

Environmental Monitoring Report

Project Number: 43253-027
Semestral Report (July - December 2020)
March 2021

**INDIA: Karnataka Integrated Urban Water
Management Investment Program (Tranche 2)**

Main Report

Prepared by Karnataka Urban Infrastructure Development and Finance Corporation, Government of Karnataka for the Asian Development Bank.

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Semi Annual Environmental Monitoring Report

**ADB Loan Number 3148-IND
Period Covered: July to Dec 2020**

**India: Karnataka Integrated Urban Water Management
Investment Program (KIUWMIP)**

Tranche 2- 4th SEM Report

March 2021



**Prepared by
Karnataka Urban Infrastructure Development Finance Corporation
(KUIDFC) Government of Karnataka for Asian Development Bank**

ABBREVIATIONS

ADB	Asian Development Bank
ADB SPS	Asian Development Bank Safeguard Policy Statement
BOD	Bio-Chemical Oxygen Demand
CAPRRRC	Community Awareness, Participation, Resettlement and Rehabilitation Consultant
CBO	Community Based Organizations
CFE	Consent for Establishment
CFO	Consent for Operation
CMC	City Municipal Council
CPCB	Central Pollution Control Board
dB	Decibels
DI	Ductile Iron
DPR	Detailed Project Report
EA	Executing Agency
EIA	Environmental Impact Assessment
ELSR	Elevated Storage Reservoir
EMP	Environmental Management Plan
Gol	Government of India
GoK	Government of Karnataka
GLSR	Ground Level Service Reservoir
GRC	Grievance Redress Committee
HDPE	High Density Polyethylene
H&S	Health and Safety
IA	Implementing Agency
IEE	Initial Environmental Examination
IWRM	Integrated Water Resource Management
KIUWMIP	Karnataka Integrated Urban Water Management Investment Program
KSPCB	Karnataka State Pollution Control Board
KSRTC	Karnataka State Road Transport Corporation
KUIDFC	Karnataka Urban Infrastructure Development & Finance Corporation
MFF	Multitranches Financing Facility
MoEFCC	Ministry of Environment, Forest & Climate Change
NGO	Non-Government Organization
NO ₂	Nitrogen Oxide
OHT	Over Head Tank
O&M	Operation & Maintenance
PMU	Program Management Unit
PMDSC	Project Management Design and Construction Supervision Consultant
PMDSC	Project Management, Design and Construction Supervision Consultant
PIU	Program Implementation Unit
PWD	Public Works Department
RCC	Reinforced Cement Concrete
REA	Rapid Environmental Assessment
RF	Resettlement Framework
RP	Resettlement Plan
RPMU	Regional Program Management Unit
RSPM	Residual Suspended Particulate Matter
SPM	Suspended Particulate Matter
SPS	Sewage Pumping Station
STP	Sewage Treatment plant
TMC	Town Municipal Council
UGD	Under Ground Drainage

ULB
(U)WSS

Urban Local Body
(Urban) Water Supply & Sanitation

CONTENTS

I.	INTRODUCTION	1
II.	PROJECT SAFEGUARDS TEAM	4
III.	OVERALL PROJECT AND SUBPROJECT PROGRESS AND STATUS	7
IV.	COMPLIANCE STATUS WITH ENVIRONMENTAL LOAN COVENANTS	25
V.	COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN	28
VI.	MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS	110
VII.	INFORMATION DISCLOSURES AND CONSULTATIONS	116
VIII.	GRIEVANCE REDRESS MECHANISM	116
IX.	SUMMARY OF KEY ISSUES/CONCERNS IDENTIFIED DURING THE REPORTING PERIOD AND REMEDIAL ACTIONS	119
X.	STATUS OF CORRECTIVE ACTIONS	119

List of ANNEXURES

Annexure 1 - The SOP-H&S Plan for COVID safety

Annexure 2 - Mangalore UGD Statutory permission from National Highways Authority for road cutting

Annexure 3 - Labour license under The Contract Labour (Regulation & Abolition) Act, 1970.

Annexure 4 - Mangalore UGD Labour compensation insurance

Annexure 5 - Mangalore UGD Contractor All Risk Policy

Annexure 6 - Kundapura - Refund application for Statutory permission from National Highways Authority for road cutting

Annexure 7 - Kundapura Labour license under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)

Annexure 8 - Kundapura Labour compensation insurance

Annexure 9 - Kundapura - Tree felling Compensation/ permission

Annexure 10 and 10 A - Puttur - Statutory permission from National Highways Authority for road cutting

Annexure 11 - Puttur - Labour license under The Contract Labour (Regulation & Abolition) Act, 1970.

Annexure 12 - Puttur - Labour compensation insurance

Annexure 13 - Udupi - Labour license under The Contract Labour (Regulation & Abolition) Act, 1970.

Annexure 14- Udupi - Labour compensation insurance

Annexure 14A - Mangalore WS - Labour license under The Contract Labour (Regulation & Abolition) Act, 1970.

Annexure 14B - Mangalore WS - Labour compensation insurance

Annexure 15- Budgetary provisions have been included in EMP of Tranche 2 sub projects

Annexure 16 – Site Photographs.

Annexure 17 - The accident register

Annexure 18 - Grievances register

Annexure 19 - Monthly EMP Implementation report

Annexure 20A-E - Public Consultations

Annexure 21 – Trainings records

Annexure 22 - Results of Air and Noise quality monitoring results for Puttur

Annexure 23 – Spoil Management / waste disposal Plans

Annexure 24 – EHS Inspection Checklist

Annexure 25- GRM establishment for Tranche 2

Annexure 25a-GRM establishment for Tranche 2-ENGLISH

Annexure 26A- EHS PLAN-Mangalore UGD

Annexure 26B- EHS PLAN-PUTTUR Water supply Package

Annexure 26C- EHS PLAN-UDUPI Water supply Package

I. INTRODUCTION

A. Overall Project Description and Objectives

1. The Karnataka Integrated Urban Water Management Investment Program (KIUWMIP, the Program) aims to improve water resource management in urban areas in a holistic and sustainable manner. Investment support will be provided to modernize and expand urban water supply & sanitation (UWSS) while strengthening relevant institutions to enhance efficiency, productivity and sustainability in water use. The Program focuses on priority investments and institutional strengthening in water supply & sanitation within an IWRM context.

2. The Program is being implemented since 2014 and will be funded by a loan via the Multitranches Financing Facility (MFF) of Asian Development Bank (ADB). The Executing Agency is the Karnataka Urban Infrastructure Development Finance Corporation (KUIDFC) and implementing agencies for the Investment Program will be respective Urban Local Bodies (ULBs). Initially Mangalore and Kundapura are the 2 towns chosen to benefit from the tranche-2 of the UWSS investment. Later, during the Detailed Project Report Stage it was decided that ADB would finance only 24X7 water supply in 4 towns namely (1) Kundapura, (2) Puttur (3) Udupi (4) Mangalore under Tranche-2 and UGD in one town namely Mangalore.

3. The programme proposes the MFF spread across two tranches over a period of ten years (2014-2024) with the total size of \$225 M. The shares of ADB propose to be \$150 million and counterpart funding from the state Government is estimated at \$75 million. In addition to the Loan funds of \$150M, the ADB has agreed to support the programme with an additional amount of \$1.8 M as a grant fund out of its urban financing partnership facility.

4. In Tranche-2, main outcome will be providing 24 x 7 Water Supply at Kundapura, Puttur, Mangalore and Udupi towns and replacement of Old Sewerage Pumping Mains at Mangalore. Location of Project Towns is shown in **Figure-1**. ADB requires the consideration of environmental issues in all aspects of the Bank's operations, and the requirements for Environmental Assessment are described in ADB's SPS (2009). This Initial Environmental Examination (IEE) addresses 24 x 7 water supply components proposed under Tranche 2.

5. The Program Management Unit (PMU) is located in Bangalore, Regional Program Management Unit (RPMU) in Mangalore and Program Implementation Units are also placed in the 4 cities. The Project Management, Design, Construction Supervision Consultant (PMDSCS, Egis India Consulting Engineers Pvt. Ltd) is also in place.

B. Environment Category as per ADB Safeguard Policy Statement,2009

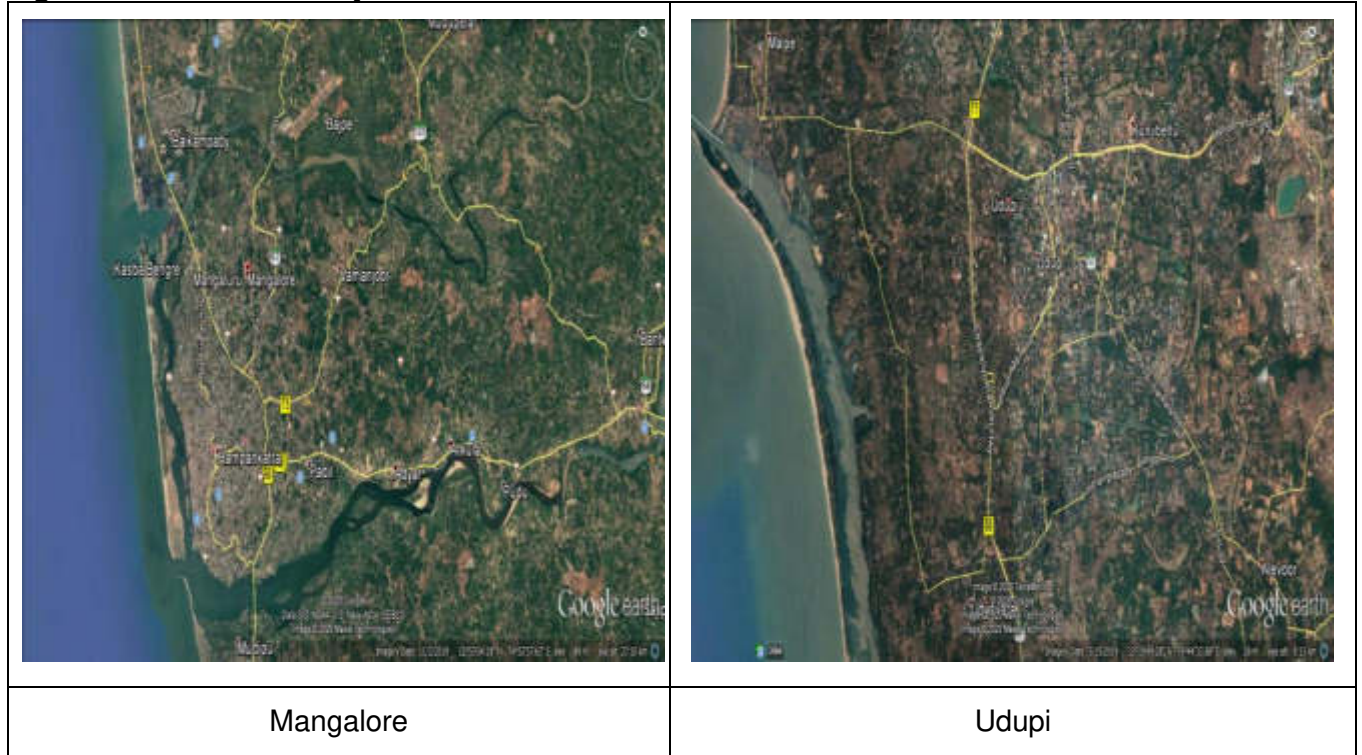
6. **Environmental Categorization.** KIUWMIP Tranch-2 towns have been classified as ADB Environmental Category B as per the SPS as no significant impacts are envisioned. Accordingly, this Initial Environmental Examination (IEE) has been prepared, and assesses the environmental impacts and provides mitigation & monitoring measures to ensure no significant impacts as a result of the subproject.

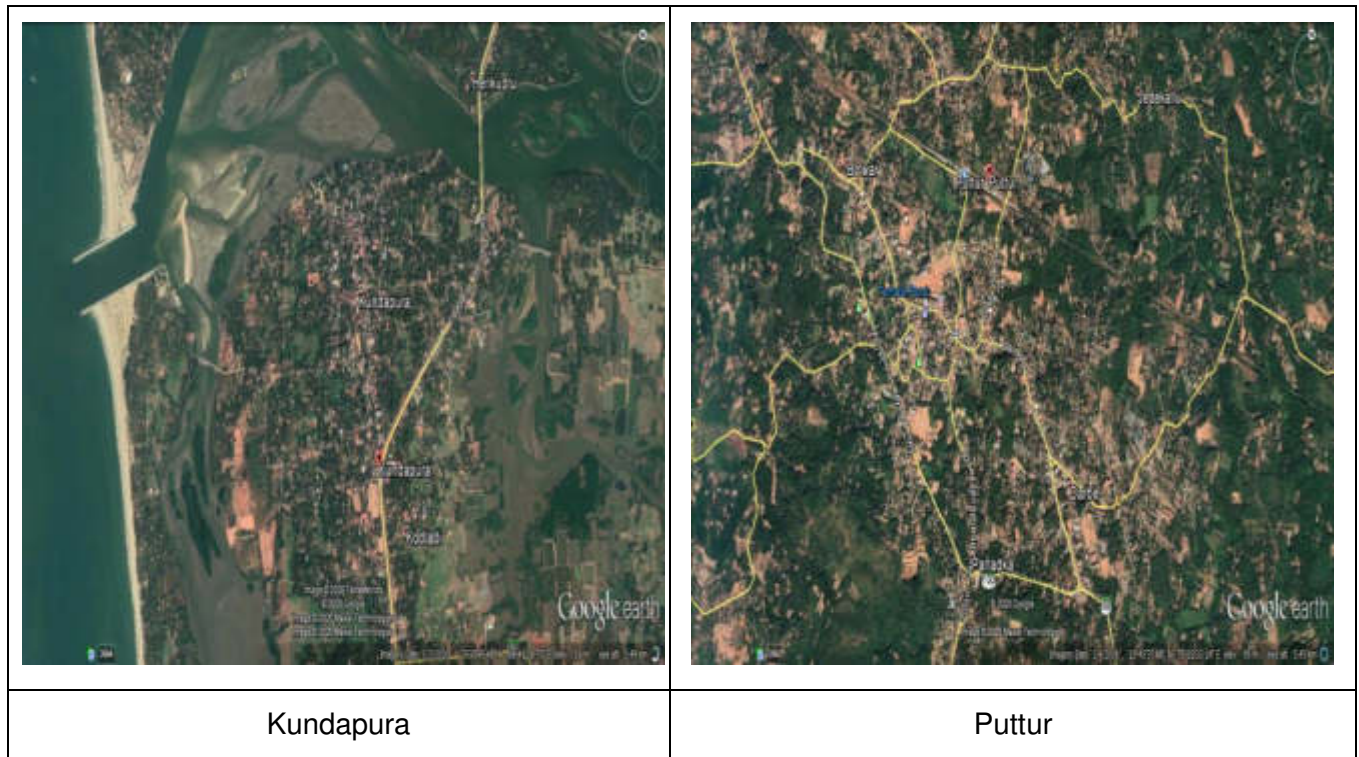
7. **Environmental Management Plan.** An EMP which addresses the potential impacts and risks identified by the environmental assessment shall be prepared. The level of detail and complexity of the EMP and the priority of the identified measures and actions will be commensurate with the Project's impact and risks
8. **Public Disclosure.** The project IEEs was put on accessible places (e.g., local government offices, libraries, community centers, project and ADB's website etc.), and a summary translated into local language for the project affected people and other stakeholders.
9. During the design, construction, and operation of the project the pollution prevention and control technologies and practices consistent with international good practice, as reflected in internationally recognized standards such as the World bank Environmental, Health, and Safety (EHS) Guidelines -General EHS Guidelines: Occupational, Health and safety ([www.ifc.org/ifcext/enviro.nsf/Content/ Environmental guidelines](http://www.ifc.org/ifcext/enviro.nsf/Content/Environmental%20guidelines)) and EHS Guidelines for water & sanitation will be followed (https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines/watersanitation_firstconsultation)
10. Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers. Preventive and protective measures are introduced according to the following order of priority: (i) Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different processes, etc; (ii) Controlling the hazard at its source through use of engineering controls. Examples include local exhaust ventilation, isolation rooms, machine guarding, acoustic insulating, etc; (iii) Minimizing the hazard through design of safe work systems and administrative or institutional control measures. Examples include job rotation, training safe work procedures, lock-out and tag-out, workplace monitoring, limiting exposure or work duration, etc. (iv) Providing appropriate personal protective equipment (PPE) in conjunction with training, use, and maintenance of the PPE; and (v) Comply with: Child Labour (Prohibition and Regulation) Amendment Act, 2016; Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 as amended from time to time from appropriate authorities; Trade Unions Act, 1926; The Building and Other Construction Workers (Regulation of Employment and conditions of Service Act) 1996 and the Cess Act of 1996; The Factories Act, 1948; and Prohibition of Employment as Manual Scavengers and Their Rehabilitation Act 2013.
11. Following requirements of ADB SPS, PMO and RPMOs shall apply pollution prevention and control technologies and practices consistent with international good practice. When the Government of India regulations differ from these levels and measures, PMO shall achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific subproject circumstances, PMO will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented in ADB SPS.
12. During this period of reporting, Jul to Dec 2020, there was unlock conditions imposed in the state. The work in the towns was minimal. KUIDFC issued a Standard Operating Procedure (SOP) – Health and Safety Plan (H&S) Plan, for tackling COVID-19 and not allowing the spread of the same, in the month of May, 2020. This was issued not only to the ADB works but also the linked activities

contractors where such projects are funded through AMRUT (a GOI initiative) and GOK funds. It has been confirmed that all contractors including linked activity contractors are implementing the plan. The SOP-H&S Plan is presented at **Annexure 1**.

13. This report is the semi-annual environment monitoring report (SEMR) covering period **Jul to Dec 2020** i.e. 24X7 water supply and underground sewerage sub projects. This SEMR describes the implementation of the environmental management plan (EMP) in Mangalore, Kundapura, Puttur and Udupi city subprojects IEEs.

Figure 1: Location of Project Towns





II. PROJECT SAFEGUARDS TEAM

14. Overall Implementation Arrangement. Karnataka Urban Infrastructure Development & Finance Corporation (KUIDFC) is the Executing Agency (EA) responsible for implementing the Investment Program. Investment Program implementation activities is monitored by KUIDFC through a separate Investment Program Management Unit (PMU) for the IWRM Project, which setup within KUIDFC.

15. At the Executing Agency (i.e. KUIDFC), environmental issues are coordinated centrally by an Environmental Specialist (Designated as Assistant Executive Engineer–Environment), reporting to the Task Manager, Assistant Executive Engineer– Environment to ensure that all subprojects comply with environmental safeguards. The IEE/ EIA reports prepared by the Consultant, and reviewed by the Assistant Executive Engineer–Environment as per the ADB’s Environmental Guidelines and forwarded to ADB for review and approval.

16. The consultant team includes an Environmental Specialist to supervise the implementation of environmental safeguards at the divisional level. The consultant team also includes a Construction Supervisor at each ULB/CMC/TMC responsible for the supervision of project implementation including environmental safeguards at the ULB/CMC/TMC level.

17. The contractors has appointed one supervisor for each subproject (environment & safety officer) who is responsible on a day-to day basis for i) ensuring implementation of EMP ii) Coordinating the CS Engineer and environment specialists (at all levels) iii) community liaison, consultation with interested/affected parties and grievance redressal and iv) reporting.

18. **Reporting arrangement.** Construction contractor monitoring safeguard implementation daily basis, while construction Supervisor (Resident Engineer) reviewed safeguard implementation weekly. After review they advised construction contractor for corrective measures. Monthly report summarizing observation, compliance & corrective measures is to be prepared by Environment Specialist of consultant on monthly basis. Then reports are forwarded from PIU to PMU for their observation and record. Based on monthly reports and site observations, Assistant Executive Engineer (Environment) of PMU, will review and consolidate into the semi-annual environment monitoring report for onward submission to ADB. **Table 1** shows activity, Roles, responsibility on safeguard implementation.

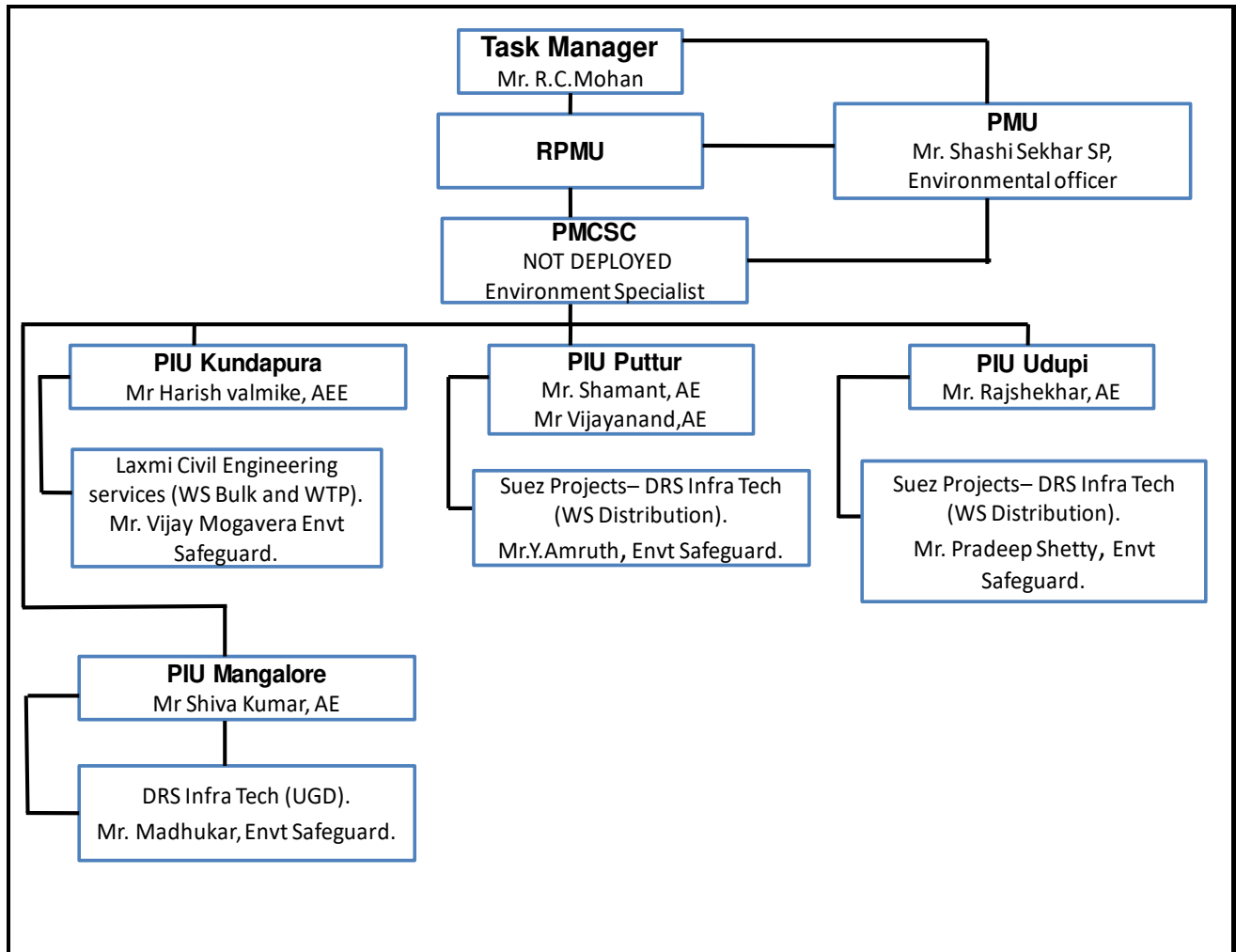
Table1: Activity, Roles and Responsibility – Safeguard Implementation

Investment Program Phase	Activity	Details	Responsible Agency
Pre-construction phase	Investment Program Categorization	Conduct Rapid Environmental Assessment (REA) for each subcomponent using REA checklists	ULB/PIU
		Reviewing the REA and assigning Investment Program category (A/B/C) based on KIUWMIP Environmental Assessment Guidelines and ADB Guidelines	PMU
	Conducting EA	Conducting IEE / EIA based on the Investment Program categorization Conducting Public Consultation and information disclosure Preparation of IEE / EIA	PMDCS consultant
	Investment program clearances	Fulfilling GoK/Gol requirement such as clearances from other Government Agencies	ULB/PIU
	Review of EIA/IEE	Reviewing the EIA/IEE Reports to ensure compliance thereof as per ADB Guidelines and approval of the same	PMU
	Disclosure of EIA/IEE	Information disclosure – IEE/EIA reports should be made available to the public, and on request IEE/EIA also made available.	ULB/PIU
	Incorporation of mitigation measures into Investment Program design	Incorporation of necessary mitigation measures identified in IEE/EIA in Investment Program design and in contract documents.	PMDCS consultant
	Review of design documents	Review of design and contractual documents for compliance of mitigation measures	PMDCS consultant
	Construction Phase	Implementation of mitigation measures	Implementation of necessary mitigation measures
	Environmental Monitoring	Environmental monitoring as specified in monitoring plan during construction stage; Monitoring of implementation of mitigation measures	PMDCSC consultant
	Preparation of progress reports	Preparation of monthly progress reports to be submitted to PMU including a section on implementation of the mitigation measures	PMDCSC consultant
	Review of progress reports	PMU to review the progress reports, consolidate and send to ADB review	PMU

Investment Program Phase	Activity	Details	Responsible Agency
Operation Stage	Environmental Monitoring	Conducting environmental monitoring, as specified in the environmental monitoring plan.	ULB/Contractor
	Compliance Monitoring	Compliance monitoring to review the environmental performance of sub-project component, if required and as specified in Monitoring Plan.	ULB/KSPCB

19. **Figure 2** shows the implementation arrangement for environment safeguard. PMU includes a full-time **Assistant Executive Engineer (Environment)**. As on Dec 2020, position of Assistant Executive Engineer (Environment) is filled up and Environment Specialist of PMDCSC (Program Consultant) is yet to be deployed since Feb/Mar, 2020.

Figure 2: KIUWMIP Safeguards Implementation Arrangement



AEE: Assistant Executive Engineer, PIU: Project Implementation Unit, PMDCSC: Project Management, Design & Construction Supervision Consultant, PMU: Project Management Unit, RPMU: Regional Project Management Unit

20. **Table 2** shows detail of environment safeguard team for KIUWMIP. Environment Specialist of PMDCSC and Asst. Executive Engineer (Environment) KIUWMIP-KUIDFC visit to project site almost every month to review EMP implementation.

Table 2: Details of KIUWMIP Environmental Safeguard Team

Name	Designation/Office	Email Address	Contact Number
1. PMU			
Mr.Shashisekhar SP	Environment Expert, KIUWMIP-KUIDFC	shashisekharsp@kuidfc.com	9343434900
2. PIUs			
Mr. Shiva Kumar	Assistant Executive Engineer, PIU, Mangalore	Jalasiritranche2eemng@gmail.com	07019199457
Mr.Harish Valmike	Assistant Executive Engineer, AEE, PIU, Kundapura,	jalasiritranche2aekdp@gmail.com	09030145862
Mr.Shamant	Assistant Engineer, AE, PIU, Puttur	jalasiritranche2eeptr@gmail.com	08904616043
Mr Vijayanand	Assistant Engineer, AE, PIU, Puttur		9448581143
Mr.Rajshekhar	Assistant Engineer, AE, PIU, Udupi	jalasiritranche2eeudp@gmail.com	9741412058
3. Consultants			
Not deployed since Feb/Mar 2020			

Also, and EHS manual has been developed to further streamline/aid the processes of monitoring.

III. OVERALL PROJECT AND SUBPROJECT PROGRESS AND STATUS

21. There are 5 sub projects in Tranche 2 (Project 2). Physical construction has been started for one UGD sub-project at Mangalore and four 24 X7 water supply sub projects at Kundapura, Puttur, Udupi and Mangalore, Construction in Mangalore (24x7 water supply) subproject has started in Nov 2020. Therefore, all the projects are presently under implementation. Status of sub-projects is given in **Table 3**. Site photographs are attached as **Annexure 16**, Environmental Monitoring Budget as **Annexure 15** and MPR - Monthly EMP implementation reports attached as **Annexure 19**.

The first case of COVID-19 pandemic in the state was reported on March 8, 2020, Further, to contain community transmission of the virus, the central government decided to lockdown the entire country for a period of 21 days beginning 25 March. To address the plight of migrant workers and the poor, the Government of Karnataka established a toll-free helpline number – 155214 for providing food to migrant laborers in the state. Karnataka announced the continuation of the lockdown in the state up to 31 May 2020. Unlock conditions started with several restrictions to contain the pandemic. In May, KUIDFC also issued a SOP-H&S Plan for all projects to tackle COVID 19 at work sites. Hence, during reporting period, the work progress at the sites was minimal.

Later, during Jul to Dec, 2020, unlock conditions imposed upto Sep-Oct, 2020 but the work progress only improved towards the end of the year.

Table 3: Status of Sub Project under Tranche 2 (Up to 31th Dec 2020)

Package Number	Components/List of Works	Type of Contract (specify if DBO, DB or civil works)	Status of Implementation (specify if Preliminary Design, Detailed Design, On-going Construction, Completed Works, or O&M phase)1	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
					%Physical Progress	Expected Completion Date
02MNG02	<ul style="list-style-type: none"> Replacement of existing 750 mm dia CI pumping main with 1100 mm dia DI-K9 pipe (7.60km) from wet well-3 Kudroli to Kavour STP. Replacement of existing 600 mm dia CI pumping main with 900 mm dia DI-K9 pipe (0.95 km) from wet well-4 at Kandathpalli to wet well-3 at Kudroli. Replacement of existing 225mm dia CI pumping main with 450 mm dia DI-K9 pipe (1.7 km) from wet well-6 Mulihitlu to ridge manhole near Casia Church. Replacement of existing 450 mm dia CI pumping main with 450 mm dia DI-K9 pipe (1.1 km) from wet well-7 Jeppubappal to ridge manhole near wet well-8 	Civil Works	On-going Construction	Contract Awarded: 06.06.2018	72.52%	05.03.2021
02KDP01	<ul style="list-style-type: none"> Laying of clear water feeder mains of 200mm dia for 4.8 km to OHT at Kodi. 	Civil Works and services	On-going Construction	Contract awarded: 19.12.2017	80.70% (Kundapura Physical and Financial	31.05.2021

Package Number	Components/List of Works	Type of Contract (specify if DBO, DB or civil works)	Status of Implementation (specify if Preliminary Design, Detailed Design, On-going Construction, Completed Works, or O&M phase)1	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
					%Physical Progress	Expected Completion Date
	<ul style="list-style-type: none"> Construction of 2 OHTs total capacity 0.9ML. (5LL at Halekote and 4LL at Kodi) Laying of Distribution network for 31.64 kms of HDPE&DI pipes. Replacement of non-functioning water for existing connection and providing new water supply connection of 2250 to un- covered households with class B Multijet water meters. Providing 15 Nos of 24X7 Water flow meters O & M for 8 years. 				progress is showed by including Variation quantity and amount (26.95cr). Target is showed as per revised programme (up to March 2021)	
02PTR01	<ul style="list-style-type: none"> replacement of two old pumps with new vertical turbine pumps in Jackwell at Nekkilady; construction of 1.70 kilometer (km) of raw water pumping main (400 millimetre (mm) diameter) from Jackwell to water treatment plant (WTP) at Nekkilady; construction of 12.42 km clear water main of 400 mm 	Civil Works and services	On-going Construction	Contract awarded: 16.11.2018	33.85%	10.09.2022

Package Number	Components/List of Works	Type of Contract (specify if DBO, DB or civil works)	Status of Implementation (specify if Preliminary Design, Detailed Design, On-going Construction, Completed Works, or O&M phase)1	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
					%Physical Progress	Expected Completion Date
	<p>diameter from the proposed new water treatment plant (WTP) at Nekkilday to ground level service reservoir (GLSR) at Seetigudda;</p> <ul style="list-style-type: none"> • construction of new WTP of capacity 8.7 million liters per day (MLD) at Nekkilday; • replacement of clear water pumps in existing WTP at Nekkilday; • construction of 9.564 km of clear water feeder mains; • construction of six new overhead tanks (OHTs) – (a) 300 kiloliter (kl) capacity in Zone-2 at Mura Shantinagra, Padnur, (b) 100 KL in Zone-3 at Karmala near Microwave station, (c) 600 kl in Zone-4A at Darbe; (d) 250 kl in zone-5 at Lingadagudda, Kabaka, (e) 400 kl in Zone-6A at Balnad Helipad, and (f) 100 kl zone-8 at BalnadKelyadi, Vitla Road; 					

Package Number	Components/List of Works	Type of Contract (specify if DBO, DB or civil works)	Status of Implementation (specify if Preliminary Design, Detailed Design, On-going Construction, Completed Works, or O&M phase)1	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
					%Physical Progress	Expected Completion Date
	<ul style="list-style-type: none"> • construction of two compartment GLSR of 2,400 kl capacity at Seethigudda,; • Intermediate pumping station at Seetigudda; • booster pumping station at Balnad Helipad; • 29 bulk water meters; • 142.66 km of distribution network to cover 24 x 7 water supply to Puttur city for 10 zones; and • Replacement of 9226 existing meters and providing new house service connections of 4910 for uncovered households • O&M for 8 years 					
02UDP01	<ul style="list-style-type: none"> • clear water feeder mains of 24.543 kilometer (km) of diameter 100 millimeter (mm) to 355 mm to feed to new overhead tanks (OHT); • 7 OHTs of total storage capacity 6.85 million liters (ML); • distribution network of 321.487 km (diameter 63 mm to 450 mm); and 	Civil Works and services	On-going Construction	Contract awarded: 16.11.2018	32.36%	10.01.2023

Package Number	Components/List of Works	Type of Contract (specify if DBO, DB or civil works)	Status of Implementation (specify if Preliminary Design, Detailed Design, On-going Construction, Completed Works, or O&M phase)1	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
					%Physical Progress	Expected Completion Date
	<ul style="list-style-type: none"> replacement of 18737 existing meters (m) and providing new metered house service connections of 17715 for uncovered households O&M for 8years 					
02MNG01	<ul style="list-style-type: none"> Laying of new clear water feeder mains of DI/MS 39.28 Kms. of diameter 200mm to 660mm to overhead tanks and Ground Level Storage Tanks Construction of 19 OHTs(Over Head Tanks) and 3 GLSRs(Ground Level Storage Reservoirs); Replacement of existing clear water feeder mains of 25.19 Kms., Laying of 982.80 kms of distribution network in uncovered areas and 405.93 kms of rider and parallel lines(diameter 63 mm to 500 mm);HDPE and DI Construction of 19 Nos of Over Head Tanks. Construction of 3 Nos GLSR 	Civil Works and services	On-going Construction / Design Validation	Contract awarded: 21.11.2019	6.80%	23-11-2023

Package Number	Components/List of Works	Type of Contract (specify if DBO, DB or civil works)	Status of Implementation (specify if Preliminary Design, Detailed Design, On-going Construction, Completed Works, or O&M phase)1	Contract Status (specify if under bidding or contract awarded)	If On-going Construction	
					%Physical Progress	Expected Completion Date
	<ul style="list-style-type: none"> • Construction of 8 Nos Intermittent Pumping Stations • Replacement of 78969 existing house service connections along with meters and providing 11031 new metered HSCs to uncovered HHs • Providing 4500 commercial and 1800 industrial connections • Proposed 160 MLD sludge management unit at Ramalkatte • Providing 181 No Bulk flow meters from Jack well to OHTs. • Proposed 81.7 MLD filter House with CWR & Pump house at Ramalkatte. • & M for 8 Years - 					

Note: The work program has been revised due to due Covid 19.

22. Package-wise Contractor/s' Nodal Persons for Environmental Safeguards shown in **Table 4**

Table 4 Package-wise Contractors' Nodal Persons for Environmental Safeguards

Package Name	IEE Cleared by ADB (provide date)	Contractor	HSE Nodal Person	Email Address	Contact Number
24 x 7 Water Supply System for Kundapura Town(Construction of 24X7 & Distribution Network - Operator assisted in Kundapura)	Draft IEE Cleared by ADB in May 2018, Final IEE Cleared by ADB in April 2019	Laxmi Civil Engineering services Pvt,Ltd	Mr. Vijay Monaveera	Vijayshankat1999@gmail.com	8861926473
UGD Mangalore, Replacement of pumping mains Mangalore City	Draft IEE Cleared by ADB dated May 2018 Final IEE Cleared by ADB in April 2019	DRS Engineering services Pvt,Ltd.,	Mr. Madhukar	Madhukars267@gmail.com	7349265529
24 x 7 Water Supply System for Puttur Town	Draft IEE Cleared by ADB in May 2018 Final IEE is Cleared by ADB February 2019	SPPL– SIPL, DRS Infra Tech	Mr. Y. Amruth	amruthsairam@gmail.com amruth.yedugani@se-india.com	07676075582
24 x 7 Water Supply System for Udupi Town	IEE Cleared by ADB in May 2018 Final IEE is Cleared by ADB February 2019 1 st update on IEE cleared by ABD in June 2020	SPPL– SIPL, DRS Infra Tech	Mr. Pradeep Shetty	Pradeepyellur@gmail.com Pradeep.shetty@se-india.com	09652627322 7406009720
24 x 7 Water Supply System for Mangalore City	Draft IEE Cleared by ADB in May 2019 Updated IEE yet to be submitted	SPPL– SIPL, DRS Infra Tech	Mr. Sanoop Veetil	sanoop.veetil@suez.com	70220 34963

23. Status of IEE Per Subproject/Package shown in Table 5

Table 5 Status of IEE as per Subproject/Package

Package Number	Final IEE based on Detailed Design				Site-specific EMP (or Construction EMP) approved by Project Director) (Yes/No)	Remarks
	Status of detail Design	Submitted to ADB (provide date of submission)	Disclosed on project website (provide link)	Final IEE provided to Contractor/s (Yes/No)		
02MNG02	Detailed design completed	Submitted in Jan 2019 Final IEE approved by ADB in April 2019	Disclosed on PMU (www.kuidfc.com/ENG/project_jalasiri.htm), and will be disclosed on ULB website (www.Mangalorecity.mrc.gov.in).	Yes	Yes	Final IEE already submitted and Approved by ADB
02KDP01	Detailed design completed	Submitted in Jan 2019 And approved by ADB in April 2019	Disclosed on PMU website www.kuidfc.com/ENG/project_jalasiri.htm , and ULB web site www.kundapurtown.mrc.gov.in	Yes	Yes	Final IEE already submitted and Approved by ADB
02PTR01	Detailed design validation yet to be completed	Final IEE submitted and approved in Feb 2019	Disclosed on PMU website (www.kuidfc.com/ENG/project_jalasiri.htm), and ULB website (www.Putturcity.mrc.gov.in)	Yes	Yes	Now IEE under updation due to minor change in design
02UDP01	Detailed design validation yet to be completed	Final IEE submitted in Feb 2019 Final IEE approved by ADB in Feb 2019,	Disclosed on PMU website (www.kuidfc.com/ENG/project_jalasiri.htm), and ULB website www.udupicity.mrc.gov.in	Yes	Yes	Final IEE approved by ADB in Feb 2019. 1 st Update on IEE (with minor scope change) cleared by ADB in June 2020
02MNG01	Detailed design	Target date of submission by	-	No	No	Updated / Final IEE will be submitted after

Package Number	Final IEE based on Detailed Design				Site-specific EMP (or Construction EMP) approved by Project Director) (Yes/No)	Remarks
	Status of detail Design	Submitted to ADB (provide date of submission)	Disclosed on project website (provide link)	Final IEE provided to Contractor/s (Yes/No)		
	validation yet to be completed	March 31, 2021				completion of final design validation

I. Status of Compliance with National/State/Local Statutory Environmental Requirements

24. Table 6 provides the status of compliance of subprojects to national and state laws, rules, policies and regulations applicable to KIUWMIP Project 2

Table 6: Status of Compliance with National/State/Local Statutory Environmental Requirements (Status as on Dec 2020)

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
02MNG02	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required For acoustic type of Generator – not required.	-	Only Acoustic type of Generator to be used by contractor	.
	Statutory permission from National Highways Authority for road cutting	Obtained - 1100 WW-3, Kudroli To STP at Kavoor NH-66, at Kuntikan Junction NH Crossing.	Approval received and work of pipeline laying completed.- Annexure 2	None	-

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
	Statutory permission from Railway authority	Obtained - 450 WW-7, Jeppu Bappal to RMH at Ekkur Near Sooterpete railway level Crossing Obtained - Railway crossing-NOC from Railway authority. The permission is obtained. Both were enclosed in last SEMR.	-	None	-
	Utility shifting	Obtained - Electrical pole Ashok nagar -Mangalore UGD Obtained-Utility Sifting - MESCOM -Electrical pole. Enclosed in last SEMR		None	
	Labour license under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Obtained - Labour license	valid up to 06.06.2021 Annexure 3	Apply for renewal before 06.06.2021.	Worker attendance register and wages register have to maintained by contractor
	Labour compensation insurance	Obtained	Employees Compensation insurance – 19-08-2021 Contractor's All Risks Insurance Policy 04-08-2021 Annexure 4 and 5	Apply for renewal before 19.8.2021	Worker attendance register and wages register have to maintained by contractor
	Tree felling permission from forest department under Karnataka Preservation of Trees Act,1976 and Karnataka Preservation of Trees Rules,1977 and	Not required - No tree was affected		None	-

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
	Forest (Conservation) Act 1980 and Indian Forest (Amendment) bill 2017.				
	Ancient Monuments and Archaeological Sites and Remains Act, 1958 and Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010	Mangaladevi Temple, located in the centre of Mangalore City is ASI protected monument. Alignment of pumping main from Mulihitlu wet well no.6 to Ridge Manhole near Morgans Gate passes close by (200 m away), and a small portion of the alignment (300 – 350 m length) falls within the 300 m ASI regulated area, Construction of the pipeline section falling within 300 m from monument boundary requires prior permission. It must be obtained prior to start of construction in that section.		Apply and obtain Clearance before start of construction in regulated area	
02KDP01	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required For acoustic type of Generator – not required	-	Only Acoustic type of Generator to be used by contractor, if required.	-
	Statutory permission from National Highways Authority for road cutting	Obtained - on 25/04/2019 – A Stretch of 0.11 km for laying clear water main is proposed along the service lane of NH-	NOC Obtained on 25/04/2019 enclosed as	NH-66 Permission not Required as Laying of pipe	NH informed that this is PWD road and hence obtain permission from PWD.

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
		66 which needs permission from National Highway Authority of India. Approval-NH4 crossing -NOC from National highway authority was applied on 25-01-2019.		is done within municipal premises Approval got but not required. Alternative way has been proposed.	Refund of amount application filed. Annexure 6
	Statutory permission from PWD	Obtained - on 25 -04-2019 for Laying rider main of length 1.8 km for Zone-1 along SH-52 from State PWD.	NOC Obtained on 25-04-2019.	Contractor has to meet the NOC conditions	
	Utility shifting	BSNL - Copper cable damaged – BSNL Copper cable damage charge letter		List of utility shifting has to be maintained by Contractor.	All payments to BSNL cables damages paid up to date.
	Labour license under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Obtained. Labour license The license was valid up to 19-12-2019 and subsequently renewed on 10-12-2019.	Valid up to 19-12-2021	Contractor to meet the conditions as specified by the License - Annexure 7.	Worker attendance register enclosed and Minimum wages register have to maintained by contractor
	Labour compensation insurance	Obtained - on 07-02-2019 and the Labour compensation insurance policy and Contractor's All Risk Policy	Validity upto 06.08.2021 - Annexure 8	None	Worker attendance register and Minimum wages register have to maintained by contractor
	Tree felling permission from forest department under Karnataka Preservation of Trees Act,1976 and Karnataka Preservation of Trees Rules,1977 and	Awaited - 6 nos. Tree felling (at Kodi Beach OHT site) 2,28,000 Rs Compensation paid to the affected person for Cutting of coconut trees. Copy of compensation cheque	-	Require follow from forest department	-

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
	Forest (Conservation) Act 1980 and Indian Forest (Amendment) bill 2017.	enclosed in earlier SEMR report. Letter to forest department attached as Annexure 9 Note: Coconut Trees are in the list of tree feeling exemption list. If exemption list of trees in Govt. Land then permission should be taken from Tree officer			
	CRZ Clearance under Coastal Regulation Zone Notification Ministry of Environment and Forests 2011 The proposed OHT site and some pipelines in Kodi area falls under Coastal Regulation Zone (CRZ)II. CRZ-II, includes the “developed area” within the existing municipal limits or in other existing legally designated urban areas which are substantially built-up and has been provided with drainage and approach roads and other infrastructural facilities, such as water supply and sewerage mains; buildings shall be permitted only on the landward side of the existing road. Construction involving more than 20,000 m ² built-up area in CRZ-II shall be considered in accordance	Obtained – The proposed OHT site and some pipelines in Kodi area falls under Coastal Regulation Zone (CRZ)II. CRZ clearance for Kodi beach OHT from KSCZMA NOC obtained enclosed in earlier SEMR report	Obtained on 11/07/2017	Contractor and PIU to Meet /maintain the NOC condition.	<ol style="list-style-type: none"> 1. Project promoters Government order no: FEB1062 CRZ 2014 dated 16/01/2015 in accordance with application processing payment of the fees. 2. Precaution should be taken at the time of construction of OHT without impairment to environment and storm water. 3. Without approval of authority couldn't any change and expansion of proposed project 4. For the proposed project implementation of all work and activity to be subjected under CRZ notification dated:06/01/2011

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
	with EIA notification, 2006 and in case of projects less than 20,000 m ² built-up area shall be approved by the concerned State Planning authorities in accordance with this notification after obtaining recommendations from the concerned CZMA and prior recommendations of the concern CZMA shall be essential.	Obtained - CRZ clearance for Pipe Line laying NOC obtained	Obtained on 11-07-2017.	Contractor and PIU have to Meet /maintain the NOC condition.	<ol style="list-style-type: none"> 1. Project promoters Government order no: FEB1062 CRZ 2014 dated 16/01/2015 in accordance with application processing payment of the fees. 2. Precaution should be taken at the time of construction of OHT without impairment to environment and storm water. 3. Without approval of authority couldn't any change and expansion of proposed project 4. For the proposed project implementation of all work and activity to be subjected under CRZ notification dated:06/01/2011
02PTR01	Water (Prevention and Control of Pollution) Act. 1974 The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required For acoustic type of Generator – not required (at present no generator is used) If required, Contractor to use acoustic type of Generator only		Only Acoustic type of Generator to be used by contractor	-

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
	Statutory permission from National Highways Authority for road cutting	Submitted - the documents - Annexure 10A		Regular follow-up is required	
	Statutory permission from Railway authority	Approval received Annexure 10		Follow all condition stipulated in railways permission	
	Statutory permission from PWD	Not applicable			
	Utility shifting	Not applicable			
	Labour license under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Obtained - Labour license is valid up to 10-01-2022 renewed upto 11.01.21.	- Labour license is valid up to 10-01-2022 - Annexure 11	Follow all stipulated conditions of Licenses	- Worker attendance register and wages register have to maintained by contractor
	Labour compensation insurance	Obtained - Labour compensation insurance is attached and Marine-cum-Insurance Policy	Labour compensation insurance policy issued on 02-11-2023 - Annexure 12		-
	Tree felling permission from forest department under Karnataka Preservation of Trees Act,1976 and Karnataka Preservation of Trees Rules,1977 and Forest (Conservation) Act 1980 and Indian Forest (Amendment) bill 2017.	No tree cutting noted during the design validation and survey			
02UDP01	Water (Prevention and Control of Pollution) Act. 1974. The Air (Prevention and Control of Pollution) Act, 1981, as amended by Amendment Act, 1987 Also for setting up diesel generator Consent to Establish (CTE) and Consent to Operate (CTO)	During implementation of project compliance with Air Act, Noise Rules and Water Act will be required For acoustic type of Generator – not required.	-	Only Acoustic type of Generator to be used by contractor	

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
	Statutory permission from National Highways Authority for road cutting	Yet to Apply			NH 66 permission required
	Statutory permission from Railway authority	Yet to Apply			
	Statutory permission from PWD	Yet to Apply			
	Utility shifting	Yet to apply			
	Labour license under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)	Obtained	Validity up to 11-01-2021 Annexure 13	Further renewal has been done on 11-01-2021.	contractor to maintain worker attendances register, and wages register
	Labour compensation insurance	Obtained	Labour compensation insurance is valid upto 26-07-2021 - Annexure 14	Policy is to be renewed before or on 26-7-2021	-
	Tree felling permission from forest department under Karnataka Preservation of Trees Act,1976 and Karnataka Preservation of Trees Rules,1977 and Forest (Conservation) Act 1980 and Indian Forest (Amendment) bill 2017.	No tree cutting noted during the design validation and survey			
02MNG01	Statutory permission from Railways Authority	Submitted - Request for permission at 06 locations submitted to the railway department on 18-09-2020. Inspections by the railway authorities are over and submitted to the Railway Divisional Office, Palakkad, intimation awaiting		Regular follow up for permission	

Package No.	Statutory Environmental Requirements	Status of Compliance (Specify if obtained, submitted and awaiting approval, application not yet submitted)	Validity Date(s) (if already obtained)	Action Required	Specific Conditions that will require environmental monitoring
	Statutory permission from National Highways Authority for road cutting	Application Submitted - Request for permission at 07 locations submitted to the NHAI on 17-06-2020. Returned with directions to submit in appropriate format and to submit 5 nos to NHAI office, Mangaluru and 2 nos to NH Divisional office (State). PIU is preparing the same.		Regular follow up for permission	
	Labour license under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)		Labour license is valid upto 21-11-2021 - Annexure 14A	Fees instalment for license to be deposited.	
	Labour compensation insurance		Labour compensation insurance is valid upto 21-07-2021 and all risk insurance is valid upto 23-12-2022 - Annexure 14B and 14C		

IV. Compliance Status with Environmental Loan Covenants

25. The loan agreement for KIUWMIP Project 2 was signed on 27 November 2018 and available in ADB website (<https://www.adb.org/sites/default/files/project-documents/43253/43253-027-lna-en.pdf>). Table 7 provides a summary of compliance to the loan covenants related to environmental safeguards.

Table 7: Compliance to Loan Agreements (Environmental Safeguards)

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
Schedule 4 Item 9	<p>Procurement of Goods, Works and Consulting Services Conditions for Award of the Contract The Borrower shall ensure or cause the EA to not award any Works contract for a Subproject which involves environmental impacts until the EA has:</p> <p>a) Obtained the final approval of the IEE from the relevant environment authority of the Borrower and the State, and ADB; and b) Incorporated the relevant provisions from the EMP into the Works contract.</p>	<p>Complied</p> <p>a) Obtained concurrence from ADB for Final IEE of Mangalore sewerage and Puttur, Udupi and Kundapura water supply packages. IEE of Mangalore water supply is being updated.</p> <p>b) Incorporated EMP into the works contract of all packages of tranche 2 subproject.</p>
Schedule 5 Item 10	<p>Safeguards –Environment The Borrower shall ensure or cause the EA to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project, and all projects' facilities comply with (i) all applicable laws and regulations of the Borrower and the State relating to environment, health, and safety; (ii) the Environmental Safeguards; (iii) the EARF; and (iv) all measures and requirements set forth in the respective IEE and EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.</p>	<p>Being complied</p> <p>Document is prepared by complying all relevant State and National Laws, Safeguard Policy Statement (SPS 2009) of ADB, Environment Assessment Review Framework (EARF) for Tranche-2 program. Same will be followed for subsequent Tranches.</p> <p>For Tranche 2 project Initial Environmental Examination (IEE), Environment Management Plan (EMP) report prepared and approved by ADB. IEE has been updated for Mangalore UGD and Kundapura, Puttur and Udupi WSS, IEE reports submitted to ADB on Jan 2019 was accepted by ADB in Feb 2019. Further review will be conducted at implementation phase.</p> <p>Final design for Mangalore UGD, Kundapura, Puttur and Udupi WSS have been reviewed. IEE and EMP are updated as per final design and scope. Final Mangalore UGD and Kundapura WSS IEE/EMP accepted by ADB on August 2018 and Final IEEs for Puttur and Udupi WSS in February 2019 respectively. Later, it was found that some of the design needs to be finalized in Udupi and Puttur hence and updated IEE has been submitted to ADB in this period.</p> <p>All Draft and Final IEEs reports already disclosed in ADB website.</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
		<p>All safeguard measures and requirements as prescribed in IEE/EIA and EMP being considered during implementation.</p> <p>Corrective or preventive action plans including personal protection will be reflected in Environment Monitoring Report and project implementation authority will be taken care</p>
Schedule 5 Item 10	<p>Human and Financial Resources to Implement Safeguards Requirements</p> <p>The Borrower shall make available, or cause the EA to make available, all necessary budgetary and human resources to fully implement the EMP required.</p>	<p>Partially Complied</p> <p>Budgetary provisions have been included in EMP of Tranche 2 sub projects attached as Annexure 15</p> <p>Environment Engineer (Asst. Executive Engineer) is placed in PMU</p> <p>Human resource (project consultant, i.e. Environmental Specialist of PMDCSC) for implementation of EMPs was in place for regular compliance till Mar 2020 only.</p> <p>The Environmental Specialist of PMDCSC to be mobilized at the earliest.</p>
Schedule 5 Item 11	<p>The Borrower shall ensure, or cause the EA to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to: comply with the measures and requirements relevant to the contractor set forth in the IEE, the EMP, the RP and the IPP (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report;</p> <p>(b) make available a budget for all such environmental measures;</p>	<p>Being Complied</p> <p>Approved IEE, EMP for Tranche-2 project is attached in Bidding documents. This process was followed for all the sub projects within the present Tranche and subsequent Tranches. In case of any change of scope, revised IEEs, EMPs will be prepared and corrective measures will be disclosed to contractor and same will be reflected in the "Environment Monitoring Report"</p> <p>For Tranche-2 project Initial Environmental Examination (IEE), Environment Management Plan (EMP) report prepared and approved by ADB. IEE has been prepared for water supply Distribution Network packages at Mangalore, Udupi, Puttur and Kunadapur and all the reports accepted by ADB (2018/2019) and disclosed respectively on ADB and project website.</p> <p>Corrective actions were taken on the contractor regarding 1) To ensure PPE at all on-going sites, 2) arrangement of public safety, 3) disposal of waste and 4) camp site management</p> <p>(b) IEE indicates budgetary provisions for implementation of EMP, Annexure 15 shows budgetary provision for safeguard implementation under different packages</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
	<p>(c) provide the EA with a written notice of any unanticipated environmental risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the EMP, the RP or the IPP;</p> <p>(d) adequately record the condition of roads, agricultural land and other infrastructure prior to starting to transport materials and construction; and</p> <p>(e) fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.</p>	<p>(c) With the development of sub project and implementation, in case of additional impacts/risks due to change in scope/area, that will be reflected in the revised IEEs, EMPs and Environment Monitoring Report and accordingly project Executing Agency will inform the Construction Agency for taking relevant corrective measures. Till date no unanticipated environmental risks or impacts reported</p> <p>(d) Haul roads will be marked properly (by avoiding residences and agricultural land) before commencement of transportation of materials.</p> <p>(e) Pathways, land which are likely to be affected for a short period during implementation of the sub project will be restored by concerned construction agency before acceptance of the work. Restoration status will be reflected in post construction monitoring report</p>
Schedule 5 Item 12	<p>Safeguards Monitoring and Reporting</p> <p>The Borrower shall cause the EA to do the following:</p> <p>(a) submit semi-annual Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission;</p> <p>(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 IEEs, the EMPs, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and</p> <p>(c) Report any breach of compliance with the measures and requirements set forth in the EMPs, promptly after becoming aware of the breach.</p>	<p>Being complied</p> <p>(a) This is 4th semi-annual Safeguards Monitoring Report is prepared for the period Jul to Dec 2020.</p> <p>(b) With the development of project and implementation, in case of additional impacts/risks due to change in scope/area, will be reflected in revised IEEs, EMPs and accordingly Executing Agency (EA) will inform the ADB along with corrective action plan which will be reflected in the Monitoring Report.</p> <p>(c) In case of any breach of compliance with the measures and requirements set forth in the EMP, EA will be promptly informed to ADB and suitable corrective action plan will be planned.</p>

Serial no. as per loan agreement	Program Specific Covenants	Status / Issues
Schedule 5 Item 13	<p>Prohibited List of Investments</p> <p>The Borrower shall ensure or cause the State to ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.</p>	<p>Complied</p> <p>Under Tranche -2, there is no violation of prohibited investment activities as per ADB SPS (2009) Appendix 5.</p>
Schedule 5 Item 16	<p>Other Social Measures</p> <p>The EA shall ensure that 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: (i) 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 (ii) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts will also include clauses for termination in case of any breach of the stated provisions by the contractors.</p>	<p>Being complied</p> <p>Complied in document and during implementation</p> <p>Provisions are included and carried out (as per EMP & BID document) HIV/AIDS awareness programs for construction contractor, application of all relevant labour laws for health and safety including child labour law and engagement of local labours (preferably from economically backward group) covering women labours.</p> <p>In case of any breach of provision, necessary corrective measures as per contract clauses shall be taken.</p> <p>All activities including awareness program will be reflected in "Monitoring Report".</p>

26. Contractor team carried out regular environment monitoring. Budget for environment monitoring is disclosed in the **Annexure 15**.

V. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

A. Overall compliance with EMP

27. Due to COVID-19 from March to May, 2020 there was complete lockdown and during reporting period it was partial lockdown in subproject areas. The SOP for COVID-19 has been issued by MD, KUIDFC. The contractors are implementing the same so as to tackle the pandemic and prevent spreading of COVID-19. The construction works was allowed with only limited number of staffs and workers.

28. During the reporting period, monitoring is being done only by the PIU as there is no environment specialist deployed by PMDCSC. However, the Community Awareness, Participation, Resettlement and Rehabilitation Consultants (CAPPRCs) were assisting in monitoring the environment safeguards under guidance of PIU and PMDCSC.

29. The Site-Specific Environment Management Plans for Mangalore UGD, Kundapura, Puttur and Udupi 24x7 water supply sub project is prepared and submitted by Contractor. SEMP for

Mangalore 24x7 water supply project is under preparation. EMP Inspection formats are also developed for each package (**Annexure 24**) to document and record implementation of EMP measures.

30. Over-all compliance of the contractors with SEMP given in Table 8. Annexure 24 provides sample EHS Inspection Checklist for Mangalore water supply, Udupi and Puttur Packages used for onsite EMP implementation. Site specific EHS plans for Udupi, Puttur and Mangalore UGD is attaches at **Annexure 26**.

Table 8: Overall Compliance with SEMP

Package No.	Status of SEMP/CEMP Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed and Additional Measures Required
02MNG02	Partially Satisfactory	<ul style="list-style-type: none"> • Advance information to be provided to shopkeepers and near residence before start of construction. • Arrangement of proper project information display board and caution and hazard sign boards. • Prepare and implement traffic management plan • Use of PPE should be always as per site condition and work type. • Improvement is required for Housekeeping at site areas and labour camp as well. • Improvement is required for first aid box - First aid materials should be as per the standards. • Worker Wages register has to be maintained. • Proper care should be taken for electrical safety at labor camp and sites. • Maintain accident and Grievance resister • Improvement at labour camp which include separate cooking facility and enhancement in sanitation facility. • Conduct regular safety training • Continue to implement SOP for COVID 19 (issued by KUIDFC)
02KDP01	Partially Satisfactory	<ul style="list-style-type: none"> • Advance information to be provided to shopkeepers and near residence before start of construction. • Prepare and implement traffic management plan • Arrangement of display board in English and Kannada with all relevant project information along with contact numbers • Proper caution and hazard boards. • Use of PPE should be at all times as per site condition and work type. • Immediate Improvement of housekeeping at the project sites • Improvement of material storage is required.

Package No.	Status of SEMP/CEMP Implementation (Excellent/ Satisfactory/ Partially Satisfactory/ Below Satisfactory)	Action Proposed and Additional Measures Required
		<ul style="list-style-type: none"> • Proper Scaffoldings have to be used for OHT Construction site. • CRZ, NOC conditions have to be meet by the Contractor and PIU. • Maintain accident and Grievance resister • Conduct regular safety training • Worker Wages register has to be maintained • Continue to implement SOP for COVID 19 (issued by KUIDFC)
02PTR01	Satisfactory	<ul style="list-style-type: none"> • Proper Project information board in Kannada and English with all necessary details • First aid box should be provided at all working sites • Maintain accident and Grievance resister • Hygiene of the labor camp to be improved • Use of PPE should be at all times as per site condition and work type • Continue to implement SOP for COVID 19 (issued by KUIDFC)
02UDP01	Satisfactory	<ul style="list-style-type: none"> • Ensure the PPEs by labours at all times as per site conditions. • Project Information board along with relevant details and contact number is to be provided at working sites both English and Kannada • Improvement in Caution sign boards at pipe laying areas • Amenities to the labours to be enhanced. • Continue to implement SOP for COVID 19 (issued by KUIDFC)
02MNG01	Partially Satisfactory	<ul style="list-style-type: none"> • Ensure the PPEs by labours at all times as per site conditions. • Detailed SEMP, including traffic management and spoil management plan to be submitted • Grievance and accident register to be maintained • Project Information board along with relevant details and contact number is to be provided at working sites both English and Kannada • Improvement in Caution sign boards at pipe laying areas • Conduct regular safety training • Amenities to the labours to be enhanced. • Continue to implement SOP for COVID 19 (issued by KUIDFC)

Spoil Management

31. The Spoil and earth materials generated in the construction works was reused in re-filling of the tranches and road restoration, the remaining surplus spoil is transported and dumped in consultation with Implementing agency on designated waste management sites. The overall management of Spoil was satisfactory during reporting period. The table 9 below provides the package wise details of waste dumping

Table 9: Spoil /Solid waste details

Project No	Quantity generated	Transport	Storage	Disposal details
02MNG02	Spoil and Solid waste Quantity generated from construction not maintained by contractor and not mention in the Spoil management plan. recommended to update the plan maintain record.	Contractor uses its own vehicle for transportation of waste and route is selected in consultation with ULB officials	No onsite storage of waste	Contractor Dumping surplus soil in the Pachanady Solid waste management treatment plant. Location is approved by permission of PIU. Annexure 23
02KDP01	Spoil and Solid waste Quantity generated from construction not maintained by contractor and not mention in the Spoil management plan. recommended to update the plan maintain record.	Contractor uses its own vehicle for transportation of waste and route is selected in consultation with ULB officials	No onsite storage of waste	Contractor Coordinated with PIU / Kundapura TMC surplus soils and Solid waste Disposed of in Authorized landfill of municipality
02PTR01	Sub project is in pre-construction Phase Spoil and Solid waste Quantity generated from construction not maintained by contractor and not mention in the Spoil management plan. recommended to update the plan maintain record.	Contractor uses its own vehicle for transportation of waste and route is selected in consultation with ULB officials	No onsite storage of waste	Spoil Management Plan and Permission to Dispose the Waste in the Disposal is prepared/obtained. The spoil is disposed at authorized site near Jackwell Nekkilady Annexure 23
02UDP01	Sub project is in pre-construction Phase Spoil and Solid waste Quantity generated from construction not maintained by contractor and not mention in the Spoil management plan. recommended to update the plan maintain record.	Contractor uses its own vehicle for transportation of waste and route is selected in consultation with ULB officials	No onsite storage of waste	Spoil Management Plan and Waste Disposal plan in the Disposal area is prepared/obtained. The spoil is disposed at authorized site of Municipality dumping yard at Alevoor, Annexure 23
02MNG01	The construction started very recently	Contractor uses its own vehicle for transportation of waste and	No onsite storage of waste	Contractor Dumping surplus soil in the Kullur Site of municipality .

		route is selected in consultation with ULB officials		
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B. Packages compliance

32. Daily, weekly, and monthly monitoring is continued for all the running packages by the safety officers of the contractors, consultant engineers and PIU/RPMU officers. The overall compliance status for all the 5 running packages during report period is partially satisfactory to satisfactory. Improvement is noted for all the running packages. The package wise status of SEMP implementation is given in Table 10 to 14.

Table 10: Summary of Environmental Monitoring Activities (Jul-Dec 2020)- UGD in Mangalore City, Package No.02MNG02 -Construction Phase

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
<p>Impacts due to excess excavated earth, excess construction materials, solid waste etc.; and Occupational hazards which can occur to workers and public during work.</p>	<p>Prepare and submit a Method Statement for pumping main pipeline works in a table format with appended site layout map and cover the following:</p> <ol style="list-style-type: none"> 1. Work description; No. of workers (skilled and unskilled); Details of Plant, equipment and machinery, vehicles; 2. Work duration (total, and activity-wise, for example for pipe laying, from excavation to road resurfacing/testing); 3. Personal Protection Equipment (PPE) (helmet, gloves, boots, etc.) details for each type of work; 4. Details of materials at each site (type and quantity); 5. Risks/hazards associated with the work (for example, Trench excavation will have risks such as trench collapse, persons/vehicles falling into trench, structural risk to nearby buildings, damage to buildings, infrastructure etc.); 6. Construction waste/debris generated (details and quantity); 7. Detail the sequence of work process (step-by- step) including specific details of each work; 8. Contractor's supervision and management arrangements for the work; <p>Emergency: Designate</p>	<ol style="list-style-type: none"> a) Site inspection and record verification; - Done. b) Appointment of Environmental, Health and Safety (EHS) Engineer by contractor prior to start of work - Done c) Site specific Occupational Health and Safety (OHS) plan; d) Spoil and waste management plan; and e) Complaints from sensitive receptors and public. 	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<ol style="list-style-type: none"> 1. Daily by construction supervisor- Resident Engineer 2. Weekly / biweekly by Construction Manager. 3. Verification by Environment Specialist of PMDCSC and/or Asst. Executive Engineer (Environment) KIUWMIP-KUIDFC on monthly basis 	<p>Construction supervisor - Mr. Prakash and Resident Engineer - Mr. Shahir. PMDCSC</p> <p>Mr. Rajendra Kalghade</p> <p>Yet to remobilise</p>	<p>Partially Satisfactory –</p> <p>Contractor to keep record of all PPEs , detail of Chemicals and material, daily toolbox talk, number of workers, traffic management and spoil management plan etc.</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>(i) responsible person on site, and (ii) first aider; and (iii) Typical site layout plan including pipe trenching, placement of material, excavated earth, barricading, etc.</p> <p>9. The pumping main lines are to be laid along the roads, Roads are provided with side drains to carry rainwater. The excavated soil, placed along the trench may get disturbed due to wind, rainwater and the movement of workers, vehicles and pedestrians, and spill onto road way – disturbing road users, creating dust, road safety issues, etc., and also into nearby open drains.</p> <p>The following should be included in the site layout plan:</p> <p>a) Provide barricading/security personnel at the site to prevent entry/trespassing of pedestrian/vehicles into the work zone;</p> <p>b) Location of temporary stockpiles and provision of bunds;</p> <p>c) Separation of stockpiles areas with workers/vehicle movement paths to avoid disturbing the stockpiled soil;</p> <p>d) Wetting of soil to arrest dust generation by sprinkling water; and</p> <p>e) Waste/surplus soil utilization and disposal plan – indicate expected duration of temporary stockpiling along the trench at each site and identify final surplus soil utilization/disposal site in</p>					

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	consultation with program implementation unit (PIU).					
Disturbance/ damage to existing utilities on the sites (Telephone lines, electric poles and wires, water lines within proposed project sites)	<ol style="list-style-type: none"> 1. At least two-weeks prior to start of work at any section, identify utilities that will be required to be temporarily disturbed / shifted for the construction work; 2. Liaise with the respective utility department, provide prior information to the affected public and restore the utilities as soon as the work is complete 3. Provide contingency services where required (temporary diversion of drains, provision of water supply by tankers, etc.,) 4. Coordinate with the respective department and ensure that electricity and telephone services are restored quickly 5. Reconstruct the damaged compound walls, culverts and drains immediately after the completion of pipeline work in that particular section 	Section-wise list of utilities to be shifted / disturbed to be submitted to PIU two-weeks prior to start of work at that section along with a plan to shift and contingency steps to be taken Record to confirm that contingency services are provided and all damaged utilities are restored after the work	<ul style="list-style-type: none"> • Checkin g of records • visual inspection of sites 	Do	Do	<p>1 Partially Satisfactory, advance notice prior to construction to be given to locals and shopkeepers</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p>
Disruption to traffic flow and sensitive areas and receptors	<ol style="list-style-type: none"> 1. Prioritize areas within or nearest possible vacant space in the subproject location; 2. Avoid locating construction work camps close (100 m away) to residential areas; 3. Do not consider residential areas; for stockpiling the waste/surplus soil; and 4. Material stockpiles shall be protected by bunds during the monsoon to arrest the silt laden runoff into drains. 	List of selected sites for construction work camp, storage area and disposal area. Complaints from sensitive receptors	<ul style="list-style-type: none"> • Checkin g of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
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	<ol style="list-style-type: none"> 1. Contractor should obtain material from existing mines approved/licensed by Mines and Geology Department/ Revenue Department only; 2. Verify suitability of all material sources and obtain approval of implementing agency; 3. No new quarry sites shall be developed for the subproject purpose; and 4. Submit a monthly statement of construction material procured indicating material type, source and quantity. 	Check Sources and approval	<ul style="list-style-type: none"> • Checkin g of records • Visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p>
Dust and emissions from construction activity may de-grade the air quality	<ol style="list-style-type: none"> 1. Consult with PIU on the designated areas for stockpiling of clay, soils, gravel, and other construction materials; 2. Damp down exposed soil and any stockpiled-on site by spraying with water when necessary during dry weather; 3. Bring materials (aggregates, sand, etc. gravel) as and when required; 4. Use tarpaulins to cover sand and other loose material when transported by vehicles; 5. Stockpile sand and other loose material only in barricaded area and protect/cover by tarpaulins to avoid dust generation 6. Clean wheels and undercarriage of vehicles prior to leaving construction site; 7. Fit all heavy equipment and machinery with air pollution control devices which are operating 	Site observations Informal Ambient air quality monitoring (4 locations, frequency – quarterly - 4 times a year, 9 times in 24 months, parameters - SPM, RSPM, SOx, NOx)	<ul style="list-style-type: none"> • Checkin g of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Partially Satisfactory</p> <p>6 Satisfactory</p> <p>7 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	correctly; ensure valid Pollution Under Control (PUC) Certificates for all vehicles and equipment used in the construction activity; and 8. Carry out air quality monitoring.					8 Not Satisfactory – Air monitoring was not conducted for reporting period
High noisy construction activities may have adverse impacts on sensitive receptors and structures	<p>1. Plan activities in consultation with the PIU so that activities with the greatest potential to generate noise (road cutting activity) are conducted during periods of the day which will result in least disturbance;</p> <p>2. Construction work shall be limited to day light hours (6 AM to 6 PM) for all the works located within the town; Provide prior information to the local public about the work schedule;</p> <p>3. Ensure that there are no old and sensitive buildings that may come under risk due to the use of pneumatic drills; if there is risk, cut the rocks manually by chiseling;</p> <p>4. 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</p> <p>5. Maintain maximum sound levels not exceeding 80 decibels (dB) when measured at a distance of 10 m or more from the vehicles</p>	Complaints from sensitive receptors Site observations Ambient noise monitoring (day and night time / 24 hours monitoring at 4 locations, frequency – quarterly - 4 times a year, 9 times in 24 months)	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Not Satisfactory - Noise monitoring was conducted</p>
Impacts on surface drainage and water quality due to	1. Avoid stockpiling of earth fill especially during the monsoon	Site observations	<ul style="list-style-type: none"> • Checking of records • visual 	Do	Do	1 Satisfactory

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
contaminated runoff from construction areas in monsoon	season unless covered by tarpaulins or plastic sheets; 2. Stockpiles shall be provided with temporary bunds; 3. Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with Implementing Agency on designated disposal areas; 4. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; 5. Place storage areas for fuels and lubricants away from any drainage leading to water bodies. Storage structure should consider 110% capacity bund; 6. Dispose any wastes generated by construction activities in designated sites; and, 7. Ensure that there is no spill over of excavated earth, construction materials like cement concrete into the drain near wet well no. 3; also ensure that the drain flow is not blocked / disturbed during the work		inspection of sites			2 Satisfactory 3 Satisfactory 4 Satisfactory 5 Satisfactory 6 Satisfactory 7 Satisfactory
Impacts on landscape and aesthetics due to construction activity	1. Manage surplus soil, construction debris and solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; 2. Coordinate with PIU / MCC for beneficial uses of road debris and surplus soils in on-going construction works or for temporary storage for future use or disposal in landfill	Work site inspection Complaints from public	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	1 Satisfactory 2 Satisfactory

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>3. In unavoidable case of disposal, debris shall be disposed at landfill site or site approved by PIU / MCC; waste shall not be disposed in the forest areas and in or near water bodies/ rivers;</p> <p>4. Prepare and implement Waste Management Plan – it should present how the surplus waste generated will temporarily stocked at the site, transported, reused and disposed properly;</p> <p>5. Surplus soil and debris from work site shall be removed / cleared at the end of each day of work; there shall be no stock piling of debris / surplus soil at the site</p> <p>6. Recover used oil and lubricants and reuse or remove from the sites;</p> <p>7. Remove all wreckage, rubbish, or temporary structures which are no longer required; and</p> <p>8. Request program implementation unit (PIU)/ project management, design and construction supervision consultant (PMDSC) to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.</p>					<p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p> <p>6 Satisfactory</p> <p>7 Satisfactory</p> <p>8 Satisfactory</p>
Hindrane to traffic movement / Accessibility	<p>1. Plan pipeline work in consultation with the traffic police; Prepare a Traffic Management Plan – a template is provided for reference at Appendix 8 of IEE.</p> <p>2. Strictly follow the pipe laying method presented in the Table so</p>	Work Program Review	<ul style="list-style-type: none"> • Checkin g of records • visual inspection of sites 	Do	Do	1 Not Satisfactory, Traffic Management Plan is yet to be submitted

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>that trench excavation, pipe laying, and refilling including compacting, at a stretch is completed in a minimum possible time</p> <p>3. Provide for immediate consolidation of backfilling material to desired compaction – this will allow immediate road restoration and therefore will minimise disturbance to the traffic movement;</p> <p>4. Do not close the road completely, ensure that work is conducted onto edge of the road; allow traffic to move on one line;</p> <p>5. In narrow roads with considerable traffic (Jama Masjid-Road, Ashok Nagara road, and old port / Kandathapalli Road), work shall be undertaken between two intersections and diverting traffic in that section to a parallel road, so that through traffic is not blocked fully.</p> <p>6. In some sections on Jama Masjid- Road, Old Port Road and Kandathapalli Road there are no parallel roads to divert traffic; in those sections work shall be conducted in the nights or in low traffic hours in day time; but in case of day-time work traffic shall not be blocked for more than 2-3 hours at a stretch; prior information shall be provided to public – a week before and a day before work, about the schedule of the work and temporary road closure; proper signage shall be provided</p>					<p>2 Partially Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p> <p>6 Satisfactory</p> <p>7 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>7. Maintain safe pedestrian access at all times to the houses along the work site</p> <p>8. At all work sites public information/caution boards shall be provided – information shall inter-alia include: project name, cost and schedule; executing agency and contractor details; nature and schedule of work at that road/locality; traffic diversion details, if any; entry restriction information; competent official's name and contact for public complaints.</p> <p>9. In densely populated areas like market place or layouts, roads with heavy traffics additional care has to be taken.</p> <p>10. Hard barricades should be mandatorily provided along with caution board and traffic diversion boards. Some of the densely populated area identified in project area are Old Port Road, Jeppubappal to Suterpete</p>					<p>tory</p> <p>8 Satisfactory</p> <p>9 Satisfactory</p> <p>10 Satisfactory</p>
<p>Schools, hospitals and religious places) due construction work in the proximity (within 250 m of such place)</p>	<p>1. No material should be stocked in this area; material shall be brought to the site as and when required</p> <p>2. Conduct work manually with small group of workers and less noise; minimize use of equipment and vehicles</p> <p>3. No work should be conducted near the religious places during religious congregations</p> <p>4. Material transport to the site should be arranged considering</p>	<p>Complaints from sensitive receptors</p> <p>Work program</p>	<ul style="list-style-type: none"> • Checkin g of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>school timings; material should be in place before school starts;</p> <p>5. Notify concerned schools, hospitals, etc. 2 weeks prior to the work; conduct a 30 minutes awareness program at on nature of work, likely disturbances and risks and construction work, mitigation measures in place, entry restrictions and dos and don'ts Implement all measures suggested elsewhere in this report – dust and noise control, public safety, traffic management, strictly at the sites.</p>					5 Partially Satisfactory
Impediment of access to houses and business	<p>1. Leave space for access between mounds of excavated soil, where required</p> <p>2. Provide wooden planks/footbridges for pedestrians and metal sheets for vehicles to allow access across trenches to premises where required.</p> <p>3. Consult affected businesspeople to inform them in advance when work will occur</p> <p>4. Address livelihood issues, if any; implement the Resettlement Plan to address these issues</p> <p>5. Provide sign/caution/warning boards at work site indicating work schedule and traffic information; prevent public entry into work sites through barricading and security; and</p> <p>6. Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.</p>	<p>Number of walkways, wooden planks and foot bridges;</p> <p>Complaints from public;</p> <p>Spoil Management Plan; and</p> <p>Traffic Management plan.</p>	<ul style="list-style-type: none"> • Checkin g of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Partially Satisfactory</p> <p>4 Satisfactory</p> <p>5 Partially Satisfactory</p> <p>6 Partially Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	7. Prepare a Traffic Management Plan – a template is provided for reference at Appendix 8 in IEE. The site-specific traffic management plan should be part of the Construction Management Plan.					7 not Satisfactory
Impact on local employment generation	1. Employ local labour force to the maximum extent, if manpower is available	Employment Records Compliance to labour laws	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	1 Satisfactory
Workers occupational health and safety	<p>1. Develop and implement site-specific Health and Safety (H&S) Plan which will include measures such as:</p> <p>(a) excluding public from the site;</p> <p>(b) ensuring all workers are provided with and use Personal Protective Equipment (PPE);</p> <p>(c) H&S Training for all site personnel;</p> <p>(d) documented procedures to be followed for all site activities; and</p> <p>(e) documentation of work-related accidents;</p> <p>2. All trenches in sandy and mixed sandy soils irrespective of depth and trenches deeper than 2m (or less, if designed by the engineer) in other soils shall be protected against collapse to avoid safety risks to workers, public and nearby buildings/structures; provision has been made for well point type dewatering, sheet piling for shoring and strutting etc., precaution shall be taken at the time of execution;</p>	Site specific OHS Equipped first aid station. Potable water supply and clean eating area. PPE and medical insurance	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Partially Satisfactory – the Site specific H&S plan is prepared by contractor but it does not cover all points of EMP like traffic management Documentation of EMP measure is not maintained by contractor</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>3. Take all necessary precaution during isolation and blocking of existing pumping main and connecting the new main to the existing system. Skilled supervision, appropriate apparatus and PPEs must be used;</p> <p>4. Extreme care shall be taken while working on existing sewer lines/ manholes, where they are required to be shifted, to safeguard the workers against the gaseous emissions and hazardous working conditions</p> <p>5. Create awareness among all workers, supervisors and site engineers on potential hazard conditions and safety risks in working with existing/old sewer lines; working conditions may be hazardous with harmful gaseous emissions (hydrogen sulphide, carbon monoxide, methane, etc.) and oxygen deficiency;</p> <p>6. Provide all necessary personnel protection equipment; including oxygen masks for emergency use;</p> <p>7. Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;</p> <p>8. Provide medical insurance coverage for workers;</p> <p>9. Secure all installations from unauthorized intrusion and accident risks;</p> <p>10. Provide supplies of potable drinking water;</p>					<p>4 Satisfactory</p> <p>5 Partially Satisfactory, contractor is providing safety training to workers but not on regular basis and training records are also not maintained.</p> <p>6 Satisfactory</p> <p>7 Partially Satisfactory, first aid box are not available at all construction sites and heavy equipment's</p> <p>8 complied</p> <p>9 Satisfactory</p> <p>10 Satisfactory</p> <p>11 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>11. Provide clean eating areas where workers are not exposed to hazardous or noxious substances;</p> <p>12. 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 workers;</p> <p>13. 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;</p> <p>14. Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;</p> <p>15. Ensure moving equipment is outfitted with audible back-up alarms;</p> <p>16. 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.</p> <p>17. 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;</p> <p>18. Disallow worker exposure to noise level greater than 85 dB for duration of more than 8 hours per</p>					<p>tory</p> <p>12 partially Satisfactory</p> <p>13 Satisfactory</p> <p>14 Satisfactory</p> <p>15 Satisfactory</p> <p>16 Satisfactory</p> <p>17 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>day without hearing protection. The use of hearing protection shall be enforced actively; and</p> <p>19. Overall, the contractor should comply with IFC EHS Guidelines on Occupational Health and Safety (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES).</p>					<p>18 Not Satisfactory – noise monitoring was not conducted during reporting period</p> <p>19 Partially Satisfactory - environment monitoring was not conducted during reporting period</p>
<p>Danger due to deep excavations, hindrance to traffic and chances of accident,</p>	<p>1. All trenches in sandy and mixed sandy soils irrespective of depth, and trenches deeper than 2m (or less, if desired by engineer) shall be protected against collapse to avoid safety risks to workers, public and nearby buildings/structures; provision has been made for well point type dewatering, sheet piling for shoring and strutting etc., precaution shall be taken at the time of execution;</p> <p>2. Plan material and waste routes to avoid times of peak-pedestrian activities;</p> <p>3. One week prior to start of work at any section, a joint inspection shall be conducted along with PIU and MCC to identify risk areas and buildings and take necessary precautions for safe conduct of work;</p> <p>4. Maintain regularly the vehicles and use of manufacturer-</p>	<p>Traffic Management Plan Complaints from public</p>	<ul style="list-style-type: none"> • Checkin g of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure;</p> <p>5. Provide road signs and flag persons to warn of dangerous conditions, for all the sites along the roads; and</p> <p>6. Overall, the contractor should comply with IFC EHS Guidelines Community Health and Safety (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2BCommunity%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES).</p>					<p>5 Satisfactory</p> <p>6 Partially Satisfactory</p>
Temporary worker camps	<p>1. The contractor should operate the temporary worker camps in compliance with IFC EHS Guidelines specific to workers accommodation (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_gpn_workers_accommodation), including the following:</p> <p>2. Consult with PIU before locating workers camps/sheds, and construction plants; as far as possible located within reasonable distance of work site;</p> <p>3. Minimize removal of vegetation and disallow cutting of trees;</p> <p>4. Labour camps shall include accommodation for</p>	List of selected sites. Written consent of land owner Waste Management plan	Checking of records of visual inspection of sites	Do	Do	<p>1 Partially Satisfactory – housekeeping and cleanliness need to improve at labour camps</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Partially Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>workers/labourers along with other basic amenities such as kitchen, potable water supply, sanitation (toilets, bathrooms, washing areas and water supply for such needs), first aid room as well as garbage collection and disposal facility.</p> <p>5. The roof height of the worker's and labour camp shall not be less than 3 m from floor level to the lowest part of the roof.</p> <p>6. The camps shall be floored with concrete, shall be kept clean, and with proper cross ventilation, and the space provided shall be on the basis of one sq.mt per head or as per the relevant regulation, whichever is higher.</p> <p>7. Fire and electrical safety precautions shall be adhered to.</p> <p>8. Cooking, sanitation and washing areas shall be provided separately.</p> <p>9. The Contractor shall maintain necessary living accommodation and ancillary facilities (including provision of clean fuel to prevent damage to forests and to prevent fuel wood cutting and burning by labor) in functional and hygienic manner.</p> <p>10. The site must be graded and rendered free from depressions such that water does not get stagnant anywhere.</p> <p>11. The entire boundary of the site should be fenced all around with barbed wire so as to prevent the trespassing of humans and animals.</p>					<p>5 Partially Satisfactory</p> <p>6 Partially Satisfactory</p> <p>7 Satisfactory</p> <p>8 Satisfactory –</p> <p>9 Partially Satisfactory</p> <p>10 Satisfactory</p> <p>11 Satisfactory</p>

Impact	Mitigation Measures	Parameters Monitored	Method of Monitoring	Frequency of Monitoring Conducted	Name of Person Who Conducted the Monitoring	Status of compliance
	<p>12. Provide water and sanitation facilities; water, meeting Indian drinking water standards shall be provided, in adequate quantities (supply of 60- 80 lpcd); all water storage structures must be cleaned regularly and covered properly to avoid any contamination;</p> <p>13. Provide separate facilities for men and women; sanitary facilities shall be properly build and well maintained; toilet and bath facilities should be provided on basis of 1 per 15 or less persons;</p> <p>14. Train employees in the storage and handling of materials which can potentially cause soil contamination;</p> <p>15. Recover used oil and lubricants and reuse or remove from the site;</p> <p>16. Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>17. Remove all wreckage, rubbish, or temporary structures which are no longer required; and</p> <p>18. Report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.</p>					<p>12 Satisfactory</p> <p>13 Satisfactory</p> <p>14 Satisfactory</p> <p>15 Satisfactory</p> <p>16 Satisfactory</p> <p>17 Satisfactory</p> <p>18 – will be done after completion of construction period</p>

Table 11: Summary of Environmental Monitoring Activities of the Package-24X7 Water Supply System in Kundapura Town, Package No.02KDP01 (Jul-Dec 2020)

Impact	Mitigation Measures	Parameters Monitored	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
Impacts on the environment, workers, and community due to improper implementation of EMP	<p>1. Project manager and all key workers will be required to undergo EMP implementation including spoils management, standard operating procedures (SOP) for construction works; occupational health and safety (OHS), core labor laws, applicable environmental laws, etc.; and</p> <p>2. Appointment of Environmental, Health and Safety (EHS) Engineer by contractor prior to start of work.</p>	<p>a) Certificate of Completion (Safeguards Compliance Orientation)</p> <p>b) Posting of Certification of Completion at worksites</p> <p>c) Posting of EMP at worksites.</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>1. Daily by construction supervisor- Resident Engineer</p> <p>2. Weekly / bi weekly by Construction Manager.</p> <p>3. No Verification by Environment Specialist of PMDCSC and Asst. Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis:</p>	<p>Construction supervisor - Mr. Zahed Faheem Shaikh and Resident Engineer - Mr. Raghav</p> <p>Mr. Rajendra Kalghade</p>	<p>1 Partially Satisfactory - Contractor has to update SOPs. OHS plan and Activities are going on as per company EHS Policies</p> <p>2 Satisfactory – EHS engineer appointed</p>
Emissions from construction vehicles, equipment, and machinery used for installation of pipelines resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulphur oxides,	<p>1. Consult with PMU/PMDCSC on the designated areas for stockpiling of clay, soils, gravel, and other construction materials;</p> <p>2. Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather;</p> <p>3. Use tarpaulins to cover sand and other loose material when transported by trucks; and</p> <p>4. Stockpile sand and other loose material only in barricaded area and protect/cover by tarpaulins to avoid dust generation</p> <p>5. Clean wheels and undercarriage of vehicles prior to leaving construction site; and</p> <p>6. Fit all heavy equipment and machinery with air pollution</p>	<p>a) Location of stockpiles;</p> <p>b) Complaints from sensitive receptors;</p> <p>c) Heavy equipment and machinery with air pollution control devices;</p> <p>d) Certification that vehicles are compliant with Air Act</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Partially Satisfactory</p> <p>3 Satisfactory</p> <p>4 Partially Satisfactory</p> <p>5 Satisfactory</p> <p>6 Satisfactory</p>

particulate matter, nitrous oxides, and hydrocarbons	control devices which are operating correctly.					
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<p>Mobilization of settled silt materials, and chemical contamination from fuels and lubricants during installation of pipelines can contaminate nearby surface water quality.</p>	<p>1. Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; 2. Laying of pipelines during dry season and closing of all trenches before rainy season and avoid any chances of collecting the water in the trenches or pumping; 3. Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, dispose in municipal landfill (Sample Spoils Management Plan in Appendix 10 of IEE); 4. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; 5. Provide temporary bunds for stockpiles and materials; 6. Place storage areas for fuels and lubricants away from any drainage leading to water bodies. Storage structure should consider 110% capacity bund; and 7. Dispose any wastes generated by construction activities in landfill or reuse in beneficial purposes</p>	<p>a) Areas for stockpiles, storage of fuels and lubricants and waste materials; b) Number of silt traps installed along trenches leading to water bodies; c) Records of surface water quality inspection; d) Effectiveness of water management measures; e) No visible degradation to nearby drainages, nallahs or waterbodies due to civil work</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Partially Satisfactory</p> <p>2 Satisfactory</p> <p>3 Partially Satisfactory – spoil management plan require improvement</p> <p>4 Satisfactory</p> <p>5 Partially Satisfactory -</p> <p>6 Partially Satisfactory</p> <p>7 Satisfactory - Debris generated by construction is disposed in the ULB designated areas. Waste is used to fill the low line area</p>
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Contamination of coastal water due to works in coastal zone	<p>In addition to the above measures following measures given below for piling works:</p> <p>8. Piling activities for OHT foundation work at Kodi shall be conducted carefully; there shall no spillage of bentonite on the ground; bentonite slurry shall be properly collected in leak proof containers and re-circulated in the piling activity; excess bentonite slurry shall be dried properly in containers, and disposed in landfill safely</p>		<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	8 Satisfactory
Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	<p>1. Plan activities in consultation with PMU/PMDCSC so that activities with the greatest potential to generate noise (road cutting and piling activity) are conducted during periods of the day which will result in least disturbance;</p> <p>2. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach;</p> <p>3. 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</p> <p>4. Maintain maximum sound levels not exceeding 80 decibels (dB) when measured at a distance of 10 m or more from the vehicle/s.</p>	<p>a) Complaints from sensitive receptors;</p> <p>b) Use of silencers in noise-producing equipment and sound barriers; and</p> <p>c) Equivalent day and night time noise levels (Appendix 3 of IEE)</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Partially Satisfactory - noise monitoring to be done on regular basis</p>

Impacts due to excess excavated earth, excess construction and demolition materials and solid waste such as removed concrete, wood, packaging materials, empty containers, spoils, oils, lubricants, and other similar items.	<ol style="list-style-type: none"> 1. Manage surplus soil, debris and solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; 2. Coordinate with PIU / Kundapura TMC for beneficial uses of road debris and surplus soils in on-going construction works or for temporary storage for future use or disposal in landfill 3. In unavoidable case of disposal, debris shall be disposed at landfill site or site approved by PIU / Kundapura; waste shall not be disposed in the forest areas and in or near water bodies/ rivers / coast 4. Prepare and implement spoils management plan; 5. Surplus soil and debris from work site shall be removed / cleared at the end of each day of work; there shall be no stock piling of debris / surplus soil at the site 6. Recover used oil and lubricants and reuse or remove from the sites; 7. Remove all wreckage, rubbish, or temporary structures which are no longer required; and 8. Request PIU/PMDCSC to report in writing that the necessary environmental restoration works has been adequately performed before acceptance of work. 	<ol style="list-style-type: none"> a) Complaints from sensitive receptors; b) Worksite clear of hazardous wastes such as oil/fuel; and Worksite clear of any excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging materials, empty containers 	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Partially Satisfactory - records of waste management are not maintained</p> <p>2 Satisfactory</p> <p>3 Satisfactory - Municipality waste management site is used for dumping excess waste</p> <p>4 Partially Satisfactory -</p> <p>5 Satisfactory - Spoil and surplus debris are transported to ULBs' waste management site</p> <p>6 Satisfactory</p> <p>7 Satisfactory</p> <p>8 Satisfactory</p>
Disruption of service and	1. At least two-weeks prior to start of work at any section,	a) Section-wise list of utilities to be	<ul style="list-style-type: none"> • Checking 	Do	Do	1 Partially Satisfactory -

damage to existing infrastructure at specified project location	<p>Identify utilities that will be required to be temporarily disturbed / shifted for the construction work;</p> <p>2. Liaise with the respective utility department, provide prior information to the affected public and restore the utilities as soon as the work is complete</p> <p>3. Provide contingency services where required (temporary diversion of drains, provision of water supply by tankers, etc.,)</p> <p>4. Coordinate with the respective department and ensure that electricity and telephone services are restored quickly</p> <p>5. Reconstruct the damaged footpath and drains immediately after the completion of pipeline work in that particular section</p>	<p>shifted / disturbed to be submitted to PIU two-weeks prior to start of work at that section along with a plan to shift and contingency steps to be taken</p> <p>b) Record to confirm that contingency services are provided and all damaged utilities are restored after the work</p>	<p>king of records</p> <ul style="list-style-type: none"> • visual inspection of sites 			<p>information to shopkeepers is not always provided</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p>
Loss of vegetation and tree cover	<p>1. Except four (4) coconut trees at Kodi OHT site, and pruning of large tree to the minimum required extent at Halekote OHT site, no trees shall be removed for the subproject.</p> <p>2. Trees in the pipeline alignments shall be avoided during construction by locally altering the alignment.</p> <p>3. Obtain tree cutting and pruning permission from Tree Officer; plant and maintain 10 trees for each tree that is removed</p>	<p>a) PMU/PMDC SC to report in writing the number of trees cut and planted.</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory - 6 trees got felled and Compensations were paid to the owners</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p>
Traffic problems and	<p>1. Plan pipeline work in consultation with the traffic police;</p>	<p>a) Traffic route during construction</p>	<ul style="list-style-type: none"> • Checking of 	Do	Do	<p>1 Partially Satisfactory -</p>

<p>conflicts near project locations and haul road</p>	<p>prepare a Traffic Management Plan – a template is provided for reference at Appendix 11 of IEE. 2. Strictly follow the pipe laying method presented in Table 7 so that trench excavation, pipe laying, and refilling including compacting, at a stretch is completed in a minimum possible time; 3. Provide for immediate consolidation of backfilling material to desired compaction – this will allow immediate road restoration and therefore will minimize disturbance to the traffic movement; 4. Schedule transport and hauling activities during non-peak hours; 5. No road shall be completely closed for traffic; in unavoidable circumstances of road closure (eg, NH service road closure at Shastri Circle for trenchless work), provide alternative route, and ensure that public is informed about such traffic diversions; 6. Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; 7. Maintain safe pedestrian access at all times to the houses along the work site; 8. Hard barricades should be mandatorily provided for work sites in residential and</p>	<p>works including number of permanent signages, barricades and flagmen on worksite; Complaints from sensitive receptors; and Number of signages placed at project location.</p>	<p>records</p> <ul style="list-style-type: none"> • visual inspection of sites 			<p>Update in TMP is required</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Partially Satisfactory – TMP to be provided for all working sites</p> <p>6 Satisfactory</p> <p>7 Satisfactory</p>
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	<p>commercial areas, along with caution board.</p> <p>9. At all work sites public information/caution boards shall be provided – information shall inter-alia include: project name, cost and schedule; executing agency and contractor details; nature and schedule of work at that road/locality; traffic diversion details, if any; entry restriction information; competent official's name and contact for public complaints;</p> <p>10. Keep the site free from all unnecessary obstructions;</p> <p>11. Drive vehicles in a considerate manner In narrow roads listed above, Inform the affected local population on week in advance, and again a day before the work</p>					<p>8 Partially Satisfactory – Hard barricading, caution tabpe and information board are not always provided</p> <p>9 Partially Satisfactory</p> <p>10 Satisfactory</p> <p>11 Satisfactory</p>
<p>Impede the access of residents and customers to nearby shops</p>	<p>1. Strictly follow the pipe laying method presented in Table 7 so that trench excavation, pipe laying, and refilling including compacting, at a stretch is completed in a minimum possible time;</p> <p>2. Leave spaces for access between mounds of soil;</p> <p>3. Provide walkways and metal sheets where required for people;</p> <p>4. Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools;</p>	<p>a) Complaints from sensitive receptors;</p> <p>b) Spoils management plan; and</p> <p>c) Number of walkways, signs, and metal sheets placed at project location</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p>

	<p>5. Consult businesses and institutions regarding operating hours and factoring this in work schedules; and</p> <p>6. Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.</p>					<p>5 Partially Satisfactory</p> <p>6 Partially Satisfactory</p>
<p>Disturbance to socio cultural resources (religious, educational, health care etc.), access disruptions etc.,</p>	<p>1. No material should be stocked close to these areas; material shall be brought to the site as and when required;</p> <p>2. Conduct work manually with small group of workers and less noise; minimize use of equipment and vehicles;</p> <p>3. Strictly follow the pipe laying method presented in Table 7 so that trench excavation, pipe laying, and refilling including compacting, at a stretch is completed in a minimum possible time;</p> <p>4. No work should be conducted near the religious places during religious congregations;</p> <p>5. Material transport to the site should be arranged considering school timings; material should be in place before school starts;</p> <p>6. Notify concerned schools, hospitals etc., 2 weeks prior to the work; conduct a 30-minute awareness program on nature of work, likely disturbances and risks and construction work, mitigation measures in place, entry</p>	<p>a) Visual site observations</p> <p>b) Public complaints</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p> <p>6 Satisfactory</p>

	restrictions and dos and don'ts; and 7. Implement all measures suggested elsewhere in this report – dust and noise control, public safety, traffic management, strictly at the sites.					7 Partially Satisfactory
Generation of contractual employment and increase in local revenue	1. Employ local labor force to the maximum extent, if manpower is available; and 2. Comply with labor laws	a) Employment records; b) Records of sources of materials; and c) Compliance to core labor laws (See Appendix 2 of IEE)	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	1 Satisfactory 2 Satisfactory
Occupational hazards which can arise during work	1. Comply with all national, state and local core labor laws (See Appendix 2 of IEE); 2. Develop and implement site-specific health and safety (H&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; (c) H&S Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; 3. All trenches in sandy and mixed sandy soils irrespective of depth shall be protected with safety shoring / strutting to avoid safety risks to workers, public and nearby buildings/structures	a) Site-specific OHS Plan; b) Equipped first-aid stations; c) Medical insurance coverage for workers; d) Number of accidents; e) Supplies of potable drinking water; f) Clean eating areas where workers are not exposed to hazardous or noxious substances; g) record of H&S orientation trainings h) personal protective equipment;	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	1 Satisfactory 2 Partially Satisfactory - Site specific EHS plan is still pending 3 Satisfactory

	<p>4. Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;</p> <p>5. Provide medical insurance coverage for workers;</p> <p>6. Secure all installations from unauthorized intrusion and accident risks;</p> <p>7. Provide supplies of potable drinking water;</p> <p>8. Provide clean eating areas where workers are not exposed to hazardous or noxious substances</p> <p>9. 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 workers;</p> <p>10. 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;</p> <p>11. Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;</p> <p>12. Ensure moving equipment is outfitted with audible back-up alarms;</p> <p>13. Mark and provide sign boards for hazardous areas</p>	<p>i) % of moving equipment outfitted with audible back-up alarms;</p> <p>j) permanent sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.</p> <p>k) Compliance to core labor laws</p>				<p>4 Partially Satisfactory - First aid box is available but not adequate as per standards. The equipped first-aid station not provided</p> <p>5 Satisfactory</p> <p>6 Satisfactory</p> <p>7 Satisfactory</p> <p>8 Satisfactory</p> <p>9 Partially Satisfactory</p> <p>10 Partially Satisfactory</p> <p>11 Satisfactory</p> <p>12 Satisfactory</p> <p>13 Satisfactory</p>
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	<p>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;</p> <p>14. Disallow worker exposure to noise level greater than 85 dB for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively; and</p> <p>15. Overall, the contractor should comply with International Finance Corporation (IFC) Environmental, Health and Safety (EHS) Guidelines on occupational health and safety. (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2Boccupational%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES)</p>					<p>14 Partially Satisfactory - noise quality monitoring is not done for this monitoring period</p> <p>15 Partially Satisfactory</p>
Traffic accidents and vehicle collision with pedestrians during material and waste transportation	<p>1. Provide protective shorting / strutting hard barricading for all deep excavations in sandy and mixed sandy that may require especially for pipe lines soils (>1m);</p> <p>2. One week prior to start of work at any section, a joint inspection shall be conducted along with PIU and Kundapura TMC to identify risk areas and</p>	<p>a) Traffic Management Plan; and</p> <p>b) Complaints from sensitive receptors</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Partially Satisfactory</p>

	<p>buildings at risk (due to excavation, vibration and noise) and take necessary precautions for safe conduct of work.</p> <p>3. identify buildings at risk prior to start of excavation work and take necessary precautions for safe conduct of work;</p> <p>4. Plan material and waste routes to avoid times of peak-pedestrian activities;</p> <p>5. Liaise with Kundapura TMC in identifying risk areas on route cards/maps;</p> <p>6. Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure;</p> <p>7. Provide road signs and flag persons to warn of dangerous conditions, for all work sites along the roads; and</p> <p>8. Overall, the contractor should comply with IFC EHS Guidelines Community Health and Safety (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2Bcommunity%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES).</p>					<p>3 Satisfactory</p> <p>4 Partially Satisfactory</p> <p>5 Satisfactory</p> <p>6 Partially Satisfactory</p> <p>7 Partially Satisfactory</p> <p>8 Partially Satisfactory</p>
Temporary air and noise pollution from machine operation,	1. Consult with PIU before locating workers camps/sheds, and construction plants; as far as possible located within reasonable distance of work site;	<p>a) Complaints from sensitive receptors;</p> <p>b) Drinking water and sanitation</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection 	Do	Do	1 Partially Satisfactory

<p>water pollution from storage and use of fuels, oils, solvents, and lubricants</p> <p>Unsanitary and poor living conditions for workers</p>	<p>2. Minimize removal of vegetation and disallow cutting of trees;</p> <p>3. Labor camps shall include accommodation for workers/laborers along with other basic amenities such as kitchen, potable water supply, sanitation (toilets, bathrooms, washing areas and water supply for such needs), first aid room as well as garbage collection and disposal facility.</p> <p>4. The roof height of the worker's and labor camp shall not be less than 3 m from floor level to the lowest part of the roof.</p> <p>5. The camps shall be floored with concrete, shall be kept clean, and with proper cross ventilation, and the space provided shall be on the basis of one sq.mt per head or as per the relevant regulation, whichever is higher.</p> <p>6. Fire and electrical safety precautions shall be adhered to.</p> <p>7. Cooking, sanitation and washing areas shall be provided separately.</p> <p>8. The Contractor shall maintain necessary living accommodation and ancillary facilities (including provision of clean fuel to prevent damage to forests and to prevent fuel wood cutting and burning by labor) in functional and hygienic manner.</p> <p>9. The site must be graded and rendered free from depressions</p>	<p>facilities for employees</p>	<p>of sites</p>			<p>2 Satisfactory</p> <p>3 Partially Satisfactory – the conditions of labour camp still have scope to improvement</p> <p>4 Partially Satisfactory</p> <p>5 Partially Satisfactory</p> <p>6 Partially Satisfactory</p> <p>7 Partially Satisfactory</p> <p>8 Satisfactory</p> <p>9 Satisfactory</p>
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	<p>such that water does not get stagnant anywhere.</p> <p>10. The entire boundary of the site should be fenced all around with barbed wire so as to prevent the trespassing of humans and animals.</p> <p>11. Provide water and sanitation facilities; water, meeting Indian drinking water standards shall be provided, in adequate quantities (supply of 60-80 lpcd); all water storage structures must be cleaned regularly and covered properly to avoid any contamination;</p> <p>12. Provide separate facilities for men and women; sanitary facilities shall be properly build and well maintained; toilet and bath facilities should be provided on basis of 1 per 15 or less persons;</p> <p>13. Train employees in the storage and handling of materials which can potentially cause soil contamination;</p> <p>14. Recover used oil and lubricants and reuse or remove from the site;</p> <p>15. Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>16. Remove all wreckage, rubbish, or temporary structures which are no longer required;</p> <p>17. Report in writing that the camp has been vacated and</p>					<p>10 Partially Satisfactory</p> <p>11 Satisfactory</p> <p>12 Partially Satisfactory</p> <p>13 Partially Satisfactory</p> <p>14 Satisfactory</p> <p>15 Satisfactory</p> <p>16 Satisfactory</p> <p>17 Satisfactory</p>
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	restored to pre-project conditions before acceptance of work.					
Risk of archaeological chance finds	<ol style="list-style-type: none"> 1. Create awareness among the workers and supervisors about the chance finds during excavation work; 2. Stop work immediately if any finds are suspected to allow further investigation; 3. Inform archaeological agencies promptly if a find is suspected, and take any action they require to ensure its removal or protection in site; and 4. Adjacent to important religious sites, undertake excavation and construction work in such a way that no structural damage is caused to the building. 	Records of chance finds	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p>
Unsatisfactory compliance to EMP	<ol style="list-style-type: none"> 1. Timely submission of monitoring reports including pictures. 	Availability and competency of appointed supervisor Monthly report	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	Partially Satisfactory –
Damage due to debris, spoils, excess construction materials	<ol style="list-style-type: none"> 1. Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; 2. All excavated roads shall be reinstated to original condition. 3. All disrupted utilities restored. 4. All affected structures rehabilitated/compensated. 	<ol style="list-style-type: none"> a) PMU/PMDC SC report in writing that (i) worksite is restored to original conditions; b) camp has been vacated and restored to pre-project conditions; c) all construction related structures not 	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p>

<p>5. The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up;</p> <p>6. All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and regressed using the guidelines set out in the revegetation specification that forms part of this document;</p> <p>7. The contractor must arrange the cancellation of all temporary services; and</p> <p>8. Request PMU/PMDSC to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.</p>	relevant to operation and maintenance (O&M) are removed; and					4 Satisfactory
	d) Worksite clean-up is satisfactory.					5 Satisfactory
						6 Satisfactory
						7 Satisfactory
						8 Satisfactory

Table 12: Summary of Environmental Monitoring Activities of the 24x7 Water supply system in Udipi Town – Package No. 02UDP01- Pre-Construction

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
Unsatisfactory compliance to EMP	1. Appoint Safeguards (Environmental, Health and Safety or EHS) Engineer to ensure EMP implementation	(i) mobilization of EHS engineer (ii) submission of SEMP prior to start of works	Contractor and PIU office	<ul style="list-style-type: none"> Checking of records visual inspection of sites 	1. Daily by construction supervisor- Resident Engineer	1. Construction supervisor - Mr. Sadanandh and Resident Engineer - Mr. Sandesh Alape Mr. Meghshyam	Satisfactory – MR Pradeep Shetty appointed as EHS person from contractor side 2 Satisfactory

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
	2. Submission of updated EMP/site-specific environmental management plan (SEMP) 3. Timely submission monthly of monitoring reports including documentary evidence on EMP implementation such as photographs	(iii) submission of monthly reports			2. Weekly / bi weekly by Construction Manager. 3. No Verification by Environment Specialist of PMDCSC and Asst Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis:	Hebbar	3 Satisfactory
Tree cutting	1. Further minimize removal of trees, if possible, by adopting to site condition and with appropriate layout design (Overhead tank or OHT sites) and alignments (pipelines) 2. For any tree cutting that may be required, obtain prior permission from Forest Department 3. Plant and maintain 10 trees for	(i) Layout plan of OHTs (ii) tree cutting / pruning permission (iii) Compensatory tree plantation as part of the project	Contractor and PIU office and site	Checking of records			1 Satisfactory 2 Satisfactory 3 Satisfactory

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
	each tree that is removed						
Telephone lines, electric poles and wires, water lines within proposed project area	<p>1. Identify and include locations and operators of these utilities in the detailed design documents, during design validation phase and preconstruction phase, to prevent unnecessary disruption of services during construction phase</p> <p>2. Conduct detailed site surveys with the construction drawings and discuss with the respective agencies before ground clearance; and</p> <p>3. Require construction contractors to prepare a contingency plan to include actions to be done in case of unintentional interruption of services.</p>	List of affected utilities and operators; (ii) Bid document to include requirement for a contingency plan for service interruptions (example provision of water if disruption is more than 24 hours), spoil management plan, and traffic management plan	Contractor and PIU office	<ul style="list-style-type: none"> Checking of records 			<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p>
Ground disturbance can uncover	1. Create awareness among the workers and	Chance Finds Protocol	Contractor and PIU office	Checking of records			1 Satisfactory

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
and damage archaeological and historical remains	<p>supervisors about the chance finds during excavation work</p> <p>2. Stop work immediately if any finds are suspected to allow further investigation</p> <p>3. Inform archaeological agencies promptly if a find is suspected, and take any action they require to ensure its removal or protection in situ.</p>						<p>2 Satisfactory</p> <p>3 Satisfactory</p>
Disruption to traffic flow and sensitive receptors	<p>1. Prioritize areas within or nearest possible vacant space in the project location;</p> <p>2. 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;</p> <p>Do not consider residential areas;</p> <p>Take extreme care in selecting sites to</p>	<p>(i) List of selected sites for construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas.</p> <p>(ii) Written consent of landowner/s (not lessee/s) for reuse of excess spoils to agricultural land</p>	Contractor and PIU office	Checking of records			<p>1 Satisfactory</p> <p>2 Satisfactory</p>

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
	<p>avoid direct disposal to water body which will inconvenience the community.</p> <p>(v) 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.</p>						
Extraction of materials can disrupt natural land contours and	1. Use quarry sites and sources permitted by Mines and Geology Department only	(i) List of approved quarry sites and sources of materials;	Contractor and PIU office	Checking of records			1 Satisfactory 2 Satisfactory

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.	2. No new quarry sites shall be developed for the subproject Verify suitability of all material sources and obtain approval of implementing agency 3. Submit on a monthly basis documentation of sources of materials to PMDCSC.	(ii) Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.					3 Satisfactory
Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works	1. Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works. 2. 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	Incorporated in final design and communicated to contractors.	Contractor and PIU office	Checking of records			1 Satisfactory 2 Satisfactory
Use of approved construction practices to minimize	1. Method Statement should be in a Table format with appended site	Review of method statement and implementation of work	Contractor and PIU office	Checking of records			1 Satisfactory – Site specific EMP is already prepared and

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
construction impacts	layout map and cover the following: (i) Work description (ii) Number of workers (skilled and unskilled) (iii) Details of plant, equipment and machinery, vehicles (iv) Work duration (total, and activity-wise, for example for pipe laying, from excavation to road resurfacing/testing) (v) PPE (helmet, gloves, boots, etc.) details for each type of work (vi) Details of materials at each site (type and quantity) (vii) Risks/hazards associated with the work (for example, Trench excavation will have risks such as trench collapse, persons/vehicles falling into trench, structural risk to nearby buildings, damage to buildings, infrastructure etc.) (viii) Construction waste/debris						submitted by contractor.

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
	<p>generated (details and quantity)</p> <p>(ix) Detail the sequence of work process (step-by-step) including specific details of each work</p> <p>(x) Contractor's supervision and management arrangements for the work</p> <p>(xi) Emergency: Designate (i) responsible person on site, and (ii) first aider</p> <p>(xii) Typical site layout plan including pipe trenching, placement of material, excavated earth, barricading etc.</p> <p>(xiii) The pipelines are to be laid along the roads. The excavated soil, placed along the trench may get disturbed due to wind, rain water and the movement of workers, vehicles and pedestrians, and spill onto road way –</p>						

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
	disturbing road users, creating dust, road safety issues, etc., and also into nearby open drains.						

Table 13: Summary of Environmental Monitoring Activities of the 24x7 Water supply system in Udipi Town – Package No. 02UDP01- Construction

Impact	Mitigation Measures	Parameters Monitored	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of Compliance
Impacts on the environment, workers, and community due to improper implementation of EMP	<p>1. Project manager and all key workers will be required to undergo EMP implementation including spoils management, standard operating procedures (SOP) for construction works; occupational health and safety (OHS), core labor laws, applicable environmental laws, etc.; and</p> <p>2. Appointment of Environmental, Health and Safety (EHS) Engineer by contractor prior to start of work.</p>	<p>a) Certificate of Completion (Safeguards Compliance Orientation)</p> <p>b) Posting of Certification at worksites</p> <p>c) Posting of EMP at worksites.</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>1. Daily by construction supervisor- Resident Engineer</p> <p>2. Weekly / bi weekly by Construction Manager.</p> <p>3. No Verification by Environment Specialist of PMDCSC and Asst. Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis:</p>	<p>1. Construction supervisor - Mr. Zahed Faheem Shaikh and Resident Engineer - Mr. Aneesh Suvarna. & Mr. Meghshyam Hebbar</p> <p>2. Rajendra Kelghade</p>	<p>Satisfactory</p> <p>2 Satisfactory - EHS specialist mobilized by contractor</p>

<p>Emissions from construction vehicles, equipment, and machinery used for installation of pipelines resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulphur oxides, particulate matter, nitrous oxides, and hydrocarbons.</p>	<p>1. Consult with PMU/PMDCSC on the designated areas for stockpiling of clay, soils, gravel, and other construction materials; 2. Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather; 3. Use tarpaulins to cover sand and other loose material when transported by trucks; and 4. Clean wheels and undercarriage of vehicles prior to leaving construction site; and 5. Fit all heavy equipment and machinery with air pollution control devices which are operating correctly.</p>	<p>a) Location of stockpiles; b) Complaints from sensitive receptors; c) Heavy equipment and machinery with air pollution control devices; d) Certification that vehicles are compliant with Air Act</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Partially Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p>
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Mobilization of settled silt materials, and chemical contamination from fuels and lubricants during installation of pipelines can contaminate nearby surface water quality.	<ol style="list-style-type: none"> 1. Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; 2. Laying of pipelines during dry season and closing of all trenches before rainy season and avoid any chances of collecting the water in the trenches or pumping; 3. Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, dispose in municipal landfill (Sample Spoils Management Plan in Appendix 10 of IEE); 4. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; 5. Provide temporary bunds for stockpiles and materials; 6. Place storage areas for fuels and lubricants away from any drainage leading to water bodies. Storage structure should consider 110% capacity bund; and 7. Dispose any wastes generated by construction activities in landfill or reuse in beneficial purposes 8. Conduct surface quality inspection & Monitoring 	<ol style="list-style-type: none"> a) Areas for stockpiles, storage of fuels and lubricants and waste materials; b) Number of silt traps installed along trenches leading to water bodies; c) Records of surface water quality inspection; d) Effectiveness of water management measures; e) No visible degradation to nearby drainages, nallahs or water bodies due to civil work 	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Partially Satisfactory</p> <p>6 Partially Satisfactory</p> <p>7 Satisfactory</p>
Increase in noise level due to earth-moving and excavation	<ol style="list-style-type: none"> 1. Plan activities in consultation with PMU/PMDCSC so that activities with the greatest potential to generate noise (road cutting and piling activity) are 	<ol style="list-style-type: none"> a) Complaints from sensitive receptors; b) Use of silencers in noise- 	<ul style="list-style-type: none"> • Checking of records • visual inspection 	Do	Do	1 Satisfactory

equipment, and the transportation of equipment, materials, and people	<p>conducted during periods of the day which will result in least disturbance;</p> <p>2. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach;</p> <p>3. 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</p> <p>4. Maintain maximum sound levels not exceeding 80 decibels (dB) when measured at a distance of 10 m or more from the vehicle/s.</p> <p>5. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach;</p>	<p>producing equipment and sound barriers; and</p> <p>c) Equivalent day and night time noise levels (Appendix 3 of IEE)</p>	of sites			<p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p>
Impacts due to excess excavated earth, excess construction and demolition materials and solid waste such as removed concrete, wood, packaging materials, empty	<p>1. Prepare and implement spoils management plan</p> <p>2. Avoid stockpiling of excess excavated soils;</p> <p>3. Coordinate with Udipi CMC for beneficial uses of excess excavated soils or immediately dispose to designated areas;</p> <p>4. Recover used oil and lubricants and reuse or remove from the sites;</p> <p>5. Manage solid waste according to the following</p>	<p>a) Complaints from sensitive receptors;</p> <p>b) Worksite clear of hazardous wastes such as oil/fuel; and</p> <p>c) Worksite clear of any excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p>

<p>containers, spoils, oils, lubricants, and other similar items.</p>	<p>preference hierarchy: reuse, recycling and disposal to designated areas; 6. Remove all wreckage, rubbish, or temporary structures which are no longer required; and 7. Request PMU/PMDCSC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.</p>	<p>materials, empty containers</p>				
<p>Disruption of service and damage to existing infrastructure at specified project location</p>	<p>1. Obtain from PIU/PMDCSC the list of affected utilities and operators if any; 2. Prepare a contingency plan to include actions to be done in case of unintentional interruption of service 3. The public should be given notice at least three days in advance and any accidental breaking should be rectified immediately</p>	<p>a. once when the service is disrupted b. once for the each area disrupted c. as and when required when the disruption is planned</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory 2 Satisfactory 3 Satisfactory</p>
<p>Traffic problems and conflicts near project locations and haul road</p>	<p>1. Plan pipeline work in consultation with the traffic police; prepare a Traffic Management Plan – a template is provided for reference at Appendix 7 of IEE. 2. Strictly follow the pipe laying method so that trench excavation, pipe laying, and refilling including compacting, at a stretch is completed in a minimum possible time; 3. Provide for immediate consolidation of backfilling material to desired compaction –</p>	<p>a) Traffic route during construction works including number of permanent signages, barricades and flagmen on worksite; b) Complaints from sensitive receptors; and c) Number of signages placed at project location.</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory 2 Satisfactory</p>

	<p>this will allow immediate road restoration and therefore will minimize disturbance to the traffic movement;</p> <p>4. Schedule transport and hauling activities during non-peak hours;</p> <p>5. No road shall be completely closed for traffic; in unavoidable circumstances of road closure (eg, NH service road closure at Shastri Circle for trenchless work), provide alternative route, and ensure that public is informed about such traffic diversions;</p> <p>6. Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites;</p> <p>7. Maintain safe pedestrian access at all times to the houses along the work site;</p> <p>8. Hard barricades should be mandatorily provided for work sites in residential and commercial areas, along with caution board.</p> <p>9. At all work sites public information/caution boards shall be provided – information shall inter-alia include: project name, cost and schedule; executing agency and contractor details; nature and schedule of work at that road/locality; traffic diversion details, if any; entry restriction information; competent official's</p>					<p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p> <p>6 Partially Satisfactory</p> <p>7 Satisfactory</p> <p>8 Satisfactory</p> <p>9 Satisfactory</p> <p>10 Satisfactory</p> <p>11 Satisfactory</p> <p>12 Satisfactory - Traffic management plan is</p>
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	name and contact for public complaints; 10. Keep the site free from all unnecessary obstructions; 11. Drive vehicles in a considerate manner 12. Prepare a Traffic Management Plan – a template is provided as an Appendix 7.					prepared and submitted to concern authority and all works are planned accordingly
Impede the access of residents and customers to nearby shops	1. Prepare and implement spoils management plan 2. Leave spaces for access between mounds of soil; 3. Provide walkways and metal sheets where required for people; 4. Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools; 5. Consult businesses and institutions regarding operating hours and factoring this in work schedules; and 6. Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	a) Complaints from sensitive receptors; b) Spoils management plan; and c) Number of walkways, signs, and metal sheets placed at project location	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	1 Satisfactory 2 Satisfactory 3 Satisfactory 4 Satisfactory 5 Satisfactory 6 Satisfactory
Disturbance to socio cultural resources (religious, educational, health care etc.), access	1. No material should be stocked close to these areas; material shall be brought to the site as and when required; 2. Conduct work manually with small group of workers and less noise; minimize use of equipment and vehicles;	a) Visual site observations b) Public complaints	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	1 Satisfactory 2 Satisfactory

<p>disruptions etc.,</p>	<p>3. Strictly follow the pipe laying method so that trench excavation, pipe laying, and refilling including compacting, at a stretch is completed in a minimum possible time; 4. No work should be conducted near the religious places during religious congregations; 5. Material transport to the site should be arranged considering school timings; material should be in place before school starts; 6. Notify concerned schools, hospitals etc., 2 weeks prior to the work; conduct a 30-minute awareness program on nature of work, likely disturbances and risks and construction work, mitigation measures in place, entry restrictions and dos and don'ts; and 7. Implement all measures suggested elsewhere in this report – dust and noise control, public safety, traffic management, strictly at the sites.</p>					<p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p> <p>6 Partially Satisfactory</p> <p>7 Partially Satisfactory</p>
<p>Generation of contractual employment and increase in local revenue</p>	<p>1. Employ local labor force to the maximum extent, if manpower is available; and 2. Comply with labor laws</p>	<p>a) Employment records; b) Records of sources of materials; and c) Compliance to core labor laws (See Appendix 2 of IEE)</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory</p> <p>2 Satisfactory - Labour license procured and following all stipulated conditions</p>

Occupational hazards which can arise during work	<p>1. Comply with all national, state and local core labor laws (See Appendix 2 of IEE);</p> <p>2. Develop and implement site-specific health and safety (H&S) plan which will include measures such as:</p> <p>(a) excluding public from the site;</p> <p>(b) ensuring all workers are provided with and use Personal Protective Equipment;</p> <p>(c) H&S Training for all site personnel;</p> <p>(d) documented procedures to be followed for all site activities; and</p> <p>(e) documentation of work-related accidents;</p> <p>3. All trenches in sandy and mixed sandy soils irrespective of depth shall be protected with safety shoring / strutting to avoid safety risks to workers, public and nearby buildings/structures</p> <p>4. Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;</p> <p>5. Provide medical insurance coverage for workers;</p> <p>6. Secure all installations from unauthorized intrusion and accident risks;</p> <p>7. Provide supplies of potable drinking water;</p> <p>8. Provide clean eating areas where workers are not exposed to hazardous or noxious substances</p>	<p>a) Site-specific OHS Plan;</p> <p>b) Equipped first-aid stations;</p> <p>c) Medical insurance coverage for workers;</p> <p>d) Number of accidents;</p> <p>e) Supplies of potable drinking water;</p> <p>f) Clean eating areas where workers are not exposed to hazardous or noxious substances;</p> <p>g) record of H&S orientation trainings</p> <p>h) personal protective equipment;</p> <p>i) % of moving equipment outfitted with audible back-up alarms;</p> <p>j) permanent sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.</p> <p>k) Compliance to core labor laws</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory - Labour license procured and following all stipulated conditions</p> <p>2 Satisfactory – EHS manual already developed and followed during construction</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Partially Satisfactory</p> <p>6 Satisfactory</p> <p>7 Partially Satisfactory</p> <p>8 Partially Satisfactory</p>
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	<p>9. 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 workers;</p> <p>10. 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;</p> <p>11. Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;</p> <p>12. Ensure moving equipment is outfitted with audible back-up alarms;</p> <p>13. 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;</p> <p>14. Disallow worker exposure to noise level greater than 85 dB for duration of more than 8 hours per day without hearing protection. The use of hearing</p>					<p>9 Satisfactory</p> <p>10 Partially Satisfactory</p> <p>11 Satisfactory</p> <p>12 Satisfactory</p> <p>13 Satisfactory</p> <p>14 Satisfactory – Noise monitoring results shows, noise level less than 85 dBA</p> <p>15 Partially Satisfactory</p>
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	<p>protection shall be enforced actively; and 15. Overall, the contractor should comply with International Finance Corporation (IFC) Environmental, Health and Safety (EHS) Guidelines on occupational health and safety. (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2Boccupational%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES)</p>					
<p>Traffic accidents and vehicle collision with pedestrians during material and waste transportation</p>	<p>1. Provide hard barricading for all deep excavations that may require especially for pipe lines; identify buildings at risk prior to start of excavation work and take necessary precautions for safe conduct of work 2. Plan material and waste routes to avoid times of peak-pedestrian activities; 3. Liaise with Udupi CMC in identifying risk areas on route cards/maps; 4. Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure; 5. Provide road signs and flag persons to warn of dangerous conditions, for all work sites along the roads; and 6. Overall, the contractor should comply with IFC EHS Guidelines Community Health</p>	<p>a) Traffic Management Plan; and b) Complaints from sensitive receptors</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory Traffic management is already submitted and its being implemented in daily construction 2 Satisfactory 3 Partially Satisfactory – 4 Partially Satisfactory 5 Satisfactory</p>

	and Safety (this can be downloaded from http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2Bcommunity%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES).					6 Partially Satisfactory
Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants Unsanitary and poor living conditions for workers	<ol style="list-style-type: none"> 1. Consult with PIU before locating workers camps/sheds, and construction plants; as far as possible located within reasonable distance of work site; 2. Minimize removal of vegetation and disallow cutting of trees; 3. Labor camps shall include accommodation for workers/laborers along with other basic amenities such as kitchen, potable water supply, sanitation (toilets, bathrooms, washing areas and water supply for such needs), first aid room as well as garbage collection and disposal facility. 4. The roof height of the worker's and labor camp shall not be less than 3 m from floor level to the lowest part of the roof. 5. The camps shall be floored with concrete, shall be kept clean, and with proper cross ventilation, and the space provided shall be on the basis of one sq.mt per head or as per the relevant regulation, whichever is higher. 6. Fire and electrical safety precautions shall be adhered to. 	<ol style="list-style-type: none"> c) Complaints from sensitive receptors; d) Drinking water and sanitation facilities for employees 	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p> <p>6 Satisfactory</p>

	<p>7. Cooking, sanitation and washing areas shall be provided separately.</p> <p>8. The Contractor shall maintain necessary living accommodation and ancillary facilities (including provision of clean fuel to prevent damage to forests and to prevent fuel wood cutting and burning by labor) in functional and hygienic manner.</p> <p>9. The site must be graded and rendered free from depressions such that water does not get stagnant anywhere.</p> <p>10. The entire boundary of the site should be fenced all around with barbed wire so as to prevent the trespassing of humans and animals.</p> <p>11. Provide water and sanitation facilities; water, meeting Indian drinking water standards shall be provided, in adequate quantities (supply of 60-80 lpcd); all water storage structures must be cleaned regularly and covered properly to avoid any contamination;</p> <p>12. Provide separate facilities for men and women; sanitary facilities shall be properly build and well maintained; toilet and bath facilities should be provided on basis of 1 per 15 or less persons;</p> <p>13. Train employees in the storage and handling of materials which can potentially cause soil contamination;</p>					<p>7 Satisfactory</p> <p>8 Satisfactory</p> <p>9 Satisfactory</p> <p>10 Satisfactory</p> <p>11 Satisfactory</p> <p>12 Satisfactory</p> <p>13 Satisfactory</p>
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	<p>14. Recover used oil and lubricants and reuse or remove from the site;</p> <p>15. Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>16. Remove all wreckage, rubbish, or temporary structures which are no longer required;</p> <p>17. Report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.</p>					<p>14 Satisfactory</p> <p>15 Satisfactory</p> <p>16 Satisfactory</p> <p>17 Satisfactory</p>
Risk of archaeological chance finds	<p>1. Create awareness among the workers and supervisors about the chance finds during excavation work;</p> <p>2. Stop work immediately if any finds are suspected to allow further investigation;</p> <p>3. Inform archaeological agencies promptly if a find is suspected, and take any action they require to ensure its removal or protection in site; and</p> <p>4. Adjacent to important religious sites, undertake excavation and construction work in such a way that no structural damage is caused to the building.</p>	Records of chance finds	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p>
Unsatisfactory compliance to EMP	<p>1. Appointment of EHS engineer to ensure EMP implementation</p> <p>2. Timely submission of monitoring reports including pictures.</p>	<ul style="list-style-type: none"> • Availability and competency of appointed supervisor • Monthly report 	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p>
Damage due to debris,	1. Remove all spoils wreckage, rubbish, or temporary	PMU/PMDCSC report in writing that	<ul style="list-style-type: none"> • Checking of 	Do	Do	1 Satisfactory

spoils, excess construction materials	<p>structures (such as buildings, shelters, and latrines) which are no longer required;</p> <p>2. All excavated roads shall be reinstated to original condition.</p> <p>3. All disrupted utilities restored.</p> <p>4. All affected structures rehabilitated/compensated.</p> <p>5. The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up;</p> <p>6. All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and regressed using the guidelines set out in the revegetation specification that forms part of this document;</p> <p>7. The contractor must arrange the cancellation of all temporary services; and</p> <p>8. Request PMU/PMDCSC to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.</p>	<p>(i) worksite is restored to original conditions;</p> <p>(ii) camp has been vacated and restored to pre-project conditions;</p> <p>a) (iii) all construction related structures not relevant to operation and maintenance (O&M) are removed; and</p> <p>(iv) Worksite clean-up is satisfactory.</p>	<p>records</p> <ul style="list-style-type: none"> • visual inspection of sites 			2	Satisfactory
						3	Satisfactory
						4	Satisfactory
						5	Satisfactory
						6	Satisfactory
						7	Satisfactory
						8	Satisfactory

Table 14: Summary of Environmental Monitoring Activities of the 24x7 Water supply system in Puttur Town – Package No. 02PTR01- Pre-Construction

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of compliance
Unsatisfactory compliance to EMP	<p>1. Appoint Safeguards (Environmental, Health and Safety or EHS) Engineer to ensure EMP implementation</p> <p>2. Submission of updated EMP/site-specific environmental management plan (SEMP)</p> <p>3. Timely submission monthly of monitoring reports including documentary evidence on EMP implementation such as photographs</p>	<p>(i) mobilization of EHS engineer</p> <p>(ii) submission of SEMP prior to start of works</p> <p>(iii) submission of monthly reports</p>	Contractor and PIU office	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>1. Daily by construction supervisor- Resident Engineer</p> <p>2. Weekly / biweekly by Construction Manager.</p> <p>3. No Verification by Environment Specialist of PMDCSC and Asst. Executive Engineer (Environment) KIUWMIP- KUIDFC On monthly basis:</p>	<p>1. Construction supervisor - Mr. Sadanandh and Resident Engineer - Mr. Sandesh Alape</p> <p>2. Mr. Rajendra Kalghade</p>	<p>1 Satisfactory EHS officer Mr Amruth mobilized onsite.</p> <p>2 Satisfactory – SEMP submitted to PIU</p> <p>3 Satisfactory</p>
Tree cutting	<p>1. Further minimize removal of trees, if possible, by adopting to site condition and with appropriate layout design (Overhead tank or OHT sites) and alignments (pipelines)</p>	<p>(i) Layout plan of OHTs</p> <p>(ii) tree cutting / pruning with permission</p> <p>(iii) Compensatory tree plantation as part of the project</p>	Contractor and PIU office and site	Checking of records			<p>1 Satisfactory</p> <p>2 Satisfactory</p>

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of compliance
	unintentional interruption of services.						
Ground disturbance can uncover and damage archaeological and historical remains	<ol style="list-style-type: none"> 1. Create awareness among the workers and supervisors about the chance finds during excavation work 2. Stop work immediately if any finds are suspected to allow further investigation 3. Inform archaeological agencies promptly if a find is suspected, and take any action they require to ensure its removal or protection in situ. 	Chance Finds Protocol	Contractor and PIU office	Checking of records			<p>1 Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p>
Disruption to traffic flow and sensitive receptors	<ol style="list-style-type: none"> 1. Prioritize areas within or nearest possible vacant space in the project location; 2. If it is deemed necessary to locate elsewhere, consider sites that will not promote instability and result in destruction of property, vegetation, irrigation, and 	<ol style="list-style-type: none"> (i) List of selected sites for construction work camps, stockpile areas, storage areas, and disposal areas. (ii) Written consent of landowner/s (not lessee/s) for reuse of excess spoils to agricultural land 	Contractor and PIU office	Checking of records			<p>1 Satisfactory</p> <p>2 Satisfactory</p>

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of compliance
	<p>drinking water supply systems;</p> <p>3. Do not consider residential areas</p> <p>4. Take extreme care in selecting sites to avoid direct disposal to water body which will inconvenience the community.</p> <p>5. 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</p>						<p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p>

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of compliance
	settlements, ponds/lakes or other water bodies.						
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.	<p>1. Use quarry sites and sources permitted by Mines and Geology Department only</p> <p>2. No new quarry sites shall be developed for the subproject</p> <p>Verify suitability of all material sources and obtain approval of implementing agency</p> <p>3. Submit on a monthly basis documentation of sources of materials to PMDCSC.</p>	<p>(i) List of approved quarry sites and sources of materials;</p> <p>(ii) Bid document to include requirement for verification of suitability of sources and permit for additional quarry sites if necessary.</p>	Contractor and PIU office	Checking of records			Satisfactory
							Satisfactory
							Satisfactory
Failure to obtain necessary consents, permits, NOCs, etc. can result to design revisions and/or stoppage of works	<p>1. Obtain all necessary consents, permits, clearance, NOCs, etc. prior to start of civil works.</p> <p>2. 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</p>	Incorporated in final design and communicated to contractors.	Contractor and PIU office	Checking of records			Satisfactory
							Satisfactory

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of compliance
	provisions if necessary						
Use of approved construction practices to minimize construction impacts	1. Method Statement should be in a Table format with appended site layout map and cover the following: (i) Work description (ii) Number of workers (skilled and unskilled) (iii) Details of plant, equipment and machinery, vehicles (iv) Work duration (total, and activity-wise, for example for pipe laying, from excavation to road resurfacing/testing) (v) PPE (helmet, gloves, boots, etc.) details for each type of work (vi) Details of materials at each site (type and quantity) (vii) Risks/hazards associated with the work (for example, Trench excavation will have risks such as trench collapse, persons/vehicles falling into trench, structural risk to nearby buildings,	Review of method statement and implementation of work	Contractor and PIU office	Checking of records			Satisfactory – The SEMP with detailed work plan is already submitted to PIU

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of compliance
	<p>damage to buildings, infrastructure etc.)</p> <p>(viii) Construction waste/debris generated (details and quantity)</p> <p>(ix) Detail the sequence of work process (step-by-step) including specific details of each work</p> <p>(x) Contractor's supervision and management arrangements for the work</p> <p>(xi) Emergency: Designate (i) responsible person on site, and (ii) first aider</p> <p>(xii) Typical site layout plan including pipe trenching, placement of material, excavated earth, barricading etc.</p> <p>(xiii) The pipelines are to be laid along the roads. The excavated soil, placed along the trench may get disturbed due to wind, rain water and the movement of</p>						

Impact	Mitigation Measures	Parameters monitored	Location	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Status of compliance
	workers, vehicles and pedestrians, and spill onto road way – disturbing road users, creating dust, road safety issues, etc., and also into nearby open drains.						

Table 15: Summary of Environmental Monitoring Activities of the 24x7 Water supply system in Puttur Town – Package No. 02PTR01- Construction

Impact	Mitigation Measures	Parameters Monitored	Method of monitoring	Frequency of Monitoring	Name of person who conducted monitoring	Compliance status
Impacts on the environment, workers, and community due to improper implementation of EMP	<p>1. Project manager and all key workers will be required to undergo EMP implementation including spoils management, standard operating procedures (SOP) for construction works; occupational health and safety (OHS), core labor laws, applicable environmental laws, etc.; and</p> <p>2. Appointment of Environmental, Health and Safety (EHS) Engineer by contractor prior to start of work.</p>	<p>a) Certificate of Completion (Safeguards Compliance Orientation)</p> <p>b) Posting of Certification of Completion at worksites</p> <p>c) Posting of EMP at worksites.</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>1. Daily construction supervisor- Resident Engineer</p> <p>2. Weekly / bi weekly by Construction Manager.</p> <p>3. No Verification by Environment Specialist of PMDCSC and Asst . Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis:</p>	<p>1. Construction supervisor - Mr. Prakash B and Resident Engineer - Mr. Sandesh Alape</p> <p>2. Mr.Rajendra Kalghade</p>	<p>1 Complied</p> <p>2 Satisfactory-EHS Engineer appointed</p>

Emissions from construction vehicles, equipment, and machinery used for installation of pipelines resulting to dusts and increase in concentration of vehicle-related pollutants such as carbon monoxide, sulphur oxides, particulate matter, nitrous oxides, and hydrocarbons	<ol style="list-style-type: none"> 1. Consult with PMU/PMDSC on the designated areas for stockpiling of clay, soils, gravel, and other construction materials; 2. Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather; 3. Use tarpaulins to cover sand and other loose material when transported by trucks; and 4. Clean wheels and undercarriage of vehicles prior to leaving construction site; and 5. Fit all heavy equipment and machinery with air pollution control devices which are operating correctly. 	<ol style="list-style-type: none"> a) Location of stockpiles; b) Complaints from sensitive receptors; c) Heavy equipment and machinery with air pollution control devices; d) Certification that vehicles are compliant with Air Act 	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<ol style="list-style-type: none"> 1. Satisfactory 2. Partially Satisfactory 3. Partially Satisfactory 4. Partially Satisfactory 5. Satisfactory
Mobilization of settled silt materials, and chemical contamination from fuels and lubricants during installation of pipelines can contaminate nearby	<ol style="list-style-type: none"> 1. Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; 2. Laying of pipelines during dry season and closing of all trenches before rainy season and avoid any chances of collecting the water in the trenches or pumping; 3. Prioritize re-use of excess spoils and materials in the construction works. If spoils will 	<ol style="list-style-type: none"> a) Areas for stockpiles, storage of fuels and lubricants and waste materials; b) Number of silt traps installed along trenches leading to water bodies; c) Records of surface water quality inspection; 	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<ol style="list-style-type: none"> 1. Partially Satisfactory - Spoil management plan is submitted during preconstruction stage. Updation is to be done for construction stage 2. Satisfactory

surface water quality.	<p>be disposed, dispose in municipal landfill (Sample Spoils Management Plan in Appendix 10 of IEE);</p> <p>4. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;</p> <p>5. Provide temporary bunds for stockpiles and materials;</p> <p>6. Place storage areas for fuels and lubricants away from any drainage leading to water bodies. Storage structure should consider 110% capacity bund; and</p> <p>7. Dispose any wastes generated by construction activities in landfill or reuse in beneficial purposes</p> <p>8. Conduct surface quality inspection & Monitoring</p>	<p>d) Effectiveness of water management measures;</p> <p>e) No visible degradation to nearby drainages, nallahs or water bodies due to civil work</p>				<p>3. Satisfactory</p> <p>4. Satisfactory</p> <p>5. Satisfactory</p> <p>6. Satisfactory</p> <p>7. Satisfactory</p> <p>8. Not Satisfactory</p>
Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people	<p>1. Plan activities in consultation with PMU/PMDSC so that activities with the greatest potential to generate noise (road cutting and piling activity) are conducted during periods of the day which will result in least disturbance;</p> <p>2. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach;</p> <p>3. Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise-reducing mufflers, and portable street barriers the sound impact</p>	<p>d) Complaints from sensitive receptors;</p> <p>e) Use of silencers in noise-producing equipment and sound barriers; and</p> <p>f) Equivalent day and night time noise levels (Appendix 4 of IEE)</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1. Satisfactory</p> <p>2. Satisfactory</p> <p>3. Satisfactory</p>

	to surrounding sensitive receptor; and 4. Maintain maximum sound levels not exceeding 80 decibels (dB) when measured at a distance of 10 m or more from the vehicle/s.					4. Satisfactory
Impacts due to excess excavated earth, excess construction and demolition materials and solid waste such as removed concrete, wood, packaging materials, empty containers, spoils, oils, lubricants, and other similar items.	1. Prepare and implement spoils management plan 2. Avoid stockpiling of excess excavated soils; 3. Coordinate with Puttur CMC for beneficial uses of excess excavated soils or 4. immediately dispose to designated areas; 5. Recover used oil and lubricants and reuse or remove from the sites; 6. Manage solid waste according to the following preference hierarchy: 7. reuse, recycling and disposal to designated areas; 8. Remove all wreckage, rubbish, or temporary structures which are no longer required; and 9. Request PMU/PMDSC to report in writing that the necessary environmental restoration work has been adequately performed before 10. acceptance of work.	a) Complaints from sensitive receptors; b) Worksite clear of hazardous wastes such as oil/fuel; and c) Worksite clear of any excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging materials, empty containers	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	1. Satisfactory 2. Satisfactory 3. Satisfactory 4. Satisfactory 5. Satisfactory 6. Satisfactory 7. Satisfactory 8. Satisfactory 9. Satisfactory 10 Satisfactory
Disruption of service and damage to existing infrastructure at specified	1. Obtain from PIU/PMDSC the list of affected utilities and operators if any; 2. Prepare a contingency plan to include actions to be done in case of	a. once when the service is disrupted b. once for the each area disrupted	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	1. Satisfactory 2. Partially Satisfactory

<p>project location</p>	<p>unintentional interruption of service 3. The public should be given notice at least three days in advance and any accidental breaking should be rectified immediately</p>	<p>c. as and when required when the disruption is planned</p>				<p>3. Satisfactory</p>
<p>Traffic problems and conflicts near project locations and haul road</p>	<p>Traffic Management Plan (TMP) should be a part of the Construction Management Plan 1. Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites ; 2. Schedule transport and hauling activities during non-peak hours; 3. Locate entry and exit points in areas where there is low potential for traffic congestion; 4. Coordinate with Traffic Police for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; 5. Maintain safe pedestrian access at all times to the houses along the work site; 6. Hard barricades should be mandatorily provided for work sites in residential and commercial areas, along with caution board. 7. At all work sites public information/caution boards shall be provided – information shall inter-alia include: project name, cost and schedule; executing</p>	<p>a) Traffic route during construction works including number of permanent signages, barricades and flagmen on worksite; b) Complaints from sensitive receptors; and c) Number of signages placed at project location.</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Partially Satisfactory - Traffic management plan is prepared but updation is required 2 Satisfactory 3 Satisfactory 4 Satisfactory 5 Satisfactory 6 Satisfactory 7 Satisfactory</p>

	<p>agency and contractor details; nature and schedule of work at that road/locality; traffic diversion details, if any; entry restriction information; competent official's name and contact for public complaints;</p> <p>8. Keep the site free from all unnecessary obstructions;</p> <p>9. Drive vehicles in a considerate manner</p> <p>10. Prepare a Traffic Management Plan – a template is provided as an Appendix 12 of IEE.</p>					<p>8 Satisfactory</p> <p>9 Satisfactory</p> <p>10 Satisfactory</p>
<p>Impede the access of residents and customers to nearby shops</p>	<p>1. Prepare and implement spoils management plan</p> <p>2. Leave spaces for access between mounds of soil;</p> <p>3. Provide walkways and metal sheets where required for people;</p> <p>4. Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools;</p> <p>5. Consult businesses and institutions regarding operating hours and factoring this in work schedules; and</p> <p>6. Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.</p>	<p>a) Complaints from sensitive receptors;</p> <p>b) Spoils management plan; and</p> <p>c) Number of walkways, signs, and metal sheets placed at project location</p>	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Do	Do	<p>1 Partially Satisfactory</p> <p>2 Satisfactory</p> <p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p> <p>6 Satisfactory</p>
<p>Disturbance to socio cultural resources (religious,</p>	<p>1. No material should be stocked close to these areas; material shall be brought to the site as and when required;</p>	<p>a) Visual site observations</p> <p>b) Public complaints</p>	<ul style="list-style-type: none"> • Checking of records • Visual 	Do	Do	<p>1 Satisfactory</p>

<p>educational, health care etc.), access disruptions etc.,</p>	<p>2. Conduct work manually with small group of workers and less noise; minimize use of equipment and vehicles; 3. Strictly follow the pipe laying method presented in Table 10 so that trench excavation, pipe laying, and refilling including compacting, at a stretch is completed in a minimum possible time; 4. No work should be conducted near the religious places during religious congregations; 5. Material transport to the site should be arranged considering school timings; material should be in place before school starts; 6. Notify concerned schools, hospitals etc., 2 weeks prior to the work; conduct a 30-minute awareness program on nature of work, likely disturbances and risks and construction work, mitigation measures in place, entry restrictions and dos and don'ts; and 7. Implement all measures suggested elsewhere in this report – dust and noise control, public safety, traffic management, strictly at the sites.</p>		<p>1 inspection of sites</p>			<p>2 Satisfactory 3 Satisfactory 4 Satisfactory 5 Satisfactory 6 Satisfactory 7 Satisfactory</p>
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<p>Generation of contractual employment and increase in local revenue</p>	<p>1. Employ local labor force to the maximum extent, if manpower is available; and 2. Comply with labor laws</p>	<p>a) Employment records; b) Records of sources of materials; and c) Compliance to core labor laws (See Appendix 2 of IEE)</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory 2 Satisfactory – Labour license is already precured and all conditions of license are followed</p>
<p>Occupational hazards which can arise during work</p>	<p>1. Comply with all national, state and local core labor laws (See Appendix 2 of IEE); 2. Develop and implement site-specific health and safety (H&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; (c) H&S Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; 3. All trenches in sandy and mixed sandy soils irrespective of depth shall be protected with safety shoring / strutting to avoid safety risks to workers, public and nearby buildings/structures 4. Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site; 5. Provide medical insurance coverage for workers;</p>	<p>a) Site-specific OHS Plan; b) Equipped first-aid stations; c) Medical insurance coverage for workers; d) Number of accidents; e) Supplies of potable drinking water; f) Clean eating areas where workers are not exposed to hazardous or noxious substances; g) record of H&S orientation trainings h) personal protective equipment; i) % of moving equipment outfitted with audible back-up alarms;</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	<p>Do</p>	<p>Do</p>	<p>1 Satisfactory – Labour license is already precured and all conditions of license are followed 2 Partially Satisfactory - Site specific EHS plan is already prepared as per existing site conditions and submitted 3 Satisfactory 4 Satisfactory 5 Partially Satisfactory</p>

	<p>6. Secure all installations from unauthorized intrusion and accident risks;</p> <p>7. Provide supplies of potable drinking water;</p> <p>8. Provide clean eating areas where workers are not exposed to hazardous or noxious substances</p> <p>9. 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 workers;</p> <p>10. 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;</p> <p>11. Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;</p> <p>12. Ensure moving equipment is outfitted with audible back-up alarms;</p> <p>13. 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</p>	<p>j) permanent sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal.</p> <p>k) Compliance to core labor laws (Appendix 2 of IEE)</p>				<p>6 Satisfactory</p> <p>7 Satisfactory</p> <p>8 Satisfactory</p> <p>9 Satisfactory</p> <p>10 Satisfactory</p> <p>11 Satisfactory</p> <p>12 Satisfactory</p> <p>13 Satisfactory</p>
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	<p>understood by workers, visitors, and the general public as appropriate;</p> <p>14. Disallow worker exposure to noise level greater than 85 dB for duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively;</p>					14 Satisfactory - test results of noise monitoring shown noise levels are below 85 dBA
<p>Traffic accidents and vehicle collision with pedestrians during material and waste transportation</p>	<p>1. Provide hard barricading for all deep excavations that may require especially for pipe lines; identify buildings at risk prior to start of excavation work and take necessary precautions for safe conduct of work</p> <p>2. Plan material and waste routes to avoid times of peak-pedestrian activities;</p> <p>3. Liaise with Puttur CMC in identifying risk areas on route cards/maps;</p> <p>4. Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure;</p> <p>5. Provide road signs and flag persons to warn of dangerous conditions, for all work sites along the roads;</p>	<p>a) Traffic Management Plan; and</p> <p>b) Complaints from sensitive receptors</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Partially Satisfactory</p> <p>3 Partially Satisfactory</p> <p>4 Partially Satisfactory</p> <p>5 Satisfactory</p>
<p>Temporary air and noise pollution from machine operation, water pollution from</p>	<p>1. Consult with PIU before locating workers camps/sheds, and construction plants; as far as possible located within reasonable distance of work site;</p>	<p>a) Complaints from sensitive receptors;</p> <p>b) Drinking water and sanitation facilities for employees</p>	<ul style="list-style-type: none"> • Checking of records • visual inspection of sites 	Do	Do	<p>1 Satisfactory</p> <p>2 Satisfactory</p>

<p>storage and use of fuels, oils, solvents, and lubricants</p>	<p>2. Minimize removal of vegetation and disallow cutting of trees;</p> <p>3. Labor camps shall include accommodation for workers/laborers along with other basic amenities such as kitchen, potable water supply, sanitation (toilets, bathrooms, washing areas and water supply for such needs), first aid room as well as garbage collection and disposal facility.</p> <p>4. The roof height of the worker's and labor camp shall not be less than 3 m from floor level to the lowest part of the roof.</p> <p>5. The camps shall be floored with concrete, shall be kept clean, and with proper cross ventilation, and the space provided shall be on the basis of one sq.mt per head or as per the relevant regulation, whichever is higher.</p> <p>6. Fire and electrical safety pre-cautions shall be adhered to.</p> <p>7. Cooking, sanitation and washing areas shall be provided separately.</p> <p>8. The Contractor shall maintain necessary living accommodation and ancillary facilities (including provision of clean fuel to prevent damage to forests and to prevent fuel wood cutting and burning by labor) in functional and hygienic manner.</p> <p>9. The site must be graded and rendered free from</p>					<p>3 Satisfactory</p> <p>4 Satisfactory</p> <p>5 Satisfactory</p> <p>6 Satisfactory</p> <p>7 Satisfactory</p> <p>8 Satisfactory</p> <p>9 Satisfactory</p> <p>10 Satisfactory</p>
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	<p>depressions such that water does not get stagnant anywhere.</p> <p>10. The entire boundary of the site should be fenced all around with barbed wire so as to prevent the trespassing of humans and animals.</p> <p>11. Provide water and sanitation facilities; water, meeting Indian drinking water standards shall be provided, in adequate quantities (supply of 60- 80 lpcd); all water storage structures must be cleaned regularly and covered properly to avoid any contamination;</p> <p>12. Provide separate facilities for men and women; sanitary facilities shall be properly build and well maintained; toilet and bath facilities should be provided on basis of 1 per 15 or less persons;</p> <p>13. Train employees in the storage and handling of materials which can potentially cause soil contamination;</p> <p>14. Recover used oil and lubricants and reuse or remove from the site;</p> <p>15. Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>16. Remove all wreckage, rubbish, or temporary structures which are no longer required;</p> <p>17. Report in writing that the camp has been vacated and</p>					<p>11 Satisfactory</p> <p>12 Satisfactory</p> <p>13 Satisfactory</p> <p>14 Satisfactory</p> <p>15 Satisfactory</p> <p>16 Satisfactory</p> <p>17</p> <p>18 Satisfactory</p>
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	restored to pre-project conditions before acceptance of work. 18. The work camp details should be included in the Construction Management Plan					19 Partially Satisfactory
Risk of archaeological chance finds	1. Create awareness among the workers and supervisors about the chance finds during excavation work; 2. Stop work immediately if any finds are suspected to allow further investigation; 3. Inform archaeological agencies promptly if a find is suspected, and take any action they require to ensure its removal or protection in site; and 4. Adjacent to important religious sites, undertake excavation and construction work in such a way that no structural damage is caused to the building.	Records of chance finds	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Do	Do	1 Satisfactory 2 Satisfactory 3 Satisfactory 4 Satisfactory
Unsatisfactory compliance to EMP	1. Appointment of EHS engineer to ensure EMP implementation 2. Timely submission of monitoring reports including pictures.	<ul style="list-style-type: none"> • Availability and competency of appointed supervisor • Monthly report 	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Do	Do	1 Satisfactory 2 Partially Satisfactory
Damage due to debris, spoils, excess construction materials	1. Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; 2. All excavated roads shall be reinstated to original condition. 3. All disrupted utilities restored. 4. All affected structures rehabilitated/compensated.	PMU/PMDCSC report in writing that (i) worksite is to be restored to original conditions; (ii) camp has been vacated and restored to pre-project conditions; b) (iii) all construction related structures not	<ul style="list-style-type: none"> • Checking of records • Visual inspection of sites 	Do	Do	1 Satisfactory 2 Satisfactory 3 Satisfactory 4 Satisfactory 5 Satisfactory

	<p>5. The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up;</p> <p>6. All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and regressed using the guidelines set out in the revegetation specification that forms part of this document;</p> <p>7. The contractor must arrange the cancellation of all temporary services; and</p> <p>8. Request PMU/PMDCSC to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.</p>	<p>relevant to operation and maintenance (O&M) are removed; and (iv) Worksite clean-up is satisfactory.</p>				<p>6 Partially Satisfactory</p> <p>7 Partially Satisfactory</p> <p>8 Satisfactory</p>
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VI. MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS

Monitoring of Environmental on Project Surroundings shown in **Table 16**.

Table 16: Monitoring of Environmental Impacts on Project Surroundings

Package No.	Status of Pre-Work Conditions (Recorded / Not Recorded)	Baseline Environmental Conditions (air, water, noise) Documented (Yes / No)	Action Proposed and Additional Measures Required
02MNG02	Recorded	No	Conduct environment monitoring every 3 months in construction phase, except monsoon season and compare results with National standards, ADB's SPS acceptable limits and preconstruction phase
02KDP01	Recorded	No	Conduct environment monitoring every 3 months in construction phase, except monsoon season and compare results with National standards, ADB's SPS acceptable limits and preconstruction phase
02PTR01	Recorded	Yes (partial complied)	Conduct environment monitoring every 3 months in construction phase, except monsoon season and compare results with National standards, ADB's SPS acceptable limits and preconstruction phase
02UDP01	Recorded	Yes (Partially complied)	Conduct environment monitoring every 3 months in construction phase, except monsoon season and compare results with National standards, ADB's SPS acceptable limits and preconstruction phase
02MNG01	Recorded	No	Conduct environment monitoring every 3 months in construction phase, except monsoon season and compare results with National standards, ADB's SPS acceptable limits and preconstruction phase

33. In addition to desk reviews and site inspections, monitoring of selected environmental parameters have been conducted during the reporting period. The frequencies of the environmental monitoring activities are commensurate to the type and significance of the impacts. For Project 2 subprojects, the parameters to be monitored are ambient air quality and noise levels

34. **The ambient air quality monitoring.** During reporting period Concentration phase Air Quality monitoring was conducted in the month of November 2020 and results are presented in Table 17. The sample location are selected as described in approved IEE for Udupi and Puttur 24X7 Water supply packages, where ongoing construction was in progress.

35. The tests were conducted for PM₁₀, PM_{2.5}, SO₂, and NO₂. The Monitoring results shows all tested parameters are well within the CPCB's prescribed standards limits and slightly above IFC standards for Particulate matter (PM10 and PM2.5). The application of mitigation measures i.e. suppression of dust is required.

Table 17: Air Quality Monitoring Results

Town	Phase	Sampling Locations (as per IEEs)	Date of Monitoring	Parameters			
				SO ₂ µg/m ³	NO ₂ µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³
Mangalore (Package no. 02MNG02)	During Construction	The contractor has not conducted monitoring exercise due to COVID situation					
Puttur Water Supply (02PTR01)	Construction Phase monitoring	Seti Gudda	05.11.2020	9.6	12.8	21.5	57.5
		Pednoor	05.11.2020	7.5	11.3	21.8	57.7
		Mettethadia	05.11.2020	14.1	19.5	25.5	61.0
		Jedekallu	05.11.2020	8.3	11.5	20.3	55.6
		Karmala Near Microwave Station	05.11.2020	6.8	10.8	18.4	54.7
		Lingadagudda - Kabaka	05.11.2020	7.8	11.8	20.3	54.8
		Balnad Keliyadi	05.11.2020	13.2	20.3	26.5	74.6
Average Construction Phase monitoring				9.61	14.0	22.04	59.41
Udupi Water Supply (02UDP01)	Construction Phase monitoring	Arithodu subranaya temple	07.11.2020	14.6	18.5	27.5	73.4
		Anganawadi OHT, Manipala	07.11.2020	13.2	19.3	26.5	73.8
		Indrali OHT	07.11.2020	11.7	17.0	24.4	67.7
		OHT, Manchi	07.11.2020	12.5	17.0	24.7	69.4
		Stella Maris Church ,Kalmady	07.11.2020	15.1	20.0	26.5	75.4

Town	Phase	Sampling Locations (as per IEEs)	Date of Monitoring	Parameters			
				SO ₂ µg/m ³	NO ₂ µg/m ³	PM _{2.5} µg/m ³	PM ₁₀ µg/m ³
		Veerabadra temple Near Santhekatte proposed OHT	07.11.2020	14.4	18.5	28.4	76.4
	Average Construction Phase monitoring			13.6	18.4	26.3	72.7
Kundapura (Package no. 02KDP01)	Construction Phase monitoring	Due to Covid no monitoring has been done.					
		Standard as per CPCB		80.0	80.0	60.0	100.0
		IFC standards		20 (24-hr)	80 (24-hr)	25 (24-hr)	50 (24-hr)

Note: CPCB – Central Pollution Control Board

Test methods followed:

SPM :IS 5182(Pt 4): 1999 (RA 2005) (Gravimetric)

RSPM :IS 5182 (Pt 23): 2006 (RA 2017) (Gravimetric)

SO₂ :IS 5182 (Pt 2): 2001 (RA 2017) (Improved west and Geake method)

NO₂ :IS 5182 (Pt 6): 2006 (RA 2017) (Jacob and Hochheiser modified method).

36. **Noise level monitoring.** During reporting period, construction phase Noise level monitoring was conducted in the month of November 2020 and results are presented in Table 18. The sample location are selected as described in approved IEE for Udipi and Puttur 24X7 Water supply packages, where ongoing construction was in progress.

37. It is noted from the results that noise levels at Puttur and Udipi WSS package is within the acceptable limits for commercial and residential areas prescribed by CPCB and IFC. Results of Air and Noise quality monitoring results for Puttur are attached as **Annexure 22**.

38. The next environmental monitoring activities will be conducted within January to June 2021 to measure concentrations of parameters as done earlier and covering all running construction sites.

Table 18: Noise Level Monitoring at project sites

Town	Phase	Sampling Locations	Date of Monitoring	Day Time			Night Time Leq dB(A)		
				L Min dB(A)	L Max dB(A)	Leq dB(A)	L Min dB(A)	L Max dB(A)	Leq dB(A)
Mangalore (Package 02MNG02)	no. During Construction	The contractor didn't conduct the monitoring due to COVID situation							
Puttur Water Supply (02PTR01)	Construction Phase monitoring	Lingadagudda-Kabaka	05.11.2020	44.2	47.3	45.7	44.6	47.2	45.9
		Karmala Near Microwave Station	05.11.2020	38.4	40.1	39.2	37.1	40.2	38.6
		Padnoor	05.11.2020	44.6	48.5	46.5	42.7	46.5	45.1
		Balnad Helipad	05.11.2020	43.6	47.4	45.5	41.2	45.7	43.4
		Balnad Keliyadi	05.11.2020	41.6	45.8	43.7	40.6	44.7	42.6
		CTO-Darbe	05.11.2020	44.7	48.2	46.4	42.4	46.2	44.3
		Seeti Gudda	05.11.2020	41.6	45.2	43.4	39.7	43.6	41.6
		Krishnanagar	05.11.2020	40.6	43.5	42.0	39.8	43.6	41.7
		WTP Nekkilady	05.11.2020	43.8	46.7	45.2	41.6	45.2	43.4
		Balnad	05.11.2020	40.7	44.8	42.7	38.7	42.9	40.8
		Motturhadka	05.11.2020	42.4	46.7	44.5	38.5	42.6	40.5
		Jadekallu	05.11.2020	42.3	46.7	44.5	40.6	44.2	42.4
		Average During Construction				42.37	45.90	44.1	40.62
Udupi Water Supply (02UDP01)	Construction Phase monitoring	Kakkunje siddi vinayaka temple	07.11.2020	42.2	46.4	44.3	34.1	38.8	36.5
		Anganawadi OHT, Manipala	07.11.2020	51.7	45.1	48.4	31.2	35.8	33.5
		Indrali OHT	07.11.2020	41.8	45.2	43.5	34.7	38.5	36.6
		OHT, Manchi	07.11.2020	50.1	53.2	51.7	40.5	44.2	42.1
		Stella Maris Church, Kalmady	07.11.2020	44.4	48.8	46.6	36.0	40.2	38.1
		Veerabadra temple Near Santhekatte proposed OHT	07.11.2020	46.2	5.6	48.4	44.4	47.8	46.1
		Arithodu subranaya temple	07.11.2020	47.8	51.2	49.5	36.9	41.2	39.1
Average During Construction				46.3	42.2	47.5	36.8	40.9	38.9

Town	Phase	Sampling Locations	Date of Monitoring	Day Time			Night Time Leq dB(A)			
				L Min dB(A)	L Max dB(A)	Leq dB(A)	L Min dB(A)	L Max dB(A)	Leq dB(A)	
Kundapura (Package no. 02KDP01)	Construction Phase monitoring	Due to Covid no monitoring has been done								

CPCB Limits for

Industrial area (I): Day Time= 75 dB(A), Night Time (10 PM to 6 AM)= 70 dB(A)

Commercial (C) area: Day Time= 65 dB(A), Night Time (10 PM to 6 AM)= 55 dB(A)

Residential (R) area: Day Time= 55 dB(A), Night Time (10 PM to 6 AM)= 45 dB(A)

Silence Zone (S): Day Time= 50 dB(A), Night Time (10 PM to 6 AM)= 40 dB(A)

IFC's limits for Noise Level

Residential; institutional; educational - Day Time= 55 dB(A), Night Time (10 PM to 7 AM)= 45 dB(A)

Industrial area and commercial : Day Time= 70 dB(A), Night Time (10 PM to 7 AM)= 70 dB(A)

39. **Surface Water quality:** For Udupi package, monitoring has been conducted for drinking water and bore well water in month of November 2020. All concentrations are within the prescribed limits. Result certificates are available with PIU and PMDCSC. The water quality monitoring results are given in Table 19. The Monitoring results shows all tested parameters are well within the drinking water standards of BIS 10500:2012, except Total hardness at 3 locations and TDS at 2 locations.

Table 19: Water Quality Monitoring Results

Town	Phase	Sampling Locations (as per IEE)	Date of Monitoring	Parameters in mg /l								
				Ph	Total Hardness	TDS	Ca	Magnesium as Mg	Chloride as Cl	Sulphate	Fluoride	Iron as Fe
Mangalore (Package no. 02MNG02)	During Construction Average During Construction	The contractor did not conduct the monitoring due to COVID situation										
Puttur Water Supply (02PTR01)	Construction Phase monitoring	Not conducted due to covid situation										

Udupi Water Supply (02UDP01)	Construction Phase monitoring	Manipala Lake	09.11.2020	6.92	312.6	614	62.6	37.9	112.9	62.3	0.48	BDL	4.8
		Siddi vinayaka temple, kakkunje – borewell	09.11.2020	7.14	284.6	580	44.8	41.7	102.9	36.2	0.44	BDL	4.1
		Near Santhekatte proposed OHT – well water	10.11.2020	6.64	82.3	82	16.3	10.0	36.9	1.36	0.26	0.3	0.98
	Average During construction			6.9	226.5	425.3	41.2	29.9	84.2	33.3	0.4	0.3	3.3
Kundapura (Package no. 02KDP01)	Construction Phase monitoring	Not conducted due to covid situation											
Bureau of India Standard 10500: 2012.				6.5 8.5	-200 (600)	500 (2,000)	75 (200)		250 (1,000)	200 (400)	1 (1.5)	0.3	45
WHO Guidelines for Drinking-Water Quality, 4 th Edition, 2011				-	-	-	-	-	-	-	1.5		50

Note: BDL- Below Detection Limit, DL- Detection Limit.

Figures in parenthesis are maximum limits allowed in the absence of alternate source.

VII. INFORMATION DISCLOSURES AND CONSULTATIONS

40. The consultations and disclosure will be a continuous process throughout Project 2 implementation involving public consultations and focus group discussions. Field level consultation has been done at Mangalore and Puttur only during the report period.

41. Generally, during implementation of project informal discussions are being done with the local public done at Mangalore and Puttur along pipe laying locations of impact zone. Such consultation is basically one to one discussion with public and generally to be continued throughout the construction period. The issues like requirement of restoration of utility services, removal of overburden soil, road restoration done or not, dust and noise pollution during implementation of the project, community safety arrangement, availability of public access have been discussed and views has been tabulated.

42. During reporting period five consultation were conducted. Out of 5, 3 were conducted in Mangalore town and 2 in Puttur town

43. Consultations was conducted with following general objectives.

- To disseminate project information to the public and other stake holders.
- To provide the latest progress on the Civil works
- To disseminate the importance of taking House Service Connections in a time bound manner.
- To document the issues/concerns of the public.

44. A total 240 Participants (including 55 department officials and consultants) attended these five consultations, 130 in Mangalore and 110 in Puttur. From general public, 53 male and 51 females in Mangalore and 35 male and 46 females in Puttur attended the consultation.

45. Outcome of consultation as follows,

- ✓ There is no issue on impact of utility services like PHE line etc.
- ✓ Excess earth removed in most of the cases. Public have no complaint on that
- ✓ Road restoration done without affecting the public
- ✓ There is minimum impact due to generation of dust and noise from project activity
- ✓ Arrangement of caution tape is done in most of the cases. No public complaint
- ✓ Local movement of public is not affected. Alternate access provided

46. The Information of Public Consultations is attached as **Annexure 20A-E**. Only 5 consultations have been conducted during the period Jul to Dec 2020 due to Covid situation. Now, the CAPRRCs have been deployed from Dec, 2020, this aspect will be improved.

VIII. GRIEVANCE REDRESS MECHANISM

47. As per approved IEE, a project-specific grievance redress mechanism (GRM) has been established to receive, evaluate and facilitate the resolution of affected people'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 voice and resolve social and environmental concerns linked to the project. The project specific GRM is not intended to bypass the government's own redress process; rather it is intended to address affected

people's concerns and complaints promptly, making it readily accessible to all segments of the affected people and is scaled to the risks and impacts of the project.

48. The GRC/SC for the project will be headed by Dy. Commissioner (DC) of the district with members as followed: (1) ULB Commissioners of project towns, (2) Revenue Department (Registrar) official, (3) RPMU Social safeguard/ R&R Officer of KIUWMIP, (4) ULB officer who will convene the periodic meeting of GRC and will shoulder responsibility of keeping records of grievances/ complaints in details with help from resettlement NGO. Other members, such as, NGO/CBO representatives, wards council representatives, DPs' representatives will be selected by the ULB Commissioner to represent in the GRC/SC meeting. NGO should also deploy one person in the team who will be responsible for coordinating with all GRC members and the DPs for grievance redress.

49. In the event when the established GRM is not in a position to resolve the issue, Affected Person also can use the ADB Accountability Mechanism (AM) through directly contact (in writing) to the Complaint Receiving Officer (CRO) at ADB headquarters or to ADB Indian 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. A Grievance Redress Mechanism is shown in the **Figure 3**.

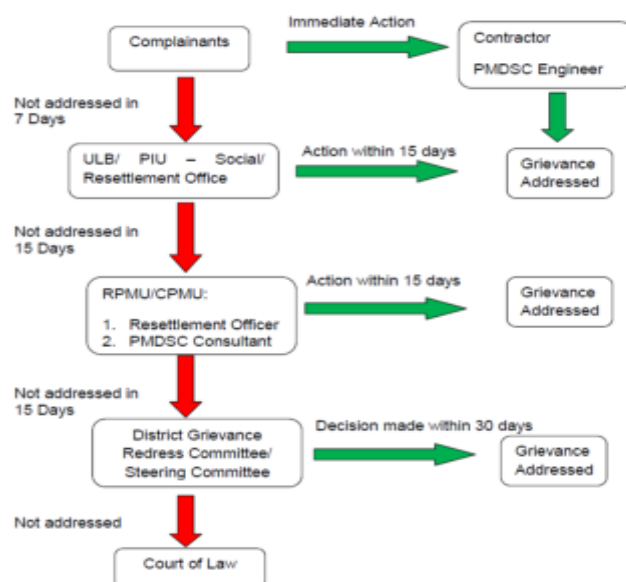


Figure 3: Grievance Redress Process

50. The PIUs will make the public aware of the GRM through public awareness campaigns. Grievances can be filed in writing using the Complaint Register and Complaint Form or by phone with any member of the PIU. The contact phone number of the respective PIUs and the RPMU will serve as a hotline for complaints and will be publicized through the media and placed on notice boards outside their offices and at construction sites.

51. Project level GRC has been set up on 23rd August 2018. Office memorandum has been issued (**Annexure 25 and 25 A**).

52. The complaint register is kept at each package office and public grievances are recorded and resolved at contractor level, there are no pending complaints. The details of Grievances are as follows in table 20.

Table 20: Details of Grievances

Particular	Udupi	Puttur	Mangalore UGD	Kundapura
No. of Grievance received during reporting period	7	29	Nil	26
Nature of grievances	<ul style="list-style-type: none"> • Damage of existing water supply pipelines • Damage of telephone line and • Access restoration by Backfilling of soil after work 	<ul style="list-style-type: none"> • Damage of existing pipelines due to manual excavation 	-	<ul style="list-style-type: none"> • Request for connections, • Problem in newly installed meters/ connection, • Installation of faulty meter • Water leakage near meter installation
Current Status	All complaints are resolved	All complaints are resolved	-	All complaints are resolved
Average time duration to resolve grievances	One day	One day	-	4.4 days

53. The PIU and PMU has given instruction to improve quality of meter/ connection in Kundapura and to work properly during excavation to reduce number of complains. The copy of complaint records of all sub-projects are attached as **Annexure 18**.

54. The accident register is also available with the contractor and a copy is provided in **Annexure 17**. The accident register of 5 packages shows there were 5 accidents in Udupi and one in Mangalore UGD Package, the accidents in Udupi were resulted due to negligence of the labours while using hand tools and slipping stones during excavation and not using proper PPEs. One accident in Mangalore UGD packages was due to attack of stray dog and resulted in cut in left leg. In all accidents magnitude of injury was minor and onsite first aid was provided. PIU has instructed to contractor to take necessary action like aware/ train workers to use PPEs and in worksite safety, increase safety talks in daily toolbox meetings, store access waste in proper manner to avoid slipping stone/ excess earth material in tranches, increase supervision.

IX. SUMMARY OF KEY ISSUES/CONCERNS IDENTIFIED DURING THE REPORTING PERIOD AND REMEDIAL ACTIONS

55. Based on environmental monitoring conducted during Jul-Dec 2020, KIUWMIP Project 2 is in mixed (partial satisfactory to satisfactory) compliance level of environmental safeguards. Due to COVID-19 pandemic situation there was minimal work from Jul to Dec 2020. The main concern are as follows:

- Submit Update IEE and approved SEMP for Mangalore water supply package
- Mobilise PMDCSC environment specialist
- Conduct environment monitoring as per frequency and location prescribed in IEEs
- Provide two week advance notice and consult the locals and shopkeepers at pipe laying areas for of Mangalore UGD and Kundapura, before start of pipelaying works
- Contractor to prevent accident by site safety measures, using PPEs, site supervision and toolbox trainings
- Conduct regular safety, COVID-19 precautions, and HIV AIDS training programs for Mangalore UGD, Kundapura 24X7 water supply.
- Improvement is required for first aid box. First aid materials are not sufficient.
- Improve use of project display board and placement of caution tape for Mangalore UGD package and Kundapura 24X7 water supply.
- Improvement of housekeeping arrangement is required for Kundapura store yard.
- Improvement of housekeeping and labour camp is required for Mangalore UGD
- Improvement of material storage for Kundapura 24X7 water supply and Mangalore UGD packages required.

56. Table 21 provides the recommended corrective action plan to address the non-compliances and partially compliances.

X. CORRECTIVE ACTIONS

57. Following table shows the proposed corrective action for the issues identified/ pending in the report. It may be noted that implementation of corrective action proposed previously have been delayed, mainly due to COVID 19 pandemic situation, the following table provides the revised / updated corrective action plan with timeline.

Table 21: Corrective Action Plan

Issue/concern	Proposed Corrective Action	Target date of completion of corrective Action	Remarks
Packages 02KDP01, 02MNG01 & 02MNG02 Environmental quality monitoring (ambient air, water, noise quality) not conducted	Conduct ambient air, noise, water etc., monitoring as per the parameters, locations and frequency prescribed in the EMP	30 June 2021 & once in every quarter thereafter	To be conducted as per the contractor agreement.

Issue/concern	Proposed Corrective Action	Target date of completion of corrective Action	Remarks
Packages 02PTR01 & 02UDP01) Environmental quality monitoring (Ambient air, water, noise) conducted but not as per the EMP requirements	Conduct ambient air, noise, water etc., monitoring as per the parameters, locations and frequency prescribed in the EMP	30 June 2021 & once in every quarter thereafter	Report in next SEMR
Package 02KDP01) Provision of backwash and sludge management in existing WTP as part of rehabilitation works	Prepare backwash and sludge management plan Implement backwash and sludge management plan	15 July 2021 Before completion of construction	It was informed by TMC chief officer that the backwash facility is less than 1% (<sludge) and hence necessity of backwash facility is not required. The backwash was being utilized by farmers.
Updated IEE and SEMP of Mangalore Water Supply Package	Update the IEE of Mangalore Water supply and submit for ADB's Approval Contractor to prepare SEMP and PIU/ PMU to approve	Before 30 June 2021	
Non availability Environment specialist in PMDCSC	Mobilize environment specialist in PMDCSC	30 June 2021	
Improve Emp Implementation by contractor	<ul style="list-style-type: none"> • Provided advance notice and consult the locals and shopkeepers before pipe laying in local area (Mangalore UGD and Kundapura package) • Prevent minor onsite accident by onsite safety measures (Udupi WSS and Mangalore UGD) • Continue regular safety training, COVID- 	30 June 2021	Report in next SEMR

Issue/concern	Proposed Corrective Action	Target date of completion of corrective Action	Remarks
	<p>19 precautions, and HIV AIDS programs</p> <ul style="list-style-type: none"> • Improve provisions of project display board and caution tape at site (Mangalore UGD and Kundapura 24X7 water supply package). • Improve temporary placement of at all working areas required. • Improve overall housekeeping and material storage including at labour camps (Kundapura 24X7 water supply and Mangalore UGD packages) 		