability of land and non-shifting of high tension lines in time. Therefore, road connectivity could not be provided to the habitations even after incurring an expenditure of ₹ 9.50 crore.

(Paragraph 3.6)

While making payment to contractors on account of price escalation for labour, steel, cement, bitumen, POL, plant and machinery and other material components, the date of opening of technical bid was considered for calculating the payment of price escalation by Public Works Department instead of the date of opening of financial bid. This resulted in an excess payment of price escalation of ₹ 1.02 crore.

(Paragraph 3.7)

Avoidable expenditure of ₹ 4.19 crore was incurred due to wrong inclusion of items of excavation of earth, construction of granular sub-base and laying of compacted graded stone aggregate in the estimates of construction of cement concrete roads under *Gramin Gaurav Path* Scheme.

(Paragraph 3.8)

Against the rule of financial propriety, irregular expenditure of ₹ 80.28 lakh was incurred on two roads under *Gramin Gaurav Path* Scheme which were already constructed under other scheme.

(Paragraph 3.9)

Due to non-awarding of work of Canal and Dam simultaneously, there was blocking of expenditure of ₹ 9.21 crore on construction of Dam and the farmers were deprived of the irrigation facilities for more than six years. Besides, ₹ 93.24 lakh under clause 3 of the agreement was not recovered from contractor by Water Resources Department.

(Paragraph 3.10)

Failure to obtain of clearance of forest land before start of the work resulted in blocking of funds of ₹ 39.87 crore on construction of canal in parts by Water Resources Department. It also resulted in deferment of benefits of irrigation facilities to be provided to the farmers.

(Paragraph 3.11)

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 2017 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 on Role of Rajasthan State Pollution Control Board in controlling air pollution in the State.

Environment Department

2.1 Role of Rajasthan State Pollution Control Board in controlling air pollution in the State

Executive Summary

The responsibility of prevention, control and abatement of air pollution under the provisions of Air (Prevention and Control of Pollution) Act, 1981 is entrusted to the Rajasthan State Pollution Control Board (RSPCB).

The five cities of Rajasthan i.e. Alwar, Jaipur, Jodhpur, Kota and Udaipur are in the list of top 100 polluted cities in the world and are considered as 'non-attainment' cities by Central Pollution Control Board (CPCB). These cities have not met the National Ambient Air Quality Standards consecutively over three years' period. The source apportionment studies were not carried out in these cities to identify and quantify the sources of pollution. In absence of which RSPCB could not prepare comprehensive programmes for prevention, control or abatement of air pollution.

(Paragraph 2.1.6.1 and 2.1.6.2)

In case of National Capital Region (NCR) area or non-attainment cities of the State, no action plans were submitted by the concerned department/ authority. Resultantly directions issued by CPCB could not be monitored by RSPCB, hence, most of the actions given in the direction could not be initiated.

(Paragraph 2.1.6.3)

As of March 2017, only 32 Ambient Air Quality Monitoring Stations and two Continuous Ambient Air Quality Monitoring Stations were operating in six districts while 27 districts having 47.03 million population and 74.50 lakh vehicles were still out of the purview of air quality monitoring. It was also seen that RSPCB and Environment Department did not have meaningful data of the sources of pollution in rural areas in absence of which planning to mitigate pollution could not be undertaken.

(Paragraph 2.1.7.1)

The annual mean value of Respirable Suspended Particulate Matter (RSPM) (PM_{10}) ranged between 87µg/m^3 and 295µg/m^3 which exceeds the prescribed limit (60.00µg/m^3) in all 21 Ambient Air Quality Monitoring Stations. Periodic survey to identify the sources of air pollution and the adverse impact on eco-system as well as human health was neither done by RSPCB nor were any action plan prepared with clear timelines to reduce the air pollution.

In Jodhpur, the first measurement of $PM_{2.5}$ was taken after 42 months of installation of sampler and only 19 measurements were taken up to June 2015 against 120 measurements required to be taken. In absence of proper monitoring of $PM_{2.5}$, the purpose of procuring the costly equipment was defeated.

(Paragraph 2.1.7.2)

The samplers were installed at unapproved locations. The instruments for measuring air quality at monitoring stations were installed in violation of the guidelines. This has the risk of generating inaccurate and non-representative result.

Information on type and number of vehicles and meteorological data with respect to temperature, relative humidity, wind speed and its direction was neither collected by the RSPCB nor maintained at the 27 Ambient Air Quality Monitoring Stations test checked as required under National Air Quality Monitoring Programme guidelines.

(Paragraph 2.1.7.3)

RSPCB does not have consolidated data of category wise number of industrial units covered under consent mechanism in the State. It had neither conducted any survey nor coordinated with other departments to effectively discharge its regulatory functions to cover all industrial units under its consent mechanism.

In joint inspections of 148 industrial units by audit team along with representatives of Regional Offices (ROs), RSPCB, it was found that 15 industrial units were operating without even consent to establish.

(Paragraph 2.1.8.1)

The RSPCB did not evolve any mechanism to watch the renewal of consent to operate after expiry of the validity period of consent issued earlier. There was inordinate delay in issuing consents and consents were issued with retrospective effect in some cases. Test check of 573 cases of the selected ROs revealed that 74 industries had run without consent to operate for periods ranging from 14 to 3038 days. During joint inspection, 12 units were found operating though their CTOs had expired.

(Paragraph 2.1.8.2)

Number of detection and death cases of silicosis were continuously increasing. Detection and death cases were 304 and one respectively in 2012-13, which increased to 4931 and 449 respectively in 2016-17.

(Paragraph 2.1.8.3)

In compliance with recommendation of Rajasthan Human Rights commission, RSPCB had committed to carry out Ambient Air Quality Monitoring periodically near clusters of mines/quarries. However, the details of clusters of mines were not provided by the Director, Mines and Geology to the RSPCB. In absence of this, the RSPCB had neither prepared any plan for frequency of inspection nor had started ambient air monitoring near mining clusters.

(Paragraph 2.1.8.4)

All units of Kota Super Thermal Power station (KSTPS) and Chhabra Thermal Power Plant (CTPP) were operating without obtaining consent to operate/renewal of consent to operate which was the violation of provision of the Air Act.

(Paragraph 2.1.8.5)

In KSTPS, prescribed standards of Particulate Matter (150 mg/Nm^3) and RSPM (100µg/m^3) could not be achieved as Particulate Matter remained between 174 and 952mg/Nm^3 and RSPM remained between 110 and 202µg/m^3 for the period 2012-13 to 2016-17.

(Paragraph 2.1.8.6)

In Jaipur, 33 brick kilns had not even applied for Consent To Establish/Consent To Operate (CTE/CTO). No concrete steps were taken by RSPCB against these units. Further, three brick kilns were found operating without consent to operate regularly during inspections carried out by the respective ROs despite the fact that closure notices were issued to them about six years ago.

(Paragraph 2.1.8.9)

In seven stone crusher units in Udaipur, Suspended Particulate Matter (SPM) level had exceeded the prescribed limits (600 µg/m^3) and ranged between 2286 and 4685µg/m^3. However, the Regional Officer renewed CTO without ensuring adherence to the norms as no further sample analysis report was found on record.

(Paragraph 2.1.8.10)

The Transport Department also failed to prepare an action plan to phase out the 15-year-old vehicles. No action was taken to ensure that the Pollution Under Control Certificate centres were functioning as per prescribed norms.

(Paragraph 2.1.10.1)

The Transport Department neither conducted any survey to identify the places with heavy traffic nor was pollution load assessed in major cities of the State.

(Paragraph 2.1.10.2)

Only 22 Pollution Flying Squads (PFS) were covering 10 out of 12 regions for monitoring of polluting vehicles. Two regions comprising six districts had no PFS. Further, Transport Department did not have data of number of vehicles which were found emitting excess pollutants during inspections by the flying squads.

(Paragraph 2.1.10.4)

During joint inspection of Pollution Under Control (PUC) centres, it was observed that Transport Department had issued licences without verifying the site and equipment of PUC centres as 20 licensees had not installed equipment but they had the requisite licenses from the Transport Department. In 10 instances, PUC certificates were issued by the operator of PUC centres without testing of vehicles. In Udaipur, one centre was generating computerised certificates on plain paper from computer while these should have been issued on stationery allotted from Rajasthan Petroleum Dealers Association.

(Paragraph 2.1.10.6)

Manpower management in RSPCB was poor. The vacancies were steadily increasing thus impacting the effective functioning of the Board.

(Paragraph 2.1.11.3)

There was shortfall in conducting inspection of highly polluting industrial units during 2012-17 which ranged between 48 and 60 per cent.

(Paragraph 2.1.12.1)

Number of stack samples analysed by Central Laboratory reduced by 50 per cent in 2016-17 when compared to the year 2012-13 indicating decreased testing.

(Paragraph 2.1.12.2)

2.1.1 Introduction

Air pollution has become a growing concern in the past few years, with an increasing number of acute air pollution episodes in many cities worldwide. Ambient (outdoor) air pollution alone kills around three million people each year, mainly from non-communicable diseases. Air pollution continues to rise at an alarming rate, and affects economies and quality of life in all regions. Air pollution has also been identified as a global health priority in the sustainable development agenda.

Sources of Air Pollution

The commonly identified sources of air pollution are:

Natural: Forest Fire, Windblown dust such as road dust, soot, physical processes of crushing, grinding and abrasion of surface, Volcanoes, Lightning, *etc*.

Manmade - Burning of fossil fuels, smelting of metals, Road traffic emissions from vehicles, Non-combustion processes (e.g. quarrying), Agricultural

activities, Burning of crop residues, Tobacco smoke, Wood smoke, Industrial emissions, fly ash, *etc*.

Substances that are generally recognized as air pollutants include SPM[1], RSPM[2], Sulphur Dioxide (SO_2), Nitrogen Oxide (NO_2), Carbon Monoxide (CO), Carbon Dioxide (CO_2), Methane and Ozone depleting substances such as Chlorofluorocarbon (CFC). These pollutants adversely affect man and material, flora and fauna equally.

As per the World Health Organisation's (WHO) report on 'Ambient Air Pollution 2016, India has the highest number of polluted cities in the world. Out of the 100 most polluted cities in the world, India has 33, while 22 cities among the top 50 most polluted cities are in India.

There are five cities of Rajasthan in this list of top 100 polluted cities in the world: Jodhpur, Jaipur, Kota, Udaipur and Alwar.

According to the Indian Council of Medical Research's (ICMR's) Health of the Nation's States Report 2017, the contribution of air pollution to disease burden remains high in India, with levels of exposure among the highest in the world. It causes burden through a mix of non-communicable and infectious diseases, mainly cardiovascular diseases, chronic respiratory diseases and respiratory tract infections. The burden of outdoor air pollution has increased due to a variety of pollutants from power production, industry, vehicles, construction and waste burning. The burden due to outdoor air pollution is highest in a mix of northern states, including Rajasthan, Haryana, Uttar Pradesh and Punjab.

The Report also highlights that Rajasthan has the dubious distinction of faring significantly higher than the national mean in terms of death rates caused due to pulmonary diseases, lower respiratory tract infections and Asthma. Similarly, Rajasthan has the highest ratio of the Disability Adjusted Life Years (DALY) rate attributable to air pollution in the country and it is the second biggest reason for loss of life in the State, after malnutrition.

Air Quality Index (AQI) is a tool for effective communication of air quality status to people in terms which are easy to understand. It transforms complex air quality data of various pollutants into a single number (index value), nomenclature and colour. There are six AQI categories, namely Good, Satisfactory, Moderately polluted, Poor, Very Poor, and Severe. Each of these categories is decided based on ambient concentration values of air pollutants and their likely health impacts (known as health breakpoints). As per Central Pollution Control Board's (CPCB) bulletin of Ambient Air Quality (January 2016), the analysis of AQI values in Rajasthan during September 2015 indicates that only six *per cent* AQI values are in good category, 49 *per cent* in satisfactory, 41 *per cent* in moderate category, two *per cent* are poor and two *per cent* are in severe category. This indicates the adverse impact of pollution on the health of the people of the state.

[1] Suspended Particulate Matter are microscopic solid or liquid matter suspended in earth's atmosphere.

[2] Particulate matters with aerodynamic diameter less than or equal to 10 micrometers thus also name as PM_{10}.

Organizational Structure

Environment Department

The Department of Environment in Rajasthan was established in September 1983. The Department is headed by Additional Chief Secretary (ACS) assisted by Secretary, Director and Joint Secretary. The Department has been entrusted with the responsibility of prevention and control of atmospheric pollution including all matters connected with the RSPCB. The ACS is responsible for formulation of policy regarding environment protection and overall monitoring of authorities like RSPCB.

Rajasthan State Pollution Control Board

The RSPCB was constituted under Section 4 of the Water (Prevention and Control of Pollution) Act, 1974 (February 1975) with the objective of prevention and control of water pollution. Later, it was entrusted with the responsibility of prevention, control and abatement of air pollution under the provisions of Air (Prevention and Control of Pollution) Act, 1981 (The Act). The RSPCB has a two-tier structure with headquarters at Jaipur and Regional Offices at 15 locations[3]. The RSPCB has established one Central Laboratory at Jaipur and four regional laboratories at Alwar, Jodhpur, Kota and Udaipur. In addition to this, eight regional laboratories are partially operative. The RSPCB is headed by the Chairperson.

Monitoring of air pollution is the responsibility of the Board under the Air Act while the control of vehicular pollution is the responsibility of the Transport Department under Central Motor Vehicles Act, 1988 and Rules, 1989. The Board was to lay down the standards for automobile emission under Section 17(1) (g) of the Air Act and the State Government in consultation with the Board was to instruct the Transport Department under Section 20 of the Air Act to ensure the compliance with the standards laid down.

2.1.2 Audit Objective

A Performance Audit of 'Role of Rajasthan State Pollution Control Board in controlling air pollution in the State' was conducted with the objective to assess whether the planning, implementation and monitoring for prevention, control and abatement of air pollution were proper, adequate and effective.

2.1.3 Audit Criteria

The Audit criteria were derived from:

- Air (Prevention and Control of Pollution) Act, 1981 and rules framed there under;
- The Central Motor Vehicles Rules, 1989 notified under the Motor Vehicle Act, 1988 and Rajasthan Motor Vehicle Rules, 1990;
- Rajasthan State Environment Policy, 2010; and

[3] Alwar, Balotra, Bharatpur, Bhilwara, Bhiwadi, Bikaner, Chittorgarh, Jaipur (North), Jaipur (South), Jodhpur, Kishangarh, Kota, Pali, Sikar and Udaipur.

- Notifications, circulars and orders issued by Government of India, State Government, Central Pollution Control Board and RSPCB.

2.1.4 Audit Coverage and Methodology

A Performance Audit of Role of Rajasthan State Pollution Control Board in controlling air pollution in the State was conducted covering the period from 2012-13 to 2016-17 in the office of the RSPCB at Jaipur along with Central Laboratory, six Regional Offices[4] (ROs) out of 15 and four Regional Laboratories[5]. Relevant records in the Departments of Environment and Forest, Transport and respective Implementing Agencies[6] were also scrutinized. Five ROs were selected on the basis of the World Health Organisation's Report (2016) on hundred most polluted cities of the world. These were the only ROs where ambient air quality monitoring was done by RSPCB (during the period of audit). Further one Regional office, Bhiwadi was selected as it has critically polluted industrial cluster and is ranked sixth among 88 clusters in the Comprehensive Environmental Pollution Index prepared by CPCB (2009). Besides it is part of the NCR.

The audit team with the representatives of concerned Regional Offices, RSPCB jointly visited 148 industrial units[7] and 33 air monitoring stations[8] under the jurisdiction of six selected ROs. Besides, 120 PUC centres were also jointly visited along with the flying squad of concerned five Regional Transport Offices.

The reply of the State Government has not been received. However, audit findings were discussed in the exit conference (11 October 2017) and on the basis of discussion, the State Government response has suitably been incorporated in the paragraph.

Audit Findings

The audit findings are discussed in succeeding paragraphs.

2.1.5 Financial Arrangement

Financial resources of RSPCB comprised water cess, consent fees and other receipts. Position of income and expenditure of the RSPCB for the period from 2012-13 to 2016-17 is given in ***Appendix-2.1.***

The CPCB co-ordinates with the RSPCB to ensure uniformity and consistency of air quality data and it provides technical and financial support to RSPCB for operating the Monitoring Stations in the State. The total receipts and

[4] Alwar, Bhiwadi, Jaipur (North), Jodhpur, Kota and Udaipur.
[5] Alwar, Jodhpur, Kota and Udaipur.
[6] Pollution Under Control centres (PUC centres)
[7] Thermal power plants, cements, stone crusher, brick kiln *etc*.
[8] 27 Ambient Air Quality Monitoring Stations and six Continuous Ambient Air Quality Monitoring Stations

expenditure under National Air Quality Monitoring Programme[9] (NAMP) during 2012-13 to 2016-17 were ₹ 0.90 crore and ₹ 0.85 crore respectively.

It was noticed that:

- the percentage of surplus funds ranged between 62 and 74 *per cent* of total funds available during the respective years.
- out of the total expenditure of ₹ 108.41 crore (2012-16), only 12 *per cent* (₹ 13.52 crore) was spent on project activities under various Acts[10] and the rest on establishment and other expenses.
- huge surplus funds[11] were parked in the fixed deposits and PD accounts. As a result, ₹ 12.46 crore was paid as income tax during the last four years.

It is clear from above that there was a meagre expenditure on projects to control pollution in the State.

Audit also observed that activities and programmes were affected due to laxity in planning, implementation, lack of enforcement of rules and poor management information system as discussed in succeeding paragraphs.

2.1.6 Planning

Planning forms one of the most important aspect of project implementation. It includes sequence of activities, programmes, action plans, *etc.* to achieve specific goals. The planning for implementation of project activities were marred by lack of comprehensive programme to prevent pollution, not taking up of apportionment studies and non-preparation of action plans besides other activities as discussed below:

2.1.6.1 Lack of comprehensive programmes to prevent and control air pollution

According to Section 17 of the Act, RSPCB was required to prepare comprehensive programmes for prevention, control or abatement of air pollution. The programmes should have included steps for Control of Vehicular Emissions such as action against visibly polluting vehicles, action plan to check fuel adulteration and random monitoring of fuel quality data, Control of Road Dust/Re-suspension of dust and other fugitive[12] emission. This was to be done through formulation of action plans for creation of green buffers along the traffic corridors, Control of Industrial Air Pollution such as action against unauthorized brick kilns and industrial units not complying with standards, *etc.*

It was seen that RSPCB had not initiated effective programmes for prevention and control of air pollution in the State. Audit observed that the RSPCB

[9] The CPCB had started National Ambient Air Quality network during 1984-85 which was later renamed as National Air Quality Monitoring Programme (NAMP)

[10] The Water (Prevention and Control of Pollution) Act, 1974, The Environment Protection Act, 1986, The Public Liability Insurance Act, 1991 *etc.*

[11] As on 31.03.2012 FDR was ₹ 189.57 crore, as on 31.03.2013 ₹ 244.77 crore, as on 31.03.2014 ₹ 293.44 crore, as on 31.03.2015 ₹ 332.41 crore and as on 31.03.2016 total FDR was ₹ 386.24 crore. Balance in PD A/c was ₹ 12.73 crore as of 31 March 2016.

[12] Fugitive emissions are emission of gases or vapours from pressurised equipment due to leaks and other unintended or irregular release of gases, mostly from industrial activities.

merely forwarded the instructions issued by the CPCB to the executive departments but did not follow up on them. There was lack of coordination between the RSPCB and other relevant departments which led to non-identification of sources of air pollution along with their quantification through source apportionment studies as discussed in succeeding paragraphs.

2.1.6.2 Source Apportionment studies not undertaken

Apportionment studies include preparation of emission inventories, monitoring of ambient air quality for various pollutants, chemical speciation[13] of ambient PM_{10}[14] and $PM_{2.5}$[15] of source emission to assess the contribution from various sources, future projections and evaluation of various control options to develop cost-effective action plans or intervention for mitigating air pollution.

The constituent of Sulphur Dioxide, Nitrogen Oxide and particulate matter in the environment should be within standards fixed by CPCB. The cities which do not fulfill the standards were considered as non-attainment cities. It was seen that in Rajasthan, five cities[16] are considered as 'non-attainment' consecutively over three years' period[17]. Consequently, Central Pollution Control Board suggested (August 2014) to the RSPCB to evolve effective action plans and undertake source apportionment studies. CPCB also urged (January 2015) RSPCB to submit action plans and carry out source apportionment studies in the 'non-attainment cities' with population of more than a million.

Audit scrutiny revealed that no action for source apportionment studies was undertaken by RSPCB. However, the RSPCB in its meeting (July 2016) approved a proposal of ₹ 1.12 crore for conducting air quality assessment, and source apportionment study only in Jaipur city. As per the Memorandum of Understanding (MoU) with Indian Institute of Technology (IIT), Kanpur (January 2017), the study would be completed by July 2018. The RSPCB, therefore, took 23 months to initiate the source apportionment study for one out of three cities having a population of more than one million.

In absence of source apportionment studies in 'non-attainment' cities, the RSPCB failed to get fundamental inputs for policy making and could not formulate an effective strategy and action plan to combat air pollution in these cities.

Secretary, Environment Department stated in the exit conference that source apportionment studies must be carried out as per directions of the CPCB and expertise from IITs must be sought by RSPCB. Chief Environment Engineer stated that the study involves large data analysis. It was also stated that trained technical staff are required to accomplish the task but resources are limited.

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[13] Quantity mass concentration and significant PM_{10} or $PM_{2.5}$ constitutes which include trace elements sulfate, nitrate, sodium, potassium, ammonium and carbon.

[14] Particles with a diameter between 2.5 and 10 micrometers, a health hazard.

[15] Fine particles with a diameter of 2.5 micrometers or less, a health hazard.

[16] Alwar, Jaipur, Jodhpur, Kota and Udaipur (three of these *i.e.* Jaipur, Jodhpur and Kota having population of more than one million)

[17] During 2011 to 2013.

However, RSPCB would make concerted efforts to take up such studies on priority once the first study was completed.

2.1.6.3 Non-preparation of action plans

Under Section 18 (1) (b) of the Act, the CPCB issued (December 2015) directions to the RSPCB for prevention, control or abatement of air pollution and improvement of National Ambient Air Quality in Delhi and NCR which included 42 action points ***(Appendix-2.2)*** within specified[18] timelines.

CPCB further issued (July 2016) directions to the RSPCB to improve the air quality, particularly in the areas of non-attainment cities. These steps required a multipronged, sustained and integrated approach including close monitoring of implementation. The direction included 31 actions points[19] to be undertaken within a clear specified timeframe. Most of the activity was to be completed within 180 days. Action plan on these points was to be submitted to the CPCB within 45 days. Accordingly, RSPCB issued (January and July 2016) directions under Section 31-A of the Act to the various authorities/departments[20] for implementing the directions of CPCB.

Audit scrutiny revealed that in case of non-attainment cities, no action plans were submitted by any department/authority (April 2017). Thus directions issues by CPCB could not be monitored by RSPCB. Further in case of NCR, action plans were not submitted by five departments[21] to the RSPCB even after lapse of more than one year. As a result, planning for implementation of measures as prescribed could not be made.

This was indicative of the fact that RSPCB failed to take concrete steps for expediting preparation of action plans in absence of which most of the actions to be undertaken for improving the air quality had not been initiated in both NCR and non-attainment cities. (April 2017).

The Secretary, Environment Department informed during exit conference that Central Government had issued (January 2017) the notification of Graded Action Plan at the direction of Supreme Court but its execution was quite difficult because of resource constraints. The Chief Environment Engineer, RSPCB stated that response to the directions issued by RSPCB about the action plans was being received from concerned departments and latest progress in this regard would be made available to audit.

2.1.7 Implementation

The Rajasthan State Environment Policy 2010 considered the air quality monitoring network of the State to be inadequate and envisaged its enhancement. Possibilities of implementing PPP models for effective air quality monitoring across the State by involving the private sector as well as

[18] Actions on 39 points were to be completed within 90 days and remaining actions within a year.

[19] Among these, 25 points were also covered in 42 points related to NCR.

[20] Department of Transport, Mines and Petroleum, Local Self Government, Food and Supply, Urban Development and Housing, Agriculture *etc.*

[21] Food and Supply, Mines and Petroleum, Transport, Local Self Government, Urban Development and Housing.

research and academic institutes were also to be explored. The implementation included installation of Ambient Air Quality Monitoring Station (AAQMS) and Continuous Ambient Air Quality Monitoring Station (CAAQMS)[22] and monitoring the sources of pollution.

2.1.7.1 Functioning of AAQMS

Environment Department, Government of Rajasthan after consultation with the RSPCB had declared[23] the whole of the State of Rajasthan as air pollution control area for the purpose of the Act. Thus, the RSPCB was required to operate air quality monitoring stations covering all the cities of the State.

- There were only 21 AAQMS in five cities[24] till the year 2010. It was seen that no AAQMS was established in the State during 2010-15. Audit scrutiny revealed that 11 AAQMS were established in four cities[25] during 2015-17 (out of 15 AAQMS sanctioned between March 2006 and December 2015) with delays ranging from two to nine years. The reasons for delays in establishment of AAQMS were not intimated to audit. Besides, two CAAQMS[26] were also in operation since July 2012. It was also seen that the RSPCB confined the air quality monitoring network to only six districts[27] out of total 33 districts in the State.

This is indicative of the fact that RSPCB failed to enhance adequately the air quality monitoring network in the State. It is to be noted that there are other 27 districts having 47.03 million population with 74.50 lakh vehicles which were still out of the purview of air quality monitoring.

- During test check of records of Regional Office Jodhpur it was also seen that no air quality monitoring was done at any of the six stations in Jodhpur during March to October 2014 due to stoppage of work by its Field Assistant. No alternative arrangements were made by the RSPCB for regular monitoring. In absence of regular monitoring, the purpose of setting up of AAQMS was defeated.

- For the Rural areas, the CPCB had sought (June 2015) a detailed proposal for establishment of 10 manual ambient air quality stations for the State to capture the air quality data and build database on crop residue burning. However, no proposal was submitted by the RSPCB (September 2017). As a result, the RSPCB and Environment department did not have meaningful data of the sources of pollution in rural areas.

Thus in the absence of data relating to air pollution in rural areas and lack of air quality stations in urban areas to capture the air quality data, the planning to mitigate pollution could not be undertaken.

The RSPCB replied (June 2017) that due to lack of infrastructural facilities and human resources it was not possible to monitor ambient air quality in

[22] CAAQMS is an automatic real time monitoring station.
[23] Notification issued (February 1988) by the Secretary, Department of Environment, GoR.
[24] Alwar, Jaipur, Jodhpur, Kota and Udaipur.
[25] three in Bhiwadi (two in 2015 and one in 2016), three in Bharatpur (one in 2015 and two in 2016), three in Kota (in 2016) and two in Jaipur (in 2017).
[26] One each in Jaipur and Jodhpur.
[27] Alwar, Bharatpur, Jaipur, Jodhpur, Kota and Udaipur

other areas. The Chief Environment Engineer, RSPCB stated during exit conference that at present 10 Real Time/Continuous Ambient Air Quality Monitoring Stations and 36 manual air quality monitoring systems were in operation. It was also stated that RSPCB was planning to establish five more Real Time/Continuous Ambient Air Quality Monitoring Stations in the State. However, the fact remains that only 32 AAQMS and two CAAQMS were in operation during the review period and that too in only six districts of the State. Further, as brought out earlier there was no constraint of funds.

2.1.7.2 Monitoring of air pollutants

The CPCB had notified National Ambient Air Quality Standards (NAAQS) in November 2009 with 12 identified pollutants. It included five gaseous pollutants such as Sulphur Dioxide (SO_2), Nitrogen Oxide (NO_2), Ozone (O_3), Carbon Monoxide (CO) and Ammonia (NH_3), two dust related parameters (PM_{10} and $PM_{2.5}$), three metals (Lead, Nickel and Arsenic) and two organic pollutants (Benzene and BaP-particulate).

Audit scrutiny revealed that the RSPCB was monitoring only three air pollutants *i.e.* SO_2, NO_2 and RSPM/PM_{10} regularly at all the 32 AAQMS. $PM_{2.5}$ was being monitored only at two AAQMS[28]. The reasons for not analyzing all 12 pollutants in all AAQMS were called for. The RSPCB stated that (June 2017) lack of infrastructural facilities was the main reason for not analyzing all the pollutants. Secretary, Environment Department stated in exit conference that all over India only three major pollutants were being monitored at all air monitoring stations and the remaining were studied only in specific situations. The reply should be seen in the light of the fact that in a review meeting held (July 2014) on NAMP, it was suggested by Chairperson, CPCB that the other notified parameters should also be included in the monitoring mechanism. CPCB had communicated (December 2014) to the RSPCB the need to upgrade the AAQMS to measure five more parameters. This was indicative of the fact that despite availability of funds RSPCB failed to strengthen the infrastructure facilities in monitoring of air pollution.

Measurement of SO_2, NO_2 and PM_{10}

Scrutiny of the results of analysis reports in respect of the 21 stations[29] located in the five cities for the years 2012 to 2016 revealed that:

- The annual mean value of SO_2 ranged between 5.10 µg/m^3 and 13.50 µg/m^3 which was within the prescribed limit (50.00 µg/m^3).
- The annual mean value of NO_2 ranged between 19.40µg/m^3 and 54.32µg/m^3 which slightly exceeded the prescribed limit (40.00µg/m^3).
- The annual mean value of RSPM (PM_{10}) ranged between 87µg/m^3 and 295µg/m^3. This pollutant always exceeded the prescribed limit (60.00µg/m^3) in all 21 AAQMS for the five-year period from 2012 to 2016. Audit analysis revealed that annual mean value was ranging in two cases between 60µg/m^3 and 100µg/m^3; in 48 cases between 101µg/m^3 and 150µg/m^3; in 27 cases

[28] Jaipur and Jodhpur.

[29] Scrutiny of monitoring data of 21 AAQMS which were established prior to 2012 was undertaken.

between 151µg/m^3 and 200µg/m^3; and in 28 cases, it was more than 200µg/m^3. It is evident from analysis that PM_{10} always exceeded the prescribed limit but periodic survey to identify the sources of air pollution and the adverse impact on eco-system as well as human health was neither done by RSPCB nor were any action plans prepared with clear timelines and commitment to reduce the air pollution.

Measurement of $PM_{2.5}$

Measurement of $PM_{2.5}$ was not monitored adequately in the State.

➢ As per National Ambient Air Quality Standards, the annual arithmetic mean of 104 measurements of $PM_{2.5}$ in a year at a particular site should be taken by measuring the level twice a week 24 hourly at uniform intervals.
It was observed that during May to December 2012 (except July 2012) no measurement of $PM_{2.5}$ was made in Jaipur while only one sample was analysed in the month of April 2012. Samples were not analysed twice a week as required during August to December 2011 and only 20 samples were analysed against the required 40 during the period. Scrutiny of analysis reports for the station for the period from July 2011 to March 2017 revealed that the test results were almost within the permissible limits except on 29 occasions wherein the concentration values exceeded slightly and ranged between 60.57 µg/m^3 and 104.76µg/m^3 against National Ambient Air Quality Standards of 60 µg/m^3.

Audit scrutiny also revealed that two out of three $PM_{2.5}$ samplers purchased for Jaipur and Jodhpur were not working adequately as discussed below:

➢ The RSPCB placed supply order (February 2010) for three[30] $PM_{2.5}$ sampler[31] at a cost of ₹ 15.92 lakh for monitoring $PM_{2.5}$ in Jaipur and Jodhpur. Out of these three samplers, (November-December 2010) one each was installed in Jaipur and Jodhpur and one was kept on standby at Jaipur. Monitoring of $PM_{2.5}$ commenced from July 2011 and May 2014 in Jaipur and Jodhpur respectively. As the sampler at Jaipur was not working properly it was replaced by another one. During scrutiny of records of RO, Jodhpur it has been observed that $PM_{2.5}$ sampler was out of order since June 2015. As of May 2017 only one sampler in Jaipur was in working condition and two samplers[32] were out of order. However, the RSPCB could not resolve this problem within the warranty period[33].

➢ In Jodhpur, the first measurement of $PM_{2.5}$ was taken after 42 months of installation of sampler and only 19 measurements were taken up to June 2015 against 120 measurements required to be taken. Thereafter, it was mentioned on record that the instrument was not working. In absence of monitoring of $PM_{2.5}$, the purpose of procuring the costly equipment was defeated.

Monitoring of Benzene level not initiated

Benzene is one of the hydrocarbons present in the atmosphere at trace level. It is an atmospheric pollutant that may have effect on human health. Escape of

[30] two for Jaipur and one for Jodhpur
[31] Thermo Fisher Make Model Partisol 2000 FRM
[32] One each in Jaipur (March 2015) and Jodhpur (June 2015)
[33] Effective from the date of satisfactory installation.

Benzene is controlled at petrol pumps by a device called a Vapour Recovery System. Further as per the NAAQS set by the CPCB, the permissible level of Benzene is 5μg/m^3.

During review of records of RSPCB, it was noticed that:

- No plan to monitor and control the benzene level was made;
- The RSPCB did not carry out any testing of benzene level near the retail petrol/diesel stations in any city of the State.
- The RSPCB did not ensure installation of Vapour Recovery System at the retail petrol/diesel stations.
- Out of 3592 Automobile Fuel Outlet[34] (Dispensing) in the State, the RSPCB issued only 26 Consent to Establish (CTEs) and Consent to Operate (CTOs) to Automobile Fuel Outlet (Dispensing) so far in three districts[35].

In absence of above, the RSPCB could not assess the health hazard and adopt measures to control and regulate the pollutants from various sources and their harmful effects.

Secretary, Environment Department agreed and stated in exit conference that monitoring of air pollutants should be on daily basis so that improvement can be made in the system.

2.1.7.3 Joint Inspections of Air Quality Monitoring Stations

Audit along with teams from regional offices of the Board conducted joint inspection of 33 monitoring stations (27 AAQMS and 6 CAAQMS) out of total 42 Monitoring stations[36] ***(Appendix-2.3)***. Following irregularities were noticed:

Installation of Respirable Dust Samplers at unsuitable site/un approved locations

According to NAMP guidelines, a site is representative if the data generated from the site reflects the concentrations of various pollutants and their variations in the area. The station should be located at a place where interferences are not present or anticipated. In general, the instrument must be located in such a place where free flow of air is available. The instrument should not be located in a confined place, corner or a balcony. If location of monitoring station is not representative of the area, the data may not be useful for drawing any interpretation.

During joint inspection it was noticed that 12 instruments for measuring air quality at AAQMS/CAAQMS were installed contrary to the guidelines. These instruments were located close to a wall and/or surrounded by buildings, trees, water overhead tank, *etc.* which restricted free flow of air. Details are given in ***Appendix-2.4.***

Further test check of records revealed that in Jaipur, monitoring of $PM_{2.5}$ is being carried out at the campus of RSPCB, Jhalana Dungri which is an

[34] Number of PSUs retail outlets as informed by State Level coordinator- Indian Oil Corporation Limited- Jaipur.
[35] Churu (1), Dholpur (2) and Chittorgarh (23).
[36] 32 AAQMS and 10 CAAQMS (eight Analyzers were on trial)

institutional area. This area is far from dense population, free from vehicular pollution and there are no commercial and industrial activities. Also, the station was surrounded by trees. Similarly, in Jodhpur, the $PM_{2.5}$ sampler was placed in an area surrounded with trees.

Installation of the air-monitoring instruments at a non-polluting and non-representative location has the risk of generating inaccurate and non-representative result.

Unsuitable site and un approved location of Monitoring Station

Sampler was installed at corner of roof at M/s Jain Irrigation Limited, Alwar in place of approved location and surrounded by trees which was in contravention of NAMP guidelines

The NAMP guidelines state that the objective of monitoring is to measure trends in air quality and measurements are to be conducted over a long time. The site should be selected in such a manner that it remains a representative site for a long time and no land use changes, rebuildings, *etc.* are foreseen in near future.

It was noticed that in seven cases, the samplers were installed at locations other than the approved locations as detailed in ***Appendix-2.5***

No approval for change of sites was found on record. The respective ROs were continuously sending monitoring results against the names of originally approved locations. Secretary, Environment Department stated during exit conference that it was a technical issue and the guidelines of CPCB must be followed in this regard.

Other important findings during Joint Inspections

As per NAMP guidelines, information on type and number of vehicles, meteorological data with respect to temperature, relative humidity, wind speed and wind direction should be collected by RSPCB.

During the joint inspections audit observed:

- Information regarding type and number of vehicles was not maintained by any monitoring station. No assessment was made by the RSPCB in this regard even at the time of setting up of these monitoring stations.
- In all AAQMS, no measurement of meteorological data with respect to temperature, relative humidity, wind speed and direction was carried out as there was no such measuring instrument/equipment.
- Site sheltering facilities like shade for protection from rains, sunlight, *etc*. were not available in all AAQMS.
- Instruments were not calibrated by 18 AAQMS out of 27 during 2012-17. In Jodhpur, calibration was being done regularly in all six centres while in three AAQMS, Udaipur it was done only in November 2015.
- As per the NAMP guidelines, field assistants should hold masters degree in Environmental Chemistry for measurement of pollutants at AAQMS. Audit scrutiny, however, revealed that only one field assistant was a science graduate. Some had passed class 10 or class 12 only.
- There was lack of facility for power backup in all AAQMS. In AAQMS, *Sojatigate,* Jodhpur, at the time of joint inspection, there was power cut and due to lack of standby arrangement, the sampler was not operational.

2.1.8 Industrial Pollution

Industrial pollution occurs when factories (or other industrial plants) emit harmful by-products and waste into the environment. In order to contain the pollution, RSPCB provides consent to establish/ operate for each industrial unit. The main sources of industrial pollution in Rajasthan were Mining, Thermal Power Plants, Brick Kilns, Stone Crushing Industries, Cement plants *etc.* Scrutiny of records of RSPCB as well as joint inspections of industrial units revealed the following:

2.1.8.1 Industries functioning without consent

According to Section 21 of the Act, no person shall, without the previous consent of the State Board, establish or operate any industrial plant in an air pollution control area. Further, Section 17 of the Act requires the State Board to inspect air pollution control areas, assess the quality of air therein and take steps for the prevention, control or abatement of air pollution in such areas. This implied that RSPCB was required to conduct periodical surveys and coordinate with other State Government Departments like the Department of Industries to identify polluting industries.

- Industries are categorised[37] as red, orange, green and white category based on their pollution load. There were 4,29,339 units[38] registered with the Industries Department and Department of Inspection of Factory and Boilers[39]

[37] Ministry of Environment and Forest releases new categorisation of industries on dated 5 March 2016.

[38] Micro, Small and Medium Enterprises -415709, Large-366 and Factory and Boilers-13264

[39] Data based on calendar year

in the State as of March 2015[40]. However, the RSPCB did not have consolidated data of category wise number of industrial units.

The RSPCB is required to issue consent to establish for each industry other than the white category[41].

- It was noticed that during review of records in selected ROs except Jodhpur[42], 2168 'Consent to Establish' (CTE) were issued during 2012-15 by these ROs for establishment of industrial units in the cities in their jurisdiction. During the same period, 27,678 new industries, factories and boilers[43] were registered in the cities under the jurisdiction of the selected ROs as ascertained from the data of Department of Industries and Department of Inspection of Factory and Boilers. Only eight *per cent* industrial units registered were, therefore, given the consent to establish. Thus, it is evident that the industries were allowed to operate without the required 'consent to establish'.

- In joint inspections of 148 units[44] by audit team with representatives of Regional Offices, RSPCB, it was found that in 15 instances[45], industrial units were operating without even consent to establish.

Secretary, Environment Department stated during exit conference that total number of industries may not be taken into consideration as many of them may not be polluting units. However, the Government and the RSPCB accepted that the complete list of polluting industries was not available with RSPCB. Audit's view is that the RSPCB neither coordinated with the Department of Industries and Department of Inspection of Factory and Boilers nor made any other effort to identify actual number of polluting industries so that all could be brought under the consent regime.

One of the most important prerequisites to determine the action that was required to be taken to control air pollution, therefore, was not fulfilled.

2.1.8.2 Shortcoming in issuing of consent

Industrial units have to apply for renewal of consent granted to industries under Section 21 of the Act within a reasonable period[46] of its validity. As per sub-section (4), the RSPCB was required to issue consent within a period of four months after the receipt of the consent application referred to in sub section (i). Action was supposed to be taken under Section 31-A of the Act against the defaulter units if these were operating even after expiry/refusal of consent. According to Rule 15 of Rajasthan (Prevention and Control of Pollution) Rules, 1983, RSPCB was to maintain consent register in Form VIII as required under section 51 of the Act.

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[40] As per GoI's notification dated 18.9.15, every MSME shall file Udyog Aadhaar Memorandum through online including existing enterprises due to which old registered industrial units also allowed for reregistration.

[41] According to RSPCB order dated 31 May 2016, white category units are not required to obtain CTE/CTO.

[42] Information not furnished by RO, Jodhpur

[43] Data based on calendar year.

[44] Brick kilns-32, stone crusher-61 and other industrial units-55

[45] Brick kilns-10, stone crusher-2, industries-3

[46] 120 days in advance prior to expiry of previous consent.

During scrutiny of records of RSPCB Headquarter and six selected ROs, it was seen that the RSPCB did not evolve any mechanism to watch the renewal of consent after expiry of the validity period of consent issued earlier. RSPCB was unable to produce the exact number of consents expiring during the audit period. The number of industrial units in operation without consent of RSPCB could not be ascertained in absence of maintenance of data by the RSPCB.

Further shortcomings were observed as follows:

- Consolidated data regarding validity period of the consent issued to industrial units was not maintained by any selected RO except RO, Bhiwadi where 83 applications for renewal were obtained against the required 192 applications for renewal of consent during 2016-2017. No further action was found on record against those units which had not applied for renewal. Test check of 573 cases[47] of the selected ROs revealed that 74 industries[48] had run without consent to operate for periods ranging from 14 to 3038 days. Out of these, 23 units were still in operation. During joint inspection, 12 units were found operating though their CTOs had expired.

- On scrutiny of information provided by selected ROs[49], it was observed that 19 CTEs[50] and 514 CTOs[51] had either expired or were denied during the period 2012-17. The Board, however, did not evolve any mechanism to ensure that such industrial units did not operate after rejection of consent applications or expiry of validity of consent.

- In test checked 4070 consents out of 6159 CTOs issued during 2012-17 by six ROs, it was noticed that 568 'consents' were not issued within the prescribed time and the delay ranged between three and 1977 days. Further, the consents were issued with retrospective effect[52]. Delayed issuance of consents and making these effective retrospectively implied that the industrial units did not need to ensure compliance with the required conditions.

- It was also observed that consents were issued to 83 industrial units for the period before the date of filing applications. This implied that industrial units were operating without consent before the date of filing application and the RSPCB had regularized such period without ascertaining the emission norms and observance of required conditions during the period.

- Consent register was not maintained by RSPCB Headquarters and selected ROs. The purpose of consent register was to monitor information on type of operation or process, consent classification, date of installation of air pollution control equipment, emission standards and consent conditions as required under the Rules. Due to non-maintenance of consent registers, various important parameters could not be effectively monitored.

Deficiency mentioned ibid was indicative of failure to utilise the existing mechanism to monitor all the industrial units regularly.

[47] In Alwar-100, Bhiwadi-85, Jaipur (North)-95, Jodhpur- 92, Kota-114 and Udaipur-87
[48] In Alwar-8, Bhiwadi-10, Jaipur (North)-10, Jodhpur- 23, Kota-18 and Udaipur-5
[49] Except Jaipur (North) which did not furnish information.
[50] In Kota-9, Udaipur-4 and Jaipur (North)-6,
[51] In Kota-80, Udaipur-35, Jodhpur-183, Alwar-182 and Bhiwadi-34
[52] In 675 consents out of 4070 test-checked (retrospective effects ranging from four to 1983 days).

2.1.8.3 Silicosis: A threat to the life of mine workers

Silicosis is a fibrotic lung disorder caused by inhalation, retention and pulmonary reaction to crystalline silica. It is an incurable disease that results in slow and painful death. The workers of stone quarries and crushers, sand blasting, foundries, ceramic industries, gem cutting and polishing, slate/pencil, construction, glass manufacture and all mining industries are particularly prone to it due to inhalation of silica dust during their working. In order to prevent such disease wet drilling[53] measures are to be adopted in mining units.

There were about 2,548 silicosis prone mining units in the State[54] such as sand stone, quartz and silica sand.

It was seen that 7,959 silicosis cases were detected[55] out of which 32.78 *per cent* cases pertained to Jodhpur district during January 2015 to February 2017. In Five districts[56] the number of silicosis patients detected and the number of deaths during 2013-17 were as under:

Table: 1 Number of detection and death cases of silicosis

Year	Number of silicosis cases detected	Number of affected persons who have died
2013-14	304	01
2014-15	905	60
2015-16	2,186	153
2016-17	1,536	235
Total	4,931	449

Source: Office of State/District T.B. Officer, Medical and Health Department.

The data given in above table raises serious concern regarding management of silicosis.

2.1.8.4 Lack of robust enforcement in mining units to contain silicosis

The Rajasthan State Human Rights Commission (RSHRC) prepared a special report (December 2014) on the matter of prevalence of silicosis amongst workers employed in mines in Rajasthan and sent it to the Ministry of Labour and Employment (MoLE), Government of India with a direction to take action on the recommendations contained therein.

The MoLE forwarded (September 2015) the recommendations of RSHRC to the Director, Department of Mines and Geology (DMG), Rajasthan and Member Secretary (MS), RSPCB for further action on the recommendations related with them. The MS, RSPCB sent (November 2015) a reply to the Deputy Registrar, RSHRC, according to which the RSPCB had committed to

[53] Wet drilling means use of drills either operated with dust extractors or equipped with water injection system.

[54] Source: data uploaded on website of Department of Mines and Geology, Udaipur

[55] According to information provided by the Director (Public Health), Medical and Health Service, Rajasthan.

[56] Alwar, Jaipur, Jodhpur, Kota and Udaipur.

carry out Ambient Air Quality Monitoring periodically near clusters of mines/quarries. The RSPCB sought (May 2016 and September 2016) the details of mining clusters located in the State from DMG but the details were not provided by the DMG to the RSPCB (April 2017). In absence of this, the RSPCB had neither prepared any plan for frequency of inspection nor had started ambient air monitoring nearby mining clusters.

The Director, Mines and Geology, Udaipur had also submitted (December 2014) Action Taken Report on the recommendations. According to a recommendation of RSHRC, flying squads consisting of officers of Mining Department and RSPCB were to be constituted. The DMG wrote (January 2015) to the Principal Secretary, Mines and Petroleum, GoR for constituting joint teams consisting of respective Mining/Assistant Officers and Regional Officers, RSPCB. However, no joint flying squad was constituted even after lapse of two years (May 2017).

Significant findings relating to mining activities in Rajasthan are discussed separately in chapter 3.1.

Emissions by Thermal Power Plants

Thermal Power Plants (TPPs) are highly polluting and are classified under 'Red' category. The power plants cause air pollution due to excess emission of Particulate Matter and other gases. Two[57] out of seven[58] coal based TPPs were selected for joint inspection.

Kota Thermal Power Plant is Rajasthan's first major coal-fired power plant. It is located on the east bank of the Chambal River near Kota. There were seven units in Kota Super Thermal Power Station (KSTPS) having capacity of 1240 Megawatt (MW). Chhabra Thermal Power Plant (CTPP) is located at Chowki Motipura in Baran district. There were four units in CTPP with 1000 Mega Watt capacity. During review of records relating to these Power Projects, the following issues were observed:

2.1.8.5 All units were operating without obtaining CTO/renewal of CTO

Prior consent of the RSPCB is mandatory for establishing or operating industrial plant in an air pollution control area.

Review of records of CTPP indicated that the Units I and II were granted CTO up to 31 August 2015, Unit III was granted CTO up to 30 November 2014 and Unit IV had started production with effect from 30 December 2014 but it did not have the required CTO from the RSPCB (April 2017). Thereafter, CTOs of these units were not renewed. As a result, all the four units were operating without CTOs. Reply from the RSPCB is still awaited.

Further, it was observed that the KSTPS was granted CTO for the period from 1 July 2013 to 30 June 2015 for all seven units. The consent applications for renewal submitted (27 February 2015) by the KSTPS were still (April 2017)

[57] Kota Thermal Power Plant (Kota) and Chhabra Thermal Power Plant (Baran)

[58] Suratgarh (Sriganganagar), Kota (Kota), Barmer (Barmer), Motipura (Baran), Barsingsar (Bikaner), Gurha (Bikaner) and Thumbli (Barmer)

pending with the RSPCB due to non-compliance with the conditions such as non-operation of Air Pollution Control Machines (APCMs) installed at coal yard and coal crusher, non-interlocking of all units of Electrostatic Precipitators (ESPs) and lack of details about detection range, calibration, frequency, signals, linear factors, *etc.* The RSPCB in exercise of the powers conferred upon it under the provisions of Section 31-A of the Act issued (5 November 2015 and 12 January 2017) show cause notices[59]. The reply of the last show cause notice was still awaited (April 2017). However, the plants were being continuously operated. Thus RSPCB failed to take action under Section 37 of the Act against KSTPS for not complying with the directions issued under Section 31-A. As a result, excess emission continued from KSTPS as detailed in the succeeding paragraph.

2.1.8.6 Excess emission

Scrutiny of the stack and ambient monitoring reports revealed that the emission level of Particulate Matter and RSPM exceeded the prescribed level.

All the seven units of KSTPS had pollution control arrangements and ESP to arrest the fly ash, yet the prescribed standards of Particulate Matter (150 mg/Nm^3) and RSPM (100µg/m^3) could not be achieved by the units as Particulate Matter remained between 174 and 952mg/Nm^3 and RSPM remained between 110 and 202µg/m^3 for the period 2012-13 to 2016-17. It was observed from the records of KSTPS that the ESPs were not working efficiently[60].

Though RSPCB had issued show cause notices to KSTPS, no effective steps to improve efficiency of ESPs were taken by the KSTPS.

2.1.8.7 Disposal of fly ash

Coal ash is the waste that is left after coal is combusted. It includes fly ash[61] as well as coarser materials that fall to the bottom of the furnace. Coal ash mainly comes from coal-fired electric power plants.

Ministry of Environment and Forest (MoEF) issued (November 2009) notification for 100 *per cent* utilization of Fly Ash by all Coal/Lignite based Thermal Power Stations in the country in a progressive manner. The Thermal Power Stations which were in operation before the date of notification were required to achieve the target of Fly Ash utilization in five years from the date of issue of notification. The new Thermal Power Stations coming into operation after the MoEF's notification were to achieve the target of Fly Ash utilization in fourth year from their date of commissioning. This condition was incorporated in the CTO and RSPCB had to ensure compliance.

Scrutiny revealed that in KSTPS, 330000 MT fly ash was lying as of April 2013 which was reduced by 48.37 *per cent* and 170371 MT fly ash remained

[59] Due to intense fugitive emissions of coal dust, non-providing acoustic enclosures with Diesel Generating sets, unavailability of infrastructural monitoring facility with the boiler, non-maintenance of log books of operation of APCMs *etc.*

[60] Many fields of ESP were out of charge on regular basis.

[61] fine powdery particles that are carried up the smoke stack and captured by pollution control devices.

in balance as of March 2017. Thus, the MoEF notification was not complied with. During review of records in CTPP, it was observed that the fly ash and bottom ash disposal in CTPP during 2010-11 to 2016-17 (up to September 2016) was 42.12 lakh MT against the generation of 48.76 lakh MT during the same period. About 6.64 lakh MT of ash, therefore, remained in the ash ponds.

2.1.8.8 Joint Inspection Findings

During joint inspection by audit team along with the Regional Officer, RSPCB, Kota, the following shortcomings in KSTPS and CTPP were noticed which were against the CTO conditions:

- Intense fugitive emissions of coal dust were observed in KSTPS while in CTPP, intense fugitive emission of coal dust was observed in and around factory premises. Coal was stored at open places. At some places, coal was burning due to which smoke emission was observed.
- Diesel Generating sets were not provided with acoustic enclosures for containing noise in KSTPS.
- Infrastructural monitoring facility was not provided with the Boiler in KSTPS.
- Log books of operation of APCMs were not being maintained in KSTPS.
- Infrastructural facility for monitoring of stack emission was not available at Unit VI of KSTPS and, therefore, no stack sample of this unit was collected and analysed by the RSPCB.
- There was no ambient air monitoring station at the periphery of the factory premises of CTPP. Only one mobile van was available for this purpose.
- Plantation was not carried out as per norms in CTPP.

Inspection reports of the Regional Officer, Kota also confirmed these observations.

The RSPCB thus failed to take concrete steps under Section 31-A. against the high polluting units which continued violating the consent conditions.

During exit conference RSPCB stated that although the Power Plants were not complying with all the norms, keeping in view their criticality it was not feasible to shut them down. Audit is of the view that RSPCB must continue to make concerted efforts to improve compliance with environmental norms in the plants.

Brick Kilns

2.1.8.9 Pollution from brick kilns

Clay bricks are produced in Rajasthan in small or cottage scale brick kilns. The raw materials in the brick kilns include topsoil, coal, paddy husk, fly ash, wood & locally available agro wastes to some extent. Brick manufacturing process generates emissions which consist of mainly coal fines and dust particles. Coal fines and dust particles are health hazards and these pollutants weaken the immune system of human beings. Brick kilns are orange category units.

The RSPCB prepared a draft guideline for abatement of pollution in brick kilns industry and uploaded it on its website in 2012. However, the RSPCB had not approved this guideline so far.

The RSPCB did not have any consolidated data about number of brick kilns that were covered under consent mechanism. The RSPCB was also unable to ascertain the actual number of brick kilns operating in the State in absence of any survey/study conducted to identify these units.

Scrutiny of information provided by RO, Jaipur (North), disclosed that 33 brick kilns had not even applied for CTEs and CTOs. No concrete steps were taken against these units. In 32 cases, though CTOs had expired during September 2002 to December 2015, no application for renewal of consent was submitted. In course of joint inspection, four of these 32 units were found operational. There were 16 brick kilns which had taken CTEs but had not applied for CTOs. The RO (North) Jaipur replied that due to shortage of manpower, no survey was done and, therefore, operating status of brick kilns was not available. Thus, there was no mechanism to check the operating status of brick kilns.

Further, scrutiny of inspection reports revealed that closure notices were issued to three brick kilns by two ROs[62] as these kilns were operating unauthorizedly after expiry of validity of CTOs. However, all three units were found operating regularly during inspections by the ROs despite the fact that closure notices were issued to them about six years ago.

Member Secretary, RSPCB stated during exit conference that brick kilns are located even in villages and it is not possible for the RSPCB to carry out air monitoring of the same as per prescribed monitoring frequency. However, the RSPCB may look into the option of getting the air quality monitoring conducted through third party.

Stone crushing industry

2.1.8.10 Control of air pollution from stone crushing industry

Stone crushing industry is classified under Red category and the main pollutants arising from this industry are SPM and RSPM. MoEF prescribed standard of SPM to be not more than 600µg/m^3 at a distance between three and 10 meters from any process equipment. There were 644 stone crushers in selected ROs. However, the ROs were not aware of the functional status of the stone crusher units. Besides, ROs had not maintained data regarding number of inspections done of stone crusher units and ambient samples analysed.

Scrutiny of files in RO Udaipur revealed that a special joint inspection carried out by the team of District Collector with the officials of RSPCB had observed that in seven cases, the SPM level had exceeded the prescribed limits (600 µg/m^3) and ranged between 2286 and 4685µg/m^3. The RO served show cause notices to all seven units and issued closure directions to two units. In response to the show cause notices, the units replied that compliance with the observations had been made. However, the RO renewed CTO without

[62] Alwar and Bhiwadi

ensuring adherence to the norms as no further sample analysis report was found on record.

Member Secretary, RSPCB accepted the facts and stated during exit conference that stone crushers are located at industrial areas and on converted revenue land also. Therefore, the concerned authorities like Industries Department, Revenue Department or Rajasthan State Industrial Development and Investment Corporation Limited (RIICO) may inform the RSPCB while granting the permission for establishment of stone crusher so that RSPCB may take necessary action.

2.1.8.11 Joint Inspection Findings of Cement, Brick Kilns and Stone Crushing Industries

In test checked ROs, six out of 30 cement plants, 32 out of 332 brick kilns, 61 out of 644 stone crushing units and 49 other industrial units were jointly visited by audit team along with the representative of respective ROs. Out of these 148 units, findings related to cement, brick kilns and stone crushing units are discussed below while findings related to Thermal Power Plants were discussed earlier. No significant issues were observed in other industrial units except three units[63] where industrial plants were operating without obtaining consent to establish.

The findings noticed were against the provisions of the Act and CTO conditions as mentioned below:

- Plantation was inadequate in 77 industrial units[64].
- In one cement plant, raw materials were lying in open area while in two other cement plants, raw materials were partially lying in open areas.
- In one cement plant, internal road was rough due to which intense fugitive emission was observed while in another cement plant road was partially rough.
- Water sprinkling was not done in two cement plants. In one cement plant water sprinkling was partially done. In 46 stone crushing industries, water sprinkling systems were not in operation.
- No air pollution measuring device was installed in one cement plant.
- 10 units of brick kilns and two stone crushers were operating without obtaining CTE while eight brick kilns and four stone crushers were in operation despite the fact that validity of the CTO issued to these units had expired or were refused.
- Infrastructure facilities for stack monitoring were inadequate in 22 brick kilns of Jaipur district.
- In 28 brick kilns, inspections were not carried out and stack samples were not taken and analysed by respective ROs.
- Dust containment cum suppression systems did not exist in 53 stone crushing units.

[63] M/s Marwar Chemical. Jodhpur, M/s Om Chemical and Mineral, Jodhpur and M/s Raj Art and Handicraft, Jodhpur.

[64] One cement industry, 30 brick kilns and 46 stone crushing industries.

- In 45 stone crushing units, the approach roads were without hard surfaces.
- Wind breaking walls were not constructed in 41 stone crushing units.
- In 16 stone crushing units, water storage capacity with minimum 3000 litre was not available.
- In 45 stone crushing units, ambient air monitoring was not done.

If the conditions, subject to which CTO has been granted were not fulfilled, the consent should have been cancelled before the expiry of the period for which it was granted or further consent should have been refused after such expiry under Section 21 (4) of the Act. However, the RSPCB did not take any concrete action except issuing notices.

Member Secretary, RSPCB accepted the audit observation in exit conference.

During test check of records it was however also seen that Ultra Tech Cement plant in Jaipur was operating efficiently and was complying with the emission norms.

Besides above, scrutiny of records of Regional Office, Alwar, revealed that not even a single report of health check-up of workers related to three metal industries was found on record. According to conditions mentioned in CTOs, the industrial units were required to periodically examine the industrial workers at least once in a year for lead level in blood as well as urine. Persons found having higher lead level were required to be shifted immediately to non-lead activity areas and given special treatment till the lead levels returned to an acceptable level (10μg/m^3).

This indicated that the industrial units as well as Regional Officer, RSPCB were not sensitised adequately about the adverse impact of lead on health of workers of metal industries.

2.1.9 Crop residue burning

Crop residue burning is one among the many sources of air pollution. It results in the emission of smoke which if added to the gases present in the air like methane, nitrogen oxide and ammonia, can cause severe atmospheric pollution. These gaseous emissions can result in health risk, aggravating asthma, chronic bronchitis and decreasing lung function.

Government of Rajasthan after consultation with the RSPCB issued (August 2015) a notification regarding prohibition of burning of left over straw in whole of Rajasthan State.

During review of records of the RSPCB, it was found that the National Green Tribunal (NGT) in its decision regarding application number 118/2013 had ordered (December 2015) that all the State Governments and the Pollution Control Boards should ensure that small land holding farmers are provided with machines for extracting agricultural crop residue in their respective fields, the State Governments should, in coordination with Indian Space Research Organization, National Remote Sensing Agency and State Remote Sensing Agency, develop real time monitoring mechanism.

The RSPCB issued (January 2016) directions to the Principal Secretary, Department of Agriculture, GoR under Section 31A of the Act to curb air pollution due to biomass burning and sought an action plan and compliance report so that same could be submitted to the CPCB. However, no action plan as required by the RSPCB was submitted (April 2017) by the Agriculture Department.

Besides, the RSPCB had no data of burning of crop residue during 2012-16 in the State. It could not be ascertained whether the RSPCB was monitoring the pollution from burning of agricultural residue properly.

During exit conference RSPCB stated that this was a very small issue for Rajasthan as this practice was not widely prevalent in the State. Reply may be viewed in the light of the fact that the Commissioner and Special Secretary, Agriculture raised (February 2016) a demand of ₹ 6.50 lakh on the RSPCB for conducting study of crop burning area through Satellite Remote Sensing Technology on the proposal of State Remote Sensing Application Centre, Jodhpur. However, the RSPCB had not released any funds for this purpose (April 2017) for which reasons were not found on record. As a result, neither the RSPCB nor the Agriculture department was in a position to identify the actual locations and number of cases of crop burning.

2.1.10 Vehicular pollution

Under Section 20 of the Act, the Transport Department was authorized to control vehicular pollution. The major vehicular pollutants are carbon monoxide, nitrogen oxides, photochemical oxidants, air toxics namely benzene, aldehydes, 1-3 butadiene, lead, particulate matter, hydrocarbon, oxides of sulphur and polycyclic aromatic hydrocarbons. While the predominant pollutants in petrol/gasoline driven vehicles are hydrocarbons and carbon monoxide, the predominant pollutants from the diesel based vehicles are oxides of nitrogen and particulates.

2.1.10.1 Lack of strategic planning for re-registration/renewal of 15 years old vehicles

As a result of amendments (March 2002) in the Motor Vehicles Act, 1988, the registration of all transport vehicles in Rajasthan was made valid for 15 years. Further, under Rule 4.2A (inserted in March 2003) of Rajasthan Motor Vehicles Rules, 1990, a transport vehicle shall not be deemed to be validly registered after the expiry of 15 years from the date of its first registration until the vehicle is re-registered. The Transport Department in its order (September 2016) had initiated action in two phases. In first phase[65], action was to be initiated against all category of vehicles which were registered up to March 2001 and in second phase, action was to be taken on regular basis against all category of vehicles which were registered after March 2001. The Transport Department, therefore, did not take adequate measures for more than 14 years towards implementation of the provision as regards re-registration or renewal of 15-year-old vehicles. It set (December 2016) the target for re-registration or

[65] Action of first phase was to be completed by 15 May 2017.

renewal of 1.47 lakh vehicles only against the 29.40 lakh vehicles registered up to 31 March 2001.

Thus, Transport Department failed to phase out the 15-year-old vehicles.

District Transport Officer stated in exit conference that re-registration process was under consideration and it would be implemented soon.

2.1.10.2 Vehicular pollution load was not assessed

Estimation of emission loads is an essential step in order to estimate the share of various sources in the total emission load in a region. It also helps in understanding the potential of various strategies in reducing the emission loads in a region.

Review of records of Transport Department revealed the following:

- The Transport Department neither conducted any study/survey to identify the places of heavy traffic nor pollution load was assessed in major cities of the State.
- The Transport Department failed to prepare a comprehensive plan or strategy to reduce pollution load in the major cities in absence of reliable and relevant data.

The Additional Transport Commissioner (ATC) Pollution Control (PC) admitted (April 2017) that no comprehensive plan was prepared during 2012-17 to minimize the vehicular pollution load but efforts were being made to control vehicular pollution such as grant of full tax rebate to all battery operated vehicles and 50 *per cent* rebate on special road tax to LPG/CNG operated vehicles. Besides, in order to bring transparency and uniformity, all PUC centres were being connected with networking.

2.1.10.3 Fleet modernization programme not initiated

According to Rajasthan State Environment Policy, 2010, fleet modernization program was to be initiated in which subsidies/direct cost benefits were to be provided to the old commercial vehicles owners to switch from old to new vehicles. Scrutiny revealed that:

- no such programme was initiated by the Transport Department in which subsidies/direct cost benefits were offered to the old commercial vehicle owner for switching to new vehicle.
- the policy to introduce fleet modernization programme, therefore, did not take off.

Thus, the Department failed to phase out 15 years old vehicles in absence of adequate planning for re-registration/renewal of old vehicles.

2.1.10.4 Pollution testing apparatus not provided to flying squad

Scrutiny of records revealed that:

- in Rajasthan, there were 22 Pollution Flying Squads (PFS) covering 10 out of 12 regions for monitoring of polluting vehicles. Two regions[66] comprising six districts had no PFS.
- the flying squads except one in Udaipur were not provided any apparatus to check the emission level of visibly polluting vehicles. The data about the numbers of vehicles checked and found emitting excess pollutants was not available with the flying squad in Udaipur though it had the required apparatus.
- the Transport Department agreed that there was no data of number of vehicles which were found emitting excess pollutants during inspections by the flying squads.

District Transport Officer stated in exit conference that decision has been taken to provide PUC mobile vans to flying squad to check the visibly polluting vehicles.

2.1.10.5 Pollution Under Control Certificates

It is important to check and thereby control emissions during the entire useful life of a vehicle. Every motor vehicle is required to carry a valid "Pollution Under Control Certificate" issued by the Transport Department or by any Pollution Checking Center authorized by the Transport Department.

A *motoryaan pradushan janch kendra* scheme was introduced in the year 2005. Under this scheme, the PUC certificate was being issued for six months to petrol and diesel vehicles after achieving the prescribed compliance standards.

Review of records revealed that:

- there was no provision for setting up of PUC centres based on the number of registered vehicles. There were 1.36 crore registered vehicles of different categories as of March 2016 in the State. The Transport Department had authorized only 1159 Pollution Check Centres (PCC) as of March 2017.
- data regarding actual number of vehicles plying on the road was not available with State Transport Department.

However, PUC certificates issued during 2012-13 to 2016-17 as against total number of vehicles registered in the State were as under:

[66] Dausa and Sikar

Table 2: Number of PUC certificates issued in the State during 2012-17

(In lakh)

Year	Vehicles registered (upto 1st April of each year)	Number of PUC Certificates to be issued as per norms	PUC Certificates issued during the year	Number of PUC Certificates not issued as per norms (Percentage)(3-4)
(1)	(2)	(3)	(4)	(5)
2012-13	89.86	179.72	4.26	175.46 (97.63)
2013-14	100.72	201.44	3.85	197.59 (98.09)
2014-15	111.84	223.68	3.78	219.90 (98.31)
2015-16	123.79	247.58	9.66	237.92 (96.10)
2016-17	136.32	272.64	-NA-	-NA-

Source: Transport Department, Rajasthan

No mechanism was evolved by the Transport Department to watch the expiry of PUC issued to vehicles. It did not have the database for monitoring the issuance of PUCs and ensuring that all the vehicles come for the emission testing, whenever due. Further, data regarding number of vehicles which failed the pollution testing at PUC centres due to excess emission was not produced by test checked RTOs except at Jaipur and Udaipur. In Jaipur, 12141 and in Udaipur, 14820 vehicles were found polluting the air beyond prescribed limit and these were not issued PUC certificates by the PUC centres However, the Transport Department did not evolve any mechanism to watch whether these vehicles had obtained PUCs after taking corrective measures.

The Transport Department stated that there was no penal provision for defaulters. It added that all PUC centres were being connected through networking to generate data and an agreement had been signed with the Rajasthan Electronics and Instruments Limited (October 2016) for networking of all PUC centres. It is also stated that old vehicles plying on roads are not more than five *per cent.* Reply is not convincing as there was no mechanism to assess the actual number of vehicles are plying on roads.

2.1.10.6 Anomalies found during Joint Inspection of PUC centres

A joint team (consisting of officials of the Transport Department and Audit) visited 120 out of 427 Vehicle Pollution Emission Testing Centres in five test checked districts. Against the provisions of CMVR, 1989 and *Motoryaan Pradushan Janch Kendra Scheme, 2005,* the following deficiencies were noticed:

- Probe was not inserted properly during testing of vehicles in 12 centres. Besides in nine centres, reading was not taken five times while checking diesel vehicles.

- No Type Approval certificates[67] were available in 71 centres.
- Information about complaint/suggestion book was not displayed and these were not maintained in 65 centres.
- In case of pollutants found above the prescribed limit, there was no facility of tuning or fuel mixture adjustment in 73 centres.
- In eight centres, PUC certificates were being issued by an unauthorized signatory.
- Data regarding number of vehicles issued PUC certificates was not maintained by 11 centres and quarterly reports were not submitted by 19 centres to the Transport Department.
- Annual Maintenance Contract and regular calibration was not being done in 13 cases.
- In 79 centres, the complaint post cards were not available and the information was also not displayed.
- No training was imparted to 41operators of PUC centres.
- In 10 instances[68], PUC certificates were issued by the operator of PUC centres without testing of vehicles. In Udaipur, one centre was generating computerised certificates on plain paper from computer while these should have been issued on stationery allotted from Rajasthan Petroleum Dealers Association.
- The Transport Department had issued licences without verifying the site and equipment of PUC centres. It was found that 20 licensees had not installed equipment but they had the requisite licenses from the Transport Department.

2.1.10.7 Inspections of PUC centres not carried out regularly

According to *Motoryaan Pradushan Janch Kendra Scheme 2005*, every PUC centre is required to be inspected twice in a year by the transport officials not below the rank of sub-inspector and inspection report has to be submitted to the respective RTOs.

The Transport Department had not maintained compiled data of number of inspections of PUC centres made by the departmental officials. In test checked RTOs/DTOs, the data relating to inspections conducted during last five years was not made available to audit. The position of inspections of PUC centres during 2016-17 was as under:

[67] According to rule 116 (3) of CMVR, 1989, the pollution testing meter should be typed approved by any agency referred in rule 126 or National Environmental Engineering Research Institute.

[68] Alwar-02, Kota-04, Jodhpur-02 and Udaipur-02.

Table: 3 Position of inspections of PUC centres conducted during 2016-17

Name of RTO/DTO	Number of			Shortfall	Percentage of shortfall
	PUC centres	Inspections required	Inspections carried out		
Alwar	47	94	Nil	94	100
Jaipur	179	358	NA	NA	NA
Jodhpur	141	282	15	267	95
Kota	22	44	22	22	50
Udaipur	38	76	05	71	93

Source: Regional/District Transport Offices

Owing to inadequate inspections of PUC centres, the functioning of PUC centres was not satisfactory as discussed in the paragraph above. The Board/Transport Authority had also not been conducting quality control tests of service stations authorised to issue PUC certificates.

2.1.11 Management Information System

During the scrutiny of records, it was seen that the Management Information System of the RSPCB was poor as discussed below:

2.1.11.1 Delay in preparation of Annual Report

Section 35 (2) of the Act envisaged that every State Board during each financial year would prepare an annual report giving full account of its activities during the previous financial year and copies thereof were also to be forwarded to the State Government within four months from the last date of previous financial year and such report was required to be laid before the State Legislature within a period of nine months from the last date of the previous financial year.

It was observed that preparation of annual report and its submission to the State Government was delayed as evident from the details mentioned below:

Table: 4 Submission of Annual Report to the State Government

Financial year	Date of submission of annual report to the State Government	Delay in submission of annual report	Date of laying in Assembly
2012-13	07-01-2016	2 years 5 months	-NA-
2013-14	01-03-2016	1 year 7 months	-NA-
2014-15	16-03-2017	1 year 7 months	21-03-2017
2015-16	23-03-2017	7 months	24-03-2017

Source: RSPCB Jaipur.

It was also interesting to note that the annual report for the period 2010-11 gave full account of the Board's activities under various Acts but from 2011-12 onwards, the annual reports were sketchy and important information regarding number of category wise applications of consents received and disposed during the year, RO wise number of stack and ambient samples

analyzed, trend of annual average of ambient air quality monitoring through bar charts, action taken against polluting units, *etc*. were missing from the report.

2.1.11.2 Statutory Audit not conducted

➢ The RSPCB is required to prepare Annual Accounts at the close of each financial year and get the same audited by a qualified Auditor appointed by the State Government on the advice of the Comptroller and Auditor General of India. Further, such auditor shall send a copy of his report along with an audited copy of the accounts to the State Government for laying before the state legislature.

It was observed that the annual accounts were not audited by qualified auditor since 2002. In this regard, a resolution was passed in Board meeting (October 2015) that statutory audit be carried out within a period of six months. However, no action was taken till the date of next meeting (July 2016) when it was again resolved that statutory audit be carried out within a period of six months. However, the statutory audit of the Annual Accounts was not carried out so far (April 2017). The RSPCB, therefore, failed to perform its mandatory function in a timely manner.

2.1.11.3 Manpower Management

It was mentioned in the State Environment Policy 2010 that the RSPCB had reviewed its staffing and found that the per district scientific and technical staff ratio was the lowest in RSPCB among the State Pollution Control Boards compared; the per lakh population ratio was the lowest in RSPCB; the per 1000 square kilometer technical and scientific staff ratio was the lowest in RSPCB; and the number of industries handled by the technical and scientific staff was the highest in RSPCB. Recognizing these issues, a rigorous program of strengthening of the Board was underway, including sanctioning of new posts.

The position of sanctioned, person-in-position (PIP) and vacant posts in the RSPCB during 2011-12 to 2016-17 was as under:

Table : 5 Person in position against sanctioned posts in the RSPCB during 2011-17

Year	Number of sanctioned posts	Person in position	Number of vacant posts	Percentage of vacancy
2011-12	363	284	79	21.76
2012-13	363	280	83	22.87
2013-14	371	274	97	26.14
2014-15	370	275	95	25.68
2015-16	387	262	125	32.29
2016-17	394	260	134	34.01

Source: RSPCB, Jaipur.

It could be seen that the percentage of vacant posts increased steadily from 21.76 in 2011-12 to 34.01 in 2016-17. As of March 2017, PIP of technical and scientific posts was 152 against sanctioned post of 205 and the vacancy was 53 (25.85 *per cent*). The PIP position in the RSPCB, had affected the inspection and monitoring of air polluting units as discussed in previous paragraphs. Secretary, Environment Department in exit conference directed Member Secretary, RSPCB to put forth the man power restructuring proposal on priority.

It is not evident from the records produced to audit whether the requirement of its manpower was assessed on the basis of number of districts, population and area covered and number of industries under consent management. No reply was also furnished to audit.

2.1.11.4 Enforcement

As per section 31-A of the Act, the State board may, in the exercise of its powers and performance of its functions under this Act, issue any directions in writing to any person, officer or authority, who shall be bound to comply with such directions regarding:
(a) the closure, prohibition or regulation of any industry, operation or process, and
(b) the stoppage or regulation of supply of electricity, water or any other service.
Information regarding details of defaulter units and there against closure orders issued by the RSPCB during 2012-13 to 2016-17 in compliance of section 31-A of the Act were called for but no consolidated data of closure orders issued by the RSPCB were furnished to audit. However, as per Annual Reports of RSPCB, closure directions during 2012-13 to 2015-16 were issued as under:

Year	2012-13	2013-14	2014-15	2015-16
No. of closure directions	158	115	414	171

Besides above, RSPCB had issued 302 closure direction jointly under section 31-A of Air Act and 33-A of Water (Prevention and Control of Pollution) Act, 1974, during 2012-13 to 2015-16.

However, no concrete follow-up action on these directions were found on record as discussed earlier.

2.1.12 Monitoring

2.1.12.1 Huge shortfall in conducting inspection of air polluting industries

According to Section 17 of the Act, the RSPCB has been empowered to inspect, at all reasonable times, any control equipment, industrial plant or manufacturing process and to give, by order, such directions to such persons as it may consider necessary to take steps for the prevention, control or abatement of air pollution.

RSPCB prepared (April 2015) an operating manual for scientific and technical group and instructed all scientific and technical officers to execute the work according to this manual. As per the operating manual, 17 Category units, Red Category (Large and Medium) units were to be inspected once in six months with 50 *per cent* inspections by Regional Officer; Red Category (Small), Orange Category (Large and Medium) units were to be inspected once in a year with 10 *per cent* inspections by Regional Officer; and Orange Category (Small) units were to be inspected once in two years. Prior to this operating manual, inspection norms for inspections were fixed in August 2001 by the RSPCB. The Regional Offices, however, maintained the data only according to the nature of category like red, orange and green and not according to size *viz.* large, medium and small. Further, no year wise targets for inspections were allotted to any RO by RSPCB (Headquarter).

In absence of availability of data according to the norms fixed for inspection, analysis of 17 category highly polluting units was conducted in four test-checked ROs[69]. Two ROs[70] did not furnish the required information to audit. The details are as follows:

Table: 6 Number of inspections of highly polluting industries carried out in test checked four Regional Offices

Year	Total number of 17 category units	Number of inspections required	Number of inspections carried out	Shortfall in inspection (percentage)
2012-13	60	120	48	72 (60)
2013-14	65	130	63	67 (52)
2014-15	66	132	68	64 (48)
2015-16	66	132	56	76 (58)
2016-17	66	132	60	72 (55)
Total	**323**	**646**	**295**	

Source: Regional Offices, RSPCB

Shortfall in conducting inspection of highly polluting industrial units during 2012-17 ranged between 48 and 60 *per cent*. It was observed from records in respect of other category units that inspections were carried out as and when the units applied for consent or on the basis of complaint received against the units. RO, Alwar attributed (April 2017) the reasons for shortfall to non-availability of staff and basic facilities. The reply was not tenable as RSPCB was responsible to strengthen manpower and basic facilities and it failed to do so.

The mechanism for regular inspections which were necessary for taking adequate steps for prevention and control of air pollution was, therefore, deficient.

Member Secretary, RSPCB agreed about shortfall of inspection and stated that risk based module has now been developed and inspection targets are available in software.

[69] Alwar, Bhiwadi, Kota and Udaipur.
[70] Jaipur (North) and Jodhpur.

2.1.12.2 Inadequate sampling

According to the provisions of Section 22 of the Act, no industrial or processing unit or person can discharge into air, emissions containing environmental pollutants in excess of prescribed standards. RSPCB was to ensure compliance with this provision by drawing the samples of emissions and analyzing the same. The details regarding number of samples to be drawn and analyzed on the basis of number of industries in operation in the State were not maintained by the RSPCB. However, it was observed in selected ROs that the number of stack samples drawn and analysed were less than the numbers of consent to operate issued during 2012-13 to 2016-17. Information provided by five ROs[71]disclosed that 1846 stack samples were collected and analysed during 2012-17 whereas 6159 CTOs were issued during the same period by these ROs. Further, it was observed that no targets were fixed for laboratories to achieve the norms. It was observed that the number of stack samples analysed by Central Laboratory decreased by 50 *per cent* in 2016-17[72] compared to 2012-13[73]. RO, Alwar stated (April 2017) that due to shortage of staff, sample analyses could not be done as per norms. Reply was not tenable as RSPCB was required to strengthen manpower.

Inadequate sampling and analysis resulted in diluting the enforcement mechanism to prevent and control discharge of emissions beyond the prescribed level.

2.1.12.3 Inadequate number of meetings of the Board

According to Section 10 (1) of the Act, the RSPCB was required to meet at least once in every three months and was to observe such rules of procedure in regard to the transaction of business at its meetings as may be prescribed. During review of the Board's record, it was noticed that during the period from 2012-13 to 2016-2017, only eight meetings were held as against required 20 meetings by the RSPCB. The attendance of members in these meetings ranged between 35 and 59 *per cent* only. Except for the Chairman and Member Secretary of the RSPCB, attendance of other members in the meetings was irregular. The Mayor, Municipal Corporation, Jodhpur, who was nominated for the period from 19 April 2011 for three years, was not present in five consecutive meetings[74]. The Commissioner, Transport Department who has a major responsibility to control vehicular pollution attended only two meetings of the Board while his representative attended another two meetings. The State Government did not take action against the absentee members in accordance with Section 7(4) of the Act, 1981 by terminating their membership from the Board.

The RSPCB replied (May 2017) that nomination of the members of non-government and local bodies was not done by the Environment Department, GoR between 19 April 2014 and 27 July 2016 which led to less attendance in the Board's meeting.

[71] Information not furnished by RO Jodhpur.
[72] 114 samples analysed
[73] 232 samples analysed
[74] Held during May 2012 to September 2013.

Member Secretary, RSPCB agreed about shortfall of board's meeting and stated that Government has appointed the nominated members and in future the number of meetings will be increased.

2.1.13 Conclusion

- RSPCB did not prepare comprehensive programmes for prevention, control or abatement of air pollution. The source apportionment studies were not carried out in the State to identify the sources of pollution along with their quantification.

- As of March 2017, 32 AAQMS and two CAAQMS were operating in six districts while 27 districts having 47.03 million population and 74.50 lakh vehicles were still out of the purview of air quality monitoring.

- The RSPCB and the Environment Department do not have any meaningful data of the sources of pollution in rural areas.

- RSPCB does not have consolidated data of category wise number of industrial units covered under consent mechanism in the State. The samplers were installed at locations other than approved locations and instruments for measuring air quality at AAQMS/CAAQMS were installed in violation of the guidelines. As per NAMP guidelines, information on type and number of vehicles, meteorological data with respect to temperature, relative humidity, wind speed and its directions should have been collected by RSPCB. However, this Information neither was collected by RSPCB nor was maintained at all 27 AAQMS test checked.

- RSPCB had neither conducted any survey nor coordinated with other departments to effectively discharge its regulatory functions to cover all industrial units under its consent mechanism.

- During joint inspections of 148 units by audit team along with representatives of Regional Offices, RSPCB, it was found that many industrial units were operating without even consent to establish.

- The RSPCB did not evolve any mechanism to watch the renewal of consent to operate after expiry of the validity period of consent issued earlier.

- The RSPCB had not taken any proactive steps to prevent silicosis amongst the workers.

- Transport Department also failed to prepare an action plan to phase out the 15 years' old vehicles. The Monitoring of PUC centres was weak and no follow up action was taken to ensure that these centres were functioning as per prescribed norms.

- The Transport Department neither conducted any study/survey to identify the places with heavy traffic nor pollution load was assessed in major cities of the State.

- Manpower management in RSPCB was poor. The vacancies were steadily increasing thus impacting the effective functioning of the Board.

- Shortfall in conducting inspection of highly polluting industrial units during 2012-17 ranged between 48 and 60 *per cent* and the number of stack

samples analysed by Central Laboratory reduced by 50 *per cent* in 2016-17 when compared to the year 2012-13.

- During the period from 2012-13 to 2016-2017, only eight meetings of the Board were held as against required 20 meetings.

2.1.14 Recommendations

- *RSPCB should conduct source apportionment studies in all major cities to identify the quantum of pollution from various sources. Accordingly, comprehensive programmes for prevention, control or abatement of air pollution should be prepared and submitted to the State Government.*
- *RSPCB should coordinate with other departments like Industries, Factory and Boilers, etc. to obtain data of newly established industrial units to bring them under consent mechanism.*
- *RSPCB should enhance coverage for Ambient Air Quality Monitoring Systems in the towns and villages located near the major polluting industries.*
- *RSPCB should ensure that the samplers are installed at approved locations and the site should be suitable as per guidelines of National Ambient Air Monitoring Programme so that representative data is generated.*
- *The State Government and RSPCB should strengthen the AAQMS by providing all necessary instruments and facilities so that type and number of vehicles, meteorological data with respect to temperature, relative humidity, wind speed and direction could be recorded.*
- *RSPCB should ensure that no industrial unit operates without obtaining consent to establish and it should evolve a mechanism to watch the validity period of consent issued. The consent to operate must be issued in time and not retrospectively so that compliance with environmental conditions can be enforced.*
- *The Transport Department should conduct studies/surveys to assess pollution load in major cities so that measures for control and abatement of vehicular pollution could be planned. The Transport Department should make a strategic plan to phase out 15-year-old vehicles in a time bound manner. It should take measures like offering subsidies/direct cost benefits for fleet modernisation as envisaged under Environment Policy. Inspections of PUC centres must be carried out for strengthening the functioning of these centres*
- *The RSPCB should fill up all vacant technical and scientific posts so that it is fully equipped to exercise its mandate effectively.*
- *The RSPCB should ensure that the meetings of the Board are held in time and as per required norms. The prescribed monitoring mechanism should be strictly enforced.*

Chapter III

Compliance Audit

Chapter III

Compliance Audit

Mines, Geology and Petroleum Department

3.1 Adherence to Environmental Issues on Mining Activities in Rajasthan

3.1.1 Introduction

Rajasthan has vast reserves of minerals like copper, lead, zinc, rock phosphate, soapstone, silica sand, limestone, marble and gypsum. Most of the mineral wealth of the State is found in the Aravalli mountain range.

Mining exerts pressure on environment at many stages *i.e.*, exploration, extraction, processing and post closure of mines. The key environmental issues related to mining are land degradation including aridification, spread of wind-blown sand on agricultural fields, gully erosion, soil contamination and pollution of surface and ground water.

Rajasthan is also facing the problem of rampant illegal mining in and around the Aravalli hills range which is threatening its biodiversity and ecosystem.

Regulatory framework

Mineral extraction activities in the State are regulated under the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 and rules/policies made thereunder. Mining leases/quarry licences are granted by the Mines and Geology Department (MGD), Government of Rajasthan (GoR). The applicant has to obtain approvals before the grant of mining lease/quarry licence for diversion of forest land for non-forest purposes and Environmental Clearance (EC) from Ministry of Environment and Forest (MoEF), Government of India (GoI) or State Level Environment Impact Assessment Authority (SEIAA) as the case may be along with Consent to Establish (CTE) and Consent to Operate (CTO) from Rajasthan State Pollution Control Board (RSPCB).

After the grant of Mining Licence, the lessee is required to furnish reports on production of minerals and the measures for environmental protection to the Mines Department and RSPCB.

Organisational structure

At the Government level, the Principal Secretary, Mines and Petroleum, Jaipur and at the Departmental level, the Director, Mines and Geology (DMG), Udaipur are responsible for administration and implementation of the related Acts and Rules in the Department. The DMG is assisted by seven Additional Directors, Mines (ADM) in administrative matters and by a Financial Advisor in financial matters. The ADMs exercise control through nine circles headed by Superintending Mining Engineer (SME).

There are 49 Mining Engineers (ME) and Assistant Mining Engineers (AME), who are responsible for regulation, assessment and collection of revenue receipt on account of minerals. The Department has a separate Vigilance Wing headed by ADM (Vigilance), Jaipur for prevention of illegal excavation and despatch of minerals which was shifted (August 2016) to Udaipur.

As on 31 March 2016[1], there were 167 mining leases for major minerals and 15,318 mining leases for minor minerals besides, 18,103 quarry licences.

Why we chose the topic

There were frequent reports in the print and electronic media regarding rampant illegal mining and environmental degradation especially in the Aravalli hills due to unscientific mining or mining operations without conforming to norms prescribed by various regulatory authorities. Previous audits conducted by this office had also highlighted individual cases of illegal mining or mining operations allowed by the Mines Department without regulatory approvals.

3.1.2 Audit scope and methodology

Audit selected nine AME/ME offices[2] of five districts[3] along with concerned five Regional Offices[4] (RO) of RSPCB through probability proportional to size with replacement method to examine the compliance with existing environmental provisions by the lessees and monitoring by the concerned authorities. The records pertaining to the period from April 2010 to March 2017 were scrutinised.

Audit scrutiny was carried out from November 2015 to May 2016 and May 2017 to June 2017. There were 4,150 leases in the selected AME/ME offices. Records of 288 operating mining leases selected at random were examined by Audit including 35 cancelled/surrendered mining leases. In addition, records maintained by the Principal Secretary, Mines and Petroleum, Jaipur and DMG, Udaipur were also examined.

Joint physical inspection of selected leases

A joint physical inspection of 136[5] mining leases out of the selected 288 mining leases was conducted along with representatives of the Mines Department to assess the extent of compliance with environmental provisions during operation of leases and after closure of mines. A representative of the lessee, wherever available, was also included in the joint physical inspection.

[1] Compilation of figures as on 31 March 2017 relating to mining leases and quarry licences was in progress (June 2017) at DMG level.

[2] ME Alwar, ME Jaipur, AME Kotputli, AME Neem Ka Thana, ME Rajsamand-I, ME Rajsamand-II, AME Rishabhdeo,.ME Sikar and ME Udaipur.

[3] There are 33 districts in the State of Rajasthan, out of which 15 districts are falling in the Aravalli mountain range. Five districts were selected on the basis of working mines *i.e.* Alwar, Jaipur, Rajsamand, Sikar and Udaipur.

[4] Alwar, Bhilwara, Jaipur, Sikar and Udaipur.

[5] 43 major mineral leases and 93 minor mineral leases including 21 cancelled and 2 surrendered leases.

Cross verification of data

Out of 136 leases for which joint physical inspection was conducted, the Mines Department had conducted 19 inspections in 17 leases whereas RSPCB had carried out 50 inspections in 38 leases during 2010-15[6].

Joint physical inspection findings were cross verified with inspection reports of RSPCB (based on which the CTO was granted), the inspections carried out by AME/ME and the Mining Plan submitted by the lessees and approved by the Mines Department to ascertain whether the facts reported by the RSPCB or Mines Department were adequate, reliable and complete.

This has been discussed in para 3.1.6.3 of this report.

Acknowledgement

The Indian Audit and Accounts Department acknowledges the co-operation of the MGD and the RSPCB in providing the necessary information and records for audit. An Entry Conference was held on 7 January 2016, with the DMG, Udaipur, wherein objectives and methodology of audit were explained. The factual statement was issued to the Department/Government on 27 May 2016. The reply of the factual statement was received from the Government on 22 July 2016 and from the RSPCB on 7 October 2016.

An exit conference was held on 7 November 2016 with the Secretary, Mines and Petroleum, GOR, Jaipur and Chairperson, RSPCB, Jaipur in which results of audit and recommendations were discussed. The replies of the Government/Department/Board received during the exit conference and in response to the factual statement have been included in the respective paragraphs.

The major issues which were covered during the audit were (i) Mining without environmental clearance and consent to operate (ii) cases of illegal mining (iii) Non–compliance with directions of the Hon'ble Supreme Court of India (iv) Non-compliance with environmental conditions mentioned in mining plan and (v) Management of funds relating to environment protection.

Audit Findings

3.1.3 Mining without Environmental Clearance and Consent to Operate

As per the notification dated 27 January 1994 issued by the MoEF, prior EC was to be obtained from MoEF for new mining projects or expansion or modernisation of existing mining projects relating to major minerals if the lease area was more than five hectares. This notification was superseded by notification dated 14 September 2006 which states that all mining projects irrespective of being major mineral or minor mineral in area of five hectares

[6] After conducting joint physical inspections of 136 leases, Mines Department had conducted 25 inspections in 25 leases and RSPCB had conducted three inspections in two leases during 2015-17. As such inspection reports of the RSPCB were not compared due to gap in period.

to less than 50 hectares were required to have prior EC from the SEIAA and projects in area of 50 hectares and above were required to have prior EC from the MoEF. The leases of minor minerals in an area of less than five hectares also came into the ambit of prior EC after the Hon'ble Supreme Court of India (SCI) vide its order dated 27 February 2012 made it mandatory. Further, the leases of major minerals having area less than five hectares requires EC *vide* amendment dated 07 October 2014 in EIA notification 2006**.** During test check of the records, it was noticed that there were instances of enhancement of mineral production without EC, mining operations were done without renewing the lapsed CTO and excavations of minerals were done violating CTO conditions as described below:

3.1.3.1 Enhancement of mineral production without EC

The MoEF vide its office memorandum dated 18 May 2012 directed that the EIA notification issued on 14 September 2006 would be applicable on all mining projects of minor minerals irrespective of the size of the lease. As per the conditions of EIA notification, enhancement of production would require prior EC from the SEIAA. Further, as per Section 15 of the EP Act, 1986, whoever fails to comply with or contravenes any of the provisions of this Act, or the rules made or orders or directions issued there under, shall be punishable with imprisonment for a term which may extend to five years with fine which may extend to one lakh rupees, or with both.

On scrutiny of records of selected offices, it was noticed in four AME/ME offices that four lessees had enhanced their production of mineral without EC. The details are as under:

S.no.	Name of Lessee	Mineral and area (in hectare)	Period of previous CTO and permitted mining capacity	Application date for CTO for enhancement of production	CTO issuance date for enhancement of production	Period of CTO and permitted mining capacity
1	Gannayak Mining Pvt Ltd. (ML No. 46/2011)	Marble (4)	21.12.2011 to 30.11.2014 (40,575 MT/ Annum)	22.1.2013	30.1.2013	22.1.2013 to 31.12.2015 (5,01,288 MT/Annum)
2	Vineet Udhyog (ML No. 41/93 old No. 202/82)	Serpentine (1)	1.11.2011 to 31.10.2014 (11,847 MT/ Annum)	10.10.2012	18.10.2012	10.10.2012 to 30.9.2015 (1,00,000 MT/Annum)
3	M/s Arora's J.K. Natural Marbles Limited (ML No 11/03)	Marble (4)	1.11.2011 to 31.10.2014 (50,000 MT/ Annum)	12.6.2014	9.7.2014	1.5.2014 to 30.4.2017 (1,07,165 MT/Annum)
4	M/s Singhal Stones (ML No. 260/95)	Masonry Stone (1)	1.1.2011 to 31.12.2013 (100 MT/ Day)	1.11.2012	26.11.2012	1.11.2012 to 31.10.2015 (500 MT/ Day)

No action to stop mining operation was taken against the lessees by the concerned AME/MEs and the lease holders were allowed to continue their operations. Further, the ROs of RSPCB (Bhilwara, Jaipur and Udaipur) issued

CTOs in clear violation of EIA notification and no action was initiated against these lessees for imposing penalty. There was lack of co-ordination between Mines Department and the RSPCB.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that directions had been issued (8 June 2016 and 15 July 2016) to the concerned ME/AME offices for issuing notices for enhancement of production without EC.

3.1.3.2 Mining operations without renewing the lapsed CTO

The RSPCB grants CTO to the mining units prior to the start of mining operation for excavating the quantity of mineral in a specified period. The lease holders irrespective of the size and nature of the lease have to obtain CTO from the RSPCB for undertaking mining operations under Section 21(4) of the Air (Prevention and Control of Pollution) Act, 1981 and Section 25 and 26 of the Water (Prevention and Control of Pollution) Act, 1974. Further, Rule 37T(1) of the RMMC Rules, 1986 also provides that each lessee/quarry licensee has to obtain CTO from the RSPCB prior to start of mining operations and implement the conditions of CTO strictly. Further, the mining unit shall submit a fresh application for consent to operate at least 120 days in advance of expiry of the consent period for its renewal.

On scrutiny of records of selected five AME/ME offices[7] for the period from April 2010 to March 2017, it was noticed that nine lease holders having 563.11 hectares lease area excavated 1.72 lakh MT mineral masonry stone, marble, soapstone and quartz without obtaining CTO or renewing the lapsed CTO. It was noticed that no action to stop mining operations was taken by the concerned AME/ME against the lease holders.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that directions had been issued (8 June 2016 and 15 July 2016) to the concerned AME/ME offices for closing of mining operations immediately if mines were working without CTO and to issue notices to concerned lessees after verification of facts. Further, DMG stated in exit conference (November 2016) that the Department now has an online system in place and *rawannas*[8] are generated only after entry of CTO details.

3.1.3.3 Excavation of mineral violating CTO conditions

The EC of each lease specifies the mineral production quantity per year during the lease period. The CTO also prescribes the quantity of mineral which can be excavated during a specified period. If any lease holder wants to enhance production of mineral then he has to apply for a revised CTO.

Scrutiny of the records of the selected leases disclosed that:

- In seven AME/ME offices[9], 32 lease holders having an area of 96.75 hectares had excavated 7.29 lakh MT minerals marble, dolomite,

[7] Jaipur, Rajsamand-I, Rajsamand-II, Sikar and Udaipur.
[8] "Rawanna" means delivery challan for removal or despatch of mineral from mines.
[9] Jaipur, Kotputli, Rajsamand-I, Rajsamand-II, Rishabhdeo, Sikar and Udaipur.

masonry stone, quartz, feldspar, serpentine and soapstone in excess of quantity authorised in the CTO.

It was noticed that the concerned AME/ME did not initiate any action against this unlawful excavation even though contravention of CTO condition can lead to withdrawal of CTO. The ROs of RSPCB also did not take any action against these violators and renewed CTOs for future period. The matter was brought to the notice of the Government and the RSPCB. The Government replied that action in this regard was required to be taken by the RSPCB, SEIAA and MoEF.

The reply is not acceptable as the Department issued *rawannas* to the lessees for despatch of minerals from mining area. The *rawannas* should have been issued as per the quantity permitted in CTO.

Member Secretary, RSPCB stated in exit conference (November 2016) that wherever excess excavation of mineral was found, the lessee would be prosecuted and orders had already been issued for prosecution in respect of all those mines where production exceeded the quantity authorised in the CTO by 20 *per cent*.

- *Stringent action must be taken against the violators carrying out unlawful excavation in contravention of the conditions stipulated in EC and CTO.*

3.1.4 Illegal Mining

Mining without a licence, mining outside lease area, raising of minerals without paying royalty, *etc.* constitute illegal mining. Illegal mining activities put immense pressure on environment because these do not comply with any regulations or environmental conditions. Illegal mining operations have serious consequences on natural resources such as forests, rivers, flora and fauna, and public health. It was noticed that there was inadequate follow up of cases on illegal mining, lack of deterrence due to delay in issue of notices and non-implementation of policy measures as narrated below:

3.1.4.1 Inadequate follow up on illegal mining cases registered in selected ME offices

On detection of illegal mining, transportation and storage of minerals, *Panchnamas*[10] were to be prepared and recorded in the register to monitor the recovery of cost. The cases of illegal excavation, despatch and storage of minerals are either compounded by recovering cost of mineral or lodged in the court through police. These cases are monitored through MIS sent to DMG through SMEs of the circle.

Scrutiny of the records of nine AME/ME offices revealed the following position of illegal mining, transportation and storage of minerals during 2011-12 to 2016-17.

[10] Verification note made by the inspecting officer on the spot regarding illegal excavation.

Name of office	No. of cases registered			Total quantity of minerals (in lakh MT)	Amount Recovered (₹in Crore)	Outstanding amount (₹ in Crore)
	Illegal mining	Illegal transportation	Illegal storage			
ME Alwar	115	786	78	3.03	4.71	2.30
ME Jaipur	166	457	1	4.01	5.33	2.16
AME Kotputli	108	648	0	20.94	6.46	26.89
AME Neem Ka Thana	5	82	1	0.02	0.63	0
ME Rajsamand-I	8	37	0	0.005	0.18	0
ME Rajsamand-II	76	344	5	0.20	1.32	0.02
ME Sikar	206	379	1	67.22	4.94	147.15
ME Udaipur	106	433	14	3.45	1.93	0.41
AME Rishabhdeo	1	14	1	0.002	0.07	0
Total	**791**	**3,180**	**101**	**98.87**	**25.57**	**178.93**

As seen from the above table, selected nine AME/ME offices had registered 4,072 cases of illegal mining, transportation and storage of mineral during 2011-12 to 2016-17. Around 98.87 lakh MT minerals were found to have been illegally excavated. The Department, however, could recover only ₹ 25.57 crore against recoverable amount of ₹ 204.50 crore.

Examination of the documents related to illegal mining and transportation disclosed that name of villages from where the vehicle owners had loaded the illegally excavated minerals were mentioned in the *panchnamas.* However, specific site or location was not mentioned in the *panchnamas.* The ME did not investigate further regarding the source or location of illegal excavations and the cases were closed whenever the recoveries were made. However, the recoveries were made from the vehicle owners while the illegal miners went undetected and continued illegal mining.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that directions would be issued to the subordinate offices for filling complete details in *panchnamas* and for recovery of the outstanding amount in cases of illegal mining.

3.1.4.2 Lack of deterrence due to delay in issue of notices and recovery of the penal amount from illegal miners

As per Rule 48 (5) of the RMMC Rules 1986, if the mineral was found to have been despatched or consumed by the illegal miner, the authorities may recover the cost of mineral along with rent, royalty or the tax chargeable on the land occupied or mineral excavated. The cost of mineral shall be computed at 10 times the royalty payable at the prevalent rates.

It was noticed that no time frame was prescribed for issue of notices, raising of demand and recovery of cost of mineral and royalty from the illegal miners.

As a result, there were delays in issue of notices and realisation of amount from the illegal miners. Some cases are discussed below: -

- A joint team of ME Sikar on inspection (11 August 2014) found that six lease holders had excavated 1.09 lakh MT masonry stone, granite and murram from outside their lease area. ME Sikar issued show cause notices (September/October 2014) to these lease holders for illegal excavation of minerals. Five lease holders out of six had obtained stay orders (8 January 2016) against recovery from the court of AD (Mines) Jaipur and the stay against recovery could not be vacated till June 2017. In remaining case, SME Jaipur constituted (12 August 2016) a committee for verification of illegal mining in the area and verification report was awaited (June 2017).

- Mining operations in a lease (ML 65/2000) were stopped (5 March 2010) by the ME Sikar as the mine was falling in Aravalli mountain range. The mine Foreman during inspection (16 October 2014) of the lease area found that the lessee had excavated 1,295 MT masonry stone from the lease area after the mine had been closed on the directions of ME. First Information Report was lodged (17 October 2014) in Dantaramgarh police station. However, no further action was taken against the lessee either by the ME or by the Police.

- During scrutiny of records of selected leases of ME Alwar, it was noticed that in two cases (450/09 and 554/09) a committee[11] had reported (18 July 2015) that the lease holders had despatched (upto February 2015) 89,795 MT masonry stone from their lease area as against excavation of 6,091 MT masonry stone as per pit measurement on 4 March 2015. This had resulted in excess despatch of 83,704 MT masonry stone excavated from somewhere else by misusing *rawannas.* The ME raised (September 2015) demand against these lessees. The position relating to recovery of demand was not intimated (June 2017).

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that explanation from concerned MEs would be called for and directions had been issued for taking action to recover the amount.

3.1.4.3 Non-implementation of policy measures for curbing illegal mining

The Rajasthan Mineral Policy (Policy), 2011(effective from 28 January 2011) stipulated certain measures for curbing illegal mining in the State. Perusal of records of DMG and selected offices disclosed that no concrete measures *viz.* regulatory supervisions, proper vigilance, non-initiation of incentives schemes, modernisation of check posts and restoration and reclamation of mined out pits were taken as detailed below:

[11] The DMG constituted (22 February 2015) a committee under chairmanship of ADM (Vigilance) for joint inspection of leases in District Alwar.

Regulatory supervision

As per the policy, the State Government need to take steps to improve the regulatory supervision for checking illegal mining and to incentivise the Village *Panchayats* to keep vigil on illegal mining.

Further, the DMG had increased the norms for inspection of subordinate offices, mining leases and check posts each year. As a result, the AME/ME had to conduct 120 inspections of mining leases per year. No specific norm was prescribed for the Foreman but only field duties were assigned to him. During audit of the selected AME/ME offices, it was noticed that no register had been prescribed to record details of inspections carried out by the ME and Foreman. As a result, fulfilment of prescribed inspection norms could not be ascertained. Further, no provisions for incentivising the village *Panchayats* were incorporated in the RMMC Rules, 1986 (February 2017). As a result, the objective of the policy could not be achieved.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that provisions regarding improving the regulatory supervision were in process for inclusion in Rajasthan Minor Mineral Concession Rules, 2017 but still it could not be incorporated.

Vigilance

As per the policy, vigilance wing of the Department was to be strengthened for a close watch on mining activities. Accordingly, offices were to be located at appropriate places in the State.

It was seen that the State Government restructured (July 2011) and strengthened the vigilance wing by creating additional posts. Specific inspection targets were fixed for ADM (Vigilance), SME (Vigilance) and ME (Vigilance) to inspect subordinate offices, check posts and mining leases.

However, the vigilance offices lacked necessary resources and vital posts such as ME (Vigilance), AME (Vigilance), remained largely vacant. For example, the Government created (August 2013) ME (Vigilance) offices at Alwar and Sikar and AME (Vigilance) offices at Kotputli and Rajsamand. No independent ME (Vigilance) Alwar (August 2013 to March 2017), ME (Vigilance) Sikar (October 2014 to March 2017), AME (Vigilance) Kotputli (August 2013 to March 2017) and AME (Vigilance) Rajsamand (August 2013 to November 2014) were posted in newly created offices.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that the vigilance wing would be further strengthened.

Incentive scheme

As per the policy, an incentive scheme to award officers of the Department making best efforts for checking unauthorised mineral movement and illegal mining shall be introduced. A scheme for rewarding the informers on the basis of quality of information was also envisaged.

It was noticed that no incentive scheme was introduced by the State Government/Department to award officers making exceptional efforts for checking unauthorised mineral movement and illegal mining. Further, no scheme was introduced to reward the informers for providing information on illegal mining.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that proposals for incentive scheme shall be forwarded to the competent authority.

Modernisation of check posts

As per the policy, mineral check posts would be modernised with sophisticated equipment to track illegal transportation of mineral. However, no check post was modernised.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that proposals for modernisation of check posts were pending for approval at the State Government level.

Restoration and reclamation of mined out pits of illegal mining

As per the policy, suitable provisions would be made to enable Mines Department to restore the mined out pits created by illegal miners and to realise the expenditure from illegal miners as arrears of land revenue.

It was noticed that though more than seven years had passed since the promulgation of the policy, no provisions were made for recovery of compensatory amount from the illegal miners to restore the illegally mined out pits.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that rules for reclamation and restoration of mined out pits were under process.

In the exit conference (November 2016), the Department agreed that provisions contained in the policy for curbing illegal mining were not implemented completely.

- *The Department must upgrade its oversight, vigilance and preventive mechanism to curb illegal mining. It may co-ordinate with other departments to curb the menace of illegal mining activities and their adverse impact on environment.*

- *The Department must consider using satellite mapping and remote sensing techniques to track illegal mining activities in the State.*

- *The Department must show its commitment towards environment protection by fully implementing the policy measures enunciated in 2011 for curbing illegal mining. It may immediately include a provision for levying compensatory amount on illegal miners for reclamation and rehabilitation of land.*

3.1.5 Compliance with orders of the Hon'ble Supreme Court of India

During test check of the records of the selected AME/ME offices, it was seen that directions in respect of the Aravalli hills issued by the Hon'ble Supreme Court of India were not adhered to by the Department as discussed below:

3.1.5.1 Orders issued by the Hon'ble Supreme Court of India on mining activities in Aravalli hills

In the Aravalli hills, mining activities on a large scale for many years ignoring environmental concerns have caused severe environmental degradation. The Hon'ble Supreme Court of India in the matters of mining in Aravalli hills issued directives[12] from time to time as per details given in ***Appendix-3.1*** Further, the Hon'ble Supreme Court of India ordered (9 May 2002) the setting up of the Central Empowered Committee (CEC) to monitor the implementation of the court's order and to look into cases of non-compliance.

The Department adopted (16 January 2003) Richard Murphy's Landforms Classification for demarcation of Aravalli hills. According to this classification, if the peak/parts of hill are 100 metres above ground level then it would come under 'Aravalli hills' and the slopes/peaks that are below that point (100 metres from ground level) were not to be treated as 'Aravalli hills'. The following deficiencies in compliance were noticed:

3.1.5.2 Grant of fresh mining leases in Aravalli hills

The Hon'ble Supreme Court of India on 8 April 2005 stated, "pending further directions, we restrain any kind of mining in forest areas. Further, we restrain mining in any area in Aravalli hills falling in the State of Rajasthan, where permission may have been accorded after 16 December, 2002". In pursuance of the Hon'ble Supreme Court of India directions, the DMG belatedly issued (January 2006) directions to stop allotment of fresh mining leases in Aravalli hills.

During scrutiny of the records of the selected AME/ME offices, it was noticed that:

- Two leases (ML 20/05 and ML 8/03) were sanctioned by the office of ME Rajsamand-I and Rajsamand-II in the Aravalli hill range in 2005 for excavation of quartz and feldspar minerals. The DMG directed (August 2006) the ME to stop the mining activities immediately and declare these mines null and void. However, no action was taken by the ME to cancel the leases. On the contrary, the lease period of ML 20/05 was enhanced (28 February 2015) by the ME Rajsamand-II upto 1 March 2056 (Original lease period 2 March 2006 to 1 March 2036).

- Four fresh mining leases (ML 61/2009, ML 3/02, ML 05/97 and ML 47/11) spread over 15.52 hectares in jurisdiction of three AME/ME

[12] In the case of T.N. Godavarman Thirumalpad v/s Union of India (Writ Petition (Civil) No. 202 of 1995)

offices[13] were sanctioned between March 2005 and January 2012 even though these leases were in Aravalli hills. The lessees excavated 65,147.64 MT minerals (feldspar, serpentine and marble) between 2010 and 2017.

- Two gap areas spread over 0.6762 hectares were granted by ME Rajsamand-II (March 2007) and AME Rishabhdeo (March 2009) even though these were falling under Aravalli hills.

The DMG stated in the exit conference (November, 2016) that the matter would be looked into and reply would be furnished within two weeks. The reply was, however, awaited (October 2017).

3.1.5.3 Renewal and extension of mining leases falling under Aravalli hills

- The Hon'ble Supreme Court of India in the order dated 19 February 2010 stated "There were about 261 mining leases in the Aravalli range in the State of Rajasthan. Some of the mining leases have been renewed after 16.12.2002, though it was not strictly permissible as per order passed on that date. A large number of renewal applications are also pending with the authorities. Taking advantage of the deeming provision of Rule 24A Renewal of mining lease of the Mines and Mineral (Development and Regulation) Rules, 1960 almost all the lease-holders are carrying on mining operations uninterruptedly. The renewal applications are pending for a long time and in many cases for several years. Rule 24A apparently does not envisage this kind of situation. We, accordingly, restrain all those lease-holders whose applications for renewal of their respective leases are pending from doing any mining operation till further orders."

It was noticed that the State Government directed (20 October 2010) the Department to dispose cases pending for renewal of ML in Aravalli hills apart from 261 mining leases[14] whose details were submitted to the Hon'ble Supreme Court of India.

On scrutiny of records of ME Rajsamand-I, Rajsamand-II and AME Rishabhdeo, it was found that the Department had renewed 18 mining leases after 19 February 2010 though they were falling under the "Aravalli hills" as per the Department's adopted definition. The lessees had excavated 16.22 lakh MT minerals between April 2010 and March 2017 from the lease areas.

The matter was brought to the notice of the Government (May 2016). The Government agreed (July 2016) that they had directed the Department to dispose pending applications for renewal of mining leases in Aravalli hills as according to them the ban had been imposed by the Hon'ble Supreme Court of India on renewal of 261 leases only.

This may be viewed in the context of the Hon'ble Supreme Court of India order of 19 February 2010 which stated that some mining leases in the State

[13] Rajsamand-I, Rishabhdeo and Udaipur.

[14] As per the status contained in the order (September 2008) of the SCI, 261 MLs includes 157 MLs where renewals became due after 16 December 2002 but renewals were not granted, 53 MLs where renewals were granted after 16 December 2002 and 51 MLs which were granted after16 December 2002.

were renewed though this was not strictly permissible as per order passed on that date.

- The State Government extended (28 January 2011) the original lease period of existing minor mineral leases granted before 28 January 2011 from 20 years to 30 years.

During test check of the records of seven AME/ME offices[15], it was also noticed that 50 leases spread over an area of 5,028.52 hectares in the Aravalli mountain range were due to expire between October 1996[16] and March 2036[17]. However, the original lease period of these leases were extended and the lease period would now expire between March 2019 and March 2056. The State Government extended lease periods of all the mining leases without taking into consideration that the Hon'ble Supreme Court of India had imposed ban on mining operations in leases falling in the Aravalli hills.

During test check of mining leases it was seen that in eight operating leases in the jurisdiction of three ME[18] offices, the lease holders excavated 38.23 lakh MT minerals during April 2010 to March 2017 causing degradation of environment in the Aravalli hills.

Thus, the State Government by extension of the lease period had to gone against the orders of the Hon'ble Supreme Court of India.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that no ban was imposed on extension of original lease period by the Hon'ble Supreme Court of India in its orders dated 16 December 2002 and 19 February 2010.

The reply has to be seen in light of the fact that mining was restrained in the Aravalli hills after 16 December 2002. By virtue of the extension period granted by the State Government, there would be continuance of mining operations in Aravalli hills even beyond the original lease period.

3.1.5.4 Irregular sanction of Environmental Clearance by the MoEF

The Hon'ble Supreme Court of India's order of October 2002, prohibiting and banning the mining activity in Aravalli hills from Haryana to Rajasthan was modified (16 December 2002) insofar as the State of Rajasthan was concerned to the following effect:

'Wherever requisite approvals/sanctions in the said State have been obtained under the Forest (Conservation) Act, 1980 and the Environment (Protection) Act, 1986 and the mining is not prohibited under the applicable Acts or

[15] Alwar, Jaipur, Kotaputli, Neem Ka Thana, Rajsamand-I, Rajsamand-II and Udaipur.

[16] In one case (ML 4/95), the lease was effective from 5 October 1976 to 4 October 1996 for 20 years. The lessee applied (22 September 1995) for renewal. However, renewal was not granted since the area of ML was falling in Aravalli hills. Thereafter, the lease period was extended by the AME Kotputli up to 4 October 2026 for fifty years as per the MM(DR) Amendment Act, 2015.

[17] This includes two leases with original lease period of 30 years which was further extended to 50 years.

[18] Rajsamand-I, Rajsamand-II and Udaipur.

notifications or orders of the Court, mining can continue and to such mining the aforesaid order will not apply'.

On scrutiny of the records of AME Kotputli, it was noticed that a mining lease (7/1992) near village *Buchara*, *tehsil* Kotputli, district Jaipur, spread over 37.64 hectares was effective for the period from 25 June 1996 to 24 June 2016 in favour of M/s Shri Modi Levigated Kaolin Private Limited, Neem Ka Thana. It was observed that the lessee had not obtained EC before 16 December 2002 from MoEF as required under EIA Notification dated 27 January 1994. The MoEF had directly enquired (November 2005) from the lease holder to confirm whether the lease area fell in the ambit of the order of the SCI dated 8 April 2005. The lease holder intimated (2 December 2005) the MoEF that the lease area did not fall in the Aravalli hills to the best of his knowledge. In response to the application (14 October 2005) of the lessee, the MoEF, thereafter, granted EC on 31 July 2006.

Examination of the files disclosed that the AME in response to a 'Right to Information' application had confirmed (8 October 2009) that the lease area was in the Aravalli hills. Further, on examination of the Geological Topographic Sheet, it was noticed that the difference in the contour of the lease area was more than 100 metres. The lessee had not obtained the EC before 16 December 2002 and the lease area fell in Aravalli hills. Thus, issue of EC by MoEF was irregular and the Department was required to stop the mining operations carried out by the lessee.

The lease holder excavated 4.67 lakh MT china clay and 0.05 lakh MT silica sand during 25 June 2010 to 31 March 2017 by misrepresenting facts to MoEF for which the EC granted was required to be cancelled as per paragraph 4 of the EIA notification (27 January 1994) which stipulates that concealing factual data or submission of false data or misleading information would lead to the project being rejected and approval, if granted earlier, on the basis of false data would also be revoked.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that no ban was imposed by the Hon'ble Supreme Court of India in its orders dated 16 December 2002, 08 April 2005 and 19 February 2010 on grant of EC by the MoEF. The reply is not acceptable as the lessee obtained EC from the MoEF on false representation of facts that the lease area did not fall in Aravalli hills. Further, the EC was granted after 16 December 2002.

The DMG stated in the exit conference (November 2016) that the matter would be examined.

- *The Department must strengthen its oversight and control over mining activities in and around areas banned for mining activities by the* Hon'ble Supreme Court of India. *Action must be taken against officers permitting mining in violation of court orders in the Aravalli hills.*

- *The leases granted and renewed in the banned areas need to be cancelled.*

3.1.6 Compliance with environmental conditions mentioned in Mining Plan, Environmental Clearance and Consent to Operate

The environmental impact of mining includes soil erosion, formation of sinkholes, loss of biodiversity and contamination of soil, ground water and surface water. In forested areas, mining may cause destruction and disturbance of ecosystems and in agricultural areas, it may disturb or destroy productive grazing and croplands. In urbanised environments, mining may produce noise pollution and air pollution. The Central and State Governments have prescribed strict environmental and rehabilitation conditions while approving Mining Plan (MP) and granting EC and CTO to ensure that the area mined is returned close to its original state by each lease holder.

Scrutiny of MP, EC and CTO of mining leases disclosed that there were certain provisions laid down under various regulations as depicted in ***Appendix 3.2*** which were to be met with reference to the following environmental issues;
Top Soil, Overburden dumps, Plantation, Air pollution control measures, Garland drains in the lease area, Noise pollution control measures, Reclamation and rehabilitation works and Mining in benches.

The following issues were noticed during audit:

3.1.6.1 *Lack of focus on environmental issues related to mining activities*

The Mines Department along with the RSPCB had to ensure that the lessee carried out mining as per the MP and the conditions specified in the EC and CTO. The scrutiny of records of selected AME/ME offices, disclosed that the Department had not prescribed any periodical return requiring the lease holder to furnish information regarding the observance of conditions related to environmental protection as prescribed in MP, EC and CTO except in the proforma of the monthly report which includes only the number of plantation done in the lease area. The concession and assessment files of selected 136 lease holders had records mainly pertaining to monthly returns of excavated mineral and assessments thereof. As a result, records of compliance with environmental provisions or lack of it were not available with the Mines Department.

The RSPCB also monitors compliance with all the conditions mentioned in the CTO through inspection reports for the lease holders. On scrutiny of records of selected 136 leases where 228 inspections were required to be conducted as per norms[19] during 2011-15, it was found that the RSPCB had

[19] As per the norms of inspections fixed (July 2011) for mining units by the RSPCB, the inspection was mandatory once in five years in case of manual mining units, once in two years for Semi-Mechanised mining units and once in a year for Mechanised mining units. Further, the operating manual of the RSPCB refixed (2015-16) the frequency of inspection. The RSPCB officials had to conduct inspection of mining units at least once in a year of mines having area more than 50 hectares; at least once in two years of mines having area between 5 and 50 hectares and need based inspection of mines having area less than 5 hectares.

conducted 50 inspections in 38 leases only during 2010-15. It was seen that only three inspections were conducted between 2015-17. Further, only three lease holders had submitted prescribed report and Annual Environmental Statement[20] on time. It was noticed that 106 lease holders had not submitted any return and 118 lease holders had not submitted the statement during the operative period of the CTO.

We, therefore, conducted a joint physical inspection of 136 mining leases in selected AME/ME offices to assess the compliance of provisions relating to protection of environment by the lease holders. The joint physical inspection covered the environmental issues stated above. The findings of joint physical inspection were also correlated with the inspection reports of the RSPCB.

3.1.6.2 *Findings of joint physical inspection of mining leases*

Top Soil

Top soil is the uppermost layer and is an essential component for land reclamation in mining areas. During the planning stage, the lessee has to submit an estimated quantity of the top soil, its storage area, location and details of subsequent utilisation.

During joint physical inspection of 136 leases, it was found that top soil was not stacked separately in 44 leases (32 *per cent*). Further, it could not be ascertained whether the top soil had been used as required or was mixed with the overburden. Hence, its retrieval in these leases was not possible for future use.

Overburden dumps

Overburden is the natural rock and soil that exists above and around the ore body. It is not subject to any chemical processes at the mine but needs to be removed to allow access to the ore. Overburden is often used at mine sites for landscape contouring and re-vegetation during mine closure.

On joint physical inspection of 136 mining leases, it was found that:

- In 53 leases (39 *per cent*), the overburden was found dumped in scattered manner within and outside lease area instead of dumping at earmarked site.
- The dump was found stacked without any retaining wall in 81 leases (60 *per cent*).

[20] As per Rule 14 of the Environment (Protection) Rules, 1986, every person carrying on an industry, operation or process requiring consent under Section 25 of the Water (Prevention and Control of Pollution) Act, 1974 or under Section 21 of the Air (Prevention and Control of Pollution) Act, 1981 or both shall submit an environmental statement for the financial year ending 31 March in Form V to the RSPCB on or before 30 September every year.

Plantation

Each lessee has to plant trees based on his area of lease with each progressive year of mining so that phase wise restoration, reclamation and rehabilitation of land take place.

On joint physical inspection, it was found that:

- 80 lease holders who had to plant 13,800 saplings during 2010-11 to 2014-15 as per the circular, did not raise any plantation in their lease areas.
- 32 lease holders had planted approximately 1,38,100 plants as against 1,83,850 plants required.
- Remaining 24 lease holders claimed that plantation was done in areas other than the lease area like nearby boundaries of school, area available near temple, along roadside, crushers, *etc*. However, such plantations could not be ascertained in absence of any documentary proof.

Thus, there was lack of maintenance of ambient air quality around these leases and provisions laid down in the above rules were not complied with.

Construction of garland drain

Garland drain is constructed around mining pit and overburden dump to arrest flow of silt and sediments from soil, overburden and mineral dump.

During joint physical inspection of selected 136 mining leases, it was found that:

- 123 lease holders (90 *per cent*) had not constructed any garland drain around the mining pit in their lease areas contrary to the conditions laid down in the EC/CTO.

Air pollution control measures

During joint physical inspections of 136 leases, it was found that:

- No record regarding periodic monitoring of ambient air quality was maintained by operating 105 lease holders (77 *per cent*) at mining site.
- No water sprinkling had been carried out on haul roads as well as on loading points in 74 leases (54 *per cent*) on the day of inspection.
- No water sprinkling system was installed in any lease area except in one mining lease which was owned by a State Public Sector Undertaking. In the remaining leases, the water sprinkling was claimed to be done through water tankers. However, the lessees had no records in the lease area to show periodicity of water sprinkling.
- No record pertaining to air pollution control measures was available at 21 cancelled and two surrendered lease site during inspection.
- 112 lease holders did not have any equipment for checking ambient air quality at mining lease site on the day of inspection except lease no. 03/89 of the office of ME, Udaipur.

As such in absence of checking ambient air quality at mining lease site and non-availability of reports regarding air quality, the quantum of air pollutants in lease areas could not be ascertained.

Noise pollution control measures

Audit was unable to check the noise level in the selected 113 operating leases[21] as the AME/ME offices did not have any equipment to test the noise level. It was noticed in audit that only seven lessees had noise monitoring reports. In absence of periodic noise monitoring reports, breaching of the permissible noise level in lease areas could not be ascertained.

Rehabilitation and reclamation of mined out pits

The objective of reclamation of mined out pits by the lessee is to initiate restoration, reclamation and rehabilitation of areas mined out in a phased manner so that the land is returned to an acceptable standard of productive use.

During joint physical inspection of 136 leases, it was found that:

- 23 lease holders out of the 24 operating leases checked and which had area of five or more hectares had not carried out phased reclamation or rehabilitation work of mined out pits in the lease area stating that it would be carried out after closure of mines. The remaining lease was of an underground mine (3/89). As such, these lease holders violated the rules as well as conditions laid down in EC/CTO.

- 89 lease holders having lease area less than five hectares had also not carried out reclamation work stating that rehabilitation and reclamation work would be carried out after closure of mines.

Mining in benches

Formation of benches is required for safety of workers as well as for free movement of vehicles and mineral to be dug out from pit. Mining in benches minimises the danger of material fall and accidents.

During joint physical inspection of 136 mining leases, it was noticed that:

- In 90 leases (66 *per cent*), mining operations were carried out without formation of benches. It was a clear violation of the mine regulations and no action was initiated against these lease holders by the concerned AME/ME.

[21] 23 Cancelled/surrendered leases had been excluded as no record was available at mining site due to closure of mining operations.

Case study: Mining in benches

ML No. :	304/92
Mineral :	Masonry Stone
Area :	1 hectare
Lease Period:	14 October 1993 to 13 October 2023
Location:	Jaipur

Mining Plan

➢ Mining was proposed through formation of benches of average height (three to six metres) and width (7 to 65 metres).

Rajasthan Minor Mineral Concession Rules, 1986

➢ System of working in mining lease shall be performed by formation of benches;

➢ Such benches in mineral and overburden including weathered mineral shall be formed separately;

➢ The lessee shall maintain the bench height and slope as per the Metalliferous Mines Regulations, 1961 and maintain the overall slope of mine below 45 degrees.

Joint physical inspection conducted by audit

A joint physical inspection was conducted on 05 January 2016 and it was found that:

➢ Mining operations were carried out without formation of benches;

➢ Overall slope of mine was much more than prescribed slope.

A good example of properly formed benches

ML No. 06/89

M/s Hindustan Zinc Ltd., Maton Mines, Udaipur

Mineral : Rock Phosphate

3.1.6.3 *Cross verification of the findings with 38 RSPCB inspection reports*

The scrutiny of inspection reports of RSPCB regarding 38 leases disclosed variance in eight components of environmental issues *i.e.* Top Soil, Overburden dumps, Plantation, Garland drains in the lease area, Air pollution control measures, Noise pollution control measures, Reclamation and rehabilitation works and Mining in benches.

There was a variation in reporting of the RSPCB in respect of following environmental issues:

- Availability of top soil in lease area and storage thereof.
- Dumping of overburden dumps at earmarked site in lease area and stabilisation of overburden dumps through vegetation.
- Plantation was not done by lease holders in their leased area as per prescribed norms and misreporting thereof.
- Excavation of mineral was being carried out without development of benches in lease area *etc.*

These are discussed in ***Appendix 3.3***

3.1.6.4 Action taken

The matter was brought to the notice of the Government (May 2016) and the RSPCB (May 2016). The Government replied (July 2016) that directions had been issued to the concerned ME/AME offices for issuing notices to lease holders who had not stacked top soil separately and overburden at earmarked place, where plantation was not done as per norms, garland drains were not constructed, reclamation and rehabilitation of mined out pits was not done and where benches were not formed even after joint inspection. The Government replied that reports may be obtained from the RSPCB regarding air and noise pollution control measures. The RSPCB replied (October 2016) that show-cause notices had been issued to the non-compliant mining lessees by the concerned ROs.

The Secretary, Mines and Petroleum and Chairperson of the RSPCB stated in the exit conference (November 2016) that there had been violation of Rules and added that it was not feasible for the Board to monitor each and every mine due to shortage of manpower. Member Secretary, RSPCB stated that the Board was going to monitor the mines through Global Positioning System. It was also stated by the Secretary that adequate plantation was not being done by the lessees. Further, DMG stated that it was not feasible for the lessees to plant trees in and nearby lease area due to rocky terrain and, therefore, saplings were planted in nearby road, school, *etc.* in clusters. The reply is not acceptable as plantation had to be done as per the conditions mentioned in EC/CTO/Mining Plan and it must be clearly verifiable.

The Department and RSPCB may strengthen its monitoring mechanism related to fulfillment of environmental conditions prescribed in MP, EC and

CTO through periodical returns/frequent inspections for the lease holders seeking status on the observance of the prescribed conditions.

3.1.7 Management of Funds relating to Environment Protection

The State Government received financial assurance amount as surety for site rehabilitation, post closure monitoring and maintenance of mining project; levied Environment and Health *cess* which was to be utilised for protection of environment and health in mining areas and collected contribution to Environment Management Fund for carrying out environment protection works. The following irregularities were noticed: -

3.1.7.1 Financial assurance

The amount of surety to be deposited is computed based on the area put to use for mining and allied activities. The amount of financial assurance for mines is as under:

Major minerals **As per rule 23(F) of the Mineral Conservation and Development Rules, 1988**		**Minor minerals** **As per Rule 37(J) of the RMMC Rules 1986 (inserted on 19 June 2012)**
A[22] category mines per hectare (in ₹)	**B category mines per hectare(in ₹)**	**Per hectare and part thereof(in ₹)**
25,000	15,000	15,000
The minimum amount of Financial Assurance to be furnished in the form of letter of credit from any scheduled bank should be ₹ two lakh for 'A' category mines and ₹ one lakh *for 'B' category mines. Maximum amount of Financial Assurance for minor minerals is ₹ 30 lakh*		

On scrutiny of records of selected 288 mining leases of AME/ME offices, it was found that four lease holders having an area of 17.82 hectares had not deposited ₹ 0.60 lakh towards financial assurance.

Further, on scrutiny of selected 35 cancelled/surrendered leases, it was noticed that:

- 20 lessees having an area of 29.69 hectares whose mining leases had been cancelled/ surrendered had not deposited the financial assurance amount of ₹ 3.00 lakh. The burden of restoration of these leases, therefore, would have to be borne from the State exchequer.

- No restoration works were carried out by the concerned AME/MEs in six cancelled leases wherein the financial assurance amount of ₹ 3.45 lakh had been deposited by the lessees. This was not utilised in absence of clear directions for utilisation of funds.

The DMG stated in the exit conference (November 2016) that the amount would be utilised for restoration of mined out pits in leased area.

[22]'A' category mines means fully mechanised mines where the work is being carried out by deployment of heavy mining machinery for deep hole drilling, excavation, loading and transport or such mines where the number of average employment exceeds 150 in all. Category 'B' mines means mines other than category 'A' mines.

3.1.7.2 Environment and Health Cess

The State Government levied 'Environment and Health Cess' in 2008 on selected major minerals. The proceeds of the cess were to be utilised for protection of environment and health and maintenance of ecological balance especially in mining areas of the State. The rates of environment and health cess for collection of proceeds were prescribed and effective since 1 April 2008 and the rates were revised from time to time.

The State Government collected cess of ₹ 544.48 crore from the lease holders of selected major minerals during 2008-09 to 2016-17. Thereafter, the State Government rescinded the collection of cess vide notification dated 6 January 2017.

The State Government constituted (24 December 2010) Rajasthan Environment and Health Administrative Board (REHAB) for effective management of funds. It was noticed that the Cess became effective from 1 April 2008 but the REHAB was not constituted till 23 December 2010. As a result, no fund was used during 2008-09 to 2010-11. Further, only ₹ 140.53 crore (25.81 *per cent*) of the fund was utilised during 2011-12 to 2016-17.

On scrutiny of the minutes of the twelve REHAB meetings which took place between January 2011 and January 2017, it was noticed that:

- The Board sanctioned funds for activities which were not related to the objectives prescribed under the Environment and Health Cess as stipulated in the Rajasthan Finance Act, 2008 and Rules made thereunder. The Board also admitted in its seventh and ninth meetings held on 7 April 2014 and 23 December 2014 respectively that some sanctions issued for incurring expenditure from cess amount were not in consonance with the objectives of the Act. Objectives of the Act such as the shifting of Makrana-Parbatsar railway line and payment of cost of land thereof and computerisation at DMG office.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that all the expenditure was incurred after scrutiny of the proposals by the Board members and decision taken in the Board meetings. The reply is not acceptable as the expenditure incurred on the items discussed above was contrary to the objectives of the Environment and Health Cess. The Board had also admitted in its meetings that some sanctions issued were not in consonance with the objectives of the Act. The Joint Secretary, Mines stated in the exit conference (November 2016) that unspent balance of fund would be utilised on the objectives for which the fund was collected.

3.1.7.3 Environment Management Fund

A separate Environment Management Fund (EMF) was created by the State Government under Rule 37 T (5) of the RMMC Rules, 1986 inserted vide notification dated 19 June 2012 to meet the financial requirement for carrying out environment protection works as per environment management plan.

- EMF was to be allotted by District Level Environment Committee for environment development work, to the concerned association of cluster or to the agency to which such work was assigned. The Hon'ble Rajasthan High Court in the D.B. Civil Writ Petition No. 11584/2013 declared (9 April 2015) collection of EMF illegal until the final decision of the Hon'ble Supreme Court of India. In compliance with the direction of the Hon'ble Rajasthan High Court, DMG postponed the collection of EMF with immediate effect on 05 May 2015.It was noticed that a sum of ₹ 295.03 crore was collected on account of EMF by the Department. However, no amount was utilised for carrying out environment protection works as the DMG did not prepare any guidelines for incurring expenditure.

The matter was brought to the notice of the Government (May 2016). The Government replied (July 2016) that DMG had requested the State Government for allocation of funds of ₹ 14 crore under EMF to the subordinate offices for plantation.

DMG stated in the exit conference (November 2016) that the amount would be utilised after preparation of guidelines.

- *The Department may ensure collection of the financial assurance amount from the lease holders and wherever lease holder fails to undertake reclamation and rehabilitation measures, the financial assurance amount collected must be judiciously utilised in the mined out area.*

- *The Cess amount must be spent only on those purposes which meet the objectives for which the Cess had been imposed by the Government.*

3.1.8 Conclusion

We observed that mineral production was enhanced without obtaining the EC and mines were operated without renewing the lapsed CTO. There was excess excavation of minerals by the lease holders in violation of conditions attached with CTO.

We observed that illegal mining activities were rampant in the State. There were inadequacies in preventive measures as well as in follow up of the illegal mining cases detected. There was lack of deterrence due to delay in issue of notices raising demand and recovery of the penal amount from illegal miners. Also, there was slackness in implementation of the policy measures enunciated in 2011 for curbing illegal mining.

We noticed serious violations of the orders of the Hon'ble Supreme Court of India as mining leases falling in Aravalli mountain range were granted, renewed and extended. Besides, the MoEF also granted EC for mining lease despite the area falling in Aravalli hills.

We observed that environmental issues related to mining activities were not accorded proper attention by the Department and RSPCB. The Department had not prescribed any periodical return requiring the lease holders to furnish information regarding the observance of conditions related with environmental protection as prescribed in MP, EC and CTO. The inspection reports of the Department also did not focus on any environmental issues. Out of 136 leases of selected AME/ME offices, we observed that the RSPCB had

conducted inspections in 38 leases only during 2010-17. Further, 106 lease holders had not submitted any reports and 118 lease holders had not submitted the Annual Environment Statement during the operative period of the CTO. Further, the inspection reports were incomplete, incorrect and unreliable as was ascertained through comparison of the findings of joint physical inspection and the RSPCB inspection reports. The physical inspections revealed serious deficiencies and apathy towards fulfilment of environmental conditions relating to top soil, overburden dumps, plantation, construction of garland drain, air pollution control measures, noise pollution control measures, reclamation and rehabilitation measures and mining in benches.

We noticed that the mandatory financial assurance amount was not recovered from four lease holders and 20 lease holders whose leases were cancelled/surrendered. The deposited amount of financial assurance from six lease holders could not be spent in absence of clear directions. Further, only *25.81 per cent* of the 'Environment and Health Cess' was spent during 2011-17. Funds were sanctioned for works that did not meet the objectives for which the Cess was collected. The Department also collected 'Environment Management Fund ₹ 295.03 crore but the same could not be utilised in absence of any guidelines.

Forest Department

3.2 Development of water catchment through greening of Rajasthan

3.2.1 Introduction

A project 'Development of Water Catchment through Greening of Rajasthan' for rehabilitation of degraded forest was planned by the State Government. The National Bank for Agriculture and Rural Development (NABARD) sanctioned loan for the project. It was planned to treat about 1,59,000 hectares of degraded forest land at a project cost of ₹ 988.56 crore. The Phase-I of the project having a total cost of ₹ 336.66 crore envisaged treatment of 52,750 hectares of degraded land during the period 2012-13 to 2016-17. According to project guidelines, implementation of the project was to be done through a memorandum of understanding (MoU) between forest department and village forest protection/management committee (VFPMC). The project was carried out in selected 17 districts[23] out of total 33 districts.

During the implementation and execution of phase-I of the project 2012-13 to 2016-17, budget allotment of ₹ 311.38 crore was made and ₹ 289.61 crore spent on different activities of the project. The activity-wise physical targets and achievements during 2012-13 to 2016-17 are given in ***Appendix-3.4***.

3.2.2 Audit Coverage and Methodology

The audit of records was conducted in the offices of the Principal Chief Conservator of Forest (PCCF); Head of Forest Force (HoFF); Deputy Conservator of Forest (DCF) NABARD; Finance Department (Expenditure Division) of GoR, Additional PCCF (Development/Monitoring/Project Formulation/NABARD) and seven divisions[24] headed by DCFs, selected out of 29 divisions by adopting stratified random sampling method, covering the period from 2012-13 to 2016-17. Apart from this, joint physical inspection of selected sites was also conducted with the Departmental officers to verify the works executed. The audit was conducted to assess whether the various activities were executed effectively and the required monitoring and evaluation were done.

Audit Findings

3.2.3 Preparation of micro-plans

The project guidelines provided that right from the beginning, need based and area specific micro plans taking a village as a unit of development would be prepared through Participatory Rural Appraisal. The micro plans prepared would be discussed in Village Forest Protection/Management Committee

[23] Ajmer, Alwar, Baran, Bundi, Bharatpur, Chittorgarh, Dausa, Dholpur, Jhalawar, Karauli, Kota, Pratapgarh, Rajsamand, Sawai Madhopur, Sirohi, Tonk and Udaipur.

[24] Ajmer, Bharatpur, Bundi, Kota, (WL) MNP Kota, Pratapgarh and Rajsamand.

(VFPMC)[25] meetings and would be approved by the concerned DFOs. The micro plan once prepared would be valid for a period of five years. However, the micro plan would be reviewed after two years. During scrutiny of records of selected divisions following points noticed by the audit:

- 172 micro plans were prepared in selected divisions out of which the dates of approval of 12 micro plans[26] were not submitted to audit by the concerned DFOs. The expenditure on the concerned projects was ₹ 3.37 crore[27].
- In 145 cases micro plans were not reviewed after two years.
- In five cases in DCF (WL) MNP, Kota the works were executed before approval (March 2016) of the micro plans.
- In case of DCFs Ajmer and Bundi it was revealed that in 19 cases[28] the dates of approval of micro plans were preceded the date of the registration of relevant VFPMCs.

Targets were set for construction of different types of soil and water conservation structures. However, survey reports in support of site suitability and selection of type of structures were not available.

3.2.4 Afforestation

3.2.4.1 Lack of categorization of land for afforestation

Phase-I of the project envisaged treatment of 52,750 hectares of degraded land. As per project guidelines, degraded land was to be categorized under Rehabilitation of Degraded Forest-I (RDF-I), II (RDF-II), Assisted Natural Regeneration (ANR) and *Panchayat* land plantation (PLP) on the basis of availability of tree cover in the specific areas.

At the time of scrutiny of records of selected divisions, it was seen that categorization of land into aforesaid categories (*viz.* RDF-I, RDF-II and ANR) for afforestation was not done at the planning stage. The details of such categorization were neither available in the project report nor submitted to audit in absence of which correctness and authenticity of categorization of degraded forest land could not be ascertained.

3.2.4.2 Non adherence to technical parameters

- Assisted Natural Regeneration works were executed at 19 sites pertaining to five divisions[29] at an expenditure of ₹ 2.47 crore[30]. An essential item required to ensure proper growth of plantation *i.e.* 'singling and

[25] According to provisions made in forest manual (Government of Rajasthan), Deputy Conservator of Forests or equivalent officer will register these committees.

[26] DCF Bharatpur : 4 and Rajsamand : 8

[27] DCF Rajsamand : ₹ 2.88 crore and DCF Bharatpur : ₹ 0.49 crore

[28] DCF Ajmer : 2, Bundi : 17

[29] DCF Bharatpur, Bundi, (WL) MNP, Kota, Pratapgarh, Rajsamand

[30] DCFs Bharatpur : ₹ 25.93 lakh; Bundi : ₹ 78.35 lakh; (WL) MNP, Kota: ₹ 12.52 lakh; Pratapgarh ₹ 101.19 lakh; Rajsamand : ₹ 29.42 lakh.

tending'[31] included as item number 4 in model estimates was neither undertaken nor any technical reason for not undertaking the activity was provided. It was also noticed that the required sanction from the next higher authority was not obtained for deviation from the model estimate. The availability of necessary root stock on ANR sites could not be ensured and the purpose of singling and tending was defeated.

➢ Seed testing is essential to ensure increase in forestry yield and protection from the threats of diseases and pests. As per orders of the PCCF the samples of seed should be sent for testing necessarily before purchase. The seed germination test of collected seed was necessary and the payment in respect of seed purchase was to be made only after quality testing of the purchased/collected seed. Scrutiny of records revealed that in seven divisions, sub-standard seed amounting to ₹ 6.74 lakh and un-certified seed (without laboratory test) worth ₹ 17.08 lakh were distributed to the Range offices from the Divisional Offices ***(Appendix-3.5)***. In response to audit query, DCF, Ajmer stated (March 2017) that range officers have been directed to ensure compliance of the aforesaid orders of the Van Vardhan Adhikari. The DCF, Pratapgarh stated that in view of limited time frame for completion of plantation work, seed germination tests could not be done. Replies of DCFs Kota, Rajsamand, Bundi, Bharatpur and (WL) MNP, Kota were awaited.

➢ The PCCF issued orders (October 2002) specifying that no work should be initiated without sanction of technical estimates. The proposals for development work relating to plantation should invariably consist of detailed technical note, map and estimates. Scrutiny of records revealed that in three divisions[32], in case of 29 sites[33] relating to RDF-I, RDF-II and ANR the plantation work commenced and payment was made prior to issuance of technical sanctions ***(Appendix-3.6).*** The commencement of plantation work prior to issuance of technical sanctions in aforesaid cases was irregular and contrary to the instructions issued by the PCCF.

➢ As per Department of Forest, GoR, plants of size of 1 metre to 1.5 metre and age of one and half years are treated as matured for plantation. Scrutiny of records and information provided by the Department revealed that in DCF, Bundi at site Soran-A under RDF-I, immature plants only five months old were planted. Similarly, in DCF, Pratapgarh, plants between 4 and 7 months of age were planted at site Panighatta under RDF-II, Nayan Badlikhera-III under RDF-I and Khankudi and Chitrimata under Assisted Natural Regeneration. In case of DCF, Bharatpur, at eight sites[34], plants between 5 and 7 months old were planted. The department incurred an expenditure of ₹ 2.26 crore (DCFs Bundi : ₹ 26.94 lakh; Pratapgarh : ₹ 75.65 lakh; Bharatpur : ₹ 123.53 lakh) on the plantation of immature plants. Immature plants have high chance of mortality and are vulnerable to grazing. In response to audit

[31] Singling means removal of multiple stems and tending means removal of unnecessary saplings. These operations are required to reduce root competition and transpiration water loss and improve light conditions.

[32] DCF (WL) MNP, Kota, Pratapgarh, Rajsamand

[33] DCF (WL) MNP, Kota : 2, DCFs Rajsamand : 19, Pratapgarh : 8

[34] RDF-I: Bilond, RDF-II: Kankachal, Gogera-I, Bolkhera, Kankachal-II, ANR: Mansapurar, Matiya pahar, PLP: Rajpura-II

query the department intimated mortality rates of these plants *viz.* DCF, Bundi : (1 site) 15 *per cent*; Pratapgarh : (4 sites) 30 to 48 *per cent* and Bharatpur : (8 sites) 40 to 50 *per cent*. No evaluation was conducted to determine the cause of such high mortality rates.

3.2.5 Soil and Water Conservation Structures

3.2.5.1 Work of construction of soil and water conservation structures deviated from micro plans

During scrutiny of records of selected divisions[35], we found cases of deviation from micro plans. It was seen that instead of the initially proposed 33 works amounting to ₹ 2.14 crore at specified locations, divisions executed 28 works amounting to ₹ 1.21 crore at locations other than the originally proposed areas. The implementation of the project works, therefore, was not done in accordance with the relevant micro plans. The details of such works have been depicted in the ***Appendix-3.7.***

3.2.5.2 Construction of soil and water conservation structures without obtaining sanction from the committee constituted

For proper planning of schemes based on micro watershed, Administrative Reforms Department (GoR) constituted a State level coordination committee (August 2011). The committee consisted of representatives of various departments including Forest Department. No project would be considered for sanction without the clearance from the committee. Water Resources Department also clarified that before construction of *anicut*s/water harvesting structures/check dam, consent of the committee would be necessary to decide height and capacity of the structures (June 2012).

Scrutiny of records of selected divisions revealed that 419 check dams, 56 *anicuts* of type-II, 29 *anicuts* of type-III and 76 water harvesting structures involving expenditure of ₹ 8.87 crore were constructed in seven divisions without obtaining consent from the Committee ***(Appendix-3.8)***.

In response to audit query DCF, Kota stated (February 2017) that height of constructed structures was less than 2-meter and these were constructed for 'conservation of soil' in place of 'water conservation'; DCF (WL) MNP, Kota also stated (May 2017) that constructed structures were less than 2-meter high and were not lying within catchment area of any reservoir. Thus the permission of the committee was not required.

The Department's plea regarding the two meters height of constructed structures was not relevant because the Forest Department in its own orders had already clarified that regardless of height of structures permission from aforesaid committee was to be obtained. Further, department also replied that construction was in view of conservation of soil in place of water conservation. This is also not tenable because construction of check dam,

[35] DCF Bharatpur, Bundi, Kota, DCF (WL) MNP Kota, Pratapgarh, Rajsamand

anicut II, *anicut* III and Water Harvesting Structure were part of package number three and related to soil and moisture conservation.

3.2.6 Joint Forest Management Activities

For 'Joint Forest Management' village-wise VFPMCs were to be constituted. The DCF or equivalent officer would register this committee and the VFPMC would maintain an updated membership register. At least 33 *per cent* members of the VFPMC would be women. In addition to this, women sub-committee would be constituted and at least one key official in the executive committee would be a woman. The tenure of the executive committee would be two years and fresh election would be held after expiry of this period. The VFPMC would hold at least two general meetings every year and the Range Officer of the area and other senior officers of the Forest Department may inspect the records related to the revenue of VFPMC.

Out of 183 VFPMCs constituted in selected divisions, it was observed that:

- During 2012-13 to 2016-17, ₹ 30.99 lakh was allocated to 41 VFPMCs under Joint Forest Management Activities in order to conduct income generating activities through Self Help Groups (SHGs). It was observed that the funds allocated to VFPMCs were not disbursed to SHGs due to which income generating activities were not carried out. It was also observed that the department did not take proper action to recover the blocked funds.

- In 28[36] out of 53 cases (DCFs Bundi : 37 and Kota : 16) the total number of women members was less than the prescribed number of women to be included in the VFPMC. In 16 cases[37], the women's sub-committees were not constituted or there were no woman representative in the committees. As a result, the involvement of women in JFM activities could not be ensured.

- In all 183 cases, dates of elections held after completion of tenure of executives committees were not made available.

- Further, two general meetings required to be conducted in each year as provided in guidelines were not held.

- Inspection of records of all 183 VFPMCs was not done by the departmental authorities and audit of the same was not conducted due to which irregularities and shortcomings could not be detected.

3.2.7 Convergence through MGNREGS

Package number eight *i.e.* 'Convergence through Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)' had a provision of ₹ 37.36 crore for coverage of 1000 hectares land by construction of *pucca* stone wall fencing of vulnerable forest and wild life area. Scrutiny of records of the selected divisions[38] revealed that the area susceptible to encroachment was neither identified nor were the targets for construction of *pucca* stone wall

[36] DCF Bundi : 15, Kota : 10, MNP Kota 03
[37] DCF Ajmer : 4, Bharatpur : 6, Pratapgarh : 2, Rajsamand : 4
[38] DCF Ajmer, Bharatpur, Bundi, Kota, (WL) MNP Kota, Pratapgarh, Rajsamand

fencing achieved. Scrutiny of information provided by the department disclosed that the targets for construction of *pucca* wall fencing increased to 4900 hectares (390 *per cent*) with a decrease in financial targets to ₹ 19.63 crore (52.54 *per cent*). However, no expenditure was incurred on the package.

The department replied (June 2017) that *pucca* wall fencing was not permissible in MGNREGS. Thus, despite non-admissibility of the construction of *pucca* wall in the scheme this component was included in the project as a separate package.

3.2.8 Monitoring and Evaluation

As per the project guidelines, the DCF, Planning and Monitoring would evaluate randomly selected works in randomly selected divisions every year as per norms. One work would be completely evaluated and the remaining works would be partially (equivalent to 10 *per cent* of the area) evaluated. In case, major deviations were found then those works would also be evaluated.

Scrutiny of Monitoring and Evaluation Reports of DCF, Planning and Monitoring, revealed that in five divisions[39], only the afforestation package was evaluated. The evaluation reports indicated shortcomings in implementation of project works like lack of cut-back work of natural plants, ineffective fencing, digging of undersized pits, grazing by domesticated as well as wild animals, unsatisfactory condition of natural grass in the area and lack of medicinal seed sowing on V-ditches.

Action taken reports on the shortcomings were neither found on record nor submitted to audit by three divisions[40]. Besides, monitoring and evaluation work of DCF (WL) MNP, Kota was not conducted due to which implementation of project works remained un-monitored and un-evaluated. In case of DCF, Bharatpur monitoring and evaluation reports not submitted to audit thus the same remained un-reviewed by the audit.

As per the guidelines, external agencies appointed by PCCF will carry out evaluation of 10 *per cent* project divisions after three years.

It was noticed that in absence of appointment of external agencies by PCCF, the evaluation work in 10 *per cent* of project divisions which was to be conducted after three years could not be done.

The matter was referred (July 2017) to State Government, the reply was awaited.

3.2.9 Conclusion

The basis for categorization of degraded forest land and identification of location and types of soil and water conservation structures at the planning stage of the project could not be verified in absence of records and survey reports. There were shortcomings in preparation of the micro plans besides deviations in respect of construction of soil and water conservation structures.

[39] Ajmer, Bundi, Kota, Pratapgarh, Rajsamand.
[40] Bundi, Kota, Rajsamand.

Similarly, there were instances of purchase/collection and utilization of un-certified seeds and non-adherence to project guidelines in respect of agro-forestry and joint forest management activity packages.

The norms prescribed for monitoring and evaluation by internal agencies were not adhered to and external agencies were not appointed for project evaluation.

Public Works Department

3.3 Implementation of Rajasthan Road Sector Modernization Project

3.3.1 Introduction

The State Government decided (2012-13) to connect all villages having population between 250 and 499 (Census 2001) with all-weather bituminous roads in a phased manner in the areas of the state not covered by *Pradhan Mantri Gram Sadak Yojana* (PMGSY). To achieve this, the Rajasthan Road Sector Modernization Project (RRSMP) was launched by GoR in 2013-14. The project had three main components *i.e.* improvement in rural connectivity, strengthening of road sector management and enhancement in road safety.

The project is financed by the World Bank and the State Government in the ratio of 70:30. The total project cost is ₹ 1362 crore. The objective of the first component 'Rural Connectivity Improvement' was to support construction of about 2500 kilometer rural roads for providing connectivity to about 1300 revenue villages with population of 250-499. The second component included 'Road sector modernization and performance enhancement' for rural road sector modernization plan. The third component, 'Road safety management' has the objective of reducing the number of fatalities and serious injuries from traffic accidents.

3.3.2 Status of project

The starting and closing dates of the project were 10 March 2014 and 31 December 2018 respectively. An expenditure of ₹ 951.76 crore was incurred on the project between 2013 and 2017 against an allocation of ₹ 1156.86 crore. Under component A- Rural connectivity improvement, road connectivity was to be provided to 1056 villages through construction of 2521 kilometers of roads. It was seen that 2225 km roads were constructed upto March 2017 and 990 villages were connected.

The second component included three key areas *viz*. sustainable asset management; improved policy framework; modernization of engineering practices and business procedures. It was seen that sustainable Road Assets Management System (RAMS) was to be implemented by 30 January 2017 in two phases. However, first phase of designing the system of RAMS was incomplete (March 2017) as a result, second phase could not be taken up. Similarly, in case of works related to safe corridor demonstration programme of third component 'Road safety management' only final report on proposed demo corridor and safer road investment plans was completed and other works were in progress.

3.3.3 Scope and Methodology

The audit of RRSMP for the period 2013-14 to 2016-17 was conducted through scrutiny of records available in the offices of the Chief Engineer (CE) (PMGSY), Public Works Department (PWD), Rajasthan, Jaipur and 18 divisions[41] selected out of 74 divisions by adopting stratified random sampling method[42]. The test checked divisions executed 417 road works covered in 137 packages.

Audit findings

Component A- Rural Connectivity Improvement

3.3.4 Planning

3.3.4.1 Lack of data for planning

➢ One of the objectives of the programme was to provide all weather road connectivity to all villages not covered under PMGSY having population between 250 and 499. PAD[43] had taken into account 7357 such villages which had population below 500 as of October 2013. As a result of reconciliation done (November 2015) by State Government, the number of unconnected habitations[44] having population between 250 and 499 shown on OMMAS[45] increased by 1571. The Department, however, did not supply the details of villages to be provided connectivity *vis-a-vis* those already covered/to be covered under other schemes to audit as of March 2017. It was seen that 1056 villages were selected for connectivity under RRSMP and 1500 villages were proposed for coverage under National Bank for Agriculture and Rural Development (NABARD). The information regarding remaining 4801 villages [46] was not intimated. Besides this, the department did not provide the information regarding road connectivity of villages increased due to increase of habitations by 1571.

In absence of reliable data it could not be ascertained whether all villages having population between 250 and 499 were taken into account during planning for providing connectivity with all-weather bituminous roads.

➢ As per PAD, the Project Management Consultant (PMC) was required to help PWD in preparation of Operation Manual which would detail the

[41] Executive Engineer, PWD Division, Abu Road, Alwar-II, Beawar, Bhilwara, Bundi (World Bank), Chaumahla, Chhabra, Chittorgarh (WB), Dausa, City Division Jaipur, Distt.Dn.Jaipur, Malpura, Nimbahera, Rajsamand (WB), Sawai Madhopur (WB), Sikandra, Sriganganagar, Suratgarh.

[42] The stratified random sampling method is a technique which attempts to restrict the possible samples to those which are 'less extreme' by ensuring that all parts of the population are represented in the sample in order to increase the efficiency of the methodology.

[43] Project Appraisal Document prepared by world bank basis on which loan was sanctioned.

[44] A habitation is cluster of population, living in an area, the location of which does not change over time. Several habitations make a village.

[45] Online Monitoring, Management and Accounting System.

[46] 7357-(1056+1500)

implementation arrangement for various project components, including project monitoring, fund flow and management of social and environmental aspects.

During scrutiny of records of CE (PMGSY), it was observed that the Operation Manual was not prepared for the project by PWD.

The CE, PWD, Rajasthan, Jaipur stated that PAD was not a legal document and it was not binding upon the borrower to prepare the Operation Manual. However, the State Government replied (September 2017) that PMC has been directed to prepare the Operation Manual within one month.

3.3.4.2 Non-availability of clear site

As per rule 351 of Public Works Financial and Accounts Rules (PWF&AR), no work should be commenced on land which has not been duly made over by the responsible civil officer.

Test check of the selected divisions revealed following issues:

- In Abu Road division, one road from Vasa to Kedar Padar[47] (km 0/0 to 3/400) was sanctioned but the road work was not constructed from chainage km 0/383 to 0/833 and 3/010 to 3/400 due to land dispute. In absence of this, the purpose of all weather road connectivity was not fulfilled even after incurring an expenditure of ₹ 1.54 crore.

- In Sawai Madhopur (WB) Division, one road from Khandar-Baler to Parsipura[48] (4.13 km) was sanctioned for ₹ 1.86 crore but due to lack of clearance of forest land (690 meters) from the Forest Department, the road remained incomplete and objective of road connectivity was not fulfilled even after incurring an expenditure of ₹ 60.44 lakh.

On this being pointed out (May 2017) by audit the State Government stated (September 2017) that to save time works were started and the process for obtaining forest clearance was taken up simultaneously. During preparation of Detailed Project Report, transect walk was carried out by PWD Officers, *Sarpanch* and others in which the status of land, forest, *etc*. were looked into. The response indicates that the transect walk was not conducted properly.

The issue of inadequate survey was noticed in 11 road works of eight districts with a total length of 20.08 km ***(Appendix-3.9)***. These works were proposed for de-sanction later due to factors like location in submergence area of dam, double connectivity, land dispute or existence of roads constructed under other schemes.

The State Government accepted (September 2017) the facts and stated that show cause notices have been issued to the concerned Project Implementation Units (PIUs) to explain reasons for negligence and avoid such mistakes in future.

[47] Package No. RJ-29-WB-RRSMP-01
[48] Package No. RJ-27-WB-RRSMP-09

3.3.5 Implementation

3.3.5.1 Expenditure incurred without revised administrative sanction and tenders invited before issuance of technical sanction

The PWF&AR states that when expenditure on a work exceeds or is likely to exceed the amount administratively approved by more than 10 *per cent*, or where there are material deviations from the original proposals, revised administrative approval must be obtained from the authority competent to approve the cost.

During scrutiny of records of Beawar and Nimbahera divisions, it was found that in three packages (seven road works) the expenditure incurred was ₹ 5.66 crores. This exceeded the administrative sanction by 23.3 *per cent*. However, no such revised sanction was obtained.

The State Government replied (September 2017) that all the PIU's had been directed to send the proposals for revised administrative and financial sanctions and not to execute further works without permission.

In six packages (13 road works) of four divisions[49], tenders were invited before issuance of technical sanctions ***(Appendix-3.10).*** This was contrary to the rule mentioned in PWF&AR.

The State Government replied (September 2017) that the tenders were called at Chief Engineer Level for minimizing NIT expenditure as well as saving of time due to urgency of work. The reply is not acceptable as it was against the provisions of PWF&AR.

3.3.5.2 Undue benefit to contractors

The General Conditions of Contract (GCC) specify that:

- the contract price shall be adjusted for increase or decrease in rates of labour, material, fuel and lubricants and other inputs in accordance with the formula given in the contract data. In case of use of cement, rate of grey cement and in case of use of steel, rate of steel rebar would be applied. In case of bitumen, selling price of bitumen discharged from refinery would be taken for calculating the price adjustment. On scrutiny of records of selected divisions, we found a number of deviations from the terms of the GCC as brought out below:

- In Nimbahera division, in one package (three road works), the contractor was paid excess price adjustment because of adoption of base index of March 2013 instead of August 2013, the month in which bids were opened. Further, the price adjustment on steel rods was claimed instead of steel rebar.

- In Dausa division, in one package (five road works), the rates of cement, slate and graphite products were taken in place of grey cement.

- In four packages (16 road works) of Chhabra division, price adjustment bills were paid taking selling price of bitumen including entry tax.

[49] Abu Road, Alwar-II, Chaumahla and Sawai Madhopur (WB).

- In five packages (19 road works) of Suratgarh division, weightage for each of the factors of cost stated in table(s) of adjustment data were changed by corrigendum issued by Executive Engineer, which was against the provisions of clause 47.1(g).

- In Sikandra division, in one package (five road works) rates of bitumen were taken on 16th day of the month instead of on the 1st day of the month, base date for bitumen was taken as June 2013 instead of August 2013 and rates of steel rod were taken instead of rebars. This resulted in excess payment of price adjustment of ₹ 67.45 lakh **(*Appendix-3.11)*.**

The State Government replied (September 2017) that the Executive Engineer in-charge of the divisions have been directed to recover the excess payments from the contractors on account of price adjustment.

- the contractor has to supply Operating and Maintenance Manual within 28 days of the issue of certificate of completion of whole or section of the work. Otherwise one *per cent* of the contract value not exceeding ₹ three lakh would be withheld. During scrutiny of records of selected divisions, in nine divisions[50], it was found that Operation and Maintenance Manual was not submitted by the contractors after completion of works and no record related to maintenance of roads was provided to audit. In absence of submission of manual and records relating to maintenance, it could not be ensured whether the activities like restoration of rain cuts, maintenance of culverts and causeways, making up of shoulders, *etc.* were executed. Besides the department did not withhold ₹ 2.02 crore on this account resulting in undue benefit to the contractors ***(Appendix-3.12*).**

The State Government replied (September 2017) that all the PIUs have been directed to ensure submission of Operating and Maintenance Manual by the contractors.

- within 14 days of delivery of the letter of acceptance, the contractor shall submit to the Project Manager a revised work programme including environmental management plan. He would update the work programme at intervals of 30 days. Otherwise an amount of ₹ 5 lakh could be withheld. In 136 packages[51] (416 roads) of selected divisions, the contractors neither submitted the revised work programme within 14 days after the date of letter of acceptance nor submitted the updated work programme before completion of the work. The department did not withhold the amount of ₹ 6.80 crore from the bills which resulted in undue benefit to the contractors ***(Appendix-3.13)*.**

The State Government replied (September 2017) that the concerned PIUs have been directed to withhold amount of ₹ 5.00 lakh wherever the updated work programme was not submitted.

- the contractor has to provide insurance cover to the road from the date of start of the works to the end of defect liability period of five years. If the

[50] Alwar-II, Chaumahla, Chittorgarh (WB), Chhabra, Bundi (WB), Dausa, Nimbahera, Sawai Madhopur (WB) and Suratgarh.

[51] Abu Road- 1, Alwar-II-4, Beawar-1, Bhilwara-9, Bundi (WB)-7, Chaumahla-2, Chittorgarh (WB)-18, Chhabra-19, Dausa-10, Malpura-10, Nimbahera-18, Rajsamand (WB)-11, Sawai Madhopur (WB)-13, Sikandra-2, Sriganganagar-5 and Suratgarh-6

contractor does not provide any of the policies and certificates required, the employer may effect the insurance and recover the premium which the employer had paid from payments due to the contractor. It was observed that in eight divisions[52], out of 58 packages (176 roads) the insurance cover was provided in 27 packages (76 roads) for the period of construction of work whereas it was to be provided up to the defect liability period of five years. In 31 packages (100 roads), no insurance cover was provided by the contractors ***(Appendix-3.14).*** Contractors were thus allowed undue benefit of ₹ 1.43 crore due to non-payment of premium.

The State Government accepted the facts and replied (September 2017) that action as instructed in the contract agreement shall be taken.

- The Instruction to Bidder states that within 21 days after issuance of letter of acceptance, the successful bidder shall sign the contract agreement and deliver to the employer a performance security which should be valid up to 45 days after the expiry of defect liability period *i.e.* period of routine maintenance of five years. Failure to comply with the requirements of Instruction to Bidder shall constitute sufficient grounds for cancellation of award.

During scrutiny of records of selected divisions, it was observed that in 27 packages of five divisions[53], performance security was not furnished to the employer for the required period *i.e.* up to 45 days after the expiry of defect liability period. The Department did not take any action against the successful bidders ***(Appendix-3.15).***

The State Government replied (September 2017) that concerned PIUs have been asked to clarify reasons for not taking any action against the defaulter contractors and to get the Bank Guarantee (BG) extended for the required period.

3.3.5.3 Inadequate plantation

In order to address environmental, concerns and to facilitate greening of rural roads it was decided to have road side plantations under the project for conservation of the environment and reduce pollution.

The work of plantation and its maintenance for five years was to be carried out under MGNREGS funds and the implementing agency would be Gram Panchayat/Forest Department. The PWD had to provide the action plan for road side plantations on RRSMP roads and detailed information about name of roads, sanctioned length for plantation, species of trees and number of trees to be planted.

The QPR of March 2017 showed a target of 92,476 trees to be planted in ten districts. In the remaining districts targets were not set. No trees however were planted in any of the districts.

[52] Beawar, Bhilwara, Chaumahla, Chhabra, Chittorgarh (WB), Dausa, Nimbahera and Sawai Madhopur (WB).

[53] Beawar, Chittorgarh (WB), Rajsamand-WB, Malpura and Nimbahera

The State Government replied that issuance of Administrative and Financial sanction for plantation works to be done under MGNREGS is being pursued regularly by PWD officers with District Collectors.

3.3.6 Quality Control and Monitoring

➢ The bidding data sheet states that the contractor should procure bitumen/emulsion required for the execution of work from authorized refinery and furnish the bitumen testing certificate from Government Agency/Regional Laboratory/Engineering College before use. During scrutiny of records of Chittorgarh (WB) division, it was noticed that in seven packages for 22 road works ***(Appendix-3.16)*** bitumen/emulsion testing certificates were not produced by the contractors. In absence of this, the quality of bitumen and emulsion could not be ensured. This was also not checked by the concerned Executive Engineer. In four packages (12 road works), bitumen/emulsion was used for the roads on the basis of Consignee Receipt Certificate[54] (CRC) issued 5 to 34 months before the work orders were issued.

The State Government replied (September 2017) that explanations regarding testing certificates of bitumen/emulsion have been sought from the PIU office.

➢ The quality control register had to be maintained in two parts: the first part for recording the quality control tests and second part for recording the abstract of tests and action taken to remedy the deficiencies. During scrutiny of records of selected divisions, it was found that only first part of quality control register was maintained by seven divisions[55] while second part was not maintained. It could not be ascertained whether the deficiencies recorded in first part were addressed.

The State Government replied (September 2017) that instructions have been issued to all the divisions to ensure the maintenance of Quality Control register.

➢ The State Quality Monitor (SQM)[56] has to inspect the quality of every work at least three times. The first two inspections of every work will be carried out during the execution of work at three month intervals and the last inspection would be carried out within one month of completion of work. Test check revealed that against the 977 completed (March 2017) road works 2931 inspections were required to be carried out by SQM. However, it was seen that only 15 (1.54 *per cent*) inspections at first stage, 61 (6.24 *per cent*) inspections at second stage and 722 (73.90 *per cent*) inspections at third stage were carried out. In absence of required number of inspections, it is not clear how the Department could be assured of the quality of roads.

On this being pointed out (May 2017) by audit the State Government accepted (September 2017) that till January 2017 the number of SQM inspections were

[54] It is a certificate regarding details of Bitumen/Emulsion and issued by the supplier to the Contractor.

[55] Bhilwara, Chittorgarh (WB), Chhabra, Malpura, Nimbahera, Rajsamand-WB and Sawai Madhopur-WB

[56] Quality control units, setup/engaged by the State Government, independent of the Executive Engineers/PIU.

not up to the mark and the quality control tests have been carried out by PWD technical field staff as per norms to assure the quality before release of payment and these test result were linked to the payment. Tests have also been carried out by PMC during site visit. Therefore, quality was assured. The reply is not acceptable as the measures taken at departmental level are only stop gap arrangements and can not be taken as a valid substitute for the SQM inspections.

3.3.7 Conclusion

Upto March 2017, Rural road connectivity was provided to 990 villages (93 *per cent*) out of 1056 villages to be connected. Works in key areas related to second component were delayed. Similarly, work related to safe corridor demonstration programme related to third component was also delayed.

- The department did not provide the information whether all villages having population between 250-499 were taken into account in the plan for providing connectivity with all-weather bituminous roads.

- Undue benefits were given to contractors in violation of the conditions of the contract.

- Norms related to quality control such as maintenance of Part-II of quality control register were not fulfilled by some of the selected divisions. Required number of inspections at different stages of civil work were also not conducted by State Quality Monitor.

Public Works Department

3.4 Non-completion of road led to non-connectivity of habitations

Improper fund management resulted in non-completion of work after incurring an expenditure of ₹ 2.61 crore and non-fulfilment of the objective of providing road connectivity to the habitations

The primary objective of the *Pradhan Mantri Gram Sadak Yojana* (PMGSY) was to provide connectivity by way of an all-weather road, which is usable throughout the year, to the eligible unconnected habitations in the rural areas with a population of 500 persons and above. Paragraph 4.1 of the PMGSY guidelines provide that proper planning is imperative to achieve the objective of the programme in a systematic and cost effective manner. Further, paragraph 11.5 of the guideline provides that in case the value of tenders received is above the estimate that has 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 will be borne by the State Government.

The State Government issued (September 2013) administrative and financial sanction of ₹ 3.17 crore for construction of three[57] roads under PMGSY (package no. RJ-08-WB-17) in Bikaner district. The tender was awarded (February 2014) by the Chief Engineer, PWD, Rajasthan, Jaipur at a cost of ₹ 4.11 crore and work order was issued (March 2014) by Executive Engineer, PWD Division, Nokha with stipulated date of completion as 3 January 2015. As per note below the work order, the work was to be restricted up to the amount of administrative sanction of ₹ 3.17 crore without change in physical target. The contractor was paid ₹ 3.27 crore for the works completed up to March 2016.

Test check (May 2016) of records of the SE, PWD Circle, Bikaner revealed that out of the three roads included in the package, one road was fully completed and two roads[58] remained incomplete due to lack of budget. Expenditure incurred on these two roads was ₹ 2.61 crore. As the amount of work order was more than the administrative sanction issued, it needed an additional fund of ₹ 94.66 lakh to complete the work. No request was made by the field officers for obtaining the additional fund either before issuing the work order or subsequently and works were treated as finalised by EE at incomplete stage.

Thus, non-compliance with aforesaid provisions and awarding of work without making proper arrangement of funds resulted in non-completion of roads after incurring an expenditure of ₹ 2.61 crore and the objective of the PMGSY to provide all-weather road connectivity to the targeted habitations was defeated.

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[57] (i) Seelwa to Naykon/Bhatiyon-ki-Dhani ₹ 60.10 lakh (km 0/0 to km 3/0) (ii) Hansasar to Godaron-ki-Dhani ₹ 1.02 crore (km 0/0 to km 5/0) (iii) Kakko to Jogaji-ki-Dhani ₹ 1.54 crore (km 0/0 to km 8/0)

[58] Hansasar to Godaron-ki-Dhani completed in 4.275 km length (₹1.05 crore), Kakko to Jogaji-ki-Dhani completed in 6.500 km length (₹ 1.56 crore)

The State Government stated (February 2017) that maximum population of Godaron-ki-Dhani and Jogaji-ki-Dhani were residing in scattered Dhanis and roads constructed up to the central places *i.e.* water reservoir in case of Godaron-ki-Dhani and school in case of Jogaji-ki-Dhani were being used by the people. It further stated (March 2017) that as the Dhanis were located at scattered places, they were not shown in the strip plan enclosed with Detailed Project Report.

The reply is not acceptable on the following grounds:

- In case of Godaron-ki-Dhani, in the strip plan enclosed with the project report, neither the location of the central place *i.e.* water reservoir nor the habitation at 4.275 km (last point of the road constructed) were shown. All along the road, agriculture land was shown. In case of Jogaji-ki-Dhani, the central place *i.e.* school was located near 8.000 km whereas the road was constructed up to the distance of 6.500 km and there was no habitation at the end point of the road. The objective of PMGSY to provide all weather road, operable throughout year, was not achieved due to non- construction of roads in full length.

- As per paragraph 3.4 of PMGSY guidelines, for determining the population of a cluster, population of all habitations within a radius of 500 metres are clubbed. In the instant case, road was not constructed in 0.725 km length in case of Godaron-ki-Dhani and 1.500 km in case of Jogaji-ki-Dhani. The distance of both the Dhanis from the last point of the roads constructed was more than 500 metres. This was contrary to the rule mentioned *ibid*. Also, as the habitations remained at a distance of more than 500 metres from an all weather road even after construction, these came under the definition of unconnected habitations as per paragraph 3.3 of PMGSY guidelines.

3.5 Irregular payment to contractors for curing compound

Irregular payment of ₹ 83.55 lakh made to contractors for curing compound under *Gramin Gaurav Path* Scheme

As per clause 10.8 of Indian Road Congress (IRC) 15-2011 regarding Standard Specifications and Code of Practice for Construction of Concrete Roads, the curing[59] of concrete can be done by one of the following two methods:

- By application of curing compound[60] followed by spreading of wet hessian and moistening it regularly. In case of arid areas where water is extremely scarce, two applications of curing compound with moist curing by wet hessian may be allowed at the discretion of the Engineer.

- For small works, curing can be done by manual methods using wet hessian which is kept moist during curing period. Curing shall be done for a

[59] Curing is a process of preventing loss of moisture from the concrete. It enhances strength and durability of concrete besides serviceability.

[60] It is a chemical compound which is applied to a concrete surface to prevent the loss of moisture during early stages of cement hydration.

minimum period of 14 days. In case of blended cement, curing shall be done for 16 days.

The State Government accorded (December 2014) administrative and financial sanction for construction of Cement Concrete (CC) roads under *Gramin Gaurav Path* Scheme (GGPS) for ₹ 1112.95 crore on 2119.16 kms. The work orders for construction of CC roads in following three Divisions were issued as under:

1. The Executive Engineer (EE), PWD Division, Vallabhnagar issued (December 2014) work orders for 27 roads[61] for ₹ 8.96 crore with stipulated date of completion as 28 August 2015. The contractor was paid a sum of ₹ 7.89 crore upto March 2016.

2. The EE, PWD Division, Dhariawad issued (February 2015) work orders for construction of seven roads[62] for ₹ 2.53 crore with stipulated date of completion as 24 July 2015. The contractor was paid a sum of ₹ 2.38 crore up to April 2016.

3. The EE, PWD Division, Jhalawar issued (December 2014) work orders for construction of 30 roads[63] for ₹ 16.76 crore with stipulated date of completion as 28 August 2015. The contractor was paid a sum of ₹ 15.43 crore up to January 2016.

During scrutiny of records (September 2016) of the Divisions, it was observed that Basic Schedule of Rate (BSR) of item CC pavement work included the element of curing compound whereas curing of CC roads was done by the contractors using water. The CC pavement work was executed in 37986.68 cum area for which an expenditure of ₹ 83.55 lakh was incurred on curing compound as per table given below:

Name of Division	CC pavement work executed (in cum)	Expenditure incurred (₹ in lakh)
Vallabhnagar	14598.13	42.11
Dhariawad	3956.92	15.17
Jhalawar	19431.63	26.27
Total	**37986.68**	**83.55**

As the curing compound was not used by the contractors and curing was done using water, the payment of ₹ 83.55 lakh made in respect of curing compound was irregular and resulted in undue benefit to the contractors.

In case of Vallabhnagar, the State Government replied (February and May 2017) that as per provision of IRC 15-2011, curing of GGP roads was carried out using curing compound as well as water. The reply is not acceptable as no evidence in support of using curing compound was submitted.

In case of Jhalawar, the State Government replied (May 2017) that curing was done using water to obtain required strength. The item of curing compound

[61] Package No. RJ-33-05/5054/GGP Road/Plan/2014-15
[62] Package No. RJ-26-04/5054/GGP Road/Plan/2014-15
[63] Package No. RJ-19-01/5054/GGP Road/Plan/2014-15

was removed from 'G' schedule as the contractor was not bound to use the curing compound. The reply is not acceptable as the payment for curing compound was made to contractor as per rate analysis.

In case of Dhariawad, the State Government replied (May 2017) that curing compound is used for curing specific places where continuous traffic ply on the roads and it is not possible to divert the traffic till the hardening of cement concrete. As the constructed roads were rural roads, the traffic was diverted and water curing was done till the end of curing period for 14 days and opening of traffic. On these roads, curing compound was not used because it was not needed. There was no provision for deduction of rate from BSR if curing compound was not used and payment of work was made on the basis of rates given in BSR instead of rate analysis. The reply itself confirms that curing compound was not used and curing was done by using water.

Action of the Department to add curing compound in rate analysis as an extra item was, therefore, irregular and resulted in undue benefit to the contractors.

3.6 Awarding of work without ensuring availability of land

Awarding of work without ensuring availability of land led to non-completion of road even after incurring an expenditure of ₹ 9.50 crore and deprival of road connectivity to the habitations

Rule 351 of PWF&AR provided that no work should be commenced on land which has not been duly made over by the responsible civil officer.

The Ministry of Road, Transport and Highways (MoRTH), Government of India issued (March 2010) administrative and financial sanction of ₹ 27.38 crore for construction of bypass road in 6.750 km length (between km 40/000 to 51/000 reach) on NH-112 (Bar-Bilara-Jodhpur Section). The Chief Engineer (CE), National Highway (NH), Rajasthan accepted (July 2010) the tender for ₹ 17.61 crore and work order was issued (October 2010) by Executive Engineer (EE), PWD NH Division, Pali with stipulated date of completion as 31 January 2012. The work was finalised at incomplete stage after incurring an expenditure of ₹ 9.50 crore (January 2015).

Scrutiny of records of EE, PWD NH Division, Pali revealed (August 2016) that the road work was executed in 4.250 km length (km 2/000 to 6/750) excluding the stretch from 0/0 km to 2/000 km and 5/200 km to 5/700 km. In the stretch 0/0 km to 2/000 km, the road could not be constructed due to non-acquisition of land. There was a dispute on land and a case was pending in Hon'ble Rajasthan High Court (August 2016). In the remaining stretch from 5/200 km to 5/700 km, the road could not be constructed due to not shifting of electric high tension lines falling in the alignment of road. The electric high tension lines were shifted in March 2013. Due to delay in shifting of electric high tension line, the work could not be completed within the scheduled time and the contractor demanded revision in contract price. The contractor stopped (May 2012) the work on the plea that the revision sought was not sanctioned by the Department. On the recommendation (May 2014) of the CE, NH, PWD Rajasthan, MoRTH accorded (August 2014) approval to foreclose the present agreement. The contract agreement was terminated (November

2014) by CE, NH, PWD Rajasthan. Scrutiny further revealed that in the technical report, it was certified by the Superintending Engineer (SE), PWD Circle, Jodhpur that there was no land dispute in this reach and there was no need of shifting public utilities. Awarding of work without ensuring the availability of land and non-shifting of high tension lines in time, therefore, led to non-completion of road even after incurring an expenditure of ₹ 9.50 crore.

The State Government replied (March 2017) that during execution of work, it was noticed that private land of some *khasras* falling in the alignment of reach from km 0/0 to km 2/0 was not acquired earlier. For acquisition of the land, process was started but some of the cultivators did not accept the amount of land compensation. It was also stated that nearby habitants had encroached the land and a court case was filed in the Rajasthan High Court. The reply is not acceptable as the legal title of land and timely shifting of high tension lines were not ensured before awarding the road work. In addition to this, the certificate given by the SE, PWD in technical report that there was no dispute of land was incorrect.

3.7 Excess payment of price escalation

Excess payment of price escalation of ₹ 1.02 crore

Clause 47 of the contract agreement executed with the contractor stipulates that the contract price shall be adjusted for increase or decrease in rates of labour, material, fuel and lubricants in accordance with the principles and formula given in the contract data. The price adjustment shall apply for the work done from the date of start given in the contract up to the end of the initial intended completion date or extension granted by the engineer in-charge and the price adjustment shall be determined during each month. Further, the contract data stipulates that the base index shall be taken of the date 28 days preceding the date of opening of bid.

The MoRTH, Government of India (GoI) accorded (March 2013) administrative, technical and financial sanction of ₹ 70.85 crore for strengthening of road with paved shoulders (34.100 km from km 259/000 to 286/600, km 290/600 to 297/100) and widening of existing two lane road to four lane (4 km from km 286/600 to 290/600) on NH-15 (Jaisalmer-Barmer-Sanchore Road). The tender for the work was accepted (August 2013) by Chief Engineer (NH), PWD, Jaipur for ₹ 59.16 crore and the work order was issued (August 2013) by Executive Engineer (EE), PWD NH Division, Barmer with stipulated date of completion as 28 February 2015. The contractor was paid a sum of ₹ 3.85 crore as price escalation up to March 2015.

In an another case, MoRTH, GoI accorded (December 2012) administrative, technical and financial sanction of ₹ 57.70 crore for widening of two lane road with geometric improvement in re-aligned portion (31.300 km from km 223/500 to 254/800) of Pachpadra-Bagundi Section of old SH 28-B including construction of minor bridge on NH-112 (Bar-Bilara-Jodhpur-Barmer). Tender for the work was accepted (August 2013) by Chief Engineer (NH),

PWD, Jaipur for ₹ 43.00 crore and the work order was issued (August 2013) by EE, PWD NH Division, Barmer with stipulated date of completion as 8 March 2015. The contractor was paid a sum of ₹ 2.28 crore as price escalation up to August 2014.

Test check of records of EE, PWD NH Division, Barmer revealed (August 2016) that while making payment to contractors on account of price escalation for labour, steel, cement, bitumen, POL, plant and machinery and other material components, the date of opening of technical bid was considered for calculating the payment of price escalation instead of the date of opening of financial bid. Also, the base index for calculation of price escalation was to be taken of the date prior to 28 days from the date of opening of financial bid. In case of Jaisalmer-Barmer-Sanchore Road, the financial bid was opened on 14 June 2013 and, therefore, the base index rate of 17 May 2013 was to be taken but the Division took base index rate of 4 April 2013. In case of Pachpadra-Bagundi section, old SH 28-B including construction of minor bridge work on NH-112, the financial bid was opened on 3 May 2013 and, therefore, the base index rate of 6 April 2013 was to be taken but the Division took base index rate of 8 January 2013. This resulted in excess payment of price escalation of ₹ 1.02 crore to the contractors ***(Appendix-3.17)***.

The State Government replied (May 2017) that combined bid (including technical and financial bid) was submitted by the contractor on the last date of bid submission and the base index were considered with respect to the date of opening of technical bid and not financial bid. The reply is not acceptable as clause 26.1 of part-E of contract agreement stipulates that technical bid only determines the eligibility criteria whereas financial bid determines the remaining conditions with respect to the priced bill of quantities, technical specifications and drawings. Also base price for calculating price escalation was to be taken prior to 28 days from date of opening of financial bid. Further, a letter issued (April and June 2017) to Finance Department regarding clarification about the date of opening of bid for payment of price escalation, has remained unanswered (August 2017).

3.8 Avoidable expenditure on construction of Cement Concrete roads

Avoidable expenditure of ₹ 4.19 crore due to wrong inclusion of items of excavation of earth, construction of granular sub-base and laying of compacted graded stone aggregate in the estimates of construction of Cement Concrete roads under *Gramin Gaurav Path* Scheme

As per circular issued (December 2014) by Principal Secretary, 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 roads and, therefore, a new sub-base or preparation of ground for fresh CC roads would not be required. It was also stipulated in the circular 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, as far as possible, because it would exhaust the entire budget 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 State Government accorded (December 2014) administrative and financial sanction for construction of CC roads under GGPS. The work orders for 95 roads[64] were issued (December 2014) by concerned Executive Engineers (EEs) for ₹ 43.86 crore[65] and stipulated date of completion was fixed between May and September 2015. A sum of ₹ 34.55 crore[66] was paid (August 2015 to August 2016) to various contractors.

Scrutiny of records (January- October 2016) of the Divisions revealed that the Department had included excavation of earth, construction of granular sub-base and laying of compacted graded stone aggregate as individual items in the estimates of works. It is to mention that these works were not to be included according to GGPS guidelines as mentioned above. However, the works were awarded/executed in contravention to GGPS guidelines. The Department could have avoided an expenditure of ₹ 4.19 crore ***(Appendix-3.18)*** by not including these items in the estimates and constructing the CC roads on already existing CC/bitumen roads as per the existing instructions. This would have helped the Department to use the savings to connect more areas with CC roads.

In case of Balotra, Shahpura and Barmer-I Divisions, the State Government stated (January, June and July 2017) that to resolve the issue of water storage and mud problem on the road, excavation of earth, gravel and WBM works were included in the estimate and works were executed. In case of Chittorgarh Division, it was stated (August 2017) that most of the roads were badly damaged due to accumulation of water on roads and to resolve this issue, these items were taken in the estimates and the works executed. In case of Nawalgarh Division, it was stated (June 2017) that there was a lot of traffic on these roads due to mining operations in the area, so Granular Sub-base and Water Bound Macadam works were executed as per design of crust approved by State Technical Agency (STA). The reply is not acceptable as inclusion of these items was in violation of the directions of the Government. Further, no survey reports in support of the roads claimed to have been badly damaged were furnished by the Divisions and in case of Nawalgarh division, STA report in respect of only one out of 17 roads was submitted. In case of Barmer-I division, surface history of roads, signed by concerned Assistant Engineer's (not survey report) was submitted by the department, but it is not clear as to whom and when this document was submitted and what action was taken by the higher authorities.

[64] Balotra (15 roads), Chittorgarh (26 roads), Barmer-I (14 roads), Shahpura (23 roads) and Nawalgarh (17 roads)

[65] Balotra (₹ 9.73 crore), Chittorgarh (₹ 12.52crore), Barmer-I (₹ 7.02 crore), Shahpura (₹ 8.41 crore) and Nawalgarh (₹ 6.18 crore)

[66] Balotra (₹ 6.54 crore), Chittorgarh (₹ 9.58 crore), Barmer-I (₹ 5.84 crore), Shahpura (₹ 6.63 crore) and Nawalgarh (₹ 5.96 crore)

3.9 Irregular expenditure on construction of roads

Irregular expenditure of ₹ 80.28 lakh incurred against the rule of financial propriety

Rule 10 of General Financial and Accounts Rules provides 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 is expected to exercise the same vigilance in respect of expenditure incurred from public money as a person of ordinary prudence would exercise in respect of expenditure of his own money.

The State Government issued (December 2014) administrative and financial sanction for construction of Cement Concrete (CC) roads under *Gramin Gaurav Path Scheme* (GGPS). Technical sanction for 31 roads[67] was issued by Executive Engineer (EE), Public Works Department (PWD) Division, Chittorgarh for ₹ 15.50 crore. After tendering process, the work order was issued (December 2014) by EE, PWD Division, Chittorgarh for ₹ 12.52 crore with stipulated date of completion as 6 September 2015. The work remained incomplete and the contractor was paid ₹ 9.58 crore up to March 2016.

Test check of records (May 2016) of EE, PWD, Division Chittorgarh revealed that out of 31 roads, two roads were constructed 1 to 12 months earlier[68] under other schemes and were under guarantee period. In spite of knowing this fact, these roads were again sanctioned under GGPS and works were under progress after incurring an expenditure of ₹ 80.28 lakh. The road-wise details of expenditure incurred are as below:

S.No.	Name of Road	Reach	Expenditure incurred under GGPS (₹ in lakh)	Month in which the work was earlier executed under other scheme
1	Approach Road to Pal	2/500 km to 3/500 km	40.67	November 2013 (12 months before) under the scheme RIDF[69]
2	Chittorgarh-Soniyana Surpur Road	13/500 km to 14/500 km	39.61	November 2014 (one month before) Reach from km 13/000 to 14/000 was executed under the scheme *i.e.* Non-patchable works.
Total			**80.28**	

As the reach of the above roads had already been constructed under other schemes 1 to 12 months earlier and were under guarantee period, sanctioning of these roads again under GGPS and incurring an expenditure of ₹ 80.28 lakh on construction was avoidable and against the rule of financial propriety.

[67] Package No. RJ-10-01/GGP Road/Plan/2014-15
[68] from the date of sanction under GGPS
[69] Rural Infrastructure Development Fund

The State Government replied (May 2017) that the roads located in the populated areas of *Gram Panchyat* headquarters were old and badly damaged. On the recommendation of local Member of Legislative Assembly, CC roads were constructed in these areas. The reply is not acceptable as the old and badly damaged roads were not part of the above sanctioned roads and there was no administrative and financial sanction for the construction of these roads under GGPS. As such, payment made for these roads against the amount booked for the roads sanctioned under GGPS was irregular as in disguise of construction of sanctioned CC roads under GGPS, CC roads were constructed elsewhere for which no sanction existed.

Water Resources Department

3.10 Blocking of funds and non- recovery of compensation

Blocking of funds of ₹ 9.21 crore due to non-execution of work of Dam and Canal simultaneously and non-recovery of compensation ₹ 93.24 lakh from the contractor

As per instructions of Chief Engineer, Water Resources Department (WRD), construction of dam and canal should be taken up simultaneously so as to utilise the water stored in dam for irrigation purpose immediately. Further, the Planning commission has also emphasised that to secure the maximum use of irrigation facilities created and to prevent unnecessary locking up of capital, the construction of dam, canal and field channels should be appropriately coordinated from the time a project is first approved.

The State Government issued (May 2007) administrative and financial sanction of ₹ 15.44 crore for construction of Ghora Khoj Minor Irrigation Project which was revised to ₹ 19.24 crore in July 2011. The sanction included the work of construction of Dam and Canal. The work of construction of Dam was completed in May 2010 after incurring an expenditure of ₹ 9.21 crore. Technical sanction for construction of Right Main Canal[70] having Culturable Command Area (CCA) of 425.21 hectares was issued (December 2009) by Additional Chief Engineer, Water Resources (WR) Zone, Udaipur for ₹ 3.81 crore which was revised to ₹ 4.18 crore in September 2014.The tender for construction of canal was accepted (May 2010) by Chief Engineer (CE), WR Department, Rajasthan, Jaipur for ₹ 3.50 crore and work order was issued by Executive Engineer (EE), WR Division, Salumber in May 2010 with stipulated date of completion as 4 December 2011. The work was finalised at incomplete stage (5 September 2013) and payment of ₹ 2.42 crore was made to the contractor for the completed portion of the work (March 2015).

Test check of records of EE, WR Division, Salumber revealed (April 2016) that work of canal was not completed by the contractor even after grant of time extension up to 28 February 2013. The CE, WR accorded (September 2013) sanction to initiate action under clause 2 and 3 (c) of the agreement. In

[70] There is no left main canal

compliance of this, EE, WR Division, Salumber recovered (September 2013) a sum of ₹ 14.10 lakh from the contractor as compensation under clause 2 of the agreement out of the bank guarantee of ₹ 35.03 lakh furnished by the contractor and the balance amount of ₹ 20.93 lakh was lying with the Division in Deposit-V[71]. The Department initiated action to get the remaining work completed by another contractor at the risk and cost of the original contractor under clause 3 (c) of the agreement. Tenders were invited six times (February 2014 to June 2015) for completing the balance work of ₹ 1.31 crore but no contractor participated in the bidding process. The tender was accepted and work order was issued in June 2016 to another contractor for ₹ 3.07 crore (including cost of extra items). The original contractor was therefore liable to pay compensation of ₹ 93.24 lakh under clause 3 of the agreement, which was not recovered.

Due to non-awarding of work of Canal and Dam simultaneously, there was blocking of expenditure of ₹ 9.21 crore on construction of Dam and the farmers were deprived of the irrigation facilities for more than six years.

The State Government replied (May 2017) that construction of dam had been completed in May 2010 and work of Canal was expected to be completed by June 2017. It further stated that out of total envisaged CCA of 425 hectares, irrigation facilities had been provided in 150 hectares up to 2011-12 and on completion of the project, irrigation facilities in remaining area of 275 hectares would be provided. The reply is not acceptable as due to non-allotment of work of dam and canal simultaneously, the envisaged CCA of canal could not be created timely and farmers were deprived of the irrigation facilities for more than six years. Further, the Department had not recovered the amount of compensation under clause 3 of the agreement.

[71] Security Deposit Account

3.11 Blocking of funds on construction of Canal

Lack of clearance in respect of forest land caused blocking of funds of ₹ 39.87crore on construction of Bhikha Bhai Sagwara Canal

Rule 351 of Public Works Financial and Accounts Rules provides that no work should be commenced on land which has not been duly made over by the responsible civil officer.

The Bhikha Bhai Sagwara Canal is a scheme run by the State Government in the predominantly tribally populated area of Dungarpur. This canal brings irrigation water from Mahi Bajaj Sagar Dam with the objective to cater to 27500 hectares of Culturable Command Area (CCA). The canal works up to RD[72] 78.88 km were completed (May 2012) and are being utilised. The State Government issued (April 2013) administrative and financial sanctions for construction of remaining reaches beyond RD 78.88 km *i.e.* from RD 78.88 km to 92.01 km (MIS[73]-VII) for ₹ 41.80 crore, from RD 92.01 km to 105.00 km (MIS-VIII) for ₹ 44.27 crore and from RD 105.00 km to 115.00 km (MIS-IX) for ₹ 42.50 crore. The sanctions issued were subject to the clearance of land from the Forest Department before start of the work. The work orders[74] for construction of canal were issued (between September 2013 and October 2014) by Executive Engineer (EE), Bhikha Bhai Sagwara Canal Division, Mahi Project, Sagwara with stipulated date of completion between September 2015 and October 2016. The work of construction of canal from RD 81.09 km to RD 87.51 km was completed (September 2015) after incurring an expenditure of ₹ 12.73 crore and work from RD 97.08 km to 110.37 km was in progress (August 2016) after incurring an expenditure of ₹ 27.14 crore[75]. The work from RD 87.51 km to 92.01 km was pending for non- finalisation of tenders. The linear chart of the canal is depicted as below:

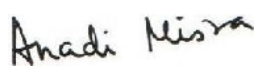
Completed portion	**Forest land (3.58 ha.)**	**Completed portion**	**Tender not finalised**	**Forest land (0.29 ha.)**	**Work in progress**
Km 0.0 to 78.88	Km 78.88 to 81.09	Km 81.09 to 87.51	Km 87.51 to 92.01	Km 92.01 to 97.08	Km 97.08 to 110.37

Test check of records of Bhikha Bhai Sagwara Canal Division, Mahi Project, Sagwara revealed (September 2016) that the work from RD 78.88 km to 81.09 km and from RD 92.01 km to 97.08 km could not be executed due to involvement of 3.87 hectares forest land. The matter for clearance of forest land was referred to Forest Department in April 2013 and permission for the same is awaited (April 2017). Non-obtaining of clearance of forest land from the Forest Department before start of the work resulted in blocking of funds of ₹ 39.87 crore on construction of canal in parts without construction of intervening portions. It also resulted in deferment of benefits of irrigation

[72] Running Distance
[73] Minor Irrigation Scheme
[74] From RD 81.09 to 87.51 for ₹ 12.91 crore, RD 97.08 to 102.00 for ₹ 13.05 crore, RD 102.00 to 105.00 for ₹ 9.06 crore and from RD 105.00 to 110.37 for ₹ 11.58 crore
[75] From RD 97.08 to 102.00 for ₹ 9.95 crore, RD 102.00 to 105.00 for ₹ 7.69 crore and from RD 105.00 to 110.37 for ₹ 9.50 crore

facilities to be provided to the farmers, out of the intended CCA to be created on completion of canal from RD 78.88 km to RD 110.37 km.

The State Government replied (May 2017) that the District Collector, Dungarpur had issued (May 2015 and November 2016) certificates under the Scheduled Tribes and Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 for the forest land to be diverted for non-forest purposes. It was also stated that an equivalent non-forest land in lieu of forest land falling between RD 78.88 km and 81.09 km and RD 92.01 km and 97.08 km was being diverted and the process of seeking permission from Forest Department was progressing. The reply is not acceptable as acquisition of land was the pre-requisite and the administrative and financial sanctions were accorded subject to the condition that forest clearance be obtained before start of the work. As such, construction of canal from RD 81.09 km to RD 87.51 km and from RD 97.08 km to 110.37 km without construction of canal from RD 78.88 km to 81.09 km and RD 87.51 km to 97.08 km due to non- availability of land for want of forest clearance resulted in blocking of funds of ₹ 39.87 crore and deferment of benefits of irrigation facilities to be availed by the farmers after completion of the project.



(ANADI MISRA)
Accountant General
(Economic & Revenue Sector Audit), Rajasthan

JAIPUR,
The 02 FEB 2018

Countersigned

(RAJIV MEHRISHI)
Comptroller and Auditor General of India

NEW DELHI,
The 06 FEB 2018

Appendices

Appendix 2.1

(Refer paragraph 2.1.5; page 17)

Position of Income and Expenditure

(₹ in crore)

Year	Income					Expenditure				Net Surplus (percentage)
	Consent Fees	Water Cess	Interest Income	Other Income[1]	Total Income	Project Expenses	Establishment and other Expenses	Income Tax	Total Expenses	
2012-13	43.03	20.52	19.33	0.90	83.78	10.79	17.62	1.22	29.63	54.15 (65)
2013-14	45.75	0.00	25.65	1.39	72.79	1.22	18.43	1.46	21.11	51.68 (71)
2014-15	38.05	0.00	29.81	1.26	69.12	0.80	22.25	3.38	26.43	42.69 (62)
2015-16	75.76	8.14	31.65	4.78	120.33	0.71	24.13	6.40	31.24	89.09 (74)
2016-17	-NA-									
Total	**202.59**	**28.66**	**106.44**	**8.33**	**346.02**	**13.52**	**82.43[2]**	**12.46**	**108.41**	

Source : RSPCB, Jaipur

Appendix 2.2

(Refer paragraph 2.1.6.3; page 20)

Actions were to be taken up as a measures for prevention, control or abatement of air pollution in NCR

S.No.	Action Points	Time frame for implementation	Concerned Authority
A	**Control of Vehicular Emissions:**		
1	Launch extensive awareness drive against polluting vehicles;	Immediate	Transport Department
2	Ensure Strict action against visibly polluting vehicles;	Immediate	-do-
3	Install weigh in motion bridges at Delhi borders to prevent overloading;	Immediate	-do-
4	Take steps to prevent parking of vehicles in the non-designated areas;	Immediate	-do-
5	Introduce early alarm system for benefit of commuters related to traffic congestion on major routes for route diversion ;	Immediate	-do-
6	Consider introducing plan for Flexi/staggered timings to minimize peak movement of vehicles on the road;	Immediate	-do-
7	Take steps for retrofitting of diesel vehicles with Particulate Filters;	Immediate	-do-
8	De-congest pathways;	Immediate	-do-
9	Synchronize traffic movements / Introduce intelligent traffic systems for lane-driving;	30 days	Department of Food & Supply, Transport
10	Install vapor recovery system in fueling stations	30 days	-do-

[1] Laboratory sample test fee, BMW, Monitoring fee *etc*.
[2] Includes ₹ 1.00 crore on laboratory expenses.

11	Take steps for installation of remote sensor based PUC system etc.;	90 days	Transport Department
12	Formulate action plan for controlling decongestion of fuel stations including increasing number of dispensing machines;	90 days	Department of Food & Supply, Transport
13	Prepare action plan to check fuel adulteration and random monitoring of fuel quality data;	90 days	-do-
14	Prepare action plan for public transport on CNG mode;	90 days	Transport Department
15	Undertake road widening and improvement of infrastructure for decongestion of road;	90 days	-do-
16	Promote battery operated vehicles;	90 days	-do-
17	Take steps to expedite early completion of Western and Eastern Peripheral expressway and submit completion schedule	60 days	-do-
B	**Control of Road Dust/Re-suspension of dust and other fugitive emission:**		
18	Formulate action plan for creation of green buffers along the traffic corridors;	Immediate	
19	Introduce wet/ mechanized vacuum sweeping of roads;	30 days	-do-
20	Maintain pot holes free roads for free-flow of traffic to reduce emissions and dust;	60 days	-do-
21	Introduce water fountains at major traffic intersection, wherever feasible;	90 days	-do-
22	Undertake greening of open areas, gardens, community places, schools and housing societies.	90 days	-do-
23	Take steps for blacktopping / pavement of road shoulders to avoid road dust;	180 days	LSG/UDH
C	**Control of Air Pollution from Bio-Mass Burning:**		
24	Take stringent action against open burning of bio-mass/leaves/tyres etc to control such activities and submit periodic status reports;	Immediate	Agriculture Department
25	Ensure proper collection of horticulture waste (bio-mass) and composting–cum-gardening approach;	Immediate	-do-
26	Ensure strict enforcement of ban on burning of agriculture waste and crop residues	Immediate	-do-
27	Prohibit use of coal in hotels and restaurants and eliminate use of kerosene for cooking in Delhi;	60 days	LSG/UDH
D	**Control of Industrial Air Pollution;**		
28	Ensure strict action against unauthorized brick kilns	30 days	RSPCB
29	Ensure strict action against industrial units not complying with standards ;	60 days	-do-
30	Enforce strict compliance of conversion of Natural draft brick kilns to induced-draft;	90 days	-do-
31	Launch action plan for switching over to natural gas by industries, wherever feasible.	120 days	-do-

E	**Control of Air Pollution from Construction and Demolition Activities:**		
32	Control dust pollution at construction sites through appropriate cover	Immediate	LSG/UDH
33	Undertake control measures for fugitive emissions from material handling, conveying and screening operations through water sprinkling, curtains, barriers and dust suppression units;	30 days	-do-
34	Ensure carriage of construction material in closed/covered vessels;	30 days	-do-
F	**Other Steps to control Air Pollution**		
35	Set-up helpline in States/UT for taking action against reported non-compliance;	Immediate	LSG/UDH
36	Evolve a system of reporting of garbage /municipal solid waste burning through mobile based applications and other social media platform linked with Central and State level Control Rooms ;	30 days	-do-
37	Establish Standard Operating Procedure to provide quick and effective response to complaints	30 days	-do-
38	Take steps for maximizing coverage of LPG / PNG for domestic cooking purposes with intention of achieving 100%;	90 days	-do-
39	Ensure DG sets meeting the standards only be allowed to operate	30 days	-do-
40	Promote use of LPG instead of coal in restaurants/ dhabas/ road side eateries;	90 days	-do-
41	Undertake Satellite based monitoring for tracking and enforcing agriculture waste burning;	90 days	-do-
42	Take steps for setting up of bio-mass based power generation units to avoid bio-mass burning.	One year	-do-

Source : RSPCB, Jaipur

Appendix 2.3

(Refer paragraph 2.1.7.3; page 24)

List of Air Quality Monitoring Stations

S.No.	City Name	Installation Year	Location of AAQMS/CAAQMS	Remarks (Approved location name)
Ambient Air Quality Monitoring Station (AAQMS)				
1	Bhiwadi	2015	**RO, RSPCB Building**	-
2	Bhiwadi	2015	**UIT Guest House**	ESI Hospital
3	Bhiwadi	2016	**M/S Uttam Strips**	-
4	Alwar	1994	**RO RSPCB Building**	-
5	Alwar	1994	**M/S Jain Irrigation LTD.**	Gaurav Solvex
6	Alwar	1991	**M/S Vintage Distillers Ltd.**	RIICO Pump House
7	Jodhpur	1994	**Shastri Nagar Police Station**	-
8	Jodhpur	2003	**Chopasni Housing Board**	-
9	Jodhpur	1994	**Mahamandir Police Station**	-
10	Jodhpur	1994	**Sojti Gate Police Station**	-
11	Jodhpur	2003	**DIC Office**	-
12	Jodhpur	2003	**RO RSPCB Building**	RIICO Office Basni II
13	Kota	1985	**Krishi Vigyan Kendra Borkhera**	Samcore Glass Ltd.
14	Kota	2000	**Municipal Corporation Rampura**	
15	Kota	2016	**Fire Station**	
16	Kota	2016	**M/S Giriraj ITI**	Sewrage Treatement Plant Balita
17	Kota	2016	**Rajasthan Technical University**	-
18	Kota	1998	**RO RSPCB Building**	-
19	Udaipur	1994	**RO RSPCB Building**	-
20	Udaipur	1994	**Town Hall**	-
21	Udaipur	1994	**Amba Mata**	-
22	Jaipur	1996	**RSPCB Head Office Building, Jhalana dungri**	-
23	Jaipur	1996	**RO RSPCB Building, Sikar Road**	-
24	Jaipur	1996	**RSEB Building, Chandpole**	-
25	Jaipur	1996	**VKI, Recreation Club**	-
26	Jaipur	1996	**RIICO Office MIA**	-
27	Jaipur	1996	**PHED Building Ajmeri Gate**	-
28	Jaipur	2017	RIICO Office Baees Godam Industrial Area	-
29	Jaipur	2017	RIICO Office, Sitapura Idustrial Area	-
30	Bharatpur	2015	RO Building Bharatpur	-
31	Bharatpur	2016	RIICO Office	-
32	Bharatpur	2016	Khadi Gramodyog	-

Continuous Ambient Air Quality Monitoring Station (CAAQMS)				
1	Jaipur	2012	**Police Commissioner, M I Road**	-
2	Jodhpur	2012	**District Collectorate, Jodhpur**	-
3	Jaipur	2017	Psychiatric Centre , Sethi Colony	-
4	Jaipur	2017	Regional Science Centre ,Shastri Nagar	-
5	Ajmer	2017	Sainik Vishram Grah,Civil Line	-
6	Pali	2017	Bangur Govt. PG College, Pali	-
7	Bhiwadi	2017	**Water Supply Scheme Phase-4 RIICO Industrial Area**	-
8	Kota	2017	**Shrinath Puram Stadium**	-
9	Alwar	2017	**Rajasthan Madhymic Shiksha Parishad Office, in front of SDM School, Alwar**	-
10	Udaipur	2017	**DMG Office, Court Circle**	-

Source : RSPCB, Jaipur; Jointly visited units have been highlighted in bold

Appendix 2.4

(Refer paragraph 2.1.7.3; page 24)

Details of air quality monitoring instruments installed at unsuitable locations

S. No.	Name of City	Name and Location of monitoring station	Audit Findings
1	Alwar	CAAQMS, Rajasthan Madhymic Shiksha Parishad	Located at corner of back side of building and surrounded by buildings.
2	Alwar	AAQMS, M/s Vintage Distillers Limited, 117 MIA, Alwar	Located at corner of roof of small size building and surrounded by buildings and trees.
3	Alwar	AAQMS, M/s Jain Irrigation Limited	Located at corner of roof of small size building and surrounded by trees.
4	Bhiwadi	CAAQMS, water supply complex, RIICO Industrial Area	Close to a wall, surrounded by buildings, trees and water overhead tank.
5	Jodhpur	AAQMS, Regional Office, Jodhpur	Located at corner of roof of building and surrounded by trees.
6	Jodhpur	AAQMS, Mahamandir, police station	Surrounded by trees.
7	Jodhpur	AAQMS, Sojatigate, police station	Surrounded by trees.
8	Jodhpur	AAQMS, Chopasani Housing Board	Sampler was installed near walls and trees.
9	Kota	AAQMS, Fire station	Sampler was installed near walls and trees.
10	Kota	AAQMS, KVK, Borkhera	Station was surrounded by farm land and there was no nearby sources, concentration gradients of pollutants, etc.
11	Udaipur	AAQMS, Town hall	Close to a wall, surrounded by buildings and trees.
12	Udaipur	AAQMS, RO building	Placed at ground of roof and close to boundary wall.

Source: Regional Offices, RSPCB and Ambient Air Quality Monitoring Stations

Appendix 2.5

(Refer paragraph 2.1.7.3; page 25)

Details of samplers installed at sites other than approved locations

S.No.	Name of city	Type of monitoring station	Approved location of monitoring stations	Location where sampler was installed
1	Alwar	AAQMS	M/s Gaurav Solvex Ltd	M/s Jain Irrigation Ltd
2	Alwar	AAQMS	RIICO Pump House	Roof of Guard Room, Industrial Area, attached with M/s Vintage Distilleries Ltd
3	Bhiwadi	CAAQMS	UIT Guest House	Water Supply Complex, RIICO Industrial Area
4	Bhiwadi	AAQMS	E.S.I. Hospital	UIT Guest House
5	Jaipur	CAAQMS	RO building, Sikar Road	Police Commissionerate
6	Kota	AAQMS	Samkor Glass Ltd	KrishiVigyan Kendra, Borkheda
7	Kota	AAQMS	Sewarage Treatment Plant, Balita	Giriraj I.T.I

Source: Regional Offices, RSPCB and Ambient Air Quality Monitoring Stations

Appendix 3.1

(Refer paragraph 3.1.5.1; page 59)

Excerpts of the Hon'ble Supreme Court of India orders in context of mining in Aravalli Mountain Hills (Writ Petition(Civil)no. 202/1995)

Date	Particulars
29 October 2002	The Hon'ble Supreme Court of India prohibit and ban all mining activity in the entire Aravalli hills. This ban is not limited only to the hills encircling Kote and Alampur villages but extends to the entire hill range of Aravalli from Dholpur to Rajasthan. The Chief Secretary, State of Haryana and Chief Secretary, State of Rajasthan are directed to ensure that no mining activity in the Aravalli hills is carried out, especially, in that part which has been regarded as forest area or protected under the Environment (Protection) Act.
16 December 2002	The order dated 29/30 October 2002 prohibiting and banning the mining activity in Aravalli hills from Haryana to Rajasthan is modified insofar as the State of Rajasthan is concerned to following effect: Wherever requisite approval/sanctions in the said State have been obtained under the Forest (Conservation) Act, 1980 and the Environment (Protection) Act, 1986 and the mining is not prohibited under the applicable Acts or notifications or orders of the court, mining can continue and to such mining the order aforesaid will not apply.
08 April 2005	Pending further directions, we restrained any kind of mining in forest area. Further, we restrained mining in any area in Aravalli hills falling in the State of Rajasthan, where permission may have been accorded after 16 December 2002.
19 February 2010	There were about 261 mining leases in the Aravalli range in the State of Rajasthan. Some of the mining leases have been renewed after 16.12.2002, though it was not strictly permissible as per order passed on that date. A large number of renewal applications are also pending with the authorities. Taking advantage of the deeming provision of Rule 24A Renewal of mining lease of the Mines and Mineral (Development and Regulation) Rules, 1960 almost all the lease-holders are carrying on mining operations uninterruptedly. The renewal applications are pending for a long time and in many cases for several years. Rule 24A apparently does not envisage this kind of situation. We, accordingly, restrain all those lease-holders whose applications for renewal of their respective leases are pending from doing any mining operation till further orders.

Appendix 3.2

(Refer paragraph 3.1.6; page 63)

Provisions relating to environmental issues laid down under various regulations to be met by the lease holders

1 Top Soil

MCD Rules, 1988	Mining Plan	EC conditions	CTO conditions
Rule 32- every holder of a major mineral mining lease shall, wherever top soil exists and is to be excavated for mining operations, remove it separately and shall utilise it for restoration/rehabilitation of the land. Similar provisions exist in Rule 37U (1) of the RMMC Rules, 1986 for minor mineral leases.	The top soil will be stacked on the non-mineralised area. Top soil will be spread over dumps for plantation purposes.	The top soil, if any, shall be stacked at earmarked sites only and it should not be kept unutilised for long. The top soil shall be used for land reclamation and plantation.	The project proponent will stack the top soil separately and will use it for plantation and reclamation of overburden dumps.

2 Overburden dumps

Mining Plan	EC conditions	CTO conditions
Each lessee depending on the type of mineral extracted, proposes specific treatment/ reclamation of overburden in Mining Plan. Stabilisation of overburden by retaining wall. (Each lessee proposes stabilisation as per overburden status).	A separate space should be earmarked for dumping of the overburden material and it should not be kept active for long period. The overburden dumps should be scientifically vegetated with suitable native species to prevent erosion and surface run off. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining.	The overburden generated shall be stacked at earmarked dump sites only and after dumping is over, it should be stabilised by suitable plantation. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self-sustaining. A retaining wall should be at the toe of the overburden dumps.

3 Plantation

GOR's circular dated 29 September 2003	Mining Plan	EC condition	CTO condition
The norms for plantation for each lease holder/ quarry license holder would be as under:	The mining plan contains the name of species which would be planted, number of plants, place/ site for year wise plantation. The lessee has to ensure post plantation care such as hedging, watering during dry spell, manuring, pest treatment and replenishment of plant casualties so that survival rate is not less than 80 *per cent.*	Plantation of trees has to be developed all along the mine lease area in a phased manner. The plantation area varies depending on the size of the lease.	The lessee shall develop plantation in at least 33 *per cent* of the total lease area to maintain ambient air quality around the mine and the action plan for plantation has to be adhered.

Category	Norms
Major Mineral lessee	5 plants/hectare or part/ year
Marble, Serpentine and granite leases and Quarry Licenses.	20 plants/hectare or part/ year
Other minor mineral leases and Quarry Licenses.	10 plants/hectare or part/ year
Quarry License of minerals other than Marble and Granite having area less than 1 hectare.	5 plants/ Quarry Licenses/year

4 Construction of garland drain

EC conditions	CTO conditions
Garland drain should be constructed around the mining pit and overburden dump to arrest the silt and sediments from the runoff water in low lying areas during rains.	Garland drain should be constructed around the mineral and overburden dump to prevent runoff water and flow of sediments.

5 Air pollution control measures

MCD Rules, 1988	Mining Plan	EC conditions	CTO conditions
Rule 37 stipulates that air pollution due to fines, dust, smoke or gaseous emissions during mining, beneficiation[3] and related activities shall be controlled and kept within permissible limits specified under various environmental laws of the country including the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 by the holder of the major mineral mining lease. Similar provisions exist in Rule 37U(4) of the RMMC Rules, 1986 for minor mineral leases.	Details of possible causes of air pollution are discussed in detail with remedial measures.	The haul road, loading and unloading point should be sprinkled with water to prevent the dust particles becoming airborne. The environmental monitoring of the air quality, level of Suspended Particulate Matters (SPM), Respirable Particulate Matters (RPM), Sulphur dioxide (SO_2), Nitrogen dioxide (NO_2) and Carbon monoxide (CO) should be tested and the results should be submitted to RSPCB once in six months.	The water spray and sprinkling system installed should always be maintained in order to utilise the same for dust suppression. As per the general condition of the CTO, the lessee is required to conduct ambient air quality monitoring for SPM in the mining area once in six months and submit the results to RSPCB. The lessee shall provide necessary infrastructure facilities including equipment for the monitoring of ambient air quality.

6 Noise pollution control measures

MCD Rules 1988	Mining Plan	EC conditions	CTO conditions
Rule 39 stipulates that noise arising out of mining, beneficiation *etc*. shall be abated or controlled by the major mineral mining lease holder at the source so as to keep it within the permissible limit. Similar provisions exist in Rule 37U (6) of the RMMC Rules, 1986 for minor mineral leases. Further, results of periodical examination of noise pollution shall be intimated to the concerned ME/AME as well as RO of the RSPCB.	Proper maintenance for machine deployed at mining site is proposed for minimising the noise.	Measures should be taken for control of noise levels within prescribed standards.	The noise level under no circumstances should exceed the prescribed limits (day time-75 dBA and night time-65 dBA). Monitoring of noise level shall be conducted once in six months and results thereof shall be submitted to the RSPCB regularly.

7 Rehabilitation and reclamation of mined out pits

MCD Rules 1988	EC conditions	CTO conditions
Rule 34 stipulates that every holder of major mineral mining lease shall undertake the phased restoration, reclamation and rehabilitation of lands affected by mining operations and shall complete this work before the conclusion of such operations and the abandonment of mine. Similar provisions exist in Rule 37U (3) of the RMMC Rules, 1986 for minor mineral leases.	A final mine closure plan along with details of corpus fund should be submitted to the MoEF five years in advance of final mine closure for approval.	The mining unit shall undertake the phased restoration, reclamation and rehabilitation of lands as per established practices and procedures affected by mining operations and shall complete this work before the conclusion of such operations and the abandonment of prospects or mines.

8 Mining in benches

Metalliferous Mines Regulations, 1961	Mining Plan	EC conditions
Regulation 106(2) (a) provides that where excavation of deposit is worked out by manual means on a sloping face, the face shall be benched and the sides shall be sloped at an angle of not more than 60 degrees from the horizontal. The height of any bench shall not exceed six meters and the breadth thereof shall not be less than the height. However, where the ore-body consists of comparatively hard and compact rock, the Regional Inspector may, by an order in writing and subject to such conditions as he may specify therein, permit the height of the bench to be increased up to 7.5 meters.	Year wise development of mine wherein for each year, the pit wise bench height, width and length to be developed are provided.	Benches height, width and slope shall be maintained as per the Metalliferous Mines Regulations, 1961 or as per the approval of the Director General of Mines Safety.

[3] "Beneficiation" means processing of minerals or ores for the purpose of (i) regulating the size of a desired produce; (ii) removing unwanted constituents; and (iii) improving quality, purity or assay grade of desired product.

Appendix 3.3

(Refer paragraph 3.1.6.3; page 68)

Cross verification of the joint physical inspection findings with 38 RSPCB inspection reports

S.no.	Component of environmental issues	Comparisons between reports of RSPCB and Joint physical inspections	Audit comments
1	**Top soil:** As per the proforma of the inspection reports of RSPCB, the availability of the top soil had to be commented on and in case it was available then its storage, location and quantity had to be specified.	As per RSPCB inspection reports, no top soil were available in 15 MLs, no mention about top soil in 14 MLs or minimal top soil were available in six MLs and top soil present in 3 MLs where as in Joint physical inspection findings, it was noticed that no top soil were available in 16 MLs and the top soil were present in 22 MLs.	It revealed that the RSPCB had reported availability of top soil in three cases only whereas it was available in 22 MLs as per joint physical inspection findings. Thus, the inspection reports of the RSPCB were incomplete, incorrect and unreliable regarding top soil in 19 MLs.
2	**Overburden dumps:** In the proforma of the inspection report of the RSPCB, the inspecting officer is required to report the number of overburden dumps with dimension and location of these dumps, construction of retaining wall around the overburden dumps, the number of plants around the dump and the type of plantation	As per RSPCB inspection reports, no overburden were present in 7 MLs, overburden not present or insignificant dump found in 29 MLs and no comments on overburden was made in 2 MLs where as in Joint physical inspection findings, it was noticed that overburden were present in 36 MLs and overburden not present or insignificant dump were found in 2 MLs.	In none of the reports of the RSPCB, all the details regarding the number of dumps with dimension and location were mentioned. In seven[4] MLs, the number of dumps and dimensions were mentioned but their location was not specified except in one ML (07/01-Rishabhdeo). In two MLs, no comment had been made regarding overburden dumps. In the remaining 29 MLs it was stated that no overburden dump or insignificant dump was found in the lease area and so no reclamation was required. In nine MLs, retaining wall was reported to have been constructed by the RSPCB in their inspection reports but it was noticed that retaining wall was found constructed in one ML only and retaining wall was in progress in two MLs.
3	**Plantation:** The inspection format required the inspecting officer to comment on number of plantations, type of plantation and its location.	As per RSPCB inspection reports, 12 to 1,500 plants were reported in 25 MLs, 1,000 and 40,000 plants were reported in 2 MLs, plantation reported (300-3,400) in and outside the lease area in 3 MLs and no details of plantations outside the lease area was given and no comments on plantation were made in one ML where as in Joint physical inspection findings, it was noticed that no plantation in 27 MLs were found, 20 to 100 plants were found in 3 MLs as against reported 300-3,400 plants and 1,750 plants were found in one ML wherein RSPCB had made no comments about plantation.	The inspection reports of the RSPCB regarding plantation were imprecise. In case of 25 MLs, the inspection reports of RSPCB had reported plantation of 12 to 1,500 plants. However, no plantation was found during joint physical inspection. Further, in case of two MLs (ML 415/02 and 414/02) out of 25 MLs, it was noticed that the

[4] Seven leases (11/05 and 54/93–Rajsamand-I, 02/92, 15/03–Rajsamand-II, 06/89–Udaipur, 7/01 and 08/92–Rishabhdeo).

			RSPCB had carried out inspection in the year 2011 and 2012 respectively. As per the reports, in ML 415/02, 35 plants and in ML 414/02, about 30 plants were reported. In the second inspection carried out in March 2015, 50 plants in each mining lease area were reported. However, no plantation was found inside the mining lease area during joint physical inspection. The inspecting officers did not comment on the specific location of the plantations done. In two MLs (ML 1/93and 54/93), as per the RSPCB inspection report, around 1,000 and 40,000 plantations respectively were reported inside the lease area. However, during joint physical inspection, not a single plant was found. The RSPCB in their inspection report of three MLs had reported plantation of 2,000 (ML 07/01), 3,400 (ML 02/92) and 300 (ML 48/11) plants in and outside mining lease area. It was seen that no details regarding location of plantation done outside the lease area were given in their report. On joint physical inspection, it was found that only 20 plants were present inside the mining lease area in ML 07/01, 100 plants in ML 2/92 and 100 plants in ML 48/11. In one ML (15/03), RSPCB had not mentioned anything against plantation but during joint physical inspection, 1,750 plants were found.
4	**Construction of garland drain**	As per RSPCB inspection reports, no comments about garland drains were reported in 20 MLs, garland drain were provided in 15 MLs, garland drains were not provided in two MLs and garland drains was not applicable in one ML where as in Joint physical inspection findings, it was noticed that garland drains were provided in two MLs, garland drains were not provided in 30 MLs and garland	It revealed that in 20 MLs, status of garland drains had not been commented upon by the RSPCB. Further, it was found in joint physical inspection that there was no garland drain in 30 MLs. Garland drains were found constructed in only two MLs as

		drains were not applicable in six MLs.	against 15 MLs reported in the RSPCB reports.
5	**Air pollution control measures:** The lease holder is required to submit six monthly report regarding ambient air quality to the RSPCB. The proforma of the inspection report of RSPCB has a column in which as part of Air Pollution control measures, the inspecting officer has to report on water sprinkling arrangement and its functioning, periodicity of water sprinkling and details of location where water sprinkling was done.	Cross verification of joint physical inspection findings regarding the air quality was not possible with inspection reports of RSPCB as the air quality could not be checked during joint physical inspection in absence of equipment for checking the air quality at the mining site.	The column relating to the water sprinkling arrangement provided in the inspection reports of the RSPCB were not adequately filled up by the Inspecting Officer and concerned RO, RSPCB did not initiate any action for non-submission of six monthly reports regarding ambient air quality.
6	**Noise pollution control measures:**	Scrutiny of the inspection reports of RSPCB of 38 leases revealed that there was no mention about the noise level.	The RSPCB could not monitor noise pollution level in the lease areas as there was no column provided in the proforma of inspections report for monitoring of noise level.
7	**Rehabilitation and reclamation of mined out pits**	As per RSPCB inspection reports, only in three inspections out of 38 checked MLs were advised to undertake phased restoration, reclamation and rehabilitation of lands affected by mining operations while it was noticed in joint physical inspection findings, there was no phased restoration, reclamation and rehabilitation were found in MLs.	The RSPCB could not monitor phase wise restoration, reclamation and rehabilitation of land in lease areas as the inspection proforma did not cover the aspect.
8	**Mining in benches:** The format of the inspection report of the RSPCB includes a column on development of benches with pit wise bench height, width and length.	As per RSPCB inspection reports, no comments about development of benches were made in 23 MLs, benches were developed in 10 MLs, benches were not developed in one ML, benches not applicable in one ML and nil reporting was done in 3 MLs where as in Joint physical inspection findings, it was noticed that benches were developed in 3 MLs as against 10 MLs reported by the RSPCB, benches were not developed in 27 MLs, benches not applicable in one ML and improper benches were found in 7 MLs.	It was noticed that for 23 MLs, 'no comments' were given in the column by the RSPCB. For 10 leases, it was reported that benches had been developed. However, the details regarding pit wise bench height, width and length were not given in five cases. For one lease, it was reported that benches were not applicable. For three leases, it was reported as 'nil' and only for one lease it was reported that benches had not been formed. No notice was found to have been issued to the lessee for ensuring proper development of the benches by the RSPCB

Appendix 3.4

(Refer paragraph 3.2.1; page 73)

Activity-wise position of physical targets and achievements

S.N	Name of activity	Unit	Targets as per Project Report	Achievements
1	Afforestation (in hectares)	Ha.	52,750	52,750
2	Agro Forestry Activities (i) Seedling distribution (in numbers)	Nos.	50,00,000	46,97,000
	(ii) Creation of new nurseries (in numbers)	Nos.	10	10
	(iii) Development of existing nurseries (in numbers)	Nos.	10	10
3	Soil and Moisture Conservation Structures (in numbers)	Nos.	38,060	38,077
4	Joint Forest Management Activities	Nos.		
	(i) Creation of SHGs/VFPMCs (in numbers)		250	249
	(ii) Preparation of Micro plans (in numbers)		250	229
	(iii) VFPMC meetings (in numbers)		250	249
	(iv) Honorarium to NGOs		17	12
	(v) Awareness camps (in numbers)		250	250
5	Capacity Building Training to VFPMC members/NGOs/ROs/ACFs/DFOs	LS.	256	253
6	Communication and Extension	Nos.		
	(i) Exchange visits/study tours (in numbers)		34	34
	(ii) Workshops/seminars (in numbers)		7	5
7	Monitoring and Evaluation	LS.	-	-
8	Convergence through MGNREGA Construction of pucca wall fencing (in hectares)	Ha.	1,000	-

Source: Information provided by PCCF.

Appendix 3.5

(Refer paragraph 3.2.4.2; page 75)

Statement showing status of distribution of uncertified/below standard seeds

(in ₹)

S. No.	Name of division	Purchase of seed from market which was not tested from Lab.	Seed collected through VFPMCs but not tested from Lab.	Total seed not tested from Lab.	Purchase of seed from market which was below standard	Grand Total (3+4+6)
1	DCF Kota	0	39,835	39,835	3,58,162	3,97,997
2	DCF (WL) MNP, Kota	2,39,499	32,750	2,72,249	0	2,72,249
3	DCF Rajsamand	0	4,680	4,680	91,353	96,033
4	DCF Ajmer	1,14,767	0	1,14,767	0	1,14,767
5	DCF Bundi	2,19,481	2,882	2,22,363	2,24,500	4,46,863
6	DCF Pratapgarh	6,35,515	1,71,394	8,06,909	0	8,06,909
7	DCF Bhartapur	2,47,080	0	2,47,080	0	2,47,080
	Total	**14,56,342**	**2,51,541**	**17,07,883**	**6,74,015**	**23,81,898**

Source: Information provided by concerned DCFs.

Appendix 3.6

(Refer paragraph 3.2.4.2; page 75)

Details of cases in which plantation done prior to issuance of technical sanction

S. No.	Name of Division	Name of site/model and Range	Technical sanction No. and date	Voucher No. and date	Amount paid	Actual period of execution of work
1	DCF (WL) MNP, Kota	Kalyakui (RDF-I), Range-Dara	5968/30.10.2014 amount ₹ 5.88 lakh	22/30.1.2014	3,80,246	1.4.2014 to 31.8.2014
2	-do-	-do-	-do-	44/28.11.2014	1,52,132	1.9.2014 to 31.10.2014
3	DCF, Rajsamand	Ajitgarh (ANR), Range-Bhim	47-60/ 27.7.2015 amount ₹ 1,53,700/-	53/28.7.2015	17,278	1.4.2015 to 30.6.2015
4	-do-	-do-	-do-	53/17.10.2015	16,572	1.7.2015 to 31.7.2015
5	-do-	Jetakhera (ANR) Range-Bhim	-do-	41/17.10.2015	28,936	1.4.2015 to 30.6.2015
6	-do-	Bansa (RDF-II) Range-Kumbhalgarh	01-06/22.7.2013 amount ₹ 4.94 lakh	49/29-8-2013	12,471	23.3.2013 to 30.4.2013
7	-do-	-do-	-do-	50/29-8-2013	9,607	1.5.2013 to 31.5.2013
8	-do-	-do-	-do-	51/29-8-2013	31,321	1.6.2013 to 30.6.2013

9	-do-	-do-	-do-	52/29-8-2013	1,39,816	3.7.2013 to 31.7.2013
10	-do-	-do-	-do-	33/29-8-2013	2,000	8.7.2013
11	-do-	Bhagawad Range (RDF-II)-Bhim	24-29/19-8-2013 amount ₹ 4.43 lakh	71/30-8-2013	20,438	1-4-2013 to 31-5-2013
12	-do-	-do-	-do-	70/30-8-2013	2,00,353	1-6-2013 to 31-7-2013
13	-do-	-do-	-do-	75/30-8-2013	6,000	1-4-2013 to 31-7-2013
14	-do-	-do-	-do-	28/29-8-2013	1,501	24-6-2013
15	-do-	-do-	-do-	29/29-8-2013	1,501	21-7-2013
16	-do-	Ratnawaton ki bhagal (RDF-II) range-Nathdwara	12-18/ 8-8-2013 amount ₹ 4.94 lakh	13/22-8-2013	7,081	25-3-2013 to 30-4-2013
17	-do-	-do-	-do-	14/22-8-2013	10,121	1-5-2013 to 31-5-2013
18	-do-	-do-	-do-	15/22-8-2013	30,497	1-6-2013 to 30-6-2013
19	-do-	-do-	-do-	16/22-8-2013	1,21,981	2-7-2013 to 27-7-2013
20	-do-	-do-	-do-	36/29-8-2013	1,500	10-7-2013
21	-do-	-do-	-do-	38/29-8-2013	1,000	1-8-2013
22	DCF, Pratapgarh	Huda Bavji-B range-Pipalkhunt (ANR)	3525-26/30.5.14	147/19.6.14	8,600	1.4.14 to 31.5.14
23	-do-	Siya khedi mahadev Range-Choti sadri (ANR)	3525-26/30.5.14	178/19.6.14	8,600	1.4.14 to 31.5.14
24	-do-	Ruwamagara Range-choti sadri (ANR)	3525-26/30.5.14	186/25.6.14	8,600	1.4.14 to 31.5.14
25	-do-	Dhar Range-Bansi (ANR)	3525-26/30.5.14	02/25.7.14	8,600	1.4.14 to 31.5.14
26	-do-	Kanna mata Range-Bansi (ANR)	3525-26/30.5.14	211/15.9.14	8,600	1.4.14 to 31.5.14
27	-do-	Khanpuri Range-Dhariyawad (ANR)	3525-26/30.5.14	138/25.7.14	8,600	1.4.14 to 31.5.14
28	-do-	Aadavela Range Dhariyawad (ANR)	3525-26/30.5.14	121/25.7.14	8,600	1.4.14 to 31.5.14
29	-do-	Mewa Range-Dhariyawad (ANR)	3525-26/30.5.14	294/16.10.14	8,600	1.4.14 to 31.5.14
Total					**12,61,153**	

Source: Information provided by concerned DCFs.

Appendix 3.7

(Refer paragraph 3.2.5.1; page 76)

Details of works that deviated from micro plan

(₹ in Lakh)

S. No.	Name of Division	Proposed works (Not executed)			Works executed (Not proposed initially)		
		Types of works	No.	Amount	Types of works	No.	Amount
1	DCF Rajsmand	Anicut Contour Gabion	4 3 1	82.00	WHS	1	3.04
2	DCF Kota	Anicut Farm pond	1 1	13.50	Contour Anicut Check dam PCT LBG WHs Farm pond	6 2 1 4 1 2 2	**73.36**
3	DCF Bundi	Anicut WHs Gabion Check dam PCT Contour Farm pond	2 1 2 3 1 2 1	67.00	Gabion PCT Contour	1 1 1	19.18
4	MNP Kota	Checkdam Farmpond Anicut PCT	2 2 1 1	5.00	WHs Anicut	2 2	18.38
5	DCF Partapgarh	Anicut	1	6.50	WHs Contour	1 1	7.05
6	DCF Bharatpur	Anicuts Pond	2 2	40.00	-	-	-
		Total	**33**	**214.00**	**Total**	**28**	**121.01**

Source: Information provided by concerned DCFs.

WHS-Water Harvesting Structure

PCT-Percolation Tank

LBG- Loose Boulder Gabion

Appendix 3.8

(Refer paragraph 3.2.5.2; page 76)

Statement showing division-wise status of construction of Soil & Moisture Conservation Structures without obtaining prior permission from state level committee

(Amount in ₹)

S No.	Name of Division	Year	Construction of soil and moisture conservation structure							
			Check dam No	Amount	Anicut II	Amount	Anicut III	Amount	WHS No	Amount
1	Rajsmand	12-13	-	_	03	1949576	02	1585407	-	-
		13-14	51	928444	06	3890210	02	1699822	13	3924909
		14-15	_	_	02	1299476	01	850000	02	604000
		Total	**51**	**928444**	**11**	**7139262**	**5**	**4135229**	**15**	**4528909**
2	MNP Kota	12-13	03	55000	-	-	-	-	-	-
		13-14	-	-	05	3144404	02	1533765	05	1487933
		14-15	-	-	-	-	-	-	-	-
		Total	**03**	**55000**	**05**	**3144404**	**02**	**1533765**	**05**	**1487933**
3	Kota	12-13	10	185000	-	-	02	1691000	-	-
		13-14	45	832000	-	-	01	850000	12	3921000
		14-15	-	-	03	1937000	02	1700000	02	603000
		Total	**55**	**1017000**	**03**	**1937000**	**05**	**4241000**	**14**	**4524000**
4	Bundi	12-13	-	-	05	3028000	02	1700000	-	-
		13-14	121	1101000	-	-	-	-	16	3625000
		14-15	02	42000	-	-	-	-	-	-
		Total	**123**	**1143000**	**05**	**3028000**	**02**	**1700000**	**16**	**3625000**
5	Ajmer	12-13	10	184943	-	-	-	-	-	-
		13-14	17	315000	-	-	-	-	-	-
		14-15	-	-	1	649000	03	1949000	3	906000
		Total	**27**	**499943**	**1**	**649000**	**03**	**1949000**	**3**	**906000**
6	Partapgarh	12-13	20	369700	05	3245503	02	1699543	05	1537123
		13-14	61	1125033	12	7787480	04	3396543	12	3619481
		14-15	-	-	07	4549374	03	2548700	04	1206233
		15-16	-	-	02	1300000	01	850000	-	-
		Total	**81**	**1494733**	**26**	**16882357**	**10**	**8494786**	**21**	**6362837**
7	Bharatpur	12-13	-	-	5	3285499	2	1684068	-	-
		13-14	76	1612574	-	-	-	-	-	-
		14-15	03	62992	-	-	-	-	2	598773
		Total	**79**	**1675566**	**5**	**3285499**	**2**	**1684068**	**2**	**598773**
		Grand Total	**419**	**6813686**	**56**	**36065522**	**29**	**23737848**	**76**	**22033452**
										88650508

Source: Information provided by concerned DCFs.

Appendix 3.9

(Refer paragraph 3.3.4.2; page 82)

De-sanction of works due to lack of proper survey of roads

Awarded works not started (Proposed for de-sanction)

S.No.	District	Packages	Name of work	Length (in km)	Remarks
1	Alwar	RJ-02-WB-RRSMP-II-10	Alwar Bhiwadi road SH-25 to Naugaon	1.18	Proposed for de-sanction due to submergence
2			Gadpur to Amlaki	1.60	
3	Baran	RJ-04-WB-RRSMP-03	Richari Jagir road to Kakarwa	1.75	To be de-sanctioned, double connectivity
4	Bharatpur	RJ-06-WB-RRSMP-II-10	Sunari road to Nagla Shikham	0.50	Proposed for de-sanction. Connected in other scheme. Sanctioned in missing link
5	Sriganganagar	RJ-30-WB-RRSMP-10	Construction of BT road from 20 KND to 18 KND	3.00	Proposed for de-sanction. Connected in other scheme.
6	Dholpur	RJ-13-WB-RRSMP-04-II/2013-14	Baseri Sirmathura road to Kallapura	0.75	Already connected
7	Jaipur	RJ-16-WB-RRSMP-04	Tholai Birasana road to Gopalyawas	1.30	No revenue track available. Land dispute (700 meter length)
8	Bundi	RJ-09-WB-RRSMP-07	Dora Suthra road to Bhawanipura	1.50	Revised proposal and DPR submitted for issue of revised A&F, decision is awaited
			Total	**11.58**	

To be awarded works (Proposed for de-sanction)

S.No.	District	Name of work	Length (in km)	Remarks
1	Kota	Simliya to Kalyanpura	3.30	Connected in other scheme
2	Kota	Bhonra to Balabhpura	4.00	
3	Bharatpur	SH-14 Chak Gharwari to Madhuvana	1.20	
		Total	**8.50**	
		Grand Total	**20.08**	

Source: As per Quarterly Progress Report of RRSMP.

Appendix 3.10

(Refer paragraph 3.3.5.1; page 83)

Tenders invited prior to issuing of technical sanction

Abu Road Division

S.No.	Name of package	No. of roads	Date of Technical Sanction	Date of NIT
1	RJ-29-WB-RRSMP-01	1	08.02.2013	28.01.2013

Alwar-II Division

S.No.	Name of package	No. of roads	Date of Technical Sanction	Date of NIT
1	RJ-02-WB-RRSMP-02	2	23.07.2013	20.06.2013
		1	23.08.2013	

Chaumehla Division

S.No.	Name of package	No. of roads	Date of Technical Sanction	Date of NIT
1	RJ-19-WB-RRSMP-13	1	03.08.2013	02.07.2013

Sawai Madhopur-WB Division

S.No.	Name of package	No. of roads	Date of Technical Sanction	Date of NIT
1	RJ-27-WB-RRSMP-01	1	18.02.2013	28.01.2013
2	RJ-27-WB-RRSMP-10	3	26.08.2013 and 13.09.2013	02.07.2013
3	RJ-27-WB-RRSMP-11	4	24.07.2013 and 16.07.2013	02.07.2013
Grand total		**13**		

Source: Information obtained from scrutiny of records of test checked units.

Appendix 3.11

(Refer paragraph 3.3.5.2; page 84)

Excess payment to contractor on Price Adjustment

Name of Division	Package No.	Number of Road Works	Agreement No.	Voucher No. & Date	Paid amount	Actual amount	Excess amount
Executive Engineer, PWD Dn., Nimbhahera	RJ-10-WB-RRSMP-35	3	32/2013-14	52/26.02.16	1567927	663583	904344
Executive Engineer, PWD Dn., Dausa	RJ-12-WB-RRSMP-07	5	12/2013-14	41/25.08.14	1120601	680793	439808
Executive Engineer, PWD Dn., Chhabra	RJ-04-WB-RRSMP-01	3	07/2014-15	52/27.11.15	997643	318492	679151
	RJ-04-WB-RRSMP-02	5	02/2014-15	01/13.08.15	1171123	-537780	1708903
	RJ-04-WB-RRSMP-03	4	06/2014-15	02/13.08.15	560155	26611	533544
	RJ-04-WB-RRSMP-04	4	05/2014-15	03/13.08.15	434064	-183673	617737
Executive Engineer, PWD Dn., Suratgarh	RJ-30-WB-RRSMP-03	4	07/2013-14	135/25.08.14	1021289	723712	297577
	RJ-30-WB-RRSMP-05	4	04/2013-14	27/21.10.14	2696732	2269526	427206
	RJ-30-WB-RRSMP-06	3	09/2013-14	24/21.10.14	1336794	1304785	32009
	RJ-30-WB-RRSMP-08	4	05/2013-14	26/21.10.14	1829913	1471648	358265
	RJ-30-WB-RRSMP-09	4	06/2013-14	25/21.10.14	2878642	2392448	486194
Executive Engineer, PWD Dn., Sikandra	RJ-12-WB-RRSMP-14	5	18/2013-14	05/18.12.14	887114	626710	260404
				Total	**16501997**	**9756855**	**6745142**

Source: Information obtained from scrutiny of records of test checked units.

Appendix 3.12

(Refer paragraph 3.3.5.2; page 84)

Non- submission of Operating and Maintenance Manual

Alwar-II

S.No.	Name of package	No.of roads	Contract Value (₹ in lakh)	Amount to be withheld @1% of contract value not exceeding ₹ 3 lakh (₹ in lakh)
1	RJ-02-WB-RRSMP-02	4	143.48	1.43
2	RJ-02-WB-RRSMP-07	1	102.04	1.02
3	RJ-02-WB-RRSMP-08	2	133.87	1.33
4	RJ-02-WB-RRSMP-09	3	98.98	0.99
5	RJ-02-WB-RRSMP-10	3	162.48	1.62
Total				**6.39**

Bundi-WB

1	RJ-09-WB-RRSMP-01	3	310.67	3.00
2	RJ-09-WB-RRSMP-02	3	291.35	2.91
3	RJ-09-WB-RRSMP-05	3	442.85	3.00
4	RJ-09-WB-RRSMP-06	2	409.46	3.00
5	RJ-09-WB-RRSMP-07	3	232.15	2.32
6	RJ-09-WB-RRSMP-08	3	438.72	3.00
7	RJ-09-WB-RRSMP-10	1	299.27	2.99
			Total	**20.22**

Chaumehla

1	RJ-19-WB-RRSMP-13	2	219.07	2.19
			Total	**2.19**

Chittorgarh-WB

1	RJ-10-WB-RRSMP-08	4	272.88	2.72
2	RJ-10-WB-RRSMP-09	3	273.17	2.73
3	RJ-10-WB-RRSMP-18	5	429.07	3.00
4	RJ-10-WB-RRSMP-19	2	312.97	3.00
5	RJ-10-WB-RRSMP-24	2	351.07	3.00
6	RJ-10-WB-RRSMP-25	2	425.59	3.00
7	RJ-10-WB-RRSMP-26	5	321.99	3.00
8	RJ-10-WB-RRSMP-27	2	317.05	3.00
9	RJ-10-WB-RRSMP-28	3	267.19	2.67
10	RJ-10-WB-RRSMP-29	3	252.07	2.52
11	RJ-10-WB-RRSMP-30	3	301.88	3.00

12	RJ-10-WB-RRSMP-31	3	290.19	2.90
13	RJ-10-WB-RRSMP-32	2	139.68	1.39
			Total	**35.93**

Chhabra

1	RJ-04-WB-RRSMP-02	5	667.90	3.00
2	RJ-04-WB-RRSMP-04	4	340.87	3.00
3	RJ-04-WB-RRSMP-08	2	229.59	2.29
4	RJ-04-WB-RRSMP-09	2	241.44	2.41
5	RJ-04-WB-RRSMP-10	2	271.98	2.71
6	RJ-04-WB-RRSMP-11	2	194.34	1.94
7	RJ-04-WB-RRSMP-12	2	330.99	3.00
8	RJ-04-WB-RRSMP-13	2	211.00	2.11
9	RJ-04-WB-RRSMP-14	3	288.20	2.88
10	RJ-04-WB-RRSMP-15	2	270.02	2.70
11	RJ-04-WB-RRSMP-16	2	287.02	2.87
12	RJ-04-WB-RRSMP-17	2	235.19	2.35
13	RJ-04-WB-RRSMP-18	2	223.04	2.23
14	RJ-04-WB-RRSMP-19	2	204.75	2.04
15	RJ-04-WB-RRSMP-20	1	208.91	2.08
16	RJ-04-WB-RRSMP-21	2	233.95	2.33
			Total	**39.94**

Dausa

1	RJ-12-WB-RRSMP-01	2	106.06	1.06
2	RJ-12-WB-RRSMP-04	3	189.22	1.89
3	RJ-12-WB-RRSMP-06	2	158.57	1.58
4	RJ-12-WB-RRSMP-07	5	450.12	3.00
5	RJ-12-WB-RRSMP-08	4	339.28	3.00
6	RJ-12-WB-RRSMP-09	3	353.50	3.00
7	RJ-12-WB-RRSMP-10	3	408.44	3.00
8	RJ-12-WB-RRSMP-11	4	485.27	3.00
9	RJ-12-WB-RRSMP-12	4	318.27	3.00
10	RJ-12-WB-RRSMP-13	5	493.86	3.00
			Total	**25.53**

Nimbahera Dn.

1	RJ-10-WB-RRSMP-21	2	141.13	1.41
2	RJ-10-WB-RRSMP-33	3	242.79	2.43
3	RJ-10-WB-RRSMP-34	3	274.07	2.74
4	RJ-10-WB-RRSMP-35	3	246.38	2.46
5	RJ-10-WB-RRSMP-36	3	254.84	2.54
6	RJ-10-WB-RRSMP-37	3	309.78	3.00
7	RJ-10-WB-RRSMP-38	3	266.70	2.66

8	RJ-10-WB-RRSMP-39	3	245.67	2.45
9	RJ-10-WB-RRSMP-40	3	305.08	3.00
10	RJ-10-WB-RRSMP-41	3	320.80	3.00
11	RJ-10-WB-RRSMP-42	2	280.01	2.80
12	RJ-10-WB-RRSMP-46	2	208.97	2.08
13	RJ-10-WB-RRSMP-48	2	128.48	1.28
14	RJ-10-WB-RRSMP-49	3	269.57	2.69
15	RJ-10-WB-RRSMP-51	2	331.71	3.00
16	RJ-10-WB-RRSMP-52	4	272.52	2.72
			Total	**40.26**

Sawai Madhopur-WB

1	RJ-27-WB-RRSMP-02	3	241.52	2.42
2	RJ-27-WB-RRSMP-03	2	276.82	2.77
3	RJ-27-WB-RRSMP-04	1	267.79	2.68
4	RJ-27-WB-RRSMP-12	2	403.35	3.00
5	RJ-27-WB-RRSMP-16	2	282.38	2.82
			Total	**13.69**

Suratgarh Division

1	RJ-30-WB-RRSMP-03	4	272.01	2.72
2	RJ-30-WB-RRSMP-05	4	477.76	3.00
3	RJ-30-WB-RRSMP-06	3	677.24	3.00
4	RJ-30-WB-RRSMP-07	4	530.66	3.00
5	RJ-30-WB-RRSMP-08	4	338.24	3.00
6	RJ-30-WB-RRSMP-09	4	484.26	3.00
			Total	**17.72**
	Grand Total	**221 Roads**		**201.87**

Source: Information obtained from scrutiny of records of test checked units.

Appendix 3.13

(Refer paragraph 3.3.5.2; page 84)

Undue benefit to contractor for non submission of revised work programme

S.No.	Name of divisions	No. of packages	No. of roads	Amount to be withheld (₹ in lakh)
1	Abu Road	01	01	05.00
2	Alwar-II	04	10	20.00
3	Beawar	01	08	05.00
4	Bhilwara	09	39	45.00
5	Bundi-WB	07	18	35.00
6	Chaumehla	02	03	10.00
7	Chhabra	19	47	95.00
8	Chittorgarh-WB	18	60	90.00
9	Dausa	10	35	50.00
10	Malpura	10	39	50.00
11	Nimbhahera	18	49	90.00
12	Rajsamand-WB	11	33	55.00
13	Sawai Madhopur-WB	13	34	65.00
14	Shri Ganganagar	05	11	25.00
15	Sikandra	02	06	10.00
16	Suratgarh	06	23	30.00
	Total	**136**	**416**	**680**

Source: Information obtained from scrutiny of records of test checked units

Appendix 3.14

(Refer paragraph 3.3.5.2; page 85)

Details of insurance cover to roads not provided

Beawar Division

S.NO.	Package No.	No. of roads.	Insurance policy not submitted.		Insurance policy submitted for the construction period.	
			Work order amount	Premium amount @1.20% of work order	Work order amount	Premium amount @0.40% of work order
1	RJ-01-WB-RRSMP-01	8	36824907	441899	-	-

Bhilwara Division

1	RJ-07-WB-RRSMP-08	5	-	-	32294621	129178
2	RJ-07-WB-RRSMP-09	5	43844846	526138	-	-
3	RJ-07-WB-RRSMP-18	4	43274135	519290	-	-
4	RJ-07-WB-RRSMP-19	4	36060576	432727	-	-
5	RJ-07-WB-RRSMP-20	4	35885686	430628	-	-
6	RJ-07-WB-RRSMP-21	4	37417044	449004	-	-
7	RJ-07-WB-RRSMP-22	3	-	-	42698605	170794
8	RJ-07-WB-RRSMP-23	5	-	-	43376011	173504
9	RJ-07-WB-RRSMP-24	5	-	-	43094024	172377

Chaumehla

1	RJ-19-WB-RRSMP-11	1	35012774	420153	-	-
2	RJ-19-WB-RRSMP-13	2	-	-	21907012	87628

Chittorgarh (WB) Division

1	RJ-10-WB-RRSMP-08	4	27287734	327453	-	-
2	RJ-10-WB-RRSMP-09	3	27317321	327808	-	-
3	RJ-10-WB-RRSMP-25	2	-	-	42559213	170237
4	RJ-10-WB-RRSMP-32	2	-	-	13968104	55872

Chhabra Division

1	RJ-04-WB-RRSMP-02	5	-	-	66790417	267162
2	RJ-04-WB-RRSMP-03	3	47498952	569987	-	-
3	RJ-04-WB-RRSMP-10	2	27197780	326373	-	-
4	RJ-04-WB-RRSMP-11	2	19434385	233213	-	-
5	RJ-04-WB-RRSMP-12	2	-	-	33099181	132397
6	RJ-04-WB-RRSMP-13	2	-	-	21099909	84400
7	RJ-04-WB-RRSMP-14	3	-	-	28819657	115279
8	RJ-04-WB-RRSMP-16	2	-	-	28701574	114806
9	RJ-04-WB-RRSMP-17	2	-	-	23519441	94078

10	RJ-04-WB-RRSMP-19	2	-	-	20474947	81900
11	RJ-04-WB-RRSMP-20	1	-	-	20891292	83565
12	RJ-04-WB-RRSMP-21	2	-	-	23395133	93581
13	RJ-04-WB-RRSMP-22	3	-	-	15519352	62077

Dausa Division

1	RJ-12-WB-RRSMP-01	2	-	-	10605661	42423
2	RJ-12-WB-RRSMP-04	3	18921953	227063	-	-
3	RJ-12-WB-RRSMP-06	2	-	-	15856953	63428
4	RJ-12-WB-RRSMP-07	5	45012304	540148	-	-
5	RJ-12-WB-RRSMP-08	4	-	-	33928273	135713
6	RJ-12-WB-RRSMP-09	3	35349910	424199	-	-
7	RJ-12-WB-RRSMP-11	4	-	-	48527373	194109
8	RJ-12-WB-RRSMP-13	5	49385565	592627	-	-

Nimbhahera Division

1	RJ-10-WB-RRSMP-21	2	14113224	169359	-	-
2	RJ-10-WB-RRSMP-33	3	24278792	291345	-	-
3	RJ-10-WB-RRSMP-34	3	27407033	328884	-	-
4	RJ-10-WB-RRSMP-35	3	24637607	295651	-	-
5	RJ-10-WB-RRSMP-37	3	30977570	371731	-	-
6	RJ-10-WB-RRSMP-39	3	24566819	294802	-	-
7	RJ-10-WB-RRSMP-40	3	-	-	30508065	122032
8	RJ-10-WB-RRSMP-41	3	-	-	32079902	128320
9	RJ-10-WB-RRSMP-42	2	28001484	336018	-	-
10	RJ-10-WB-RRSMP-44	3	-	-	24421078	97684
11	RJ-10-WB-RRSMP-46	2	20896555	250759	-	-
12	RJ-10-WB-RRSMP-48	2	12848407	154181	-	-
13	RJ-10-WB-RRSMP-49	3	-	-	26956551	107826
14	RJ-10-WB-RRSMP-51	2	-	-	33171166	132685
15	RJ-10-WB-RRSMP-52	4	27251866	327022	-	-

Sawai Madhopur-WB Division

1	RJ-27-WB-RRSMP-01	2	20913746	250965	-	-
2	RJ-27-WB-RRSMP-02	3	24151992	289824	-	-
3	RJ-27-WB-RRSMP-11	4	24742912	296915	-	-
4	RJ-27-WB-RRSMP-12	2	-	-	40335060	161340
5	RJ-27-WB-RRSMP-13	2	20706291	248475	-	-
6	RJ-27-WB-RRSMP-16	2	28237655	338852	-	-
Total	**58 packages**	176	-	**1,10,33,493**	-	**32,74,395**
			31 packages & 100 roads		**27 packages &77 roads**	
			1,10,33,493+32,74,395=1,43,07,888			

Source: Information obtained from scrutiny of records of test checked units

Appendix 3.15

(Refer paragraph 3.3.5.2; page 85)

No action taken against contractor for non-delivery of performance security

Beawar Division

S.No.	Package No.	Validity of performance security upto (as per clause 35.1)	Validity of performance security upto
1	RJ-01-WB-RRSMP-01	31.08.2020	26.06.2019

Chittorgarh(WB) Division

1	RJ-10-WB-RRSMP-08	25.07.2019	01.07.2017
2	RJ-10-WB-RRSMP-09	19.07.2019	01.07.2017
3	RJ-10-WB-RRSMP-29	30.11.2019	22.12.2015
4	RJ-10-WB-RRSMP-30	30.11.2019	22.12.2015
5	RJ-10-WB-RRSMP-31	30.11.2019	27.12.2018

Malpura Division

1	RJ-31-WB-RRSMP-05	31.08.2019	Not available
2	RJ-31-WB-RRSMP-12	31.08.2020	Not available
3	RJ-31-WB-RRSMP-18	31.12.2019	Not available
4	RJ-31-WB-RRSMP-19	31.03.2020	Not available
5	RJ-31-WB-RRSMP-23	31.03.2020	Not available
6	RJ-31-WB-RRSMP-24	31.03.2020	Not available
7	RJ-31-WB-RRSMP-26	14.12.2020	Not available
8	RJ-31-WB-RRSMP-27	31.12.2019	Not available

Nimbhahera Division

1	RJ-10-WB-RRSMP-33	12.11.2019	19.01.2015
2	RJ-10-WB-RRSMP-35	30.11.2019	22.10.2018
3	RJ-10-WB-RRSMP-37	30.11.2019	19.01.2015
4	RJ-10-WB-RRSMP-39	12.11.2019	26.09.2016
5	RJ-10-WB-RRSMP-44	12.11.2019	27.02.2015
6	RJ-10-WB-RRSMP-46	22.11.2019	02.01.2018
7	RJ-10-WB-RRSMP-48	12.11.2019	26.09.2016
8	RJ-10-WB-RRSMP-49	30.11.2019	19.01.2015
9	RJ-10-WB-RRSMP-51	16.12.2019	19.01.2015
10	RJ-10-WB-RRSMP-52	30.11.2019	21.11.2016

Rajsamand(WB) Division

1	RJ-26-WB-RRSMP-08	28.11.2019	23.09.2014
2	RJ-26-WB-RRSMP-09	28.11.2019	23.09.2014
3	RJ-26-WB-RRSMP-22	28.11.2019	23.09.2014
Total Packages	**27**		

Source: Information obtained from scrutiny of records of test checked units.

Appendix 3.16

(Refer paragraph 3.3.6; page 86)

Details of works in which certificates of test results not produced

S.N.	Package No.	No. of roads	Work order amount	Period of work
1	RJ-10-WB-RRSMP-08	4	27287737	13.07.2013 to 12.07.2014
2	RJ-10-WB-RRSMP-09	3	27317321	13.07.2013 to 12.07.2014
3	RJ-10-WB-RRSMP-10	3	40135436	24.12.2013 to 23.12.2014
4	RJ-10-WB-RRSMP-18	5	42906660	01.07.2013 to 30.06.2014
5	RJ-10-WB-RRSMP-19	2	31296570	04.07.2013 to 03.07.2014
6	RJ-10-WB-RRSMP-24	2	35107274	19.07.2013 to 18.07.2014
7	RJ-10-WB-RRSMP-28	3	26719035	10.01.2014 to 09.01.2015
Total		**22**		

Details of cases in which Consignee Receipt Certificates issued prior to work order

S. No.	Name of package	Work order No. and date	No. of roads	Work order amount in ₹	Period of work	Name of material	CRC No. and date	Quantity of material (MT)
1	RJ-10-WB-RRSMP-08	1293/04.07.2013	4	27287737	13.07.13 to 12.07.14	Emulsion Bitumen RS-1	140/15.09.2010	14.240
2	RJ-10-WB-RRSMP-09	1294/04.07.2013	3	27317321	13.07.13 to 12.07.14	Emulsion Bitumen RS-1	94/08.06.2012	6.790
							241/02.12.2012	6.520
						Bitumen VG-10	655029564/12.06.2012	20.050
3	RJ-10-WB-RRSMP-10	3181/27.12.2013	3	40135436	24.12.13 to 23.12.14	Emulsion Bitumen RS-1	2102012178/10.04.2013	15.00
							17035/15.07.2013	24.910
4	RJ-10-WB-RRSMP-27	3774/03.03.2014	2	31705122	14.03.14 to 13.03.15	Emulsion Bitumen RS-1	42527/05.06.2013	24.244
							42644/07.06.2013	24.310
						Bitumen VG-10	661129241/15.03.2013	10.64
							663105479/11.06.2013	14.586
							663213980/15.06.2013	14.494
Total Road			**12**					

Source: Information obtained from scrutiny of records of test checked units

Appendix 3.17

(Refer paragraph 3.7; page 93)

Statement showing excess price escalation paid to contractors

(₹ in crore**)**

S.No.	Name of Office	Name of Work	Name of Contractor	Price Variation		Avoidable/ Excess Payment	Reasons for excess payment
				Amount paid	Amount to be paid		
1	**2**	**3**	**4**	**5**	**6**	**7=5-6**	**8**
1	Executive Engineer, PWD NH Division, Barmer	Strengthening with paved shoulders from km 259/000 to 286/600, km 290/600 to 297/100 (34.10 km) and widening of existing two lane road to four lane in km 286/600 to 290/600 (4.00 km) on NH-15 (Jaisalmer-Barmer-Sanchore Road)	M/s Bhimji Veljji Soratiya, Adipur, Gujrat	3.85	3.24	0.61	Date of opening of technical bid was considered for calculating the payment of price escalation in place of date of opening of financial bid.
2	Executive Engineer, PWD NH Division, Barmer	Widening of two lane road with geometric improvement in re-aligned portion from km 223/500 to 254/800 (Pachpadra-Bagundi Section of old SH 28-B) including construction of minor bridge on NH-112 (Bar-Bilara-Jodhpur-Barmer).	M/s Tan Singh Chouhan, Barmer	2.28	1.87	0.41	-do-
					Total	**1.02**	

Appendix 3.18

(Refer paragraph 3.8; page 94)

Statement showing the expenditure incurred on excavation for road way in soil, construction of GSB, WBM and WMM

S.No	Name of Division	Excavation for roadway in soil	GSB	WBM Grading-2	WBM Grading-3	WMM	Total
1	Executive Engineer, PWD Division, Balotra	184508.24	2519109.65	306504.95	2478226.28	0.00	5488349.12
2	Executive Engineer, PWD Division, Chittorgarh	0.00	2842198.72	0.00	0.00	13296505.17	16138703.89
3	Executive Engineer, PWD Division-I, Barmer	521822.65	3297235.43	0.00	3691448.83	0.00	7510806.91
4	Executive Engineer, PWD Division, Shahpura (Jaipur)	0.00	2891013.25	0.00	3607595.84	0.00	6498609.09
5	Executive Engineer, PWD Division, Nawalgarh	24091.64	3327802.72	2946645.66	0.00	0.00	6298540.02
Total							**41935009.03**

Glossary of Abbreviations

Abbreviation	Expanded form
A	
A&F	Administrative & Financial
AAQMS	Ambient Air Quality Monitoring Station
ACS	Additional Chief Secretary
ADM	Additional Director, Mines
AME	Assistant Mining Engineer
ANR	Assisted Natural Regeneration
APCM	Air Pollution Control Machine
AQI	Air Quality Index
ATC	Additional Transport Commissioner
B	
BG	Bank Guarantee
BRS	Bank Reconciliation Statement
BSR	Basic Schedule of Rates
C	
CAAQMS	Continuous Ambient Air Quality Monitoring Station
CAG	Comptroller and Auditor General of India
CAMPA	Compensatory Afforestation Fund Management and Planning Authority
CBC	Consortium Bank Credit
CC	Cement Concrete
CCA	Culturable Command Area
CE	Chief Engineer
CEC	Central Empowered Committee
CET	Cost Effective Technology
CF	Commission Fund
CFC	Chlorofluorocarbon
CO	Carbon Monoxide
CO_2	Carbon Dioxide

CPCB	Central Pollution Control Board
CRC	Consignee Receipt Certificate
CTE	Consent to Establish
CTO	Consent to Operate
CTPP	Chhabra Thermal Power Project
D	
DB	Double Bench
DALY	Disability Adjusted Life Year
DCF	Deputy Conservator of Forest
DIC	District Industries Centre
DMG	Director, Mines and Geology
E	
EC	Environmental Clearance
EE	Executive Engineer
EDP	Entrepreneurship Development Programme
EIA	Environment Impact Assessment
EMF	Environment Management fund
EP Act	Environment (Protection) Act, 1986
EP Rules	Environment (Protection) Rules, 1986
ESP	Electro Static Precipitator
F	
FFD	Flexi Fixed Deposit
G	
GCC	General Conditions of Contract
GGPS	*Gramin Gaurav Path* Scheme
GF & AR	General Financial and Accounts Rules
GoI	Government of India
GoR	Government of Rajasthan
H	
HoFF	Head of Forest Force
I	
ICMR	Indian Council of Medical Research
IRC	Indian Road Congress

J	
JFM	Joint Forest Management
K	
KSTPS	Kota Super Thermal Power Station
L	
LBG	Loose Boulder Gabion
Metals	Lead, Nickel and Arsenic
M	
MCD Rules	Mineral Conservation and Development Rules, 1988
ME	Mining Engineer
MGD	Mines and Geology Department
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MIS	Management Information system
ML	Mining Lease
MLA	Member of Legislative Assembly
MMDR Act	Mines and Minerals (Development and Regulation) Act, 1957
MoDIS	Management of Data Information System
MoEF	Ministry of Environment and Forest
MoEF and CC	Ministry of Environment, Forests and Climate Change
MoLE	Ministry of Labour and Employment
MoRTH	Ministry of Road , Transport and Highway
MoU	Memorandum of Understanding
MP	Mining Plan
MP	Member of Parliament
MS	Member Secretary
MT	Metric Ton
MW	Magawatt
N	
NAAQS	National Ambient Air Quality Standard
NABARD	National Bank for Agriculture and Rural Development

NAMP	National Air Quality Monitoring Programme
NCR	National Capital Region
NGT	National Green Tribunal
NH	National Highway
NH_3	Ammonia
NIT	Notice Inviting Tender
NO_2	Nitrogen Oxide
O	
OMMAS	Online Monitoring Management & Accounting System
O^3	Ozone
Organic pollutants	Benzene and BaP-particulate
P	
PAD	Project Appraisal Document
PC	Pollution Control
PCC	Pollution Check Centre
PCCF	Principal Chief Conservator of Forest
PCT	Percolation Tank
PD	Personal Deposit
PDO	Project Development Objective
PFS	Pollution Flying Squad
PIP	person-in-position
PIU	Project Implementation Unit
PLP	Panchayat Land Plantation
PMC	Project Management Consultant
PMGSY	Pradhan Mantri Gram Sadak Yojna
PMU	Project Monitoring Unit
PUC	Pollution Under Control Certificate
PWD	Public Works Department
PWF&AR	Public Works Financial and Accounts Rules
Q	
QL	Quarry Licence
R	
RAMS	Road Asset Management System

RDF-I	Rehabilitation of Degraded Forest-I
RDF-II	Rehabilitation of Degraded Forest –II
REHAB	Rajasthan Environment and Health Administrative Board
RHC	Hon'ble Rajasthan High Court
RIICO	Rajasthan State Industrial and Investment Corporation
RTGS	Real Time Gross Settlement
RMMCR	Rajasthan Minor Mineral Concession Rules, 1986
RMMS	Road Maintenance Management System
RMP	Rajasthan Mineral policy, 2011
RO	Regional Offices
RRSMP	Rajasthan Road Sector Modernization Project
RS	Rapid Setting
RSHRC	Rajasthan State Human Rights Commission
RSPCB	Rajasthan State Pollution Control Board
RSPM	Respirable Suspended Particulate Matter
RTI	Right to Information
S	
SCI	Hon'ble Supreme Court of India
SDC	System Defining Consultant
SE	Superintending Engineer
SEIAA	State Level Environment Impact Assessment Authority
SFC	State Facility Center
SH	State Highway
SHG	Self Help Group
SMCS	Soil and Moisture Conservation Structures
SME	Superintending Mining Engineer
SO_2	Sulphur Dioxide
SPC	System Provider Consultant
SPM	Suspended Particulate Matter
SQM	State Quality Monitor
STA	State Technical Agency

T	
TB	Tuberculosis
The Act	Air Prevention and Control of Pollution Act, 1981
ToR	Terms of Reference
TPPs	Thermal Power Plants
V	
VFPMC	Village forest protection/management committee
VG	Viscosity Grades
W	
WB	World Bank
WHO	World Health Organisation
WHS	Water Harvesting Structure
WIP	Work in Progress
(WL) MNP	(Wild Life) Mukundara National Park

Government of Rajasthan **Report No. 5 of the year 2017**