Semi-Annual Environmental Monitoring Report

Project number: 42267-026

Period: January – June 2016

IND: Rajasthan Urban Sector Development Program

Submitted by the Local Self Government Department, Government of Rajasthan for the Asian Development Bank.

Semi-Annual Environmental Monitoring Report

LOAN NO: 3183 IND

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India: Rajasthan Urban Sector Development Program

Implementation of Environmental Management and Monitoring Plan

Reporting period January – June 2016

Prepared by: Local Self Government Department, Govt. of Rajasthan

ABBREVIATIONS

AC	–	Asbestos Cement
ADB	–	Asian Development Bank
ADB	–	Asian Development Bank
AE	–	Assistant Engineer
ASI	–	Archeological Survey of India
ASO	–	Assistant Safeguards Officer
CPCB	–	Central Pollution Control Board
CTE	–	Consent to Establishment
CTO	–	Consent to Operation
DWC	–	Double Corrugated Duct
EA	–	Executing Agency
EC	–	Environmental Clearance
EHS	–	Environmental Health & Safety
EIA	–	Environmental Impact Assessment
EMP	–	Environmental Management Plan;
GOI	–	Government of India
GOR	–	Government of Rajasthan
IA	–	Implementing Agency
IEE	–	Initial Environmental Examination;
LPCD	–	Liters per Capita per Day
LSGD	–	Local Self Government Department
MLD	–	Million Liters per Day
MOEF	–	Ministry of Environment and Forest
NHAI	–	National Highways Authority of India
NOC	–	No Objection Certificate
PE	–	Polyethylene
PHED	–	Public Health Engineering Department
PIU	–	Project Implementation Unit;
PMDSC	–	Project Management, Design and Supervision Consultant
PMU	–	Project Management Unit
PO	–	Project Officer
PWD	–	Public Works Department
REA	–	Rapid Environmental Assessment Checklist
RoW	–	Right of Way
RPCB	–	Rajasthan Pollution Control Board
RUIDP	–	Rajasthan Urban Infrastructure Development Project
RUSDP	–	Rajasthan Urban Sector Development Program
SBR	–	Sequential Batch Reactor
SEIAA	–	State Environmental Impact Assessment Authority
SPM	–	Suspended Particulate Matters
SPS	–	Safeguard Policy Statement, 2009
STP	–	Sewage Treatment Plant
ULB	–	Urban Local Body
WTP	–	Water Treatment Plant

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Executive Summary

1. Government of Rajasthan (GoR) has received a loan from ADB for implementation of water supply and sewerage systems in selected district towns in the state under Rajasthan Urban Sector Development Program (RUSDP). This Sector Development Program (SDP) will support the infrastructure needs and the reform program, which focuses on strengthening institutions and adjusting the policy, institutional, legal, financial, and regulatory framework. It comprises a project, financed by a project loan of US$250 million (project cost 360 million including state share of US$110million), to invest in water distribution network and sewerage systems in the six project cities in the state. The policy-based loan will provide financial support to the state government to implement reforms and the project loan will introduce innovations in water supply and wastewater management, such as continuous water supply, and long-term O&M embedded construction contracts for nonrevenue water (NRW) reduction and sustainability of operations.

2. The desired output of SDPare: - 1) Urban institutions strengthened, 2) Urban governance improved, 3) Water supply system rehabilitated and expanded 4) Wastewater system rehabilitated and expanded 5) Capacity building and efficient project management.

3. As per preliminary examination and scope of works impact assessment for all the subprojects has been done and no significant impacts are envisaged as per ADBSPS 2009 and therefore all the subprojects under RUSDP are categorized in Environmental Category B and Initial Environmental Examinations (IEEs) are prepared for all the subprojects accordingly.Environmental management and monitoring plan has been prepared for all the sub projects and included in respective IEEs

4. This Semi-Annual Environmental Monitoring Report analyzesthe project periodically (over the total implementation period) and documents/monitors compliance status with National/ State/ Local Statutory Environmental Requirements along with compliance to approved IEE and EMPsas per ADB Safeguard Policy Statementi.e. ADB SPS 2009.

5. Upto June, 2016, Contracts for two packages namely RUSDP/Tonk/01 and RUSDP/Pali/01 have been awarded. NTP has been issued for package RUSDP/Pali/02. Tendering of remaining packages is under progress. Physical works has started in Pali (RUSDP/Pali/01) only.Periodical monitoring is being conducted by environmental specialist of PMDSC through site visits which includes public consultations, consultations with labors and contractors staff, documents checking and environmental monitoring for ambient air and noise conditions and water quality analysis through third party monitoring agencies. Compliance status with the environmental management and monitoring plan of the sub-projects are provided in the Report.

6. The work at Pali is being executed satisfactorily with due importance to all the provisions of EMP and complying all the national and state laws. Few minor issues which require further compliance have been communicated to the contractor/PIU and it is expected that the compliance to the same will be made shortly. ADBSPS is being complied in all respect. Compliance status of the issues will be documented in the next Semiannual Report.

Semi-Annual Environmental Monitoring Report Jan-June 2016

1. INTRODUCTION

1. **Project Description**: Government of Rajasthan (GoR) has received a loan from ADBfor implementation of water supply and sewerage systems in selected district towns in the state under Rajasthan Urban Sector Development Program (RUSDP). RUSDP will complement the past and ongoing efforts of the Government of Rajasthan (GoR) to improve water supply and wastewater services to the residents of the state of Rajasthan. It comprises a project, financed by a project loan of US$250 million (project cost 360 million including state share of US$110million), to invest in water distribution network and sewerage systems in the six project cities in the state.

2. The Sector Development Program modality will support the infrastructure needs and the reform program, which focuses on strengthening institutions and adjusting the policy, institutional, legal, financial, and regulatory framework. The policy-based loan will provide financial support to the state government to implement reforms that will unlock the potential of various stakeholders, including municipal bodies, individual households, and private sector investors. The project loan will support catalytic investments that enhance productivity and leverage finances from various other sources in the project cities. The project will also introduce innovations in water supply and wastewater management, such as continuous water supply, and long-term O&M embedded construction contracts for nonrevenue water (NRW) reduction and sustainability of operations.

3. **Project Objectives:** One of the important lessons learnt by the GoR from past project is that the investments have to be coupled with sustainable and vibrant institutions, and effective governance systems, to sustain and maximize their impacts. The institutions in water and wastewater sectors in Rajasthan are weak and the responsibilities are fragmented. Accordingly, the GoR has committed to developing a long-term urban development policy that stimulates investments in urban infrastructure, and simultaneously, addresses institutional deficiencies, and targets major reforms in urban governance, therefore GoR has proposed to undertake a sector development program (SDP) with the loan assistance of Asian Development Bank (ADB). The proposed SDP will support the GoR's reform agenda, and will play a demonstrative role for urban sector operations in India.

4. The impact of the SDP will be sustainable urban development in Rajasthan. The outcome will be improved urban service delivery in Rajasthan. The SDP will have five outputs: Outputs 1 and 2 will be supported by the policy-based loan, while Outputs 3, 4 and 5 will be supported by the project loan. The project will invest in water and wastewater sectors in six project cities, each having a population of more than 100,000 (Pali, Tonk, Hanumangarh, Sri Ganganagar, Jhunjhunu, and Bhilwara). The six project cities were selected based on consideration of the cities' lack of basic services at present and their willingness to undertake reforms and institutional restructuring. The outputs will be:

(i) **Output 1:** Urban institutions strengthened. This output will include (a) creation of a sustainable corporatized state-level institution for urban development; (b) corporatization of water supply and wastewater operations in the capital city of Jaipur;(c)long-term performance-based management contracts in at least six cities of the state; (d) delegation of water supply and sewerage functions, along with adequate resources and tariff-setting authority, to municipal bodies; and (e) rationalization of urban property tax for municipal bodies.

(ii) **Output 2:** Urban governance improved. This output will include (a) formulation and approval of a long-term urban development policy; (b) human resource development plan for urban governance, including establishment of a state-level training institute; (c) support for smart cities and economic corridors; (d) water sector reforms such as reduction of NRW,24x7 water supply, individual household connections to residents in slum areas, benchmarking of urban services, development of geographic information system (GIS) and customer databases, and water and wastewater quality monitoring systems; (e) support for total sanitation and solid waste management; (f) support for linkages between sanitation and health; and (g) rationalization of water and sewerage tariffs for O&M cost recovery, and improvement of collection efficiencies.

(iii) **Output 3:** Water supply system rehabilitated and expanded in six project cities. This output will include (a) distribution network improvement on district metering area basis for NRW reduction; (b) provision of individual property connections to residents, especially the poor and households headed by women; (c) provision of 24-hour water supply; and (d) efficiency improvement in water supply through reduction of NRW and energy losses in electromechanical machinery.

(iv) **Output 4:** Wastewater system rehabilitated and expanded in six project cities. This output will include (a) rehabilitation and expansion of the sewerage network, including

separation of sanitary sewers from drains, and property connections; (b) modernization and expansion of wastewater treatment plants; (c) use of wastewater as a resource including recycling of wastewater, and energy generation through sludge digestion and gasification; and (d) septage management and decentralized wastewater treatment systems in suitable areas.

(v) **Output 5:** Capacity building and efficient project management. This output will include (a) capacity building of urban institutions and municipal bodies; (b) project management; (c) gender equality and social inclusion action plan; and (d) community awareness and participation plan.

5. **Description of sub-projects:** Six project towns (Bhilwara, Hanumangarh, Jhunjhunu, Pali, Tonk and Sriganganagar) are selected under this loan. There is one package in each town except in Pali, where there are two packages. Sub-projects are described in the table-1 below-

Table-1: Description of sub-projects under RUSDP (Loan 3183 -IND)

S No.	Town	Package No.	Cost(US$)	Description of works
1	Pali	RUSDP/Pali/01	65.85 million	Water Supply Distribution Network Improvements with house service connections; Replacement of worn out Pumping Machinery; Extension and Providing Sewer Network with House connections and construction of STP at Pali
2		RUSDP/Pali/02	12 million	Design, Construction Operation and maintenance of bulk water system at Pali including water treatment plant and Pump house etc
3	Tonk	RUSDP/Tonk/01	50.00 million	Water Supply Distribution Network Improvements with house service connections; Providing Sewer Network with House connections and construction of STP at Tonk
4	Sri Ganganagar	RUSDP/SGN/01	67.34million	Water Supply Distribution Network Improvements with house service connections; Replacement of worn out Pumping Machinery; Extension and Providing Sewer Network with House connections etc. at Sriganganagar
5	Hanumangarh	RUSDP/Hanu/01	22.87million	Water Supply Distribution Network Improvements with house service connections; Replacement of worn out Pumping Machinery; Extension and Providing Sewer Network with House connections etc. at Hanumangarh
6	Jhunjhunu	RUSDP/JJN/01	31.78million	Distribution Network Improvements with house service connections; Replacement of

S No.	Town	Package No.	Cost(US$)	Description of works
				worn out Pumping Machinery; Extension and Providing Sewer Network with House connections etc. at Jhunjhunu
7	Bhilwara	RUSDP/Bhil/01	55.57 million	Providing Sewer Network with House connections etc. at Bhilwara

6. **Environmental category of the sub-projects:** As per preliminary examination and scope of works impact assessment for all the subprojects has been done and no significant impacts are envisaged as per ADBSPS 2009 and therefore all the subprojects under RUSDP are categorized in Environmental Category B and Initial Environmental Examinations (IEEs) are prepared for all the subprojects accordingly.

7. **Details of site personnel and/or consultants responsible for environmental monitoring:** Out of six project towns, contract for only two sub-projects are awarded. Necessary Orientation of the PIU, PMDSC and Contractor staff are being done by Social and environmental expert PMDSC and regular monitoring is being conducted by PIU and PMDSC team at site. However to facilitate day to day monitoring, all PIUs have been already directed to nominate one engineer from PIU as Nodal officer and one support engineer from PMDSC to works as coordinator in their respective towns. Nodal officer, PIU will ensure day to day monitoring of implementation and the Coordinator, PMDSC will coordinate with PMDSC Social/ Environmental Expert and NGO in safeguard implementation. Nodal Officer, IPIU (with Coordinator PMDSC) will also be responsible of ensuring that all the Grievances received are resolved as per Grievance Redress Mechanism (GRM) prescribed in RP/RF. Details of all the nominated Nodal officer & Coordinators will be intimated by PIUs and will be incorporated in upcoming EMR. Environmental monitoring personnel from contractor side have been deputed at both Pali and Tonk

Table-2: Details of personnel and/or consultants responsible for environmental monitoring

PMU & PMDSC Team

Name of Official	Location	Designation	Contact Details
Mr. Abhay Srivastava	Jaipur	Environmental Expert, PMDSC	pmdsc@rusdp.com
Dr. D.R. Jangid	Jaipur	Project Officer, Environment	mail.ruidp@rajasthan.gov.in

Contractor Team

S No.	Town	Package No.	Contractor
1	Pali	RUSDP/Pali/01	Rupesh Kumar Jain, HSE officer, L&T Limited email id: roopeshjain@lntecc.com
2		RUSDP/Pali/02	Contract not awarded

S No.	Town	Package No.	Contractor
3	Tonk	RUSDP/Tonk/01	Vikas Kumar, HSE officer, Tonk Water Supply Limited
4	Sri Ganganagar	RUSDP/SGN/01	Contract not awarded
5	Hanumangarh	RUSDP/Hanu/01	Contract not awarded
6	Jhunjhunu	RUSDP/JJN/01	Contract not awarded
7	Bhilwara	RUSDP/Bhil/01	Contract not awarded

8. **Overall project and sub-project progress and status:** Presently contracts are awarded in Tonk and Pali, where works are just started in last few months. Overall status of the project and work progress is given in following table 3-

Table3: Overall status of sub-projects and progress of works

S. No.	Sub-Project Name	Status of Sub-Project				List of Works	Progress of Works
		Design	Pre-Construction	Construction	Operational Phase		
1	RUSDP/Pali/01			✓		Attached as table 4	1.4%
2	RUSDP/Pali/02	✓					
3	RUSDP/Tonk/01			✓		Physical Work not started	0.43%
4	RUSDP/SGN/01	✓					
5	RUSDP/Hanu/01	✓					
6	RUSDP/JJN/01	✓					
7	RUSDP/Bhil/01	✓					

Table 4: list of works in Progress

Work Component	Cumulative Target	Cumulative Achievement
A. Progress of works in Pali		
Consumer survey	44000 nos	54357nos (Beyond BOQ quantity)
Underground survey	700km	500.06 km
Soil Investigation	600m	476.5m
Procurement of HDPEDWC pipe	45km	68.25km
Procurement of DI k-7pipe	9.048km	9.048km
Procurement of UPVC	91.23km	91.23km
Procurement of HDPE pipe	175.152km	168.152 km
Excavation(Water supply)	33329cum	23773cum
Laying of DI K-7 pipe	4.084km	1.2 km
Laying of HDPE pipe	61.657km	37.8 km
House service connection	2400nos	294nos
Testing of HDPE pipe	11km	10.4km
Refilling (Water supply)	23180cum	23170cum
Excavation(waste water)	9500cum	9482cum
Laying of HDPEDWC pipe)	10km	8.2km
Refilling (waste water)	9500cum	9254cum
B. Progress of works in Tonk		
Topographical Survey	400km	395km
Consumer survey	31000	41183
Underground survey	400	288
Soil Investigation	600m	600m
Procurement of HDPE pipe	10km	6km

2. COMPLIANCE STATUS WITH NATIONAL/ STATE/ LOCAL STATUTORY ENVIRONMENTAL REQUIREMENTS

Table-5: compliance of sub-projects with statutory requirements applicable

S. No.	Sub project name	Statutory environmental requirements	Status of compliance	Actions required
1	RUSDP/Pali /01 (Pali water supply and sewerage works)	Consent to Establish for STP – 15 MLD	Under compliance- Application submitted to RPCB, deficiencies identified by RPCB are being complied and will be submitted to RPCB	PIU/PMDSC, Pali to take actions for compliance of RPCB observations
		Consent to establish & operate stone crusher	Not applicable now- No such requirement identified by the contractor in SIP, in case required will be applied timely.	Contractor has to ensure to take CTE/CTO for stone crusher if used for this project
		PUC certificates for contractor's vehicles.	Complied- Being ensured through contractor.	Nil
2.	RUSDP/Pali/02 (Bulk water system for Pali)	Consent to Establish for WTP – 30mld	Application for CTE for WTP shall be submitted after mobilization of contractor	Nil
		Consent to establish & operate stone crusher	Shall be decided after contractor's mobilization.	Nil
		PUC certificates for contractor's vehicles.	To be ensured through contractor after mobilization.	Nil
3	RUSDP /Tonk/01(Tonk Water Supply and Sewerage works)	Consent to Establish for STP – 4 MLD	Under compliance- Application for 4 MLDSTP is applied in RPCB. deficiencies identified by RPCB are rectified and again submitted in RPCB, now CTE is pending with RPCB	Nil
		Consent to Establish for STP – 16 MLD	Under compliance- Application for consent in RPCB, deficiencies identified by RPCB are rectified and again submitted in RPCB, now CTE is pending with RPCB	Nil
		Consent to establish & operate stone crusher	Not applicable now- No such requirement identified by the contractor in SIP, in case required, will be applied timely.	Contractor has to ensure to take CTE/CTO for stone crusher if used for this project
		Forest clearance for proposed OHSR at Ramdwara	Complied- Forest clearance for proposed OHSR obtained (attached as appendix 3)	
		PUC certificates for contractor's vehicles.	Will be ensured through contractor.	
4	RUSDP/Gang/01	Consent to Establish for WTP 40 MLD	Application for CTE shall be applied after mobilization of contractor	
5	RUSDP/Jhun/01	Consent to Establish for STP 7 MLD	Application for CTE shall be applied after mobilization of contractor	

S. No.	Sub project name	Statutory environmental requirements	Status of compliance	Actions required
6	RUSDP/Hanu/01	Consent to Establish for STP 9.5 MLD and 6.5 MLD Consent to Establish for WTP 40 MLD Consent to Establish for tertiary unit in existing STP of 7.5 MLD Consent to Establish for rehabilitation of existing 7.5 MLDWTP	Application for CTE shall be applied after mobilization of contractor	
7	RUSDP/Bhil/01	Consent to Establish for 30 MLDSTP	Application for CTE shall be applied after mobilization of contractor	

3. COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS

Table-6: Compliance with Environmental Loan Covenants

Paragraph number of Loan Agreement	Covenant	Status of Compliance	Action Required
Schedule -5, Para-1	**Implementation arrangement-** The Borrower and the EA shall ensure that the Project is implemented in accordance with the detailed arrangements set forth in the PAM. Any subsequent change to the PAM shall become effective only after approval of such change by the Borrower, the State and ADB. In the event of any discrepancy between the PAM and this Loan Agreement, the provisions of this Loan Agreement shall prevail.	Complied- Project implementation arrangement has been made as per PAM and adequate and qualified staff is deputed in RUIDP, Consultants and contractors staff.	Nil
Schedule -5, Para-6	**Resources-** The Borrower and the EA shall ensure that the RUIDP shall be provided with adequate staff, resources, and facilities to implement the Project.	Complied- All the resources, facilities and adequate staff has been provided by RUIDP	Nil
Schedule -5, Para-7	**Project Website-** Within 12 months after the Effective Date, the Borrower shall ensure, or cause the EA to ensure, that a Project website is created to disclose information about various matters in regards to the Project, including procurement.	Complied- Project website has been created and important information including IEE/EMP and RP is being disclosed through this	Nil

Paragraph number of Loan Agreement	Covenant	Status of Compliance	Action Required
Schedule -5, Para-8	**Grievance Redress Mechanism-** Within 12 months after the Effective Date, the Borrower shall ensure, or cause the EA to ensure, that LSGD prepare a grievance redress mechanism, acceptable to ADB, and establish a special committee to receive and resolve complaints/grievances or act upon reports from stakeholders on misuse of funds and other irregularities, including grievances due to resettlement.	Complied- City Level Committee is formed and acting in all the project towns and grievance redress mechanism exists as described in IEE	Nil
Schedule-5, Para-9	The Borrower shall ensure, or cause the EA to ensure, that the preparation, design, construction, implementation, operation and decommissioning of the Project, and all Project facilities comply with (a) all applicable laws and regulations of the Borrower and the State relating to environment, health, and safety; (b) the Environmental Safeguards; (c) the EARF; and (d) all measures and requirements set forth in the IEE and EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.	Being complied- All the proposed works are complying all the applicable laws and regulations of country and state related to environment, health and safety, EARF is being followed and all the measures and requirements given in IEE are being followed	Nil
Schedule-5, Para-13	**Human and Financial Resources to Implement Safeguards Requirements-** The Borrower shall make available, or cause the EA to make available, all necessary budgetary and human resources to fully implement the EMP as required	Complied- All the budgetary and human resources are provided to fully implement the EMP as required, adequate staff and funds are made available	Nil
Schedule-5, Para-14	**Safeguards-Related Provisions in Bidding Documents and Works Contracts-** The Borrower shall ensure, or cause the EA to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to: (a) comply with the measures and requirements relevant to the contractor set forth in the IEE and the EMP, and any corrective or preventative actions set forth in a Safeguard Monitoring Report; (b) make available a budget for all such environmental and social measures; (c) provide the EA with a written notice of any	Being complied- all the bidding documents and contracts for works contain provisions to fulfill the requirements as set forth in IEE and EMP. Budgetary provision are made in BOQ for all such requirement for project execution, cost for other unanticipated environmental impacts and risks, which may arise during construction shall be	Nil

Paragraph number of Loan Agreement	Covenant	Status of Compliance	Action Required
	unanticipated environmental risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE or the EMP; (d) adequately record the condition of roads, agricultural land the other infrastructure prior to starting to transport materials and construction; and (e) fullyreinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	met from contingency funds of the project. Bidding documents and contract agreements are very clear for restoration of pathways, local infrastructures and lands to their pre-project conditions upon the completion of the construction works	
Schedule-5, Para-15	**Safeguard Monitoring and Reporting-** The Borrower shall do, or cause the EA to do, the following: (a) submit semi-annual Safeguards Monitoring Reports to ADB, and disclose relevant information from such reports to affected persons promptly upon submission; (b) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE or the EMP, as applicable, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and (c) report any breach of compliance with the measures and requirements set forth in the EMP promptly after becoming aware of the breach.	Being complied- semi-annual monitoring report is being submitted to ADB. if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE or the EMP, will be informed to ADB. Any breach of compliance of EMP shall also be informed to ADB promptly	Nil
Schedule-5, Para-18	**Labour Standards-** The EA shall ensure that all civil works contracts under the Project follow all applicable labor laws of the Borrower and the State, and that these further include provisions to the effect that contractors: (a) carry out HIV/AIDS awareness programs for labor and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (b) follow and implement all statutory provisions on labor (including not employing or using children as labor, and equal pay for equal work), health, safety, welfare,	Being complied- All civil works contracts will follow all the applicable labor laws prevailing in the country and state, provision is also given in bid documents and contract agreements. Close monitoring of compliance of labor laws during project execution is being done by RUIDP and	HIV/AIDS awareness training is to be organized by contractors in Pali and Tonk

Paragraph number of Loan Agreement	Covenant	Status of Compliance	Action Required
	sanitation, and working conditions. Such contracts shall also include clauses for termination in case of any breach of the stated provisions by the contractors	consultants. HIV/AIDS awareness programs shall be organized by the contractors on periodical basis.	

4. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

9. Environmental management and monitoring plan has been prepared for all the sub projects and included in respective IEEs. Periodical monitoring is conducted by environmental specialist of PMDSC through site visits, public consultations, consultations with labors and contractors staff, documents checking and environmental monitoring for ambient air and noise conditions and water quality analysis through third party monitoring agencies. Compliance status with the environmental management and monitoring plan of the sub-projects are given in following tables-

SUMMARY MONITORING TABLE

Table-7: Summary Monitoring Table of Pali water supply and sewerage works (RUSDP/Pali /01)

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase						
Treated effluent not meeting the disposal standards and associated impacts on receiving environment	STP design to meet CPCB wastewater disposal standards into inland water bodies including: • BOD less than 30 mg/l • Suspended solids less than 100 mg/l • Faecal coliform less than 1000/100 ml	• BOD at 200C for 5 days- less than 30 mg/l • Total suspended Solids (TSS)- less than 10 mg/l • Total kjeldahl nitrogen- less than 5 mg/l • Total Nitrogen- less than 5 mg/l	Detailed Project Report which describes the design of the STP on SBR process	-	-	-
Impairment of STP treatment efficiency	• Ensure continuous uninterrupted power supply • Provide back-up facility (such as generator) and make sure that adequate fuel supplies during operation for running of generator when required; • Provide operating manual with all standard operating procedures (SOPs) for operation and maintenance of the facility; • The scope of work of facility contractor should include extended operation period (at least five years) to ensure smooth operation, training to the ULB staff and transfer of facility to Pali Nagar Parishad • Design should include online monitoring at the minimum	• Continuous uninterrupted power supply provision for STP • Operation manual after completion of STP • 10 years O&M included in contract and bid document • PLC/SCADA based online monitoring of pH, ammonia and TSS	Detailed Project Report and bidding documents which describes the necessity of uninterrupted power supply, provision of 10 years O&M and automation of STP	-	-	-

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	BOD, pH and Ammonia at the inlet and outlet of the plant					
Mixing of industrial effluent with sewage	• No industrial wastewater shall be allowed to dispose into municipal sewers • No domestic wastewater from industrial units shall be allowed into municipal sewers • Ensure that there is no illegal discharge through manholes or inspection chambers • Conduct public awareness programs; in coordination with RPCB, issue notice to all industries for compliance • Conduct regular wastewater quality monitoring (at inlet and at outlet of STP) to ensure that the treated effluent quality complies with the standards	• Design of sewerage network which excludes industrial waste water from the proposed sewerage system • Regular wastewater quality monitoring at inlet and outlet of STP during operation phase	Detailed Project Report which describes sewerage network and O&M program	-	-	-
Pre-Construction Phase						
Compliance with environmental subproject selection criteria	Compliance with environmental subproject selection criteria A compliance checklist is appended to this report **(Appendix 5)**	Attached as appendix 5	Documents check and visual inspection	-	-	-
Utilities-Telephone lines, electric poles and wires, water lines within proposed project area may be impacted	• Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase; and • Require construction	• List of affected utilities • Contingency plan from contractors • Spoils management plan and traffic management plan of contractor	Document check and visual inspection	Proposed locations	22-23 July 2015	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	contractors to prepare a contingency plan to include actions to be taken in case of unintentional interruption of services. • Require contractors to prepare spoils management plan and traffic management plan					
Social and Cultural Resources- Ground disturbance can uncover and damage archaeological and historical remains	• Consult Dept. of Archeology and museums, Government of Rajasthan to obtain an expert assessment of the archaeological potential of the site; • Consider alternatives if the site is found to be of medium or high risk; • Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.	• archaeological potential of the site • Chance finds protocol as listed in IEE	Document check and visual inspection	Proposed locations	22-23 July 2015	AbhaySrivastava, Environmental specialist, PMDSC
Construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas.- Disruption to traffic flow and sensitive receptors	• Prioritize areas within or nearest possible vacant space in the project location; • If it is deemed necessary to locate elsewhere, consider sites that will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply	• Site of construction work camps, labor camps, stockpiles areas and disposal area	Visual inspection, document check	Construction work camps, labor camps, stockpiles areas and disposal area	08-09 June 2016	AbhaySrivastava, Environment Specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	systems; • Do not consider residential areas; • Take extreme care in selecting sites to avoid direct disposal to water body which will inconvenience the community. • For excess spoil disposal, ensure (a) site shall be selected preferably from barren, infertile lands. In case agricultural land needs to be selected, written consent from landowners (not lessees) will be obtained; (b) debris disposal site shall be at least 200 m away from surface water bodies; (c) no residential areas shall be located within 50 m downwind side of the site; and (d) site is minimum 250 m away from sensitive locations like settlements, ponds/lakes or other water bodies.					
Sources of materials- Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated	• Prioritize sites already permitted by the Department of Mines and Geology • If other sites are necessary, inform construction contractor that it is their responsibility to verify the suitability of all material sources and to obtain the approval of PMU	• Sources of material	Document checks	-	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	and • If additional quarries will be required after construction is started, inform construction contractor to obtain a written approval from PIU.					
Consents, permits, clearances, NOCs, etc.- Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works	• Obtain all necessary consents, permits, clearance, NOCs, etc. prior to award of civil works. • Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction • Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. • Include in detailed design drawings and documents all conditions and provisions if necessary	• CTE of STP • NOCs from various departments	Document check	-	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC
Asbestos Cement Pipes- Health risk due to exposure to asbestos materials	• Obtain details from PHED on location of underground AC pipes • Locate the new pipe/sewer carefully to avoid encountering AC pipes • Leave the AC pipes undisturbed in the ground.	• List of underground AC pipes which are to be encountered during construction	Documents check	-	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC
Construction Phase						
Training-	Project manager and all key	Training record	Documents	-	08-09 June	AbhaySrivastava,

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Irreversible impact to the environment, workers, and community	workers will be required to undergo EMP implementation including spoils management, Standard operating procedures (SOP) for construction works; occupational health and safety (OH&S), core labor laws, applicable environmental laws, etc.		check		2016	Environmental specialist, PMDSC
Air quality- Emissions from construction vehicles, equipment, and machinery used for construction resulting to dusts and increase in concentration of vehicle-related pollutants	• Consult with PIU on the designated areas for stockpiling of clay, soils, gravel, and other construction materials; • Damp down exposed soil and any stockpiled material on site by water sprinkling necessary during dry weather; • Use tarpaulins to cover sand and other loose material when transported by trucks; and • Fit all heavy equipment and machinery with air pollution control devices which are operating correctly.	• Ambient air quality monitoring report • Vehicle maintenance records • Arrangements of water sprinkling • Transportation of construction materials in covered containers • PUC certificate of vehicles	Visual inspection and document checks	Working sites and construction camps, labor camps	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC
Surface water quality- Mobilization of settled silt materials, and chemical contamination from fuels and lubricants during	• Prepare and implement a spoils management plan • Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; • Install temporary silt traps or sedimentation basins along	• Surface water quality test reports • Construction establishments near water bodies • Surface water quality monitoring results • Inspection of drainage from construction establishments	Visual inspection and documents check	Construction sites, labor camps, storage areas for construction materials and fuel and lubricants	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
installation of pipelines can contaminate nearby surface water quality.	the drainage leading to the water bodies; • Place storage areas for fuels and lubricants away from any drainage leading to water bodies; • Dispose any wastes generated by work in designated sites; and • Conduct surface quality inspection according to the Environmental Management Plan (EMP).	• Storage areas for fuels and lubricants • Disposal of wastes • Stockpile areas				
Noise level- Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	• Plan activities in consultation with PIU/PMDSC so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; • Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; • Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor; and • Maintain maximum sound levels not exceeding 80 decibels (dbA) when measured at a distance of 10	• Construction activities during night hours if any • Noise monitoring reports • Use of silencers in vehicle and noise-reducing mufflers in other noise generating equipments	Individual inspection, documents check, noise meters instrument	Working sites	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	m or more from the vehicle/s.					
Landscape and aesthetics- Impacts due to excess excavated earth, excess construction materials, and solid waste spoils, oils, lubricants, and other similar items.	• Prepare and implement spoils management plan • Avoid stockpiling of excess excavated soils; • Coordinate with ULB/PIU for beneficial uses of excess excavated soils or immediately dispose to designated areas; • Recover used oil and lubricants and reuse or remove from the sites; • Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; • Remove all wreckage, rubbish, or temporary structures which are no longer required; and • Request PIU to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work	• Stockpiling areas • Spoils management plan by contractor • Solid waste management arrangements from contractor • Disposal sites	Visual inspection and documents check	Stockpiling areas, disposal areas, working sites	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC
Existing Infrastructure and Facilities- Disruption of service and damage to existing infrastructure at specified project	• Obtain from PIU the list of affected utilities and operators if any; • Prepare a contingency plan to include actions to be done in case of unintentional interruption of service	• List of affected utilities • Contingency plan from contractor	Document checks and visual inspection	Working sites	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
location						
Ecological Resources – Terrestrial- Loss of vegetation and tree cover	• Minimize removal of vegetation and disallow cutting of trees; • If tree-removal will be required, obtain tree-cutting permit from the Revenue Department; and (iii) Plant two native trees for every one that is removed.	• List of trees affected and to be cut • Permission of tree cutting	Documents check	All sites	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC
Land use- Environmental Issues due to land use change	• The impact due to change in land use will be negligible due to this project.	Not applicable	-	-	-	-
Accessibility- Traffic problems and conflicts near project locations and haul road	• Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; • Schedule transport and hauling activities during non-peak hours; • Locate entry and exit points in areas where there is low potential for traffic congestion; • Keep the site free from all unnecessary obstructions; • Drive vehicles in a considerate manner; • Coordinate with Traffic Police for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided	• Traffic management plan • Permission from traffic department • Work plan and schedule of works • Pedestrian access • Traffic diversion	Site visit, public consultations and document checks	Working site	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	during peak hours; • Notify affected sensitive receptors 1-week in advance by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints. • Plan and execute the work in such a way that the period of disturbance/ loss of access is minimum. • Provide pedestrian access in all the locations until normalcy is restored.					
Socio-Economic – Income- Impede the access of residents and customers to nearby shops	• Prepare and implement spoils management plan • Leave spaces for access between mounds of soil; • Provide walkways and metal sheets where required for people; • increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools; • Consult businesses and institutions regarding operating hours and factoring this in work schedules; and • Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers	• Spoils management plan • Access to commercial establishments • Work plan for busy roads and commercial areas • Sign boards at sites • Sensitive receptors	Visual inspection, public consultations and documents checks	All sites	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	for concerns/complaints.					
Socio-Economic – Employment- Generation of temporary employment and increase in local revenue	• Employ at least 50% of the labour force, or to the maximum extent, local persons within the 2-km immediate area if manpower is available; • Secure construction materials from local market. • Comply with labor laws	% of labors from nearby areas of the city	Documents checks and consultations with labors	Working sites and labor camps	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC
Occupational Health and Safety- Occupational hazards which can arise during work	• Comply with all national, state and local core labor laws • Develop and implement site-specific occupational health and safety (OH&S) Plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use personal protective equipment like helmet, gumboot, safety belt, gloves, nose musk and ear plugs; (c) OH&S Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; • Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site; • Provide medical insurance coverage for workers;	• Barricades and sign boards at site • Use of PPEs by workers • Training given to workers on safe work practice • Availability of first aid box at site and labor camps • Medical insurance of workers • Supply of potable drinking water at site and in labor camps • Working hours in the site and rest periods • Rest shed provided at site • Equipment fitness • Noise monitoring reports • Solid waste management	Site visit, documents checks, consultations with workers	Working sites	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	• Secure all installations from unauthorized intrusion and accident risks; • Provide supplies of potable drinking water; • The project area experiences extreme temperature during summer months of April and May, which may affect the health of workers engaged in construction work. Contractor should take necessary measures during summers including the following: (a) work schedule should be adjusted to avoid peak temperature hours (12 – 3 PM); (b) provide appropriate shade near the work place; allow periodic resting and provide adequate water, and (c) provide necessary medicine and facilities to take care of dehydration related health issues • Provide clean eating areas where workers are not exposed to hazardous or noxious substances; • Provide H&S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow					

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	workers; • Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted; • Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas; • Ensure moving equipment is outfitted with audible back-up alarms; • Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; • Disallow worker exposure to noise level greater than 85 dBA for duration of more than 8 hours per day without hearing protection. The use					

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	of hearing protection shall be enforced actively; and • Provide proper solid and liquid waste management program in the workers campsites, separate from spoils and debris disposal, as their presence can add to existing volume at the project sites.					
Community Health and Safety.- Traffic accidents and vehicle collision with pedestrians during material and waste transportation	• Plan routes to avoid times of peak-pedestrian activities. • Liaise with PIU/ULB in identifying high-risk areas on route cards/maps. • Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. • Provide road signs and flag persons to warn of on-going trenching activities.	• Traffic management plan • List of sensitive receptors • Vehicle and equipment maintenance records • Signage and traffic aids	Site visit, document checks	Working sites	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC
Work Camps and worksites- Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants	• Consult with PIU before locating project offices, sheds, and construction plants; • Minimize removal of vegetation and disallow cutting of trees; • Provide drinking water, water for other uses, and sanitation facilities for employees;	• Tree cutting records for works camps • Drinking water facilities • Sanitations conditions • Training records • Oil and lubricants storage • Recycle and disposal of used oil and lubricants • Solid waste management • Gender based toilet and	Site visit, labor consultations, document checks	Workers camp	08-09 June 2016	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Unsanitary and poor living conditions for workers	• Ensure conditions of livability at work camps are maintained at the highest standards possible at all times; • Prohibit employees from poaching wildlife and cutting of trees for firewood; • Train employees in the storage and handling of materials which can potentially cause soil contamination; • Recover used oil and lubricants and reuse or remove from the site; • Manage solid waste according to the preference hierarchy: reuse, recycling and disposal to designated areas; • Ensure unauthorized persons specially children are not allowed in any worksite at any given time.	bathrooms for workers • Child labor employed				
Operational Phase- Not applicable (Presently works are in construction phase)						

Table-8: Summary Monitoring Table of Tonk Water Supply and Sewerage works(RUSDP /Tonk/01)

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Design Phase						
Treated effluent not meeting the disposal standards and associated impacts on receiving environment	STP design to meet CPCB wastewater disposal standards into inland water bodies including: • BOD less than 30 mg/l • Suspended solids less than 100 mg/l • Faecal coliform less than 1000/100 ml	• BOD at 200C for 5 days- less than 30 mg/l • Total suspended Solids (TSS)- less than 10 mg/l • Total kjeldahl nitrogen- less than 5 mg/l • Total Nitrogen- less than 5 mg/l	Detailed Project Report which describes the design of the STP on SBR process	-	-	-
Impairment of STP treatment efficiency	• Ensure continuous uninterrupted power supply • Provide back-up facility (such as generator) and make sure that adequate fuel supplies during operation for running of generator when required; • Provide operating manual with all standard operating procedures (SOPs) for operation and maintenance of the facility; • The scope of work of facility contractor should include extended operation period (at least five years) to ensure smooth operation, training to the ULB staff and transfer of facility to Tonk Nagar Parishad	• Continuous uninterrupted power supply provision for STP • Operation manual after completion of STP • 10 years O&M included in contract and bid document •	Detailed Project Report and bidding documents which describes the necessity of uninterrupted power supply provision of 10 years O&M and automation of STP	-	-	-
Mixing of industrial effluent with sewage	• No industrial wastewater shall be allowed to dispose into municipal sewers	• Design of sewerage network which excludes industrial waste water	Detailed Project Report which	-	-	-

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	• No domestic wastewater from industrial units shall be allowed into municipal sewers • Ensure that there is no illegal discharge through manholes or inspection chambers • Conduct public awareness programs; in coordination with RPCB, issue notice to all industries for compliance • Conduct regular wastewater quality monitoring (at inlet and at outlet of STP) to ensure that the treated effluent quality complies with the standards	from the proposed sewerage system • Regular wastewater quality monitoring at inlet and outlet of STP during operation phase	describes sewerage network and O&M program			
Pre-Construction Phase						
Compliance with environmental subproject selection criteria	Compliance with environmental subproject selection criteria A compliance checklist is appended to this report **(Appendix 5)**	Attached as appendix 5	Documents check and visual inspection	-	-	-
Utilities- Telephone lines, electric poles and wires, water lines within proposed project area may be impacted	• Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase; and • Require construction contractors to prepare a contingency plan to include actions to be taken in case of unintentional interruption of services. • Require contractors to	• List of affected utilities • Contingency plan from contractors • Spoils management plan and traffic management plan of contractor	Document check and visual inspection	Proposed locations	15-16 December 2015	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	prepare spoils management plan and traffic management plan					
Social and Cultural Resources- Ground disturbance can uncover and damage archaeological and historical remains	• Consult Dept. of Archeology and museums, Government of Rajasthan to obtain an expert assessment of the archaeological potential of the site; • Consider alternatives if the site is found to be of medium or high risk; • Develop a protocol for use by the construction contractors in conducting any excavation work, to ensure that any chance finds are recognized and measures are taken to ensure they are protected and conserved.	• archaeological potential of the site • Chance finds protocol as listed in IEE	Document check and visual inspection	Proposed locations	15-16 December 2015	AbhaySrivastava, Environmental specialist, PMDSC
Construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas.- Disruption to traffic flow and sensitive receptors	• Prioritize areas within or nearest possible vacant space in the project location; • If it is deemed necessary to locate elsewhere, consider sites that will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems; • Do not consider residential areas; • Take extreme care in selecting sites to avoid direct disposal to water body which	• Site of construction work camps, labor camps, stockpiles areas and disposal area	Visual inspection, document check	Construction work camps, labor camps, stockpiles areas and disposal area	15-16 December 2015	AbhaySrivastava, Environment Specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
	will inconvenience the community. • For excess spoil disposal, ensure (a) site shall be selected preferably from barren, infertile lands. In case agricultural land needs to be selected, written consent from landowners (not lessees) will be obtained; (b) debris disposal site shall be at least 200 m away from surface water bodies; (c) no residential areas shall be located within 50 m downwind side of the site; and (d) site is minimum 250 m away from sensitive locations like settlements, ponds/lakes or other water bodies.					
Sources of materials- Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	• Prioritize sites already permitted by the Department of Mines and Geology • If other sites are necessary, inform construction contractor that it is their responsibility to verify the suitability of all material sources and to obtain the approval of PMU and • If additional quarries will be required after construction is started, inform construction contractor to obtain a written approval from PIU.	• Sources of material	Document checks	-	15-16 December 2015	AbhaySrivastava, Environmental specialist, PMDSC

Impacts (List from IEE)	Mitigation Measures (List from IEE)	Parameters Monitored (As a minimum those identified in the IEE should be monitored)	Method of Monitoring	Location of Monitoring	Date of Monitoring Conducted	Name of Person Who Conducted the Monitoring
Consents, permits, clearances, NOCs, etc.- Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works	• Obtain all necessary consents, permits, clearance, NOCs, etc. prior to award of civil works. • Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction • Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. • Include in detailed design drawings and documents all conditions and provisions if necessary	• CTE of STP • NOCs from various departments	Document check	-	15-16 December 2015	AbhaySrivastava, Environmental specialist, PMDSC
Asbestos Cement Pipes- Health risk due to exposure to asbestos materials	• Obtain details from PHED on location of underground AC pipes • Locate the new pipe/sewer carefully to avoid encountering AC pipes • Leave the AC pipes undisturbed in the ground.	• List of underground AC pipes which are to be encountered during construction	Documents check	-	15-16 December 2015	AbhaySrivastava, Environmental specialist, PMDSC
Construction Phase (not applicable as works are not started yet)						
Operation phase (not applicable as works are not started yet)						

Environmental SiteInspection Reports

PROJECTNAME: Pali water Supply and Sewerage Works **CONTRACTNUMBER:**RUSDP/PALI/01

DATE:09.06.2016 **SECTOR:**Water Supply

DMA:3 **LOCATION:**Mandiya Road

Contractor: M/s L&T Limited

WEATHER: Hot, clear, sunshine, medium wind **PROJECT ACTIVITY:** Water Supply Pipe laying works	**ProjectActivityStage**	**Survey**	
		Design	
		Implementation	✓
		Pre-Commissioning	
		GuaranteePeriod	

MonitoringItems	**Compliance**			**Remarks**
CompliancemarkedasYes/No/Notapplicable(NA)/PartiallyImplemented(PI)	**YES**	**NO**	**NA**	
EHSsupervisorappointedbycontractorandavailableonsite	√			Qualified EHS supervisor is full time deputed at site
Constructionsitemanagementplan(spoils,safety,schedule,equipmentetc.,)prepared	√			Site HSE plan is prepared but spoils management plan is not prepared, equipment fitness checklist is prepared
PUC available for all vehicles at site		√		PUC of some of the vehicles is not available at site
Trafficmanagementplanprepared		√		traffic management plan is not prepared
Dustisundercontrol	√			No dust problem is noticed at site
Excavatedsoilproperlyplacedwithinminimumspace	√			
Constructionareaisconfined;notraffic/pedestrianentryobserved	√			Proper Barricades were seen to restrict traffic/pedestrian entry
Surplussoil/debris/wasteisdisposedwithoutdelay	√			Surplus soil not seen at site, excavated soil is backfilled on the same day
Constructionmaterial(sand/gravel/aggregate)broughttositeas&whenrequiredonly	√			Presently no sand/gravel/aggregate is being used at site
Tarpaulinsusedtocoversand&otherloosematerialwhentransportedbyvehicles			√	No material transport is being practiced at this stage
Afterunloading,wheels&undercarriageofvehiclescleanedpriortoleavingthesite			√	
NoACpipesdisturbed/removedduringexcavation	√			No AC pipes encountered at site
Nochancefindsencounteredduringexcavation	√			

MonitoringItems	Compliance			Remarks
Workisplannedinconsultationwithtrafficpolice	√			Proper barricades and traffic diversion boards displayed at site
Workisnotbeingconductedduringheavytraffic	√			
Workatastretchiscompletedwithinaday(excavation,pipelaying&backfilling)	√			Work of pipe laying is being completed and trench is backfilled on the same day
Pipetrenchesarenotkeptopenunduly	√			
Roadisnotcompletelyclosed;work isconductedonedge;atleastonelineiskeptopen	√			Excavation is done on half of the road and half of the road is open for traffic
Roadisclosed;alternativerouteprovided&publicinformed,informationboardprovided	√			Excavation is done on half of the road and half of the road is open for traffic, proper road signage is displayed at site
Pedestrianaccesstohousesisnotblockedduetopipelaying	√			Pedestrian access to houses is provided
Spacesleftinbetweentrenchesforaccess	√			
Woodenplanks/metalsheetsprovidedacrosstrenchforpedestrian			√	Pedestrian access to houses is provided
Nopublic/unauthorizedentryobservedinworksite	√			
Childrensafetymeasures(barricades,security)inplaceatworksinresidentialareas	√			Barricades provided at site
Priorpublicinformationprovidedaboutthework,scheduleanddisturbances	√			
Caution/warningboardprovidedonsite	√			Caution boards and warning boards provided at site
Guardswithredflagprovidedduringworkatbusyroads			√	The roads not busy roads
WorkersusingappropriatePPE(boots,gloves,helmets,earmuffsetc)	√			
Workersconductingornearheavynoiseworkisprovidedwithearmuffs			√	Noisy works are not being done at this stage
Contractorisfollowingstandard&safeconstructionpractices	√			
Deepexcavationisconductedwithlandslip/protectionmeasures			√	No deep excavation being conducted
Firstaidfacilitiesareavailableonsiteandworkersinformed	√			First aid facilities are available at site and workers are aware of it
Drinkingwaterprovidedatthesite	√			Potable drinking water in insulated cans are provided at site for workers

MonitoringItems	Compliance			Remarks
Toiletfacilityprovidedatthesite		√		Mobile toilets is purchased and will be taken to site soon
Separatetoiletfacilityisprovidedforwomenworkers		√		
Workerscampsaremaintainedcleanly	√			
Adequatetoilet&bathfacilitiesprovided	√			
Contractoremployedlocalworkersasfaraspossible		√		Most of the workers are from different parts of Rajasthan and other parts of India
WorkerscampsetupwiththepermissionofPIU	√			
Adequatehousingprovided	√			
Sufficientwaterprovidedfordrinking/washing/bath	√			
Nonoisyworkisconductedinthenights	√			Night works are not being conducted at this time
Localpeopleinformedofnoisywork			√	
Noblastingactivityconducted	√			
Pneumaticdrillsorotherequipmentcreatingvibrationisnotusednearold/riskybuildings	√			

Table-9: Monitoring of Specific Mitigation Measuresto be followed by Contractor

Issues	Observation	
	Water supply and sewerage works, Pali (RUSDP/Pali/01)	**Water supply and sewerage works, Tonk (RUSDP/Tonk/01)**
What are the dust suppression techniques followed for site and if any dust was noted to escape the site boundaries;	Presently dust problem is not noticed at site during site visit	Physical Works not started
If muddy water was escaping site boundaries or muddy tracks were seen on adjacent roads;	No such issues presently at site	
adequacy of type of erosion and sediment control measures installed on site, condition of erosion and sediment control measures including if these were intact following heavy rain;	No erosion problem noticed at site	
Are their designated areas for concrete works, and refueling;	Presently no concrete works being at site, refueling is being done at petrol pumps only	
Are their spill kits on site and if there are site procedure for handling emergencies;	Spill kits are not available at site	
Is there any chemical stored on site and what is the storage condition?	No chemical stored at site	
Is there any dewatering activities if yes, where is the water being discharged;	No any dewatering activities being done at sites	
How are the stockpiles being managed;	Stockpiles are covered by tarpaulin sheets	
How is solid and liquid waste being handled on site;	Solid waste is being managed through municipal waste disposal	
Review of the complaint management system;	Complaints are being registered in grievance register and being sort out by contractor under PIU and PMDSC	
Checking if there are any activities being under taken out of working hours and how that is being managed.	Presently no activities are carrying out after six pm.	

5. OVERALL COMPLIANCE WITH EMP

Table-10: overall Compliance with EMP

No.	Sub-Project Name	EMP/ CEMP Part of Contract Documents (Y/N)	CEMP/ EMP Being Implemented (Y/N)	Status of Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed and Additional Measures Required
1.	RUSDP/Pali /01 (Pali water supply and sewerage works)	Yes	Yes	Satisfactory	Site HSE plan, waste management plan and traffic management plan is required
2.	RUSDP/Pali/02 (Bulk water system for Pali)	Works not awarded			
3.	RUSDP /Tonk/01 (Tonk Water Supply and Sewerage works)	Yes	Yes	Physical works not started	Physical works not started
4.	RUSDP/Gang/01	Works not awarded			
5.	RUSDP/Jhun/01	Works not awarded			
6.	RUSDP/Hanu/01	Works not awarded			
7.	RUSDP/Bhil/01	Works not awarded			

6. APPROACH AND METHODOLOGY FOR ENVIRONMENTAL MONITORING OF THE PROJECT

10. **Institutional Arrangement for Environmental Monitoring.**For the measurement of effectiveness of the environmental performance of contractor, regular environmental monitoring is required. In RUSDP there is well established organizational structure for environmental monitoring. Project Officer (Environment) in PMU is overall looking environmental issues in the project. Assistant Safeguard Officers (ASO) deputed in each PIU will be responsible for day to day monitoring of environmental performance of project contractor. In PMDSC Environment Safeguard Specialist (ESS) is deputed intermittently with support of safeguard support staff who is responsible for preparation/update the IEE/EMP and environmental monitoring during construction phase. He will support PO (Environment) at PMU and ASOs at PIUs in implementation, management and monitoring of all safeguard related activities. The consultant team also includes an Assistant Construction Manager at each PIU responsible for the

construction supervision including environmental safeguards at subproject town level. CAPC will support PIU in construction facilitation, community consultation and grievance registration and redress during the construction.The contractor is required to appoint an Environment, Health and Safety (EHS) supervisor who will be responsible on a day-to-day basis for (i) ensuring implementation of EMP, (ii) coordinating with the ACM and environment safeguards specialists (all levels PO, ASO&ESS); (iii) community liaison, consultations with interested/affected parties, and grievance redress; and (iv) reporting.

11. **Site visits.** Site visit is carried out by safeguard team which includes PMDSC environmental and social specialist and/or safeguard support staff on regular basis for the monitoring of contractor's performance towards environment, health and safety issues as described in EMP. During site visit the safeguard team visits all the working sites along with town consultants staff, contractor's EHS supervisor and site engineers and verifies the compliances towards environmental safeguard outlined in EMP. During site visit safeguard team also interacts with labors and nearby habitants and shopkeepers to find out whether they are facing any difficulties due to contraction works and discusses these issues with PIU and contractor for remedial action to be taken. During site visit if any issue is identified which is not addressed in IEE/EMP it is discussed with PIU/PMU and further updated in IEE with mitigation measures for it.

12. **Document Checks.** At project office and during visit to project towns various documents related to environmental compliance are regularly checked by ESS. Main documents checked are PUC of contractor's vehicles, contractors HSE plan, agreements with other parties, environmental monitoring (air, water, noise, soil etc.) reports, training records, NOCs, consents, permits from other departments, work plan and site plans, grievances register, first aid register, equipment fitness reports etc.

13. **Consultations.**Consultation is a process in the project cycle in which an attempt is made to involve thepublicas stakeholders in project preparation through consultation and focus group discussion meetings. Stakeholders' participation and consultation have been viewed as a continual course of action, which promote public understanding and help eradicate hurdles in the way of the project. Consultation during project preparation as an integral part of the social assessment process not only minimizes the risks and unwanted propaganda against the project but also removes the gap between the community and the project formulators, which leads to timely completion of the project and making the project people friendly.

14. Keeping in mind the objective of minimizing adverse impact and the need of the stakeholders' participation for the smooth implementation of the project, consultation with the members of different sections of society, the affected people, identified vulnerable groups including women headed households, slum dwellers, venders, vegetable seller, tourist and students of the project area were carried out during planning phase. As per ADB policy consultations are continued throughout the project implementation period. Consultations are essential part of site visit of safeguard team to project areas.

15. The main objectives of undertaking these consultations are:

- To seek inputs from the stakeholders on the project execution and understand the difficulties/priorities / concerns of the communities
- To make affected persons aware of the project impacts
- Dissemination of information to build awareness among APsand other stakeholders and inform them about the nature of inconvenience which may be anticipated during implementation of the project.
- Discuss about the training requirements to enhance their skills & restore the livelihood

16. **Monitoring of ambient environmental conditions.**Environmental Monitoring for ambient air, noise, water and soil is being carried out on six monthly basis in all project towns. The details of environmental monitoring are described in following paragraphs.

7. MONITORING OF ENVIRONMENTAL PARAMETERS IN PROJECT SURROUNDINGS(AMBIENT AIR, WATER QUALITY AND NOISE LEVELS)

17. Before start of project activities baseline monitoring is being done in each project towns at prominent locations identified in IEE to access the initial conditions of environment in the project areas. During construction phase monitoring for ambient environmental conditions (air, water, noise and soil) is conducted on six-monthly duration on the locations identified in IEE/EMP. During site visit if any other requirement for environmental monitoring is found, which is not identified in IEE/EMP, contractor is required to do monitoring after approval of PMU. Monitoring results are compared from baseline data and/or national standards and if unacceptable deviation is found, mitigation measures are prepared by ESS of PMDSC and conveyed to contractor for compliance. Type of environmental monitoring with parameters and

location is given in following **Table 11**and method of monitoring and equipment used is given in **Table 12.**

Table-11: Types, parameters and locations of environmental monitoring

S.No.	Type of monitoring	Parameters	Locations
1.	Ambient Air Quality	Particulate Matters PM_{10}, SO_x, NO_x, Carbon Monoxide (CO), Particulate Matter $PM_{2.5}$	WTP, STP, SPS, ESRs, Pipe laying site specially near sensitive locations
2.	Ambient Noise monitoring	L_{day} and L_{night}(in LeqdBA) 24 hrs basis	WTP, STP, SPS, ESRs, Pipe laying site specially near sensitive locations
3.	Surface Water quality	pH, Turbidity, Total Hardness, DO, BOD, COD, Chloride, Hg, Iron, TDS, TSS, Calcium, Zn, Cr^{+6}, Magnesium, Copper, Manganese, Sulphate, Cyanide, Nitrate, Sodium, Potassium, Fluoride, Cadmium, Arsenic, Lead, Boron, Selenium, Aluminium, Total residual Chlorine	Surface water resources (river, pond, lake etc.) if within 500 mtrs of project affected area, intake source
4.	Ground Water quality	pH, TDS, Total Hardness, Zn, Chloride, Iron, Copper, DO, Manganese, Suplhate, Nitrate, Fluiride, Hg, Cadmium, Cr^{+6}, Arsenic, Lead, Total Alkalinity, Phosphate, Phenolic compound	WTP, STP, SPS and any central location in the town
5.	Soil Quality	pH, Elect. Conductivity (at 25^0C), Moisture (at 105^0C), Texture (silt, clay, sand), Calcium (as CaO), Magnesium (as Mg), Permeability, Nitrogen (as N), Sodium (as Na), Phosphate (as PO4), Potassium (as K), Organic Matter, oil and grease	WTP, STP, SPS, ESR

Table 12: Method of monitoring and equipments used

S.No.	Parameter of monitoring	Equipments used	Methodology	Protocol of test
Air Quality				
1.	PM10	Fine Particulate Sampler (EnvirotechAPM 550)	Collection of particulate matter on filter papers and gravimetric analysis	IS 5182(part 23): 2006
2	PM2.5	PM2.5 sampler (EnvirotechAPM 154)	Collection of particulate matter on filter papers and gravimetric analysis	As per CPCB guidelines
3	SOx,	Respirable Dust Sampler with gaseous attachment (EnvirotechAPM 460BL), UV/VIS spectrophotometer	Absorption of a gases in liquid absorbent and analysis by improved West and Geike	IS 5182 (part 2): 2001

S.No.	Parameter of monitoring	Equipments used	Methodology	Protocol of test
4	NOx	Respirable Dust Sampler with gaseous attachment (EnvirotechAPM 460BL), UV/VIS spectrophotometer	Absorption of a gases in liquid absorbent and analysis by Modified Jacob and Hochheiser (Na-arsenite)	IS 5182 (part VI):2006
5	CO	Single Gas Analyser (CO meter)	Detection method	IS 5182 (part 10): 1999
Noise Quality				
6	Noise Level (Day time and night time)	Noise level meter (EnvirotechSLM 100)	Instrumental	IS 9989
Water Quality				
7	pH	pH meter	Instrumental	IS:3025 (part 11): 2002
8	Turbidity	Manual Grab Sampling in Sterilized Sample collection bottle and lab analysis	Gravimetric Analysis	IS:3025 (part 10): 1984
9	Total Suspended Solids (TSS)	-do-	Gravimetric Analysis	IS:3025 (part 15): 1984
10	Total Dissolved Solids (TDS)	-do-	Gravimetric Analysis	IS:3025 (part 16): 2006
11	Total Hardness as $CaCO_3$	-do-	Qualitative Analysis	IS:3025 (part 21): 2009
12	Chloride as Cl	-do-	Qualitative Analysis	IS:3025 (part 32): 2003
13	Sulphate as SO_4	-do-	Qualitative Analysis	IS:3025 (part 24): 2003
14	Iron as Fe	-do-	Qualitative Analysis	IS:3025 (part 53): 2003
15	Fluoride as F	-do-	Qualitative Analysis	IS:3025 (part 60): 2008
16	Zinc as Zn	-do-	Qualitative Analysis	IS:3025 (part 49): 1994
17	Copper as Cu	-do-	Qualitative Analysis	IS:3025 (part 42): 1992
18	Manganese as Mn	-do-	Qualitative Analysis	IS:3025 (part 59): 2006
19	Mercury as Hg		Qualitative Analysis	IS:3025 (part 48): 1994
20	Cadmium	-do-	Qualitative Analysis	IS:3025 (part 41): 1992
21	Chromium as Cr	-do-	Qualitative Analysis	IS:3025 (part 52): 2003
22	Total Arsenic as As	-do-	Qualitative Analysis	IS:3025 (part 37): 1988
23	Lead as Pb	-do-	Qualitative Analysis	IS:3025 (part 47): 1994
24	Dissolved Oxygen (DO)	-do-	Qualitative Analysis	IS:3025 (part 38): 1989

S.No.	Parameter of monitoring	Equipments used	Methodology	Protocol of test
25	Chlorine (residual free)	-do-	Qualitative Analysis	APHA 22nd edition-4500Cl B
26	Calcium as Ca	-do-	Qualitative Analysis	IS:3025 (part 40): 2003
27	Magnesium as Mg	-do-	Qualitative Analysis	APHA 22nd edition
28	Total Alkanity as $CaCO_3$	-do-	Qualitative Analysis	IS:3025 (part 23): 2003
29	Colour	-	Physical observation	APHA 22nd edition
30	Odour	-	Physical observation	APHA 22nd edition
31	Taste	-	Physical observation	APHA 22nd edition
32	Phenolic Compound	-do-	Qualitative Analysis	IS:3025 (part 43): 1992
33	Total Residual Chlorine	-do-	Qualitative Analysis	IS:3025 (part 26): 1986

8. RESULTS OF ENVIRONMENTAL MONITORING (DURING JAN-JUNE 2016)

1. Pali

A. Ambient Air Monitoring

Date of Monitoring	Locations	Results				
		CO ($\mu g/m^3$)	$NO_2(\mu g/m^3)$	$SO_2(\mu g/m^3)$	$PM_{10}(\mu g/m^3)$	$PM_{2.5}(\mu g/m^3)$
12.01.2016 to 13.01.2016	STP area, Mandia Road	<0.1	12.2	6.8	48.2	22.1
12.01.2016 to 13.01.2016	Post office (Suraj Pole)	<0.1	13.9	6.3	50.8	24.1
National Standards/ Limit		***2000 (8 hours avg.)***	**80**	**80**	***100***	***60***

B. Ambient Noise Monitoring

Date	Locations	Leq day time dB(A)	Leq night time dB(A)
12.01.2016	Outside STP, Mandia Road	68.2	44.1
12.01.2016	Post office (Suraj Pole)	58.7	42.1
	National Standard/ Limit	**55**	**45**

C. Surface Water Quality

Date of monitoring- 12.01.2016

S.No	Parameters	Units	Standards As per IS 10500:2012		Results
			Desirable Limits	Permissible Limits in absence of alternate source	Bandi River near STP
1	pH	-	6.5 to 8.5	NR	7.97
2	Turbidity	NTU	1	5	42.1
3	Total Suspended Solids (TSS)	mg/l			354
4	Total Dissolved Solids (TDS)	mg/l	<500	<2000	3516
5	Total Hardness as $CaCO_3$	mg/l	<200	<600	220
6	Chloride as Cl	mg/l	<250	<1000	1070
7	Sulphate as SO_4	mg/l	<200	<400	404
8	Iron as Fe	mg/l	<0.3		1.51
9	Copper as Cu	mg/l	<0.05	<1.5	BDL(<0.03)
10	Manganese as Mn	mg/l	<0.1	<0.3	BDL(<0.02)
11	Dissolved Oxygen (DO)	mg/l		5.0	2.9
12	Chlorine (residual free)	mg/l			BDL(<0.1)
13	Calcium as Ca	mg/l	75	200	48
14	Magnesium as Mg	mg/l	30	100	24
15	Total Alkanity as $CaCO_3$	mg/l	<200	<600	1250
16	Colour	Hazen	5	15	22
17	Odour	-	Agreeable	Agreeable	Observed
18	Taste	-	Agreeable	Agreeable	Not agreeable

D. Ground Water Quality

Date of monitoring-12.01.2016

S.No	Parameters	Units	Standards As per IS 10500:2012		Results	
			Desirable Limits	Permissible Limits in absence of alternate source	Bore well near Ganghi Nagar	Handpump near Navlakha Road, Surajpole
1	pH	-	6.5 to 8.5	NR	7.98	7.69
2	Total Dissolved Solids (TDS)	mg/l	<500	<2000	2881	1135

S.No	Parameters	Units	Standards As per IS 10500:2012		Results	
			Desirable Limits	Permissible Limits in absence of alternate source	Bore well near Ganghi Nagar	Handpump near Navlakha Road, Surajpole
3	Total Suspended solids (TSS)	mg/l			2	5
4	Total Hardness as $CaCO_3$	mg/l	<200	<600	220	350
5	Total alkanity as $CaCO_3$	mg/l	<200	<600	720	380
6	Chloride as Cl	mg/l	<250	<1000	759	187
7	Sulphate as SO_4	mg/l	<200	<400	563	176
8	Calcium as Ca	mg/l	75	200	48	104
9	Iron as Fe	mg/l	<0.3		0.12	0.21
10	Magnesium as Mg	mg/l	30	100	24	22
11	Dissolved oxygen	mg/l			6.8	7.1
12	Copper as Cu	mg/l	<0.05	<1.5	BDL(<0.03)	BDL(,0.03)
13	Manganese as Mn	mg/l	<0.1	<0.3	BDL(<0.02)	BDL(<0.02)
14	Chlorine (free residual)	mg/l			BDL(<0.01)	BDL(<0.01)
15	Colour	Hazen	5	15	Nil	Nil
16	Odour	-	Agreeable	Agreeable	No odour	No odour
17	Taste	-	Agreeable	Agreeable	Not agreeable	Not agreeable
18	Turbidity	NTU	1	5	BDL(<0.5)	0.7

E. Soil Analysis

Date of monitoring- 12.01.2016

S.No.	Parameters	Units	Results	
			STP, Mandia Road	Suraj Pole (PashudhanBhavan)
1	pH	-	8.89	8.65
2	Electrical Conductivity (at 25^0C)	mS/cm	0.266	0.289
3	Sodium Absorption Ratio (SAR)	m.eq/kg	1.32	0.71
4	Exchangeable Sodium (Percentage)	%	5.22	3.76
5	Nickel as Ni	mg/Kg	BDL(<5)	BDL(<5)
6	Chromium as Cr	mg/Kg	BDL(<5)	BDL(<5)
7	Copper (as Cu)	mg/Kg	BDL(<5)	BDL(<5)
8	Iron (as Fe)	mg/Kg	46.3	28.2
9	Manganese(as Mn)	mg/Kg	8.6	5.9

2. Tonk

A. Ambient air monitoring

Date of Monitoring	Locations	Results				
		CO ($\mu g/m^3$)	$NO_2(\mu g/m^3)$	$SO_2(\mu g/m^3)$	$PM_{10}(\mu g/m^3)$	$PM_{2.5}(\mu g/m^3)$
28.01.2016	Near BadaKuwan	390	27.4	11.2	134.8	67.9
29.01.2016	Near STP site, Soran	370	25.7	10.5	113.8	58.1
30.01.2016	Near STP site, Molaipura	430	29.2	12.8	147.4	64.8
30.01.2016	Near SPS site, Bhikapura	350	23.2	9.6	108.6	54.8
National Standards/ Limit		***2000 (8 hours avg.)***	**80**	**80**	***100***	***60***

B. Ambient Noise Monitoring

Date	Locations	Leq day time dB(A)	Leq night time dB(A)
	National Standard/ Limit	**55**	**45**
28.01.2016	Near BadaKuwan	53.7	44.6
29.01.2016	Near STP site, Soran	53.2	43.1
30.01.2016	Near STP site, Molaipura	54.2	43.9
30.01.2016	Near SPS site, Bhikapura	52.8	41.6
	National Standard/ Limit	**55**	**45**

C. Surface Water Quality

Date of monitoring- 29.01.2016

S.No	Parameters	Units	Standards As per IS 10500:2012		Tolerance Limits	Results
			Desirable Limits	Permissible Limits in absence of alternate source	As per IS 2296-1982	Nallah near STP site, Soran
1	pH	-	6.5 to 8.5	NR		7.91
2	Turbidity	NTU	1	5		<1.0
3	Total Suspended Solids (TSS)	mg/l				53.0
4	Total Dissolved Solids (TDS)	mg/l	<500	<2000		870.4
5	Total Hardness as $CaCO_3$	mg/l				265.0
6	Nitrate as NO_3	mg/l	<45	NR		23.80

S.No	Parameters	Units	Standards As per IS 10500:2012		Tolerance Limits	Results
			Desirable Limits	Permissible Limits in absence of alternate source	As per IS 2296-1982	Nallah near STP site, Soran
7	Chloride as Cl	mg/l	<250	<1000		117.97
8	Sulphate as SO_4	mg/l	<200	<400		106.12
9	Iron as Fe	mg/l	<0.3			0.21
10	Fluoride as F	mg/l	<1.0	<1.5	1.5	5.12
11	Zinc as Zn	mg/l	<5.0	<15		BDL
12	Copper as Cu	mg/l	<0.05	<1.5		BDL
13	Manganese as Mn	mg/l	<0.1	<0.3		BDL
14	Mercury as Hg	mg/l	<0.001	N.T.		BDL
15	Cadmium as Cd	mg/l	<0.003	N.T.		BDL
16	Chromium as Cr^{+6}	mg/l			1.0	BDL
17	Arsenic as As	mg/l	<0.01	<0.05	0.2	BDL
18	Lead as Pb	mg/l	<0.01	N.T.		BDL
19	Dissolved Oxygen (DO)	mg/l			5.0	6.3
20	Biochemical Oxygen Demand (BOD)	mg/l			3.0	2.7
21	Chemical Oxygen Demand (COD)	mg/l				12.31
22	Cyanide as CN	mg/l	0.05	NR	0.05	Absent
23	Boron as B	mg/l	0.5	1.0		0.18
24	Selenium as Se	mg/l	0.01	NR		BDL
25	Aluminium as Al	mg/l	0.03	0.2		BDL
26	Chlorine (residual free)	mg/l				<0.01
27	Calcium as Ca	mg/l	75	200		
28	Magnesium as Mg	mg/l	30	100		
29	Potassium	mg/l				
30	Sodium	mg/l				

D. Ground Water Quality

S.No	Parameters	Units	Standards As per IS 10500:2012		Results			
			Desirable Limits	Permissible Limits in absence of alternate source	Hand pump, near BadaKuwan (dtd. 28.01.2016)	Hand pump, near STP site, Soran (dtd. 29.01.2016)	Bore well near STP site, Molaipura(dtd. 30.01.2016)	Bore well, near SPS site, Bhikapura(dtd. 30.01.2016)
1	pH	-	6.5 to 8.5	NR	7.12	7.44	7.75	7.04
2	Total Dissolved Solids (TDS)	mg/l	<500	<2000	1895.0	930.0	892.8	1458.0
3	Total Hardness as $CaCO_3$	mg/l	<200	<600	964.6	212.0	24.38	1038.8
4	Total alkanity as $CaCO_3$	mg/l	<200	<600	530.0	480.0	55.0	520.0
5	Nitrate as NO_3	mg/l	<45	NR	185.18	25.2	24.99	52.4
6	Chloride as Cl	mg/l	<250	<1000	490.0	97.55	72.60	399.30
7	Sulphate as SO_4	mg/l	<200	<400	242.25	187.87	62.5	152.37
8	Iron as Fe	mg/l	<0.3		0.25	0.18	0.15	0.20
9	Fluoride as F	mg/l	<1.0	<1.5	6.15	5.02	4.92	4.77
10	Zinc as Zn	mg/l	<5.0	<15	0.05	0.02	0.05	BDL
11	Copper as Cu	mg/l	<0.05	<1.5	BDL	BDL	BDL	BDL
12	Manganese as Mn	mg/l	<0.1	<0.3	BDL	BDL	BDL	BDL
13	Mercury as Hg	mg/l	<0.001	N.T.	BDL	BDL	BDL	BDL
14	Cadmium as Cd	mg/l	<0.003	N.T.	BDL	BDL	BDL	BDL
15	Chromium as Cr^{+6}	mg/l	<0.05	N.T.	BDL	BDL	BDL	BDL
16	Arsenic as As	mg/l	<0.01	<0.05	BDL	BDL	BDL	BDL
17	Lead as Pb	mg/l	<0.01	N.T.	BDL	BDL	BDL	BDL
18	Phosphate as PO_4	mg/l	-	-	BDL	BDL	BDL	BDL
19	Phenolic compound	mg/l	<0.001	<0.002	BDL	BDL	BDL	BDL

E. Soil Analysis

S.No.	Parameters	Units	Results		
			STP site, Soran (dtd. 29.01.2016)	**STP site, Molaipura(dtd. 30.01.2016)**	**SPS site, Bhikhapura(dtd. 30.01.2016)**
1	pH	-	7.12	7.32	7.42
2	Electrical Conductivity (at 25^0C)	mS/cm	229.0	208.0	266.0
3	Moisture	%	2.90	3.14	4.12
4	Texture	-	Sandy loam	Sandy loam	Sandy
5	Permeability	cm/hr	22	17	12
6	Organic Matter	%	0.421	0.385	0.550
7	Nitrogen (as N)	%	0.185	0.282	0.226
8	Calcium (as CaO)	%	0.623	0.472	0.380
9	Magnesium (as Mg)	%	0.170	0.210	0.184
10	Sodium (as Na)	%	0.675	0.785	0.830
11	Potassium (as K)	%	0.135	0.172	0.154
12	Phosphate (as PO_4)	%	0.168	0.145	0.115
13	Oil and grease	%	BDL	BDL	BDL

9. NATIONAL STANDARDS

A. National Ambient Air Quality Standards

Sl No:	Pollutants	Time weighted average	Concentration in ambient air		Method of measurement
			Industrial, Residential, Rural & Other Areas	Ecologically Sensitive Areas	
1	Sulphur Dioxide (SO_2) µg/m^3	Annual 24 hours	50 80	20 80	Improved West and Geake-Ultraviolet fluorescence
2	Nitrogen Dioxide (NO_2) µg/m^3	Annual 24 hours	40 80	30 80	Modified Jacob &Hochheiser (Na-Arsenite) Chemiluminescence
3	Particulate Matter (Size less than 10 µm) or PM10 µg/m^3	Annual 24 hours	60 100	60 100	Gravimetric -TOEM -Beta attenuation
4	Particulate Matter (Size less than 2.5 µm) or PM2.5 µg/m^3	Annual 24 hours	40 60	40 60	Gravimetric -TOEM -Beta attenuation
5	Carbon Monoxide (CO) µg /m^3	8 hours 1 hours	02 04	02 04	Non Dispersive Infra Red (NDIR) Spectroscopy

B. National Ambient Air Quality Standards in Respect of Noise

As per the Noise Pollution (Regulation And Control) Rules, 2000

Area code	Category of area/zone	Limit in dB (A)	
		Day time	Night time
a	Industrial area	75	70
b	Commercial area	65	55
c	Residential area	55	45
d	Silence zone	50	40

C. Drinking Water Quality Standards (As per IS 10500:2012)

Organoleptic and Physical Parameters
(Foreword *and* Clause *4)*

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 3025	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
i)	Colour, Hazen units, *Max*	5	15	Part 4	Extended to 15 only, if toxic substances are not suspected in absence of alter- nate sources
ii)	Odour	Agreeable	Agreeable	Part 5	a) Test cold and when heated

Sl No.	Characteristic	Requirement (Acceptable Limit)	Permissible Limit in the Absence of Alternate Source	Method of Test, Ref to Part of IS 3025	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
					b) Test at several dilutions
iii)	*p*H value	6.5-8.5	No relaxation	Part 11	—
iv)	Taste	Agreeable	Agreeable	Parts 7 and 8	Test to be conducted only after safety has been established
v)	Turbidity, NTU, *Max*	1	5	Part 10	—
vi)	Total dissolved solids, mg/l, Max	500	2 000	Part 16	—

NOTE — It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render the water not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissible limit in the absence of alternate source' in col 4, above which the sources will have to be rejected.

Table 2 General Parameters Concerning Substances Undesirable in Excessive Amounts

(Foreword *and* Clause *4)*

Sl No.	**Characteristic**	**Requirement (Acceptable Limit)**	**Permissible Limit in the Absence of Alternate Source**	**Method of Test, Ref to**	**Remarks**
(1)	(2)	(3)	(4)	(5)	(6)
i)	Aluminium (as Al), mg/l, *Max*	0.03	0.2	IS 3025 (Part 55)	—
ii)	Ammonia (as total ammonia-N), mg/l, *Max*	0.5	No relaxation	IS 3025 (Part 34)	—
iii)	Anionic detergents (as MBAS) mg/l, *Max*	0.2	1.0	Annex K of IS 13428	—
iv)	Barium (as Ba), mg/l, *Max*	0.7	No relaxation	Annex F of IS 13428* or IS 15302	—
v)	Boron (as B), mg/l, *Max*	0.5	1.0	IS 3025 (Part 57)	—
vi)	Calcium (as Ca), mg/l, *Max*	75	200	IS 3025 (Part 40)	—
vii)	Chloramines (as Cy, mg/l, *Max*	4.0	No relaxation	IS 3025 (Part 26)* or APHA 4500-Cl G	—
viii)	Chloride (as Cl), mg/l, *Max*	250	1 000	IS 3025 (Part 32)	—
ix)	Copper (as Cu), mg/l, *Max*	0.05	1.5	IS 3025 (Part 42)	—
x)	Fluoride (as F) mg/l, *Max*	1.0	1.5	IS 3025 (Part 60)	—
xi)	Free residual chlorine, mg/l, *Min*	0.2	1	IS 3025 (Part 26)	To be applicable only when water is chlorinated. Tested at consumer end. When protection against viral infection is required, it should be minimum 0.5 mg/l

xii)	Iron (as Fe), mg/l, *Max*	0.3	No relaxation	IS 3025 (Part 53)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xiii)	Magnesium (as Mg), mg/l, *Max*	30	100	IS 3025 (Part 46)	—
xiv)	Manganese (as Mn), mg/l, *Max*	0.1	0.3	IS 3025 (Part 59)	Total concentration of manganese (as Mn) and iron (as Fe) shall not exceed 0.3 mg/l
xv)	Mineral oil, mg/l, *Max*	0.5	No relaxation	Clause **6** of IS 3025 (Part 39) Infrared partition method	—
xvi)	Nitrate (as NOA mg/l, *Max*	45	No relaxation	IS 3025 (Part 34)	—
xvii)	Phenolic compounds (as $C_6H.OH$), mg/l, *Max*	0.001	0.002	IS 3025 (Part 43)	—
xviii)	Selenium (as Se), mg/l, *Max*	0.01	No relaxation	IS 3025 (Part 56) or IS 15303*	—
xix)	Silver (as Ag), mg/l, *Max*	0.1	No relaxation	Annex J of IS 13428	—
xx)	Sulphate (as SO4) mg/l, *Max*	200	400	IS 3025 (Part 24)	May be extended to 400 provided that Magnesium does not exceed 30
xxi)	Sulphide (as H_2S), mg/l, *Max*	0.05	No relaxation	IS 3025 (Part 29)	—
xxii)	Total alkalinity as calcium carbonate, mg/l, *Max*	200	600	IS 3025 (Part 23)	—
xxiii)	Total hardness (as $CaCO_3$), mg/l, *Max*	200	600	IS 3025 (Part 21)	—
xxiv)	Zinc (as Zn), mg/l, *Max*	5	15	IS 3025 (Part 49)	—

NOTES

1 In case of dispute, the method indicated by '*' shall be the referee method.

2 It is recommended that the acceptable limit is to be implemented. Values in excess of those mentioned under 'acceptable' render thewater not suitable, but still may be tolerated in the absence of an alternative source but up to the limits indicated under 'permissiblelimit in the absence of alternate source' in col 4, above which the sources will have to be rejected

D. Surface Water Quality Standards for class B (bathing) (As per IS 2296:1982)

S.No.	Characteristic	Tolerance Limit
1.	pH Value	6.5 to 8.5
2.	Dissolved Oxygen, mg/l/ Max	5.0
3.	Biochemical Oxygen Demand	3.0
4.	Total Coliform Organisms, MPN/100 ml, Max	500
5.	Fluorides (as F) <mg/l, Max	1.5
6.	Colour, Hazen Units, Max	300
7.	Cyanides (as CN), mg/l, Max	0.05
8.	Arsenic (as As), mg/l, Max	0.2
9.	Phenolic Compounds (As C_6H_5OH) mg/l, Max	0.005
10.	Chromium (as Cr^{6+}), mg/l, Max	1.0
11.	Anionic detergents (as MBAS), mg/l, Max	1.0
12.	Alpha emitters, mc/ml, Max	10^{-8}

10. SUMMARY OF KEY ISSUES AND REMEDIAL ACTIONS

18. During site visits to project towns by safeguard team of PMDSCfollowing key issues were identified and conveyed to PIU/Contractor for remedial action-

S.N.	Key issues	Remedial action required	Responsibility	Time for remedial action
Pali				
1	Site HSE plan, waste management plan and traffic management plan is not prepared by contractor	Prepare and submit HSE plan, waste management plan and traffic management plan	Contractor	15 July 2016
2.	Use of fuel wood for cooking in labor camps was observed	Use of fuel wood for cooking in labor camps should be stopped and clean fuel like LPG should be provided to workers for cooking	Contractor	30 June 2016
3.	PUC of all vehicles, contractor's own as well as hired was not taken and available at vehicle at site	All the vehicles whether contractor's own or hired should be having PUC in the vehicle itself at site	Contractor	30 June 2016
4.	Project information board with contract numbers of PIU, PMDSC and Contractors at site was not found for register the grievance by public/road users	Project information board with contact numbers of PIU, PMDSC and Contractors should be displayed at site as per RUIDP Circular	Contractor	30 June 2016
5.	Mobile toilets though procured are not available at site	Provide mobile toilets at site	Contractor	15 June 2016

11. PUBLIC CONSULTATION &GRIEVANCEREDRESS MECHANISM

A. PUBLIC CONSULTATION

19. Periodical monitoring is being conducted by environmental specialist of PMDSC through site visits which includes public consultations, consultations with labors and contractors staff, documents checking and environmental monitoring for ambient air and noise conditions and water quality analysis through third party monitoring agencies. Photographs and Minutes of consultations are annexed at Appendix 2.

SUMMARY OF CONSULTATIONS DURING JAN-JUNE 2016

S.No.	Date and place of consultation	Works being executed at/near site	Persons consulted	Topics discussed during consultation	Outcome of consultation
1.	09.06.2015, Gandhi Nagar Circle, Pali	Laying of 350 mm DI pipe for water supply	1.Dinesh Kumar, Bharat Lime Supplier 2.Bhima Ram, SagarBhojanalaya 3.Chand Mal, JantaTrolly works	Difficulties due to construction works like loss of access, dust problem, noise problem, destruction of utilities, any other complains	Access were left for shops, no dust and noise problem, no damage to utilities, work was satisfactory

B. PROJECT-SPECIFIC GRIEVANCE REDRESS MECHANISM

20. A project-specific grievance redress mechanism (GRM) is established to receive, evaluate, and facilitate the resolution of AP's concerns, complaints, and grievances about the social and environmental performance at the level of the project. The GRM aims to provide a time-bound and transparent mechanism to record and resolve social and environmental concerns linked to the project. A common GRM is in place for social, environmental, or any other grievances related to the project; the resettlement plans (RPs) and IEEs will follow the GRM described below. The GRM provides an accessible and trusted platform for receiving and facilitating resolution of affected persons' grievances related to the project. The multi-tier GRM for the project is outlined below, each tier having time-bound schedules and with responsible persons identified to address grievances and seek appropriate persons' advice at each stage, as required.

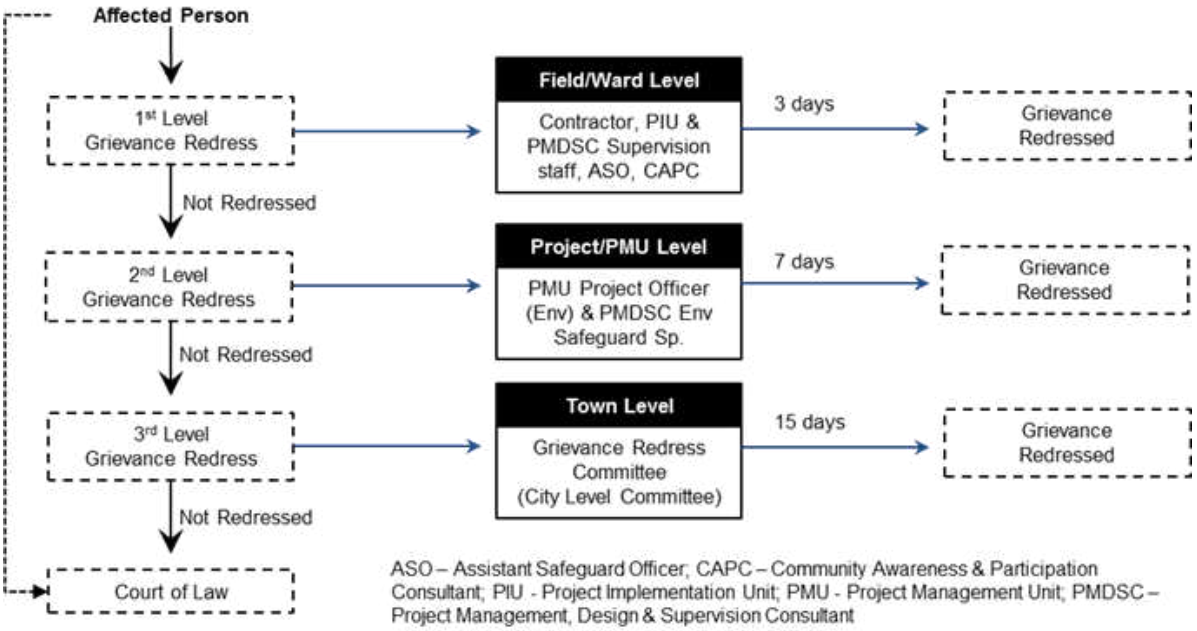
21. ULB/ PIUs(wide public awareness campaigns through CAPC)isensuring that awareness on grievance redress procedures is generated through the campaign. PIU Assistant Safeguards Officer (ASO)/ Nodal officer through Community Awareness and Participation Consultant (CAPC) will conduct ULB-wide awareness campaigns to ensure that poor and vulnerable households are made aware of grievance redress procedures and entitlements.

22. APs have the flexibility of conveying grievances/suggestions by dropping grievance redress/suggestion forms in complaints/suggestion boxes or by e-mail, by post, by telephone, or by writing in a complaint register in ULB/PIU offices.Careful documentation of the name of the complainant, date of receipt of the complaint, address/contact details of the person, location of the problem area, and how the problem was resolved are being undertakenby CAPC. The PMU Project Officers (Environment & Social) will have the overall responsibility for timely grievance redress respectively on environmental and social safeguards issues and for registration of grievances, related disclosure, and communication with the aggrieved party through the PIU ASO/ Nodal officer. (Refer Appendix 6 for current status of Grivances).

Processbeing Adopted

23. In case of grievances that are immediate and urgent in the perception of the complainant, the contractor, and supervision personnel from PIU and PMDSC on-site provides the most easily accessible or first level of contact for quick resolution of grievances. Contact phone numbers and names of the concerned PIU Assistant Safeguards Officer, contractors, are posted at all construction sites at visible locations.

FIGURE 7: GRIEVANCE REDRESS PROCESS



(i) **1st level grievance**. The contractors, PIU supervision personnel, PIU Assistant Safeguards Officer and implementing NGO/CAPC[1] can immediately resolve issues on-site in consultation with each other, and will be required to do so within 3 days of receipt of a complaint/grievance.

(ii) **2nd level grievance**. All grievances that cannot be redressed within 3 days at field/ward level will be brought to the notice of respective Project Officers (Environment/Social) of PMU. PMU POs will resolve the grievance within 7 days of receipt of compliance/grievance in discussion with the PIU, CAPC and the Contractor. PMDSC will assist POs in resolving the issue.

(iii) **3rd level grievance**. All the grievances that are not addressed by PMU within in 7 days of receipt will be brought to the notice of notice of the Grievance Redress Committee (GRC). The City Level Committee (CLC) that will be established in every project town will act as GRC[2]. GRC will meet twice a month and determine the merit of each grievance brought to the committee. The PIU ASO will be responsible to see through the process of redress of each grievance. The GRC will resolve the grievance within 15 days of receiving the complaint.

(iv) **4th level grievance**. Very major issues that are beyond the jurisdictional authority of the CLC or those that have the potential to cause social conflicts or environmental damage or those that remain unresolved at PMU/CLC level, will be referred to the Empowered Committee (EC)[3]. All decisions taken by the GRC and PSC will be communicated to the APs by the PIU ASO.

The project GRM notwithstanding, an aggrieved person shall have access to the country's legal system at any stage, and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM. Alternatively, if the grievance is related to land acquisition, resettlement & rehabilitation, the APs can approach the Land Acquisition, Rehabilitation and Resettlement Authority (LARRA). As per the latest Right to Fair

[1] Community Awareness and Public Participation (CAPC) will oversee the matters if there is no Resettlement Plan (RP) Implementing NGO

[2] City Level Committees (CLC) is formed at town-level with members composed of: District Collector (DC) as Chairperson, and following as members: ULB Commissioner; Assistant Safeguards Officer PIU; representative from RPCB regional office; and one representative each from relevant government departments as appropriate (PWD / PHED / DAM etc). All town-level GRCs will have at least one woman member/chairperson. In addition, for project-related grievances, representatives of APs, community-based organizations (CBOs), and eminent citizens will be invited as observers in GRC meetings

[3] The Empowered Committee (EC) will be chaired by the Minister of Urban Development and Housing, and members will include Ministers, Directors and/or representatives of other relevant Government Ministries and Departments

Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement Act, 2013, the state government will have to establish the LARRA to address grievances in implementation of LARRA.

In the event that the established GRM is not in a position to resolve the issue, the affected person also can use the ADB Accountability Mechanism through directly contacting (in writing) the Complaint Receiving Officer (CRO) at ADB headquarters or the ADB India Resident Mission (INRM). The complaint can be submitted in any of the official languages of ADB's DMCs. The ADB Accountability Mechanism information will be included in the PID to be distributed to the affected communities, as part of the project GRM.

12. CONCLUSION

24. Under RUSDP out of six towns, physical works are under progress only in Pali, though works are also awarded in Tonk. As per observations on site at Pali the work is being executed satisfactorily with due importance to all the provisions of EMP and complying all the national and state laws. Few minor issues which require further compliance have been communicated to the contractor/PIU and it is expected that the compliance to the same will be made shortly. ADBSPS is being complied in all respect.

APPENDIX 1: PHOTOS OF SITE VISITS AND CONSTRUCTION WORKS
DURING JAN-JUNE 2016**PALI (WATER SUPPLY)**

Barricades provided at site

Caution and signage displayed at site

Use of PPEs by workers at site

Drinking Water provided at site to workers

Portable access for residents

Emergency nos. Displayed at labour camps

Mobile toilet procured for site

Plantations done at labour camp

Gender specific toilet and bathrooms at labour camp

Wood being used as fuel at labour camp

Fire extinguisher provided at labour camp

Display of labour act notices at site office

Discussion with contractor for labour issues

Onsite training to labours for safeguards

APPENDIX 2:MINUTES OF CONSULTATIONS DURING JAN-JUNE 2016

Consultations were made with the permanent shop owners/ tenants near Gandhi Nagar Circle, Pali on 09.06.2015, pipe Laying of 350 mm DI pipe for water supply has been done in the area. Public consultation were done to know the levelof difficulties faced (like loss of access, dust problem, noise problem, destruction of utilities, any other issues) due to construction works.

During the consultation, Mr. Dinesh Kumar, Bharat Lime Supplier, Mr. Bhima Ram, SagarBhojanalaya and Chand Mal, JantaTrolly works informed that the required, access were left for shops, no dust and noise problem, no damage to utilities was there and the quality and scheduling of workwas satisfactory.

Photographs of consultations

	
Consultation near Gandhi Nagar circle, Pali	**Consultation near Gandhi Nagar circle, Pali**

APPENDIX 3: COPIES OF ENVIRONMENTAL CLEARANCES AND PERMITS

FOREST CLEARANCE FOR PROPOSED OHSR AT RAMDWARA AT TONK

राजस्थान सरकार
वन विभाग

क्रमांक: प. 1 (105) वन/2015 जयपुर, दिनांक: 18.12.2015

प्रधान मुख्य वन संरक्षक(HoFF)
राजस्थान, जयपुर ।

विषय:–डायवर्जन ऑफ 0.1435 हैक्टर ऑफ फोरस्ट लैण्ड फोर कन्सट्रक्शन ऑफ ओवरहेड टैंक और पाईपलाईन इन फेवर ऑफ पीएचईडी अन्डर RUIDP- Phase-III इन टौक डिस्ट्रिक्ट।

संदर्भ :– प्रस्ताव संख्या (FP/RJ/WATER/10622/2015)

महोदय,

कृपया उपरोक्त संदर्भित विषयांकित प्रस्ताव में वन संरक्षण अधिनियम 1980 के अन्तर्गत सामान्य स्वीकृति के तहत धारा–2 में वन भूमि प्रत्यावर्तन की स्वीकृति चाही गई है। उक्त प्रस्ताव पर ध्यानपूर्वक विचार करने के उपरान्त राज्य सरकार केन्द्र सरकार के पत्र संख्या एफ.न. 11–9/98–एफसी दिनांक 03.01.2005, 13.02.2014 व भारत सरकार, क्षेत्रीय कार्यालय के पत्र संख्या 736 दिनांक 10.09.2014 से वन संरक्षण अधिनियम 1980 के अन्तर्गत धारा–2 में सामान्य स्वीकृति बाबत् जारी दिशा निर्देशों की पालना करते हुए डायवर्जन ऑफ 0.1435 हैक्टर ऑफ फोरस्ट लैण्ड फोर कन्सट्रक्शन ऑफ ओवरहेड टैंक और पाईपलाईन इन फेवर ऑफ पीएचईडी एवं शून्य वृक्षों के पातन की सैद्धान्तिक स्वीकृति निम्न शर्तों के अध्यधीन प्रदान की जाती है:–

1. वन भूमि की वैधानिक स्थिति में कोई परिवर्तन नहीं होगा।
2. प्रत्यावर्तित वन भूमि का उपयोग किसी अन्य प्रयोजन के लिये नहीं किया जावेगा।
3. प्रस्तावानुसार उक्त परियोजना अन्तर्गत पातन किये जाने वाले प्रस्तावित पेडो की संख्या से अधिक पेडो का पातन नहीं किया जावेगा।
4. याचक विभाग द्वारा परियोजना के निर्माण एवं रख रखाव के दौरान आस पास के क्षेत्र की वनस्पतियों एवं जीव जन्तुओ को किसी प्रकार की क्षति नहीं पहुचाई जावेगी एवं उनके संरक्षण हेतु समस्त उपाय किये जावेगें।
5. प्रत्यावर्तित क्षैत्र में रोपित पेडों को वन विभाग के बिना पुर्वानुमति के नहीं काटा जावे। उक्त क्षैत्र में रोपित पैड परिपक्व होने पर, वन विभाग के होगे।
6. रात्रि कैम्पिंग नहीं की जायेगी।
7. प्रयोक्ता अभिकरण द्वारा निर्माण कार्य के दौरान स्थल पर कार्यरत मजदूरों/स्टाफ को रसोई गैस/केरोसिन तेल आपूर्ति की जायेगी, ताकि निकटवर्ती वनों को क्षति न हो।
8. प्रयोक्ता अभिकरण द्वारा प्रस्तावित वनभूमि के अतिरिक्त आस–पास की वनभूमि से/पर निर्माण कार्य के दौरान मिट्टी/पत्थर काटने एवं भरने का कार्य नहीं किया जावेगा।
9. प्रयोक्ता अभिकरण वर्तमान एवं भविष्य में योजना पर लागू सभी नियम, कानून तथा दिशा निर्देशों का पालन करेगी।
10. प्रत्यावर्तित क्षेत्र के आस–पास मे वनस्पति/वन्यजीवन (Flora/Fauna) की क्षति होने पर यूजर एजेन्सी की जिम्मेदारी रहेगी एवं इनको संरक्षित रखने की जिम्मेदारी भी यूजर एजेन्सी की होगी।
11. प्रयोक्ता अभिकरण के व्यय पर वन विभाग द्वारा शून्य से 10 वृक्षो के पातन होने पर 100 वृक्षो तथा 10 से अधिक वृक्षो का पातन होने पर पातन किये जाने वाले वृक्षो का दस गुना संख्या में वृक्षो का वृक्षारोपण एवं 10 वर्षों तक रखरखाव किया जावेगा। इस हेतु प्रयोक्ता अभिकरण द्वारा वर्तमान दरों को समाहित करते हुए यथा सम्भव राशि जमा की जायेगी।
12. प्रयोक्ता अभिकरण द्वारा प्रस्तावित मार्ग के दोनों ओर रिक्त पडे स्थानों पर यथोचित वृक्षारोपण एवं 10 वर्षों तक रखरखाव हेतु आवश्यक धनराशि (वर्तमान दरों को समाहित करते हुए यथासंशोधित) जमा की जायेगी।
13. प्रयोक्ता अभिकरण द्वारा माननीय उच्चतम न्यायालय के रिट पिटीशन (सिविल) 202/1995 के अन्तर्गत आई.ए. संख्या 566 एवं भारत सरकार के पत्र संख्या 5–3/2007–एफ.सी. दिनांक 05.02.2009 के तहत में दिये गए आदेशानुसार शुद्ध वर्तमान मूल्य (एन.पी.वी.) की निर्धारित राशि जमा की जायेगी।

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14. उपरोक्त अनुदेशों के अनुसार शुद्ध वर्तमान मूल्य तथा दूसरी सभी निधियां प्रतिपूर्ति पौधारोपण निधि प्रबंधन तथा योजना प्राधिकरण के तदर्थ लेखा संख्या CAF Rajasthan SB01025225 कॉर्पोरेशन बैंक (भारत सरकार का उपक्रम) ब्लॉक–11, भूतल सी.जी.ओ. कॉम्पलैक्स फेज–1, लोधी रोड, नई दिल्ली–11003 में जमा कराया जायेगा।
15. प्रयोक्ता अभिकरण इस आशय का बधनबद्धता प्रमाण पत्र प्रस्तुत करेंगे कि सक्षम स्तर से यदि एन. पी.वी. की दरों में बढोतरी होती है तो बढी हुई धन राशि प्रयोक्ता अभिकरण द्वारा जमा की जाएगी।
16. प्रयोक्ता अभिकरण द्वारा मक डिस्पोजल योजना उप वन संरक्षक द्वारा स्वीकृत कराकर नोडल अधिकारी एफ.सी.ए. के कार्यालय को प्रेषित की जायेगी एवं प्रयोक्ता अभिकरण इसके लिए आवश्यक धनराशि उपलब्ध करायेगा।
17. अभिकरण द्वारा माननीय उच्चतम न्यायालय के रिट पिटीशन (सिविल) 202/1995 के अन्तर्गत आई. ए. संख्या 566 एवं भारत सरकार के पत्र संख्या 5–3/2007–एफ.सी. दिनांक 05.02.2009 के तहत दिये गये आदेशानुसार शुद्ध वर्तमान मूल्य (एन.पी.वी.) तथा दूसरी सभी निधियां प्रतिपूर्ति पौधारोपण निधि प्रबन्धन तथा योजना प्राधिकरण के तदर्थ निकाय कार्पोरेशन बैंक (भारत सरकार का उपक्रम), ब्लॉक–11, भूतल सी.जी.ओ. कॉम्पलैक्स फेज–1, लोधी रोड, नई दिल्ली–11003 में जमा करने के उपरांत ही जमा राशि की पावती की छायाप्रति, जमा की गयी धनराशि का बैंक ड्राफ्ट/चैक की छायाप्रति सहित सैद्धान्तिक स्वीकृति की अनुपालना आख्या (जिसमें जमा की गयी धनराशि का मदवार विवरण अर्थात् एन.पी.वी., क्षतिपूर्ति वृक्षारोपण तथा अन्य हेतु जमा धनराशि का पूर्ण मदवार विदरण दिया गया हो) प्रेषित की जाए, तदोपरांत ही प्रकरण में विधिवत् स्वीकृति पर विचार किया जाएगा।
18. नोडल अधिकारी (वन संरक्षक) इस प्रस्ताव की स्वीकृति के अगले माह की 5 तारीख को संबंधित क्षेत्रीय कार्यालय को मासिक प्रगति रिपोर्ट प्रेषित करे।
19. राज्य सरकार द्वारा दी गई उक्त अनुमति का प्रबोधन संबंधित क्षेत्रीय कार्यालय, वन एवं पर्यावरण मंत्रालय, भारत सरकार द्वारा किया जा सकेगा।
20. भारत सरकार के पत्रांक 7–23/2012/एफसी दिनांक 24.07.2013 से माननीय ग्रीन ट्रिब्यूनल द्वारा दिनांक 07.11.2012 को पारित निर्णय की पालना प्रकरण में सुनिश्चित की जावें तथा प्रकरण में जारी स्वीकृति को यूजर एजेंसी द्वारा हिन्दी एवं अंग्रेजी में प्रकाशित होने वाले समाचार पत्रों में अक्षरशः प्रकाशित करावें एवं जारी स्वीकृतियों की प्रतियां स्थानीय निकाय, पंचायत एवं नगरपालिका के राजकीय अधिकारियों को स्वीकृति प्राप्ति के 30 दिन के अन्दर उपलब्ध कराना सुनिश्चित करें।

भवदीय,
(योगेन्द्र कुमार डेके)
शासन सचिव

प्रतिलिपि निम्नांकित को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित है :–

1. अपर वन महानिदेशक–वन, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार, इन्दिरा पर्यावरण भवन, अलीगंज, जोर बाग रोड, नई दिल्ली–110003
2. अति० प्रधान मुख्य वन संरक्षक (केन्द्रीय), भारत सरकार, पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, क्षेत्रीय कार्यालय (मध्यक्षेत्र), पंचम तल, केन्द्रीय भवन, सेक्टर–एच, अलीगंज, लखनऊ–226024।
3. अति. प्रधान मुख्य वन संरक्षक, वन सुरक्षा एवं नोडल अधिकारी एफ.सी.ए. राजस्थान, जयपुर को प्रेषित कर लेख है कि इस प्रकार के प्रकरणों में जारी की गई स्वीकृतियों की मासिक सूचना संबंधित क्षेत्रीय कार्यालय को प्रत्येक माह की 5 तारीख तक प्रेषित की जावे।
4. मुख्य वन संरक्षक, अजमेर।
5. उप वन संरक्षक, टौंक।
6. जन स्वास्थ्य अभियांत्रिकी विभाग, सिविल लाईन, टौंक।
7. रक्षित पत्रावली।

(कुमार स्वामी गुप्ता)
विशेषाधिकारी, वन

APPENDIX 4: SAMPLE ENVIRONMENTAL SITE INSPECTION REPORT

Project Name
Contract Number

NAME: _____ DATE: _____
TITLE: _____ DMA: _____
LOCATION: _____ GROUP: _____

WEATHER CONDITION:

INITIAL SITE CONDITION: _____

CONCLUDING SITE CONDITION:

Satisfactory _____ Unsatisfactory _____ Incident _____Resolved _____ Unresolved _____

INCIDENT:
Nature of incident:

Intervention Steps:

Incident Issues

Resolution

Project Activity Stage	Survey	
	Design	
	Implementation	
	Pre-Commissioning	
	Guarantee Period	

Inspection

Emissions	Waste Minimization
Air Quality	Reuse and Recycling
Noise pollution	Dust and Litter Control
Hazardous Substances	Trees and Vegetation

Site Restored to Original Condition Yes ____ No ____

Signature

Sign off

_____ _____

Name **Name**
Position **Position**

APPENDIX-5: COMPLIANCES OF ENVIRONMENTAL SELECTION CRITERIA

Applicability	Environmental Selection Criteria	Compliance

Applicability	Environmental Selection Criteria	Compliance
All Subprojects	i. Comply with all requirements of relevant national and state laws.	Being complied
	ii. Avoid significant environmental impacts.	Being complied
	iii. Avoid and/or minimize involuntary resettlement by prioritizing rehabilitation over new construction, using vacant government land where possible, and taking all possible measures in design and selection of site or alignment to avoid resettlement impacts	Complied
	iv. Avoid locating subprojects in forest areas	Complied
	v. If there are underground asbestos cement (AC) pipes in the existing systems, the project design should include that the AC pipes are left undisturbed in the ground	Being complied
	vi. Prior to site clearance & trench exaction for pipes/sewers, exact location of underground AC pipes should be ascertain with the Public Health Engineering Department (PHED)	Being complied
	vii. Avoid where possible, and minimize to extent feasible, facilities in locations with social conflicts.	Complied
	viii. Avoid where possible locations that will result in destruction/disturbance to historical and cultural places/values.	Being complied
	ix. Avoid tree-cutting where possible. Retain mature roadside trees which are important/valuable or historically significant. If any trees have to be removed, plant two new trees for every one that is lost.	Being complied
	x. Ensure all planning and design interventions and decisions are made in consultation with local communities and include women. Reflect inputs from public consultation and disclosure for site selection.	Being complied
Water Supply	i. Comply with all requirements of relevant national and local laws, rules, and guidelines.	Being complied
	ii. Utilize water sources at sustainable levels of abstraction only (i.e. without significant reductions in the quantity or quality of the source overall); augmentation of water supply from an existing groundwater source or development of new groundwater source should be supported by groundwater studies establishing water availability and sustainability	Not applicable
	iii. Avoid using water sources that may be polluted by upstream users;	Not applicable
	iv. Avoid water-use conflicts by not abstracting water that is used for other purposes (e.g., irrigation);	Not applicable
	v. Locate all new facilities/buildings at sites where there is no risk of flooding or other hazards that might impair functioning of, or present a risk of damage to water treatment plants, tanks/reservoirs, or their environs.	Complied
	vi. Locate pipelines within road right of way (RoW) as far as possible, to reduce the acquisition of new land. Ensure that pipeline routes do not require the acquisition of land from private owners in amounts that are a significant proportion of their total land holding (>10%).	Complied
	vii. Ensure that communities who relinquish land needed for	Not applicable

Applicability	Environmental Selection Criteria	Compliance
	pipelines or other facilities are provided with an improved water supply as part of the scheme.	
	viii. Avoid all usage of pipes that are manufactured from asbestos concrete.	Complied
	ix. Ensure water to be supplied to consumers will meet national drinking water standards at all times.	Being complied
	x. Ensure that improvements in the water supply system are combined with improvements in wastewater and drainage to deal with the increased discharge of domestic wastewater.	Being complied
	xi. Ensure appropriate training will be provided to ULB staff on the operations and maintenance of the facilities.	Being complied
	xii. Ensure sludge management facilities are included in the water treatment plant.	Not applicable
Sewerage	i. Comply with all requirements of relevant national and local laws, rules, and guidelines.	Being complied
	ii. Ensure no immediate downstream drinking water intakes at treated wastewater disposal point.	Being complied
	iii. Locate sewage treatment plant (STP) preferably 500 m from any inhabited areas, in locations where no urban expansion is expected in the next 20 years, so that people are not affected by odor or other nuisance from the STP.	Complied
	iv. Locate facilities where there is a suitable means of disposal for the treated wastewater effluent and bio-solids.	Complied
	v. Locate facilities where there is no risk of flooding or other hazards that might impair operations and present a risk of damage to the facilities or its environs.	Complied
	vi. Ensure appropriate training will be provided to ULB staffs on the operations and maintenance of the facilities.	Being complied
	vii. Locate sewage pipelines on roads RoW wherever feasible, to reduce the acquisition of new land	Complied

APPENDIX-6: STATUS OF GRIEVANCES RECEIVED

A. Pali/ 01

Sr. No.	Date	Description of Issues	Issues/Complaint Received from	Action taken	Rectified on	Remarks.
1.	15.05.2016	L&T has not done the water connections, New Pratap Nagar Gandhi Nagar.	CAPC, Mr. Amit Dubey	Informed to site Engineer and construction Manager	16.05.2016	After showing the bills, connection has been done.
2.	22.05.2016	Backfilling not done at the entrance of house / hear the house in new Pratap Nagar Aera.	Mr. Prem Kumar Ward Parshad	Informed to site Engineer and ACM KCP	23.05.2016	
3.	23.05.2016	Pipe laying behind the water tank (PHED) and it will be shifted in New Pratap Nagar	Mr. Prem Kumar & one Local Public	Informed to Construction Manager - KCP	24.05.2016	
4.	17.06.2016	Got complaint from Local Public that contractor is not repairing the damaged water line in Labour Colony of Pratap Nagar.	Mr. Amit Dubey CAPC	Informed to site engineer Mr. Prabhkar and he discussed with the public along with contractor and matter solved.	17.06.2016	
5.	20.06.2016	Personally Public of Pratap Nagar Gali No. 03(Labour Colony) complaint that after repairing the water line (which was damaged) during eh excavation of sewerage work) they are not getting the water and public are getting water is coming in this area after 05 alternate days.	During the site visit Local Public	After discussion with the site Engineer Mr. Prabhakar. We ordered PVC Pipe Coupler for House connections in Pratap Nagar area (Labour Colony)	24.06.2016	
6.	22.06.2016	Mr. Hukmi Chand reported to the office regarding his water pipe is damaged since one week in the Tilak Nagar, Gali No. 02 (Near Old Bus Stand) and he is facing the problems.	Mr. Hukmi Chand – Tilak Nagar, Gali No. 02 Mob. No. 9414120082	Immediately discusse the matter with ACM KC Panigrahi and Site Engineer Mr. Ajay for showing the issues.	24.306.2016	

Sr. No.	Date	Description of Issues	Issues/Complaint Received from	Action taken	Rectified on	Remarks.
7.	28.06.2016	Mr. Narendra Dubey, 592, Gandhi Nagar (Near Second Park) has complaint that since 02 months his water pipe is damaged and still no any action has taken for the same.	Mr. Narendra Dubey, 592, Gandhi Nagar (Near Second Park) Mob. No. 7862158600	Informed to Maruti Site Engineer for the immediately action.	As confirmed by site Engineer Mr. Maruti, initially they reached the issues but after one month again Mr. Narendra Dubey is telling for laying the line / connections. We tried to talk to him but he is not receiving the calls.	
8.	28.06.2016	Public / Ward Parshad complaint that there water connections are pending in new Pratap Nagar area.	Prem Kumar Ward Parshad	Informed to Mr. Sudhakar, Site Engineer for doing the same on priority basis.	30.06.2016	
9.	29.06.2016	Mr. Narayan Prajapati – Krishana Nagar complaint that his Gutter is damaged during the excavation of sewage work and contractor is not repairing the same. Due to this his neighbour are also facing the problems	Mr. Narayan Prajapati – Krishna Nagar Mob. No. 9571666551	Informed to Mr. Prabhakar and advice him, please instruct to the contractor for doing the same.	Public did not allow to continue the laying work until and unless all sewerage form his gutter is shucked out. Hence area backfilled and still work is pending over there.	

B. Tonk/01- Physical works not started in Tonk