

# Environmental Monitoring Report

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Project Number: 43253-027  
Semestral Report (January - June 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: January to Jun 2020**

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

**Tranche 2- 3<sup>rd</sup> SEM Report**

**Mar 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  |
| dbA             | 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             | Multitranchise Financing Facility  |
| MoEFCC          | Ministry of Environment, Forest & Climate Change                               |
| NGO             | Non-Government Organization  |
| NO <sub>2</sub> | Nitrogen Oxide   |
| OHT             | Over Head Tank   |
| O&M             | Operation & Maintenance  |
| PMU             | Program Management Unit  |
| PMDCSC          | Project Management Design and Construction Supervision Consultant              |
| PMDCSC          | 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

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## 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 Multitranche 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 (PMD CSC, 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 IEE will be put in an accessible place (e.g., local government offices, libraries, community centers, etc.), and a summary translated into local language for the project affected people and other stakeholders. The following safeguard documents will be put up in ADB's website so that the affected people, other stakeholders, and the general public can provide meaningful inputs into the project design and implementation

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) and EHS Guidelines for water & sanitation will be followed (<http://www.ifc.org/wps/wcm/connect/e22c050048855ae0875cd76a6515bb18/Final%2B%2BWater%2Band%2BSanitation.pdf?MOD=AJPERE>)

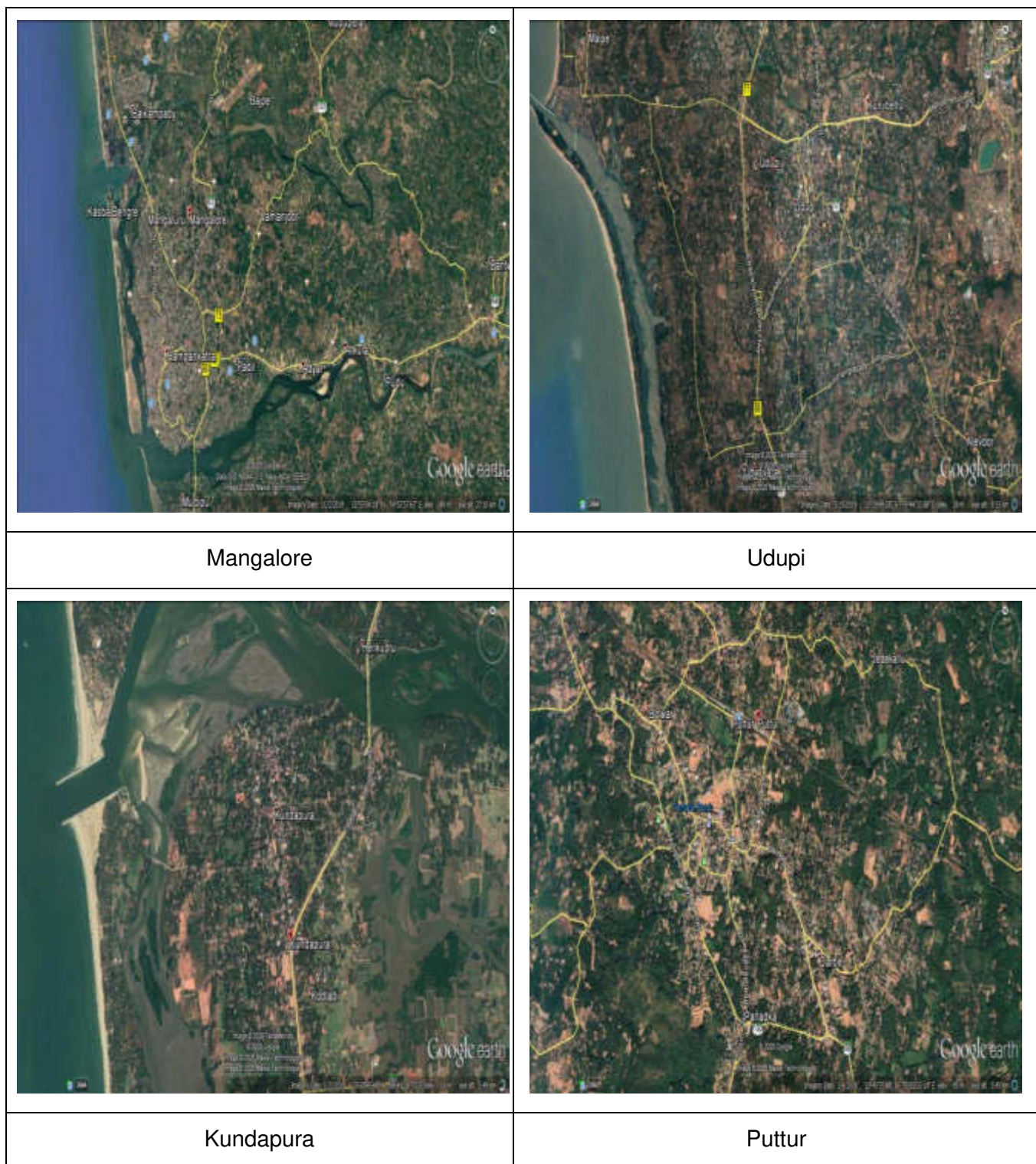
10. Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers. Preventive and protective measures should be introduced according to the following order of priority: (i) Eliminating the hazard by removing the activity from the work process. Examples include substitution with less hazardous chemicals, using different manufacturing 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, PMU shall achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific subproject circumstances, PMU 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, Mar to Apr 2020, there was lockdown imposed in the state. This was followed by partial lockdown. 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. This was issued not only to the ADB works but also the linked

activities contractors where these projects are funded through AMRUT (a GOI initiative) and also GOK funds also. It has been confirmed that all contractors including linked activity contractors also. The SOP-H&S Plan is presented at **Appendix 50**.

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



**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.

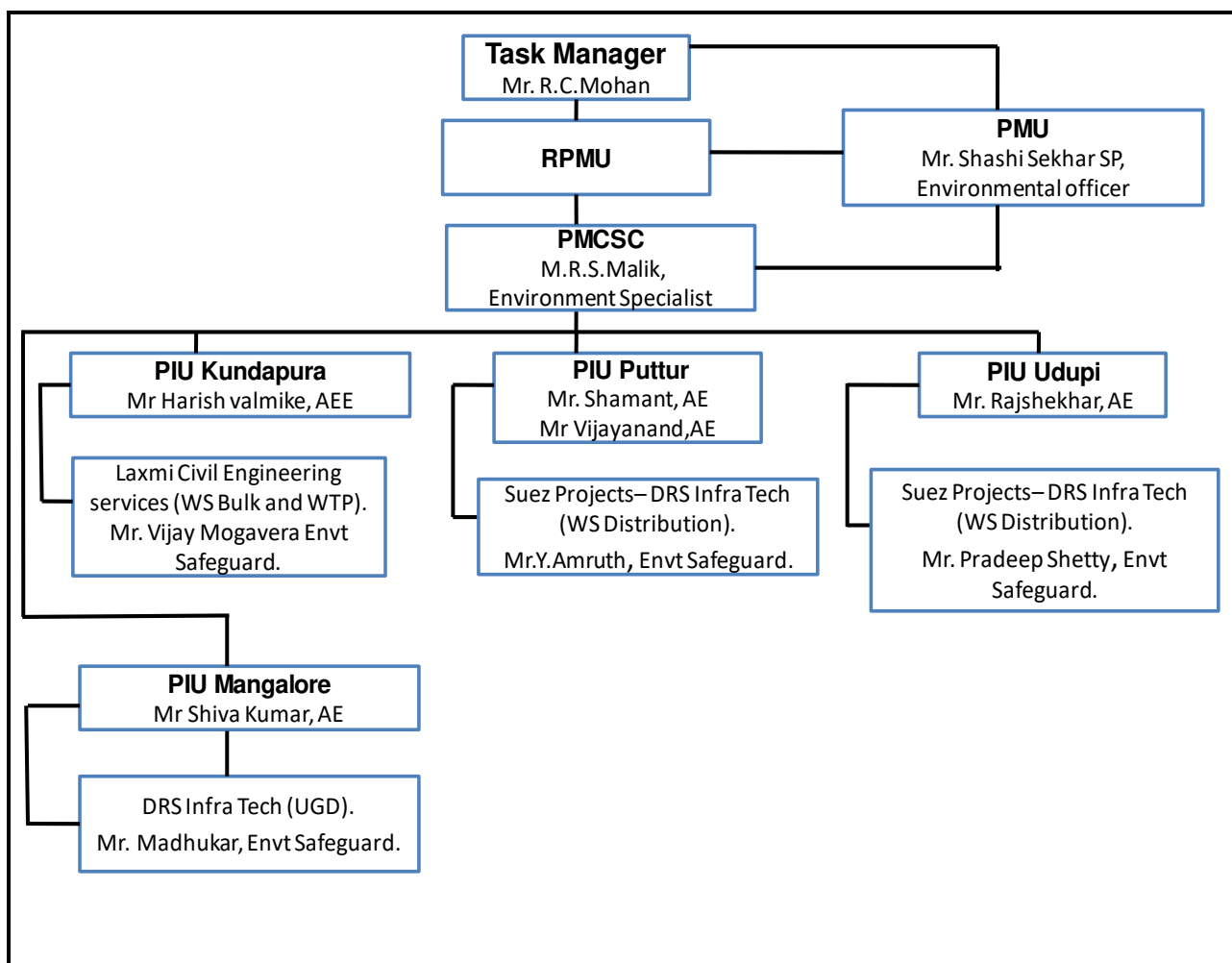
18. **Reporting arrangement.** Construction contractor monitoring safeguard implementation daily basis, while construction Supervisor (Resident Engineer) reviewed safeguard implementation weekly. After review they advised construction contractor for corrective measures. Monthly report summarizing observation, compliance & corrective measures is 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 consolidated 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 subcomponents using REA checklists  | ULB                |
|                          |                                   | 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<br>Conducting Public Consultation and information disclosure Preparation of IEE / EIA | PMDCS consultant   |

| <b>Investment Program Phase</b> | <b>Activity</b>   | <b>Details</b>   | <b>Responsible Agency</b> |
|---------------------------------|---|--|---------------------------|
|                                 | Investment program clearances                                       | Fulfilling GoK/Gol requirement such as clearances from other Government Agencies   | ULB                       |
|                                 | 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                       |
|                                 | 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          |
| <b>Construction Phase</b>       | Implementation of mitigation measures                               | Implementation of necessary mitigation measures  | Contractor                |
|                                 | Environmental Monitoring  | Environmental monitoring as specified in monitoring plan during construction stage; Monitoring of implementation of mitigation measures  | PMCS consultant           |
|                                 | Preparation of progress reports                                     | Preparation of monthly progress reports to be submitted to PMU including a section on implementation of the mitigation measures          | PMCS consultant           |
|                                 | Review of progress reports  | PMU to review the progress reports, consolidate and send to ADB review   | PMU                       |
| <b>Operation Stage</b>          | 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 Jun 2020, position of Assistant Executive Engineer (Environment) is filled up and also Environment Specialist of PMCS (Program Consultant) has been placed upto Feb/Mar, 2020.



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

**Figure 2: KIUWMIP Safeguards Implementation Arrangement**

20. **Table 2** shows detail of environment safeguard team for KIUWMIP. Environment Specialist of PMCSC 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 |
|----------------------|--|--------------------------------|----------------|
| <b>1. PMU</b>        |  |                                |                |
| Mr. Shashi Sekhar SP | Environment Expert,<br>KIUWMIP-KUIDFC                    | shashisekharasp@kuidfc.com     | 9343434900     |
| <b>2. PIUs</b>       |  |                                |                |
| Mr. Shiva Kumar      | Assistant Executive<br>Engineer, PIU,<br>Mangalore       | Jalasiritranch2eemng@gmail.com | 07019199457    |
| Mr. Harish Valmike   | Assistant Executive<br>Engineer, AEE, PIU,<br>Kundapura, | jalasiritranch2aekdp@gmail.com | 09030145862    |

| <b>Name</b>           | <b>Designation/Office</b>              | <b>Email Address</b>             | <b>Contact Number</b> |
|-----------------------|--|----------------------------------|-----------------------|
| Mr.Shamant            | Assistant Engineer, AE,<br>PIU, Puttur | jalasiritranche2eepttr@gmail.com | 08904616043           |
| Mr Vijayanand         | Assistant Engineer, AE,<br>PIU, Puttur |                                  | 9448581143            |
| Mr.Rajshekhar         | Assistant Engineer, AE,<br>PIU, Udupi  | jalasiritranche2eeudp@gmail.com  | 9741412058            |
| <b>3. Consultants</b> |  |                                  |                       |
| M.R.S.Malik           | PMCSC, Environment<br>Specialist       | mahmad.m@egis-india.com          | 9177390560            |

### **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. One sub project at Mangalore (24x7 water supply) is in DPR stage. Out of 5 sub projects 4 projects are presently under implementation. Status of sub-projects is given in **Table 3**. Site photographs are attached as Appendix 1, Monitoring Budget as Appendix 2 and MPR - Monthly Progress report attached as **Appendix 3**.

The first case of pandemic in the state was on March 8, 2020, Further, to contain community transmission of the virus, the central government decided to lock down 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 in our work sites. Hence, during this period, the work progress at the sites was minimal.

**Table 3: Status of Sub Project under Tranche 2 (Upto 30<sup>th</sup> June 2020)**

| Package Number | Components/List of Works  | Type of Contract<br>(specify if DBO, DB or civil works) | Status of Implementation<br>(specify if Preliminary Design, Detailed Design, On-going Construction, Completed Works, or O&M phase)1 | Contract Status<br>(specify if under bidding or contract awarded) | If On-going Construction |                          |
|----------------|---|---|---|---|--------------------------|--------------------------|
|                |   |   |   |   | %Physical Progress       | Expected Completion Date |
| <b>02MNG02</b> | <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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</li> </ul> | Civil Works   | On-going Construction   | Contract Awarded: 06.06.2018                                      | <b>65.53%</b>            | 05.03.2021               |
| <b>02KDP01</b> | <ul style="list-style-type: none"> <li>Laying of clear water feeder mains of 200mm dia for 4.8 km to OHT at Kodi.</li> </ul>  | Civil Works and services                                | On-going Construction   | Contract awarded: 19.12.2017                                      | <b>82.51%</b>            | 22.01.2028               |

|                |   |                          |                       |                              |               |                       |
|----------------|---|--------------------------|-----------------------|------------------------------|---------------|-----------------------|
|                | <ul style="list-style-type: none"> <li>• Construction of 2 OHTs total capacity 0.9ML. (5LL at Halekote and 4LL at Kodi )</li> <li>• Laying of Distribution network for 31.64 kms of HDPE&amp;DI pipes.</li> <li>• 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.</li> <li>• Providing 15 Nos of 24X7 Water flow meters</li> <li>• O &amp; M for 8 years.</li> </ul> |                          |                       |                              |               |                       |
| <b>02PTR01</b> | <ul style="list-style-type: none"> <li>• replacement of two old pumps with new vertical turbine pumps in Jackwell at Nekkilady;</li> <li>• construction of 1.70 kilometer (km) of raw water pumping main (400 millimetre (mm) diameter) from Jackwell to water treatment plant (WTP) at Nekkilady;</li> <li>• construction of 12.42 km clear water main of 400 mm diameter from the proposed new water treatment plant (WTP) at Nekkilday to ground level service</li> </ul>                      | Civil Works and services | On-going Construction | Contract awarded: 16.11.2018 | <b>23.74%</b> | 03.06.2030 (Phase -4) |

|  |   |  |  |  |  |  |
|--|---|--|--|--|--|--|
|  | <p>reservoir (GLSR) at Seetigudda;</p> <ul style="list-style-type: none"> <li>• construction of new WTP of capacity 8.7 million liters per day (MLD) at Nekkilady;</li> <li>• replacement of clear water pumps in existing WTP at Nekkilady;</li> <li>• construction of 9.564 km of clear water feeder mains;</li> <li>• 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;</li> <li>• construction of two compartment GLSR of 2,400 kl capacity at Seethigudda,;</li> <li>• Intermediate pumping station at Seetigudda;</li> <li>• booster pumping station at Balnad Helipad;</li> <li>• 29 bulk water meters;</li> </ul> |  |  |  |  |  |
|--|---|--|--|--|--|--|

|                |  |                          |                       |                              |               |                              |
|----------------|--|--------------------------|-----------------------|------------------------------|---------------|------------------------------|
|                | <ul style="list-style-type: none"> <li>142.66 km of distribution network to cover 24 x 7 water supply to Puttur city for 10 zones; and</li> <li>Replacement of 9226 existing meters and providing new house service connections of 4910 for uncovered households</li> </ul>  |                          |                       |                              |               |                              |
|                | 1. O&M for 8 years   |                          |                       |                              |               |                              |
| <b>02UDP01</b> | <ul style="list-style-type: none"> <li>clear water feeder mains of 24.543 kilometer (km) of diameter 100 millimeter (mm) to 355 mm to feed to new overhead tanks (OHT);</li> <li>7 OHTs of total storage capacity 6.85 million liters (ML);</li> <li>distribution network of 321.487 km (diameter 63 mm to 450 mm); and</li> <li>replacement of 18737 existing meters (m) and providing new metered house service connections of 17715 for uncovered households</li> <li>O&amp;M for 8years</li> </ul> | Civil Works and services | On-going Construction | Contract awarded: 16.11.2018 | <b>25.53%</b> | 15.08.2030 (Phase -4)        |
| <b>02MNG01</b> | 2. Construction of 24X7 & Distribution Network -Operator assisted in Mangalore   | Civil Works and services | Design Validation     | Contract awarded: 21.11.2019 | -             | 23-08-2031 Including (O & M) |

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

**Table 4 Package-wise Contractor/s' Nodal Persons for Environmental Safeguards**

| Package Name  | IEE Cleared by ADB<br>(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,<br>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<br>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<br>Final IEE is Cleared by ADB February 2019  | SPPL– SIPL, DRS Infra Tech               | Mr. Y. Amruth                               | amruthsairam@gmail.com<br>amruth.yedugani@se-india.com  | 07676075582               |
| 24 x 7 Water Supply System for Udupi Town   | IEE Cleared by ADB in May 2018<br>Final IEE is Cleared by ADB February 2019<br>1 <sup>st</sup> update on IEE cleared by ABD in June 2020 | SPPL– SIPL ,DRS Infra Tech               | Mr. Pradeep Shetty                          | Pradeepyellur@gmail.com<br><a href="mailto:Pradeep.shetty@se-india.com">Pradeep.shetty@se-india.com</a> | 09652627322<br>7406009720 |
| 24 x 7 Water Supply System for Mangalore City   | Draft IEE Cleared by ADB in May 2019<br>Updated IEE yet to be submitted  | SPPL– SIPL, DRS Infra Tech               | The Project is in Design Validation Period. |   |                           |

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)<br>(Yes/No) | Remarks   |
|----------------|--|--|--|--|---|---|
|                | Not yet due<br>(detailed design not yet completed) | Submitted to ADB<br>(provide date of submission)                 | Disclosed on project website<br>(provide link)   | Final IEE provided to Contractor/s<br>(Yes/No) |   |   |
| 02MNG02        | Detailed design completed                          | Submitted in Jan 2019<br>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   | Already in Construction Phase   |
| 02KDP01        | Detailed design completed                          | Submitted in Jan 2019<br>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   | Already in Construction Phase   |
| 02PTR01        | Detailed design 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   | Now IEE under updation due to minor change in design  |
| 02UDP01        | Detailed design yet to be completed                | Final IEE submitted in Feb 2019<br><br>Final IEE approved by     | Disclosed on PMU website (www.kuidfc.com/ENG/project_jalasiri.htm), and ULB website www.udupicity.mrc.gov.in                     | -  | Yes   | Final IEE approved by ADB in Feb 2019.<br><br>1 <sup>st</sup> Update on IEE (with minor scope change) |

|         |                           |                     |   |    |    |                             |
|---------|---------------------------|---------------------|---|----|----|-----------------------------|
|         |                           | ADB in Feb 2019,    |   |    |    | cleared by ADB in June 2020 |
| 02MNG01 | Detailed design completed | Yet to be submitted | - | No | No | In Design Validation Phase  |

#### 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 (Jun 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<br>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<br>For acoustic type of Generator – not required.<br>Without acoustic measures- Generator used by Contractor by hiring on rental basis. | -                                      | Acoustic type of Generator must be used. | -  |
|             | Statutory permission from National Highways Authority for road cutting   | Awaiting approval - 1100 WW-3, Kudroli To STP at Kavoov NH-66, at Kuntikan Junction NH Crossing.<br><br>Awaiting approval-NH4 crossing - NOC from National highway   | -                                      | Awaiting for approval from NHAI          | -  |

|  |   |                        |   |  |
|--|---|------------------------|---|--|
|  | authority applied on 17-07-2017. Charges paid to National Highways Authority Application enclosed as <b>Appendix 3</b>  |                        | Awaiting for approval from NHA                  |  |
| Statutory permission from Railway authority  | Obtained - 450 WW-7, Jeppu Bappal to RMH at Ekkur Near Sooterpete railway level Crossing<br><br>Obtained- Railway crossing- NOC from Railway authority. The permission id enclosed as <b>Appendix 4</b> | -                      | -   | -  |
| Utility shifting   | Obtained - Electrical pole Ashok nagar -Mangalore UGD enclosed as <b>Appendix 25</b><br><br>Obtained-Utility Sifting - MESCOM -Electrical pole. enclosed as <b>Appendix 48</b>                          |                        |   |  |
| Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)                                       | Obtained - Labour license enclosed as <b>Appendix 5</b>   | valid up to 06.06.2020 | Further renewal needs to be done on 06.06.2020. | Worker attendance register and Minimum wages register have to maintained by contractor |
| Labour compensation insurance  | Obtained Insurance renewed Validity upto 19.02.2021. Labour compensation insurance policy enclosed as <b>Appendix 6</b>   | valid up to 19.02.2021 |   | 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 | No tree was affected  |                        |   | -  |

|         |   |  |   |   |   |
|---------|---|--|---|---|---|
|         | 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  | <p>Mangaladevi Temple, located in the centre of Mangalore City is ASI protected monument. Alignment of pumping main from Mulihitilu 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,</p> <p>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.</p> |   | Apply and obtain Clearance before start of construction in regulated area         |   |
| 02KDP01 | <p>Water (Prevention and Control of Pollution) Act, 1974</p> <p>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)</p> | <p>During implementation of project compliance with Air Act, Noise Rules and Water Act will be required</p> <p>For acoustic type of Generator – not required</p>   | -   | -   | - |
|         | Statutory permission from National Highways Authority for road cutting  | <p>Obtained - on 25 /04/2019 – ANOC Obtained on 25/04/2019</p> <p>Stretch of 0.11 km for laying clear water main is proposed along the service lane of NH-66 which needs permission from National Highway Authority of India.</p>  | <p>enclosed as</p> <p><b>Appendix 7</b></p> | NH-66 Permission not Required as Laying of pipe is done within municipal premises |   |

|  |   |  |  |   |
|--|---|--|--|---|
|  | Awaiting-Approval-NH4 crossing -NOC from National highway authority was applied on 25-01-2019.  |  |  |   |
| Statutory permission from PWD  | Obtained - on 25 /04/2019 -Laying rider main of length 1.8 km for Zone-1 along SH-52 permission will be required from State PWD.  | NOC Obtained on 25/04/2019. enclosed as <b>Appendix 8 &amp; 8a</b> | Contractor has to meet the NOC conditions                          | During the work in progress, the O&M period restored road will be damaged also due to this arising any litigation and traffic movement Trouble from vehicle movement on state highway, during period of laying and jointing and RCC manhole construction any problem arising is totally all responsibility on this related Client department On this basis conditional approval is issued.- |
| Utility shifting   | BSNL - Copper cable damaged – BSNL Copper cable damage charge letter enclosed as <b>Appendix 49</b>   |  | List of utility shifting has to be maintained by Contractor.       | All payments to BSNL cables damages paid up to date.  |
| Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70) | Obtained. Labour license enclosed as <b>Appendix 9</b> The license was valid up to 19-12-2019 and subsequently renewed on 10-12-2019.                                   | Valid up to 19.12.2020.  | Contractor has to meet the conditions as specified by the License. | 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 enclosed as <b>Appendix 10</b> and Contractor's All Risk Policy id attached as <b>Appendix 11</b> | Validity upto 06.08.2020   | Further renewal has been done on 06.08.2020.                       | 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 Forest (Conservation) Act 1980 and Indian Forest (Amendment) bill 2017.   | Not Obtained - 6 nos. Tree felling (at Kodi Beach OHT site) 2,28,000 Rs Compensation paid to the affected person for Cutting of coconut trees enclosed as <b>Appendix 12 and 12a.</b><br><b>Note:</b> Coconut Trees are in the list of tree felling 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<br><br>The proposed OHT site and some pipelines in Kodi area falls under Coastal Regulation Zone (CRZ)II.<br><br>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. | Obtained –<br>The proposed OHT site and some pipelines in Kodi area falls under Coastal Regulation Zone (CRZ)II.<br><br>CRZ clearance for Kodi beach OHT from KSCZMA NOC obtained enclosed as <b>Appendix 13 &amp; 13a</b>   | Obtained on 11/07/2017 | Contractor and PIU have to Meet /maintain the NOC condition. | <ol style="list-style-type: none"> <li>1. Project promoters Government order no: FEB1062 CRZ 2014 dated 16/01/2015 in accordance with application processing payment of the fees.</li> <li>2. Precaution should be taken at the time of construction of OHT without impairment to environment and storm water.</li> <li>3. Without approval of authority couldn't any change and expansion of proposed project</li> <li>4. For the proposed project implementation of all work and activity to be subjected under CRZ notification dated:06/01/2011</li> </ol> |

|         |   |   |                         |  |   |
|---------|---|---|-------------------------|--|---|
|         | Construction involving more than 20,000 m <sup>2</sup> built-up area in CRZ-II shall be considered in accordance with EIA notification, 2006 and in case of projects less than 20,000 m <sup>2</sup> 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 concerned CZMA shall be essential. | Obtained - CRZ clearance for Pipe Line laying NOC obtained enclosed as <b>Appendix 14 and 14 a</b>  | Obtained on 11/07/2017. | Contractor and PIU have to Meet /maintain the NOC condition. | <p>5. Project promoters Government order no: FEB1062 CRZ 2014 dated 16/01/2015 in accordance with application processing payment of the fees.</p> <p>6. Precaution should be taken at the time of construction of OHT without impairment to environment and storm water.</p> <p>7. Without approval of authority couldn't any change and expansion of proposed project</p> <p>8. For the proposed project implementation of all work and activity to be subjected under CRZ notification dated:06/01/2011</p> |
| 02PTR01 | Water (Prevention and Control of Pollution) Act, 1974<br><br>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<br>For acoustic type of Generator – not required<br>If required, Contractor using acoustic type of Generator |                         |  |   |

|         |  |  |   |   |   |
|---------|--|--|---|---|---|
|         | Statutory permission from National Highways Authority for road cutting   | Not Applicable   |   |   |   |
|         | Statutory permission from Railway authority  | Submitted the Documents  |   | Bank Guarantee is to be submitted to the Railway Department |   |
|         | Statutory permission from PWD  | Yet to Apply   |   |   |   |
|         | Utility shifting   | Yet to Apply   |   |   |   |
|         | Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)   | Obtained - Labour license is valid up to 11-01-2021<br>It is attached as <b>Appendix-15</b>  | - Labour license is valid up to 11-01-2021              | - It is renewed up to 11-01-2021                            | - Worker attendance register and Minimum wages register have to be maintained by contractor |
|         | Labour compensation insurance  | Obtained - Labour compensation insurance is attached as <b>Appendix-16</b> and Marine-cum-Insurance Policy is attached as <b>Appendix-17</b>   | Labour compensation insurance is valid up to 04-07-2020 | Policy is to be renewed on 04-07-2020                       | -   |
|         | 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                          | During implementation of project compliance with Air Act, Noise Rules and Water Act will be required<br>For acoustic type of Generator – not required.<br>If required, Contractor using acoustic type of Generator |   | -   | Using acoustic type generator   |

|                |  |   |  |  |  |
|----------------|--|---|--|--|--|
|                | Establish (CTE) and Consent to Operate (CTO)   |   |  |  |  |
|                | 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  |  |  | Electric pole shifting   |
|                | Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)   | Obtained – and is enclosed as <b>Appendix 18</b>              | Validity up to 11/01/2021                              | Further renewal has been done on 11/01/2021. | Worker attendance register and Minimum wages register have to maintained by contractor |
|                | Labour compensation insurance  | Obtained – and is enclosed as <b>Appendix 19</b>              | Labour compensation insurance is valid upto 04-07-2020 | Policy is to be renewed on 04-07-2020        |  |
|                | 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 |  |  |  |
| <b>02MNG01</b> | Design Validation Stage  | -   | -  | -  | -  |

#### 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<br>Item 9             | <p><b>Procurement of Goods, Works and Consulting Services</b><br/> <b>Conditions for Award of the Contract</b><br/> The Borrower shall ensure or cause the EA to <b>not award any Works contract</b> for a Subproject which <b>involves environmental impacts</b> 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<br/> b) Incorporated the relevant provisions from the EMP into the Works contract.</p>   | <p>a) Obtained concurrence from ADB for Updated IEE sewerage and water supply packages of Mangalore, Kundapura, Puttur, and Udupi.<br/> b) Incorporated EMP into the works contract of Mangalore Sewerage, Kundapura, Puttur, and Udupi water supply works.</p>   |
| Schedule 5<br>Item 10            | <p><b>Safeguards –Environment</b><br/> 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><b>Being complied</b></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 <b>Tranche 2</b> 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 on 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 have been updated as per final design and scope at implementation stage. Updated Mangalore UGD and Kundapura WSS IEE/EMP accepted by ADB on August 2018 and Puttur and Udupi WSS February 2019 respectively. Later, it was found that some of the design needs to be finalized in Udupi and Puttur hence and updated IEE was submitted to ADB in this period.</p> |

| Serial no. as per loan agreement | Program Specific Covenants  | Status / Issues   |
|----------------------------------|---|---|
|                                  |   | <p>All updated reports already disclosed in ADB website.</p> <p>All safeguard measures and requirements as prescribed in IEE/EIA and EMP being considered during implementation. 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<br>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><b>Partially complied</b></p> <p>Budgetary provisions have been included in EMP of Tranche 2 sub projects attached as <b>Appendix 2</b></p> <p>Environment Engineer (Asst. Executive Engineer) is placed in PMU</p> <p>Human resource (project consultant, i.e. Environmental Specialist of PMSCS) for implementation of EMPs is in place for regular compliance till Mar 2020 only.</p>   |
| Schedule 5<br>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><b>Being complied</b></p> <p>Approved IEE, EMP for Tranche-2 project is attached in Bidding documents. This process will be followed for all the sub projects within the present Tranche and subsequent Tranches.</p> <p>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 <b>Tranche-2</b> 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 Davangere, Harihara and Byadgi and all the reports accepted by ADB and disclosed on March 2017, November 2016 and December 2016 respectively on ADB 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</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><b>Appendix 2</b> shows budgetary provision for safeguard implementation under different packages</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.<br/>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<br>Item 12            | <p><b>Safeguards Monitoring and Reporting</b></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><b>Being complied</b></p> <p>(a) This is 3rd semi-annual Safeguards Monitoring Report is prepared for the period Jan to Jun 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<br>Item 13            | <b>Prohibited List of Investments</b><br>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.   | <b>Complied</b><br>Under Tranche -2, there is no violation of prohibited investment activities as per ADB SPS (2009) Appendix 5. Same will be followed in subsequent Tranches   |
| Schedule 5<br>Item 16            | <b>Other Social Measures</b><br>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. | <b>Complied in document and during implementation</b><br>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.<br>In case of any breach of provision, necessary corrective measures as per contract clauses shall be taken.<br>All activities including awareness program will be reflected in "Monitoring Report". |

26. Contractor team carried out regular environment monitoring. Budget for environment monitoring is disclosed in the **Appendix 2**.

## V. COMPLIANCE STATUS WITH THE ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

### A. Overall compliance with EMP

27. Mangalore UGD, Kundapura, Puttur and Udupi 24x7 water supply sub project Contractors submitted site-specific EHS Plan Included as **Appendix 33-35**.

28. 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 compliance report are also submitted for each package to document and record implementation of EMP measures.

29. Over-all compliance of the contractors with SEMP given in **Table 8**. contractors' monthly monitoring reports to PIU(s) and monthly environmental site inspection reports of consultants Included as an **Appendix 20**

**Table 8: Overall Compliance with SEMP**

| <b>Package No.</b> | <b>Status of SEMP/CEMP Implementation<br/>(Excellent/ Satisfactory/ Partially<br/>Satisfactory/ Below Satisfactory)</b> | <b>Action Proposed and Additional Measures<br/>Required</b>   |
|--------------------|---|---|
| <b>02MNG02</b>     | <b>Partially Satisfactory</b>   | <ul style="list-style-type: none"> <li>• Arrangement of proper project information display board and caution and hazard sign boards.</li> <li>• Use of PPE should be at all times as per site condition and work type.</li> <li>• Improvement is required for Housekeeping at site areas and labour camp as well.</li> <li>• Improvement is required for first aid box - First aid materials should be as per the standards.</li> <li>• Worker Wages register has to be maintained.</li> <li>• Proper care should be taken for electrical safety at labor camp and sites.</li> <li>• Improvement at labour camp which include separate cooking facility and enhancement in sanitation facility.</li> <li>• Continue to implement SOP for COVID 19 (issued by KUIDFC)</li> </ul> |
| <b>02KDP01</b>     | <b>Partially Satisfactory</b>   | <ul style="list-style-type: none"> <li>• Arrangement of display board in English with all relevant project information along with contact numbers</li> <li>• Proper caution and hazard boards.</li> <li>• Use of PPE should be at all times as per site condition and work type.</li> <li>• Immediate Improvement of housekeeping at the project sites</li> <li>• Improvement of material storage is required.</li> <li>• Proper Scaffoldings have to be used for OHT Construction site.</li> <li>• CRZ, NOC conditions have to be meet by the Contractor and PIU.</li> <li>• Worker Wages register has to be maintained</li> <li>• Continue to implement SOP for COVID 19 (issued by KUIDFC)</li> </ul>  |
| <b>02PTR01</b>     | <b>Satisfactory</b>   | <ul style="list-style-type: none"> <li>• Proper Project information board in Kannada and English with all necessary details</li> <li>• First aid box should be provided at all working sites</li> <li>• Hygiene of the labor camp to be improved</li> <li>• Use of PPE should be at all times as per site condition and work type</li> <li>• Continue to implement SOP for COVID 19 (issued by KUIDFC)</li> </ul>   |
| <b>02UDP01</b>     | <b>Satisfactory</b>   | <ul style="list-style-type: none"> <li>• Ensure the PPEs by labours at all times as per site conditions.</li> <li>• Project Information board along with relevant details and contact number is to be provided at working sites both English and kannada</li> <li>• Improvement in Caution sign boards at pipe laying areas</li> </ul>  |

|         |   |   |
|---------|---|---|
|         |   | <ul style="list-style-type: none"> <li>• Amenities to the labours to be enhanced.</li> <li>• Continue to implement SOP for COVID 19 (issued by KUIDFC)</li> </ul> |
| 02MNG01 | - | <ul style="list-style-type: none"> <li>• Under Design Validation Period</li> <li>• Continue to implement SOP for COVID 19 (issued by KUIDFC)</li> </ul>           |

## Waste Management

30. Spoil management plan and permission for identified the location to dispose the solid waste are submitted by contractors enclosed as **Appendix 21-24**. Spillage is not observed at time of inspection. The contractor has been recommended to provide Spill kits and site procedure for handling emergencies.

**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.  | Transport route and mode of transport not mention in the Spoil /Solid /Traffic Plan recommended to update | No storage of waste | Contractor Dumping surplus soil in the Pachanady Solid waste management treatment plant. Location is approved by permission of PIU enclosed as <b>Appendix 23</b> |
| 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.  | Transport route and mode of transport not mention in the Spoil /Solid /Traffic Plan recommended to update | No storage of Waste | Contractor Coordinated with PIU / Kundapura TMC surplus soils and Solid waste Disposed of in Authorized landfill.   |
| 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. | Transport route and mode of transport not Spoil /Solid /Traffic Plan mention in the Plan                  | Location identified | Spoil Management Plan and Permission to Dispose the Waste in the Disposal are enclosed as <b>Appendix 21 and 24</b>   |
| 02UDP01    | Sub project is in pre-construction Phase   | Transport route and   | Location identified | Spoil Management Plan and Waste Disposal plan in the  |

|  |   |  |   |
|--|---|--|---|
|  | Spoil and Solid waste mode of<br>Quantity generated from transport not<br>construction not Spoil /Solid<br>maintained by contractor/Traffic Plan<br>and not mention in the recommended<br>Spoil management plan.to update<br>recommended to update<br>the plan maintain record. |  | Disposal area enclosed as<br><b>Appendix 22</b> |
|--|---|--|---|

#### **A. Packages wise compliance**

31. 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 15.

**Table 10: Summary of Environmental Monitoring Activities (Jan- Jun 2020)- UGD in Mangalore City, Package No.02MNG02**

| Impact  | Mitigation Measures   | Parameters Monitored   | Method of Monitoring  | Frequency of Monitoring Conducted  | Name of Person Who Conducted the Monitoring   |
|---|---|--|---|--|---|
| <b>Construction Period</b>  |   |  |   |  |   |
| 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>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"> <li>1. Work description; No. of workers (skilled and unskilled); Details of Plant, equipment and machinery, vehicles;</li> <li>2. Work duration (total, and activity-wise, for example for pipe laying, from excavation to road resurfacing/testing);</li> <li>3. Personal Protection Equipment (PPE) (helmet, gloves, boots, etc.) details for each type of work;</li> <li>4. Details of materials at each site (type and quantity);</li> <li>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.);</li> <li>6. Construction waste/debris generated (details and quantity);</li> <li>7. Detail the sequence of work process (step-by- step) including specific details of each work;</li> <li>8. Contractor's supervision and management arrangements for the work;</li> </ol> <p>Emergency: Designate</p> | <ol style="list-style-type: none"> <li>a) Site inspection and record verification; - Done.</li> <li>b) Appointment of Environmental, Health and Safety (EHS) Engineer by contractor prior to start of work - Done</li> <li>c) Site specific Occupational Health and Safety (OHS) plan;</li> <li>d) Spoil and waste management plan; and</li> <li>e) Complaints from sensitive receptors and public.</li> </ol> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | <p align="center">-</p> <ol style="list-style-type: none"> <li>1. Daily by construction supervisor- Resident Engineer</li> <li>2. Weekly / bi weekly by Construction Manager.</li> <li>3. Verification by Environment Specialist of PMCSC and Asst .Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis:</li> </ol> <p>(a) Dates of Verification by Environment Specialist of PMCSC: Not available</p> <p>(b) Dates of Verification by Asst Executive Engineer (Environment) KIUWMIP-KUIDFC</p> | <p>Construction supervisor - Mr. Prakash and Resident Engineer - Mr. Shahir.</p> <p>Mr. Rajendra Kalghade</p> <p>M.R.S.Malik Environment Specialist of PMCSC – not available since Mar 2020</p> <p>Mr.Shashi SP Asst. Executive Engineer (Environment) KIUWMIP-KUIDFC</p> |

| Impact                     | Mitigation Measures  | Parameters Monitored | Method of Monitoring | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|----------------------------|--|----------------------|----------------------|-----------------------------------|---|
| <b>Construction Period</b> |  |                      |                      |                                   |   |
|                            | <p>(i) responsible person on site, and (ii) first aider; and</p> <p>(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 rain water. 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 – disturbing road users, creating dust, road safety issues, etc., and also into nearby open drains.</p> <p><b>The following should be included in the site layout plan:</b></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 |
|---|---|---|--|-----------------------------------|---|
| <b>Construction Period</b>  |   |   |  |                                   |   |
|   | 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) | <p>10. 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;</p> <p>11. 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>12. Provide contingency services where required (temporary diversion of drains, provision of water supply by tankers, etc.)</p> <p>13. Coordinate with the respective department and ensure that electricity and telephone services are restored quickly</p> <p>14. Reconstruct the damaged compound walls, culverts and drains immediately after the completion of pipeline work in that particular section</p> | 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<br>Record to confirm that contingency services are provided and all damaged utilities are restored after the work | <ul style="list-style-type: none"> <li>• Checkin g of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |
| Disruption to traffic flow and sensitive areas and receptors  | <p>15. Prioritize areas within or nearest possible vacant space in the subproject location;</p> <p>16. Avoid locating construction work camps close (100 m away) to residential areas;</p> <p>17. Do not consider residential areas; for stockpiling the waste/surplus soil; and</p> <p>18. Material stockpiles shall be protected by bunds during the monsoon to arrest the silt laden runoff into drains.</p>   | List of selected sites for construction work camp, storage area and disposal area. Complaints from sensitive receptors  | <ul style="list-style-type: none"> <li>• Checkin g of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |

| Impact  | Mitigation Measures  | Parameters Monitored  | Method of Monitoring   | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|---|--|---|--|-----------------------------------|---|
| <b>Construction Period</b>  |  |   |  |                                   |   |
| 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>19. Contractor should obtain material from existing mines approved/licensed by Mines and Geology Department/ Revenue Department only;</p> <p>20. Verify suitability of all material sources and obtain approval of implementing agency;</p> <p>21. No new quarry sites shall be developed for the subproject purpose; and</p> <p>22. Submit a monthly statement of construction material procured indicating material type, source and quantity.</p>  | Check Sources and approval  | <ul style="list-style-type: none"> <li>• Checkin g of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |
| Dust and emissions from construction activity may de-grade the air quality  | <p>23. Consult with PIU on the designated areas for stockpiling of clay, soils, gravel, and other construction materials;</p> <p>24. Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather;</p> <p>25. Bring materials (aggregates, sand, etc. gravel) as and when required;</p> <p>26. Use tarpaulins to cover sand and other loose material when transported by vehicles;</p> <p>27. Stockpile sand and other loose material only in barricaded area and protect/cover by tarpaulins to avoid dust generation</p> <p>28. Clean wheels and undercarriage of vehicles prior to leaving construction site;</p> <p>29. Fit all heavy equipment and machinery with air pollution control</p> | <p>Site observations</p> <p>Informal Ambient air quality monitoring (4 locations, frequency – quarterly - 4 times a year, 9 times in 24 months, parameters - SPM, RSPM, SOx, NOx)</p> | <ul style="list-style-type: none"> <li>• Checkin g of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |

| Impact  | Mitigation Measures  | Parameters Monitored   | Method of Monitoring   | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|---|--|--|--|-----------------------------------|---|
| <b>Construction Period</b>  |  |  |  |                                   |   |
|   | devices which are operating correctly; ensure valid Pollution Under Control (PUC) Certificates for all vehicles and equipment used in the construction activity; and<br>30. Carry out air quality monitoring.  |  |  |                                   |   |
| High noisy construction activities may have adverse impacts on sensitive receptors and structures | 31. 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;<br>32. 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;<br>33. 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;<br>34. 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<br>35. Maintain maximum sound levels not exceeding 80 decibels (dB) when measured at a distance of 10 m or more from the vehicles | Complaints from sensitive receptors<br>Site observations<br>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"> <li>• Checkin g of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |
| Impacts on surface drainage and water quality due to  | 36. Avoid stockpiling of earth fill especially during the monsoon  | Site observations  | <ul style="list-style-type: none"> <li>• Checkin g of records</li> <li>• visual</li> </ul>                     | Do                                | Do  |

| Impact   | Mitigation Measures   | Parameters Monitored                           | Method of Monitoring  | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|--|---|--|---|-----------------------------------|---|
| <b>Construction Period</b>                                       |   |  |   |                                   |   |
| contaminated runoff from construction areas in monsoon           | <p>season unless covered by tarpaulins or plastic sheets;</p> <p>37. Stockpiles shall be provided with temporary bunds;</p> <p>38. 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;</p> <p>39. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;</p> <p>40. Place storage areas for fuels and lubricants away from any drainage leading to water bodies. Storage structure should consider 110% capacity bund;</p> <p>41. Dispose any wastes generated by construction activities in designated sites; and,</p> <p>42. 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</p> |  | inspection of sites   |                                   |   |
| Impacts on landscape and aesthetics due to construction activity | <p>43. Manage surplus soil, construction debris and solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>44. Coordinate with PIU / MCC for beneficial uses of road debris and surplus soils in on-going construction works or for temporary</p>   | Work site inspection<br>Complaints from public | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |

| Impact  | Mitigation Measures   | Parameters Monitored | Method of Monitoring   | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|---|---|----------------------|--|-----------------------------------|---|
| <b>Construction Period</b>                    |   |                      |  |                                   |   |
|   | <p>storage for future use or disposal in landfill</p> <p>45. 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>46. 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>47. 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>48. Recover used oil and lubricants and reuse or remove from the sites;</p> <p>49. Remove all wreckage, rubbish, or temporary structures which are no longer required; and</p> <p>50. 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> |                      |  |                                   |   |
| Hindrance to traffic movement / Accessibility | 51. Plan pipeline work in consultation with the traffic police; Prepare a Traffic Management Plan   | Work Program Review  | <ul style="list-style-type: none"> <li>• Checkin g of records</li> <li>• visual inspection of</li> </ul> | All construction site, Do         | Do  |

| Impact                     | Mitigation Measures  | Parameters Monitored | Method of Monitoring | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|----------------------------|--|----------------------|----------------------|-----------------------------------|---|
| <b>Construction Period</b> |  |                      |                      |                                   |   |
|                            | <p>– a template is provided for reference at Appendix 8.</p> <p>52. Strictly follow the pipe laying method presented in the Table so that trench excavation, pipe laying, and refilling including compacting, at a stretch is completed in a minimum possible time</p> <p>53. 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>54. 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>55. 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>56. 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</p> |                      | sites                |                                   |   |

| Impact   | Mitigation Measures   | Parameters Monitored                                | Method of Monitoring  | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|--|---|---|---|-----------------------------------|---|
| <b>Construction Period</b>   |   |   |   |                                   |   |
|  | <p>schedule of the work and temporary road closure; proper signage shall be provided</p> <p>57. Maintain safe pedestrian access at all times to the houses along the work site</p> <p>58. 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>59. In densely populated areas like market place or layouts, roads with heavy traffics additional care has to be taken.</p> <p>60. 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> |   |   |                                   |   |
| Schools, hospitals and religious places) due construction work in the proximity (within 250 m of such place) | <p>61. No material should be stocked in this area; material shall be brought to the site as and when required</p> <p>62. Conduct work manually with small group of workers and less noise; minimize use of equipment and vehicles</p>   | Complaints from sensitive receptors<br>Work program | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |

| Impact                                      | Mitigation Measures  | Parameters Monitored  | Method of Monitoring   | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|---|--|---|--|-----------------------------------|---|
| <b>Construction Period</b>                  |  |   |  |                                   |   |
|   | <p>63. No work should be conducted near the religious places during religious congregations</p> <p>64. Material transport to the site should be arranged considering school timings; material should be in place before school starts;</p> <p>65. 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> |   |  |                                   |   |
| Impediment of access to houses and business | <p>66. Leave space for access between mounds of excavated soil, where required</p> <p>67. Provide wooden planks/footbridges for pedestrians and metal sheets for vehicles to allow access across trenches to premises where required.</p> <p>68. Consult affected business people to inform them in advance when work will occur</p> <p>69. Address livelihood issues, if any; implement the Resettlement Plan to address these issues</p> <p>70. Provide sign/caution/warning boards at work site indicating work schedule and traffic information; prevent public</p>  | <p>73. Number of walkways,</p> <p>74.</p> <p>75. wooden planks and foot bridges; Complaints from public;</p> <p>Spoil Management Plan; and Traffic Management plan.</p> | <ul style="list-style-type: none"> <li>• Checkin g of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |

| Impact                                 | Mitigation Measures   | Parameters Monitored  | Method of Monitoring  | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|--|---|---|---|-----------------------------------|---|
| <b>Construction Period</b>             |   |   |   |                                   |   |
|  | entry into work sites through barricading and security; and<br>71. Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.<br>72. Prepare a Traffic Management Plan – a template is provided for reference at <b>Appendix 8</b> in IEE. The site-specific traffic management plan should be part of the Construction Management Plan.  |   |   |                                   |   |
| Impact on local employment generation  | 76. Employ local labour force to the maximum extent, if manpower is available   | Employment Records<br>Compliance to labour laws   | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |
| Workers occupational health and safety | 77. Develop and implement site-specific Health and Safety (H&S) Plan which will include measures such as:<br>(a) excluding public from the site;<br>(b) ensuring all workers are provided with and use Personal Protective Equipment (PPE); (c) H&S Training for all site personnel;<br>(d) documented procedures to be followed for all site activities; and<br>(e) documentation of work-related accidents;<br>78. 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 | Site specific OHS Equipped first aid station.<br>Potable water supply and clean eating area.<br>PPE and medical insurance | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |

| Impact                     | Mitigation Measures   | Parameters Monitored | Method of Monitoring | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|----------------------------|---|----------------------|----------------------|-----------------------------------|---|
| <b>Construction Period</b> |   |                      |                      |                                   |   |
|                            | <p>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>79. 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>80. 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>81. 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>82. Provide all necessary personnel protection equipment; including oxygen masks for emergency use;</p> <p>83. Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site;</p> |                      |                      |                                   |   |

| Impact                     | Mitigation Measures   | Parameters Monitored | Method of Monitoring | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|----------------------------|---|----------------------|----------------------|-----------------------------------|---|
| <b>Construction Period</b> |   |                      |                      |                                   |   |
|                            | <p>84. Provide medical insurance coverage for workers;</p> <p>85. Secure all installations from unauthorized intrusion and accident risks;</p> <p>86. Provide supplies of potable drinking water;</p> <p>87. Provide clean eating areas where workers are not exposed to hazardous or noxious substances;</p> <p>88. Provide H &amp; 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>89. 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>90. Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas;</p> <p>91. Ensure moving equipment is outfitted with audible back-up alarms;</p> <p>92. 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> |                      |                      |                                   |   |

| Impact  | Mitigation Measures   | Parameters Monitored                              | Method of Monitoring   | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|---|---|---|--|-----------------------------------|---|
| <b>Construction Period</b>  |   |   |  |                                   |   |
|   | <p>93. 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>94. 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>95. Overall, the contractor should comply with IFC EHS Guidelines on Occupational Health and Safety (this can be downloaded from <a href="http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES">http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES</a>).</p> |   |  |                                   |   |
| Danger due to deep excavations, hindrance to traffic and chances of accident, | <p>96. 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>97. Plan material and waste routes to avoid times of peak-pedestrian activities;</p>  | Traffic Management Plan<br>Complaints from public | <ul style="list-style-type: none"> <li>• Checkin g of records</li> <li>• visual inspection of sites</li> </ul> | Do                                | Do  |

| Impact                      | Mitigation Measures  | Parameters Monitored   | Method of Monitoring                              | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|-----------------------------|--|--|---|-----------------------------------|---|
| <b>Construction Period</b>  |  |  |   |                                   |   |
|                             | <p>98. 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>99. Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure;</p> <p>100. Provide road signs and flag persons to warn of dangerous conditions, for all the sites along the roads; and</p> <p>101. Overall, the contractor should comply with IFC EHS Guidelines Community Health and Safety (this can be downloaded from <a href="http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2BCommunity%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES">http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2BCommunity%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES</a>).</p> |  |   |                                   |   |
| 102. Temporary worker camps | <p>103. The contractor should operate the temporary worker camps in compliance with IFC EHS Guidelines specific to workers accommodation (this can be downloaded from <a href="http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_gpn_workers_accommodation">http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/publications/publications_gpn_workers_accommodation</a>), including the following:</p>   | List of selected sites. Written consent of land owner<br>Waste Management plan | Checking of records<br>visual inspection of sites | Do                                | Do  |

| Impact                     | Mitigation Measures   | Parameters Monitored | Method of Monitoring | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|----------------------------|---|----------------------|----------------------|-----------------------------------|---|
| <b>Construction Period</b> |   |                      |                      |                                   |   |
|                            | <p>104. Consult with PIU before locating workers camps/sheds, and construction plants; as far as possible located within reasonable distance of work site;</p> <p>105. Minimize removal of vegetation and disallow cutting of trees;</p> <p>106. Labour camps shall include accommodation for 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>107. 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>108. 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>109. Fire and electrical safety pre-cautions shall be adhered to.</p> <p>110. Cooking, sanitation and washing areas shall be provided separately.</p> <p>111. The Contractor shall maintain necessary living accommodation and ancillary facilities (including provision of clean</p> |                      |                      |                                   |   |

| Impact                     | Mitigation Measures  | Parameters Monitored | Method of Monitoring | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|----------------------------|--|----------------------|----------------------|-----------------------------------|---|
| <b>Construction Period</b> |  |                      |                      |                                   |   |
|                            | <p>fuel to prevent damage to forests and to prevent fuel wood cutting and burning by labor) in functional and hygienic manner.</p> <p>112. The site must be graded and rendered free from depressions such that water does not get stagnant anywhere.</p> <p>113. 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>114. 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>115. 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>116. Train employees in the storage and handling of materials which can potentially cause soil contamination;</p> <p>117. Recover used oil and lubricants and reuse or remove from the site;</p> <p>118. Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> |                      |                      |                                   |   |

| Impact                     | Mitigation Measures   | Parameters Monitored | Method of Monitoring | Frequency of Monitoring Conducted | Name of Person Who Conducted the Monitoring |
|----------------------------|---|----------------------|----------------------|-----------------------------------|---|
| <b>Construction Period</b> |   |                      |                      |                                   |   |
|                            | 119. Remove all wreckage, rubbish, or temporary structures which are no longer required; and<br>120. Report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work. |                      |                      |                                   |   |

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

| Impact   | Mitigation Measures  | Parameters Monitored   | Method of monitoring  | Frequency of Monitoring   | Name of Person Who Conducted the Monitoring  |
|--|--|--|---|---|--|
| 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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | <p>1. Daily by construction supervisor- Resident Engineer</p> <p>2. Weekly / bi weekly by Construction Manager.</p> <p>3. Verification by Environment Specialist of PMCSC and Asst .Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis:</p> <p>(b) Dates of Verification by Environment Specialist of PMCSC :</p> | <p>Construction supervisor - Mr. Sadanand Kamate and Resident Engineer - Mr. Raghav</p> <p>Mr. Gopikumar / Mr. Rajendra Kalghade</p> |



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| oxides, particulate matter, nitrous oxides, and hydrocarbons. | 6. Fit all heavy equipment and machinery with air pollution 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;<br/> 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;<br/> 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);<br/> 4. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;<br/> 5. Provide temporary bunds for stockpiles and materials;<br/> 6. Place storage areas for fuels and lubricants away from any drainage leading to water bodies. Storage structure should consider 110% capacity bund; and<br/> 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;<br/> b) Number of silt traps installed along trenches leading to water bodies;<br/> c) Records of surface water quality inspection;<br/> d) Effectiveness of water management measures;<br/> e) No visible degradation to nearby drainages, nallahs or waterbodies due to civil work</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | <p>Do</p> | <p>Do</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>1. 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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |
| 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/PMCSC 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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |

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| 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. | <p>1. Manage surplus soil, debris and solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>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</p> <p>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</p> <p>4. Prepare and implement spoils management plan;</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 PIU/PMSC to report in writing that the necessary environmental restoration works has been adequately performed before acceptance of work.</p> | <p>a) Complaints from sensitive receptors;</p> <p>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</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |
| Disruption of service and damage to   | 1. At least two-weeks prior to start of work at any section, Identify utilities that will be  | a) Section-wise list of utilities to be shifted / disturbed to   | <ul style="list-style-type: none"> <li>• Checking of records</li> </ul>                                       | Do | Do |

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| existing infrastructure at specified project location | <p>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>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> | <ul style="list-style-type: none"> <li>• visual inspection of sites</li> </ul>                                |    |    |
| 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/PMCS C to report in writing the number of trees cut and planted.</p>  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |
| Traffic problems and conflicts near project           | <p>1. Plan pipeline work in consultation with the traffic police; prepare a Traffic Management</p>  | <p>a) Traffic route during construction works including number of</p>   | <ul style="list-style-type: none"> <li>• Checking of records</li> </ul>                                       | Do | Do |

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| locations and haul road | <p>Plan – a template is provided for reference at Appendix 11 of IEE.</p> <p>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;</p> <p>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;</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</p> | <p>permanent signages, barricades and flagmen on worksite (Appendix 11 in IEE);</p> <p>Complaints from sensitive receptors; and</p> <p>Number of signages placed at project location.</p> | <ul style="list-style-type: none"> <li>• visual inspection of sites</li> </ul> |  |  |
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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</p> <p>In narrow roads listed above, Inform the affected local population on week in advance, and again a day before the work</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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |

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|  | <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>   |  |   |    |    |
| Disturbance to socio cultural resources (religious, educational, health care etc.), access disruptions etc., | <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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |

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|  | restrictions and dos and don'ts; and<br>7. Implement all measures suggested elsewhere in this report – dust and noise control, public safety, traffic management, strictly at the sites.  |  |   |    |    |
| Generation of contractual employment and increase in local revenue | 1. Employ local labor force to the maximum extent, if manpower is available; and<br>2. Comply with labor laws   | a) Employment records;<br>b) Records of sources of materials; and<br>c) Compliance to core labor laws (See Appendix 2 of this IEE)   | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |
| Occupational hazards which can arise during work                   | 1. Comply with all national, state and local core labor laws (See Appendix 2 of this IEE);<br>2. Develop and implement site-specific health and safety (H&S) plan which will include measures such as:<br>(a) excluding public from the site;<br>(b) ensuring all workers are provided with and use Personal Protective Equipment;<br>(c) H&S Training for all site personnel;<br>(d) documented procedures to be followed for all site activities; and<br>(e) documentation of work-related accidents;<br>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;<br>b) Equipped first-aid stations;<br>c) Medical insurance coverage for workers;<br>d) Number of accidents;<br>e) Supplies of potable drinking water;<br>f) Clean eating areas where workers are not exposed to hazardous or noxious substances;<br>g) record of H&S orientation trainings<br>h) personal protective equipment; | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |

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|  | <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&amp;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</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 (Appendix 2 of IEE)</p> |  |  |  |
|--|--|--|--|--|--|

|   |   |  |  |    |    |
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|   | <p>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 <a href="http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2Boccupational%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES">http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2Boccupational%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES</a>)</p> |  |  |    |    |
| Traffic accidents and vehicle collision with pedestrians during material and waste transportation | <p>1. Provide protective shoring / strutting hard barricading for all deep excavations in sandy and mixed sandy that may require especially for pipe lines soils (&gt;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"> <li>• Check of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |

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|   | <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 <a href="http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2Bcommunity%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES">http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2Bcommunity%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES</a>).</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"> <li>• Checking of records</li> <li>• visual inspection</li> </ul> | Do | Do |

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| <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> |  |  |
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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> |  |  |  |  |
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|   | restored to pre-project conditions before acceptance of work.  |  |   |    |    |
| Risk of archaeological chance finds                         | <ol style="list-style-type: none"> <li>1. Create awareness among the workers and supervisors about the chance finds during excavation work;</li> <li>2. Stop work immediately if any finds are suspected to allow further investigation;</li> <li>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</li> <li>4. Adjacent to important religious sites, undertake excavation and construction work in such a way that no structural damage is caused to the building.</li> </ol> | Records of chance finds  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |
| Unsatisfactory compliance to EMP                            | 1. Timely submission of monitoring reports including pictures.   | Availability and competency of appointed supervisor<br>Monthly report  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |
| Damage due to debris, spoils, excess construction materials | <ol style="list-style-type: none"> <li>1. Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required;</li> <li>2. All excavated roads shall be reinstated to original condition.</li> <li>3. All disrupted utilities restored.</li> <li>4. All affected structures rehabilitated/compensated.</li> </ol>  | <ol style="list-style-type: none"> <li>a) PMU/PMDC SC report in writing that (i) worksite is restored to original conditions;</li> <li>b) camp has been vacated and restored to pre-project conditions;</li> <li>c) all construction related structures not</li> </ol> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do | Do |

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|  | <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/PMCSC 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&amp;M) are removed; and</p> <p>d) Worksite clean-up is satisfactory.</p> |  |  |  |
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**Table 12: Summary of Environmental Monitoring Activities of the 24x7 Water supply system in Udupi Town – Package No. 02UDP01- Pre-Construction**

| Impact                           | Mitigation Measures  | Parameters monitored  | Method of monitoring  | Frequency of Monitoring   |
|----------------------------------|--|---|---|---|
| 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> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | <p>1. Daily by construction supervisor- Resident Engineer</p> <p>2. Weekly / bi weekly by Construction Manager.</p> <p>3. Verification by Environment Specialist of PMCSC and Asst . Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis:</p> <p><b>a. Dates of Verification by Environment Specialist of PMCSC :</b></p> <p><b>b. Dates of Verification by Asst Executive Engineer (Environment) KIUWMIP-KUIDFC</b></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 permission</p> <p>(iii) Compensatory tree plantation</p>                    | Checking of records   |   |

| Impact  | Mitigation Measures  | Parameters monitored   | Method of monitoring  | Frequency of Monitoring |
|---|--|--|---|-------------------------|
|   | <p>2. For any tree cutting that may be required, obtain prior permission from Forest Department</p> <p>3. Plant and maintain 10 trees for each tree that is removed</p>  | as part of the project   |   |                         |
| 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> | <p>List of affected utilities and operators;</p> <p>(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</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> </ul> |                         |
| Ground disturbance can uncover and damage archaeological                            | <p>1. Create awareness among the workers and supervisors about the chance finds during excavation work</p>   | Chance Finds Protocol  | Checking of records   |                         |

| Impact   | Mitigation Measures  | Parameters monitored   | Method of monitoring | Frequency of Monitoring |
|--|--|--|----------------------|-------------------------|
| and historical remains                             | <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>  |  |                      |                         |
| 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 avoid direct disposal to water body which will inconvenience the community.</p> <p>(v) For excess spoil disposal, ensure (a) site</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> | Checking of records  |                         |

| Impact  | Mitigation Measures   | Parameters monitored  | Method of monitoring | Frequency of Monitoring |
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|   | 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. |   |                      |                         |
| Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated erosion, disturbance in natural drainage patterns, ponding and water logging, | <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</p> | Checking of records  |                         |

| Impact  | Mitigation Measures  | Parameters monitored  | Method of monitoring | Frequency of Monitoring |
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| and water pollution.  |  | quarry sites if necessary.                                    |                      |                         |
| 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.<br>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. | Checking of records  |                         |
| 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:<br>(i) Work description<br>(ii) Number of workers (skilled and unskilled)<br>(iii) Details of plant, equipment and machinery, vehicles<br>(iv) Work duration (total, and activity-wise, for example for pipe laying, from excavation to road resurfacing/testing) | Review of method statement and implementation of work         | Checking of records  |                         |

| Impact | Mitigation Measures   | Parameters monitored | Method of monitoring | Frequency of Monitoring |
|--------|---|----------------------|----------------------|-------------------------|
|        | (v) PPE (helmet, gloves, boots, etc.) details for each type of work<br>(vi) Details of materials at each site (type and quantity)<br>(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.)<br>(viii) Construction waste/debris generated (details and quantity)<br>(ix) Detail the sequence of work process (step-by-step) including specific details of each work<br>(x) Contractor's supervision and management arrangements for the work<br>(xi) Emergency: Designate (i) responsible person on site, and (ii) first aider<br>(xii) Typical site layout plan including pipe trenching, placement of material, |                      |                      |                         |

| Impact | Mitigation Measures  | Parameters monitored | Method of monitoring | Frequency of Monitoring |
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|        | excavated earth, barricading etc.<br>(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 – 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 Udupi Town – Package No. 02UDP01- Construction**

| Impact   | Mitigation Measures  | Parameters Monitored   | Method of monitoring  | Frequency of Monitoring   |
|--|--|--|---|---|
| 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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | <p>1. Daily by construction supervisor- Resident Engineer Construction supervisor - Mr. Sadanandh and Resident Engineer - Mr. Aneesh Suvarna. &amp; Mr.Meghshyam Hebbar</p> <p>2.</p> <p>3. Weekly / bi weekly by Construction Manager.- Mr. Gopi Kumar / Rajendra Kelghade</p> <p>4.</p> |

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|  |   |   |   | <p>5. Verification by Environment Specialist of PMCSC and Asst. Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis:</p> <p>6. M.R.S.Malik<br/>Environment Specialist of PMCSC.</p> <p>7.</p> <p><b>8. Dates of Verification by Environment Specialist of PMCSC :</b></p> <p><b>9. Dates of Verification by Asst Executive Engineer (Environment) KIUWMIP-KUIDFC</b></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</p> | <p>1. Consult with PMU/PMCSC 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. Clean wheels and undercarriage of vehicles prior to leaving construction site; and</p> <p>5. Fit all heavy equipment and machinery with air pollution control devices which are operating correctly.</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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do  |

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| monoxide, sulphur oxides, particulate matter, nitrous oxides, and hydrocarbons. |  |  |  |  |
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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"> <li>1. Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;</li> <li>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;</li> <li>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 in IEE);</li> <li>4. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;</li> <li>5. Provide temporary bunds for stockpiles and materials;</li> <li>6. Place storage areas for fuels and lubricants away from any drainage leading to water bodies. Storage structure should consider 110% capacity bund; and</li> <li>7. Dispose any wastes generated by construction activities in landfill or reuse in beneficial purposes</li> <li>8. Conduct surface quality inspection &amp; Monitoring</li> </ol> | <ol style="list-style-type: none"> <li>a) Areas for stockpiles, storage of fuels and lubricants and waste materials;</li> <li>b) Number of silt traps installed along trenches leading to water bodies;</li> <li>c) Records of surface water quality inspection;</li> <li>d) Effectiveness of water management measures;</li> <li>e) No visible degradation to nearby drainages, nallahs or water bodies due to civil work</li> </ol> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Increase in noise level due to earth-moving and excavation equipment, and the transportation of equipment, materials, and people  | <ol style="list-style-type: none"> <li>1. Plan activities in consultation with PMU/PMCSC 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;</li> <li>2. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach;</li> <li>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</li> <li>4. Maintain maximum sound levels not exceeding 80 decibels (dB) when measured at a distance of 10 m or more from the vehicle/s.</li> </ol>  | <ol style="list-style-type: none"> <li>a) Complaints from sensitive receptors;</li> <li>b) Use of silencers in noise-producing equipment and sound barriers; and</li> <li>c) Equivalent day and night time noise levels (Appendix 3 of IEE)</li> </ol>  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

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|   | 5. Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach;   |   |   |    |
| 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"> <li>1. Prepare and implement spoils management plan</li> <li>2. Avoid stockpiling of excess excavated soils;</li> <li>3. Coordinate with Udupi CMC for beneficial uses of excess excavated soils or immediately dispose to designated areas;</li> <li>4. Recover used oil and lubricants and reuse or remove from the sites;</li> <li>5. Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</li> <li>6. Remove all wreckage, rubbish, or temporary structures which are no longer required; and</li> <li>7. Request PMU/PMCSC to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.</li> </ol> | <ol style="list-style-type: none"> <li>a) Complaints from sensitive receptors;</li> <li>b) Worksite clear of hazardous wastes such as oil/fuel; and</li> <li>c) Worksite clear of any excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging materials, empty containers</li> </ol> | <ul style="list-style-type: none"> <li>• Check king of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Disruption of service and damage to existing infrastructure at specified project location   | <ol style="list-style-type: none"> <li>1. Obtain from PIU/PMCSC the list of affected utilities and operators if any;</li> <li>2. Prepare a contingency plan to include actions to be done in case of unintentional interruption of service</li> <li>3. The public should be given notice at least three days in advance and any accidental breaking should be rectified immediately</li> </ol>  | <ol style="list-style-type: none"> <li>a. once when the service is disrupted</li> <li>b. once for the each area disrupted</li> <li>c. as and when required when the disruption is planned</li> </ol>  | <ul style="list-style-type: none"> <li>• Check king of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Traffic problems and conflicts near   | 1. Plan pipeline work in consultation with the traffic police; prepare a Traffic Management Plan – a template is provided for reference at Appendix 7 in IEE.   | a) Traffic route during construction works including  | <ul style="list-style-type: none"> <li>• Check king of records</li> </ul>                                       | Do |

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| project locations and haul road                              | <p>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;</p> <p>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;</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 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</p> <p>12. Prepare a Traffic Management Plan – a template is provided as an Appendix 7.</p> | <p>number of permanent signages, barricades and flagmen on worksite (Appendix 7 in IEE);</p> <p>b) Complaints from sensitive receptors; and</p> <p>c) Number of signages placed at project location.</p> | <ul style="list-style-type: none"> <li>• visual inspection of sites</li> </ul>                       |    |
| Impede the access of residents and customers to nearby shops | <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>a) Complaints from sensitive receptors;</p>   | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection</li> </ul> | Do |

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|  | <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>b) Spoils management plan; and</p> <p>c) Number of walkways, signs, and metal sheets placed at project location</p>                            | of sites  |    |
| Disturbance to socio cultural resources (religious, educational, health care etc.), access disruptions etc., | <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 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 restrictions and dos and don'ts; and</p> <p>7. Implement all measures suggested elsewhere in this report – dust and noise control, public safety, traffic management, strictly at the sites.</p> | <p>c) Visual site observations</p> <p>d) Public complaints</p>  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Generation of contractual employment and increase in local revenue   | <p>1. Employ local labor force to the maximum extent, if manpower is available; and</p> <p>2. Comply with labor laws</p>   | <p>a) Employment records;</p> <p>b) Records of sources of materials; and</p> <p>c) Compliance to core labor laws (See Appendix 2 of this IEE)</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

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| 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&amp;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&amp;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>9. Provide H&amp;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</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&amp;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> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
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|   | <p>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 <a href="http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2Boccupational%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES">http://www1.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2Boccupational%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES</a>)</p>  | k) Compliance to core labor laws (Appendix 2 in IEE)                                   |   |    |
| Traffic accidents and vehicle collision with pedestrians during material and waste transportation | <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 Udupi 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; and</p> <p>6. Overall, the contractor should comply with IFC EHS Guidelines Community Health and Safety (this can be downloaded from <a href="http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2Bcommunity%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES">http://www1.ifc.org/wps/wcm/connect/dd673400488559ae83c4d36a6515bb18/3%2Bcommunity%2Bhealth%2Band%2Bsafety.pdf?MOD=AJPERES</a>).</p> | <p>a) Traffic Management Plan; and</p> <p>b) Complaints from sensitive receptors</p>   | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Temporary air and noise pollution from machine operation, water pollution                         | <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>2. Minimize removal of vegetation and disallow cutting of trees;</p> <p>3. Labor camps shall include</p>  | <p>c) Complaints from sensitive receptors;</p> <p>d) Drinking water and sanitation</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

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| <p>from storage and use of fuels, oils, solvents, and lubricants</p> <p>Unsanitary and poor living conditions for workers</p> | <p>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 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>facilities for employees</p> |  |  |
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|   | <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>  |  |   |    |
| 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"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul> | Do |
| 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"> <li>• Availability and competency of appointed supervisor</li> <li>• Monthly report</li> </ul>  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul> | Do |
| Damage due to debris, spoils, excess construction materials | <p>1. Remove all spoils wreckage, rubbish, or temporary 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>                              | PMU/PMCSC report in writing that (i) worksite is restored to original conditions; (ii) camp has been vacated and restored to pre-project conditions; a) (iii) all construction related | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• Visual inspection of sites</li> </ul> | Do |

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|  | <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/PMCSC to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.</p> | <p>structures not relevant to operation and maintenance (O&amp;M) are removed; and</p> <p>(iv) Worksite clean-up is satisfactory.</p> |  |  |
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**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  | Method of monitoring  | Frequency of Monitoring  |
|----------------------------------|--|---|---|--|
| 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> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | <p>1. Daily by construction supervisor- Resident Engineer</p> <p>1. Construction supervisor - Mr. Sadanandh and Resident Engineer - Mr. Raghav</p> <p>2. Weekly / bi weekly by Construction Manager.</p> <p>3. Mr. Gopi Kumar/ Mr. Rajendra Kalghade</p> <p>4.</p> <p>5. Verification by Environment Specialist of PMCSC and Asst . Executive Engineer (Environment) KIUWMIP-KUIDFC</p> <p>On monthly basis:</p> |

| Impact  | Mitigation Measures  | Parameters monitored  | Method of monitoring  | Frequency of Monitoring   |
|---|--|---|---|---|
|   |  |   |   | <p>6. M.R.S.Malik<br/>Environment Specialist of PMCSC.</p> <p>7. <b>Dates of Verification by Environment Specialist of PMCSC :</b></p> <p>8. <b>Dates of Verification by Asst Executive Engineer (Environment) KIUWMIP-KUIDFC</b></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>2. For any tree cutting that may be required, obtain prior permission from Forest Department</p> <p>3. Plant and maintain 10 trees for each tree that is removed</p> | <p>(i) Layout plan of OHTs</p> <p>(ii) tree cutting / pruning permission</p> <p>(iii) Compensatory tree plantation as part of the project</p>                                     | Checking of records   |   |
| 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>(i) List of affected utilities and operators;</p> <p>(ii) Bid document to include requirement for a contingency plan for service interruptions (example provision of water</p> | <ul style="list-style-type: none"> <li>Checking of records</li> </ul> |   |

| Impact  | Mitigation Measures  | Parameters monitored  | Method of monitoring | Frequency of Monitoring |
|---|--|---|----------------------|-------------------------|
|   | <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>   | if disruption is more than 24 hours), spoil management plan, and traffic management plan                    |                      |                         |
| Ground disturbance can uncover and damage archaeological and historical remains | <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 situ.</p> | Chance Finds Protocol   | Checking of records  |                         |
| 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</p>  | (i) List of selected sites for construction work camps, stockpile areas, storage areas, and disposal areas. | Checking of records  |                         |

| Impact  | Mitigation Measures   | Parameters monitored   | Method of monitoring | Frequency of Monitoring |
|---|---|--|----------------------|-------------------------|
|   | <p>instability and result in destruction of property, vegetation, irrigation, and 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 settlements, ponds/lakes or other water bodies.</p> | (ii) Written consent of landowner/s (not lessee/s) for reuse of excess spoils to agricultural land |                      |                         |
| Extraction of materials can disrupt natural land contours and vegetation resulting in accelerated | 1. Use quarry sites and sources permitted by Mines and Geology Department only  | (i) List of approved quarry sites and sources of materials;  | Checking of records  |                         |

| Impact  | Mitigation Measures  | Parameters monitored   | Method of monitoring | Frequency of Monitoring |
|---|--|--|----------------------|-------------------------|
| erosion, disturbance in natural drainage patterns, ponding and water logging, and water pollution.                | 2. No new quarry sites shall be developed for the subproject<br>Verify suitability of all material sources and obtain approval of implementing agency<br>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. |                      |                         |
| 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.<br>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.  | Checking of records  |                         |
| 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:<br>(i) Work description<br>(ii) Number of workers (skilled and unskilled)<br>(iii) Details of plant, equipment and machinery, vehicles<br>(iv) Work duration (total, and activity-wise, for               | Review of method statement and implementation of work  | Checking of records  |                         |

| Impact | Mitigation Measures   | Parameters monitored | Method of monitoring | Frequency of Monitoring |
|--------|---|----------------------|----------------------|-------------------------|
|        | <p>example for pipe laying, from excavation to road resurfacing/testing)</p> <p>(v) PPE (helmet, gloves, boots, etc.) details for each type of work</p> <p>(vi)Details of materials at each site (type and quantity)</p> <p>(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.)</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> |                      |                      |                         |

| Impact | Mitigation Measures   | Parameters monitored | Method of monitoring | Frequency of Monitoring |
|--------|---|----------------------|----------------------|-------------------------|
|        | (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 – 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 monitoring of  | Frequency of Monitoring Conducted   |
|--|--|--|---|---|
| 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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | <p>Daily by construction supervisor- Resident Engineer<br/>Construction supervisor - Mr. Sadanandh and Resident Engineer - Mr. Raghav</p> <p>Weekly / bi weekly by Construction Manager.<br/>Mr. Gopi Kumar/ Mr.Rajendra Kalghade</p> <p>1.</p> <p>2. Verification by Environment</p> |

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|  |   |   |   | <p>Specialist of PMCSC and Asst . Executive Engineer (Environment) KIUWMIP-KUIDFC On monthly basis: M.R.S.Malik Environment Specialist of PMCSC. 2.</p> <p><b>a. Dates of Verification by Environment Specialist of PMCSC :</b></p> <p><b>b. Dates of Verification by Asst Executive Engineer (Environment) KIUWMIP-KUIDFC</b></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,</p> | <p>3. Consult with PMU/PMCSC on the designated areas for stockpiling of clay, soils, gravel, and other construction materials;</p> <p>4. Damp down exposed soil and any stockpiled on site by spraying with water when necessary during dry weather;</p> <p>5. Use tarpaulins to cover sand and other loose material when transported by trucks; and</p> <p>6. Clean wheels and undercarriage of vehicles prior to leaving construction site; and</p> <p>7. Fit all heavy equipment and machinery with air pollution control devices which are operating correctly.</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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do   |

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| particulate matter, nitrous oxides, and hydrocarbons.   |  |   |   |    |
| Mobilization of settled silt materials, and chemical contamination from fuels and lubricants during installation of pipelines can contaminate nearby surface water quality. | <p>1. Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets;</p> <p>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;</p> <p>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 in IEE);</p> <p>4. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;</p> | <p>a) Areas for stockpiles, storage of fuels and lubricants and waste materials;</p> <p>b) Number of silt traps installed along trenches leading to water bodies;</p> <p>c) Records of surface water quality inspection;</p> <p>d) Effectiveness of water management measures;</p> <p>e) No visible degradation to nearby drainages, nallahs or water</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

|  |   |   |   |    |
|--|---|---|---|----|
|  | <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 &amp; Monitoring</p>  | bodies due to civil work  |   |    |
| 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/PMCSC 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>5. Horns should not be used unless it is necessary to warn other road users or animals of the</p> <p>6. vehicle's approach;</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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

|   |   |   |   |    |
|---|---|---|---|----|
| 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"> <li>1. Prepare and implement spoils management plan</li> <li>2. Avoid stockpiling of excess excavated soils;</li> <li>3. Coordinate with Puttur CMC for beneficial uses of excess excavated soils or</li> <li>4. immediately dispose to designated areas;</li> <li>5. Recover used oil and lubricants and reuse or remove from the sites;</li> <li>6. Manage solid waste according to the following</li> <li>7. preference hierarchy: reuse, recycling and disposal to designated areas;</li> <li>8. Remove all wreckage, rubbish, or temporary structures which are no longer required; and</li> <li>9. Request PMU/PMCSC to report in writing that the necessary environmental restoration work has been adequately performed before</li> <li>10. acceptance of work.</li> </ol> | <ol style="list-style-type: none"> <li>a) Complaints from sensitive receptors;</li> <li>b) Worksite clear of hazardous wastes such as oil/fuel; and</li> <li>c) Worksite clear of any excess excavated earth, excess construction materials, and solid waste such as removed concrete, wood, packaging materials, empty containers</li> </ol> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Disruption of service and damage to existing infrastructure at specified project location   | <ol style="list-style-type: none"> <li>1. Obtain from PIU/PMCSC the list of affected utilities and operators if any;</li> <li>2. Prepare a contingency plan to include actions to be done in case of unintentional interruption of service</li> <li>3. The public should be given notice at least three days in advance and any accidental breaking should be rectified immediately</li> </ol>  | <ol style="list-style-type: none"> <li>a. once when the service is disrupted</li> <li>b. once for the each area disrupted</li> <li>c. as and when required when the disruption is planned</li> </ol>  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

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| <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</p> <ol style="list-style-type: none"> <li>1. Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites ;</li> <li>2. Schedule transport and hauling activities during non-peak hours;</li> <li>3. Locate entry and exit points in areas where there is low potential for traffic congestion;</li> <li>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;</li> <li>5. Maintain safe pedestrian access at all times to the houses along the work site;</li> <li>6. Hard barricades should be mandatorily provided for work sites in residential and commercial areas, along with caution board.</li> <li>7. 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;</li> </ol> | <p>a) Traffic route during construction works including number of permanent signages, barricades and flagmen on worksite (Appendix 12);</p> <p>b) Complaints from sensitive receptors; and</p> <p>c) Number of signages placed at project location.</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | <p>Do</p> |
|--|---|---|---|-----------|

|  |   |  |   |    |
|--|---|--|---|----|
|  | <ol style="list-style-type: none"> <li>1. Keep the site free from all unnecessary obstructions;</li> <li>2. Drive vehicles in a considerate manner</li> <li>3. Prepare a Traffic Management Plan – a template is provided as an Appendix 12 in IEE.</li> </ol>  |  |   |    |
| Impede the access of residents and customers to nearby shops   | <ol style="list-style-type: none"> <li>1. Prepare and implement spoils management plan</li> <li>2. Leave spaces for access between mounds of soil;</li> <li>3. Provide walkways and metal sheets where required for people;</li> <li>4. Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools;</li> <li>5. Consult businesses and institutions regarding operating hours and factoring this in work schedules; and</li> <li>6. Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.</li> </ol> | <ol style="list-style-type: none"> <li>a) Complaints from sensitive receptors;</li> <li>b) Spoils management plan; and</li> <li>c) Number of walkways, signs, and metal sheets placed at project location</li> </ol> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Disturbance to socio cultural resources (religious, educational, health care etc.), access disruptions etc., | <ol style="list-style-type: none"> <li>1. No material should be stocked close to these areas; material shall be brought to the site as and when required;</li> <li>2. Conduct work manually with small group of workers and less noise; minimize use of equipment and vehicles;</li> <li>3. Strictly follow the pipe laying method presented in Table 10 so</li> </ol>  | <ol style="list-style-type: none"> <li>a) Visual site observations</li> <li>b) Public complaints</li> </ol>  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

|  |   |   |   |    |
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|  | <p>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 restrictions and dos and don'ts; and</p> <p>7. Implement all measures suggested elsewhere in this report – dust and noise control, public safety, traffic management, strictly at the sites.</p> |   |   |    |
| Generation of contractual employment and increase in local revenue | <p>1. Employ local labor force to the maximum extent, if manpower is available; and</p> <p>2. Comply with labor laws</p>  | <p>a) Employment records;</p> <p>b) Records of sources of materials; and</p> <p>c) Compliance to core labor laws (See Appendix 2 of this IEE)</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Occupational hazards which can arise during work                   | <p>1. Comply with all national, state and local core labor laws (See Appendix 2 of this IEE);</p> <p>2. Develop and implement site-specific health and safety</p>   | <p>a) Site-specific OHS Plan;</p> <p>b) Equipped first-aid stations;</p>  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

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|  | <p>(H&amp;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&amp;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>9. Provide H&amp;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>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&amp;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 (Appendix 2)</p> |  |  |
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|  | <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 protection shall be enforced actively; and</p> |  |   |    |
| Traffic accidents and vehicle collision with pedestrians during material and | <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>a) Traffic Management Plan; and</p> <p>b) Complaints from sensitive receptors</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

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| waste transportation  | <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; and</p>  |   |   |    |
| <p>Temporary air and noise pollution from machine operation, water pollution from storage and use of fuels, oils, solvents, and lubricants</p> <p>Unsanitary and poor living conditions for workers</p> | <p>6. Consult with PIU before locating workers camps/sheds, and construction plants; as far as possible located within reasonable distance of work site;</p> <p>7. Minimize removal of vegetation and disallow cutting of trees;</p> <p>8. Labor camps shall include</p> <p>9. 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>10. 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>11. The camps shall be floored with concrete, shall be kept clean,</p> | <p>a) Complaints from sensitive receptors;</p> <p>b) Drinking water and sanitation facilities for employees</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

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|  | <p>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>12. Fire and electrical safety pre-cautions shall be adhered to.</p> <p>13. Cooking, sanitation and washing areas shall be provided separately.</p> <p>14. 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>15. The site must be graded and rendered free from depressions such that water does not get stagnant anywhere.</p> <p>16. 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>17. 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>18. Provide separate facilities for men and women; sanitary facilities shall be properly build and well maintained; toilet and bath</p> |  |  |  |
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|  | <p>facilities should be provided on basis of 1 per 15 or less persons;</p> <p>19. Train employees in the storage and handling of materials which can potentially cause soil contamination;</p> <p>20. Recover used oil and lubricants and reuse or remove from the site;</p> <p>21. Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas;</p> <p>22. Remove all wreckage, rubbish, or temporary structures which are no longer required;</p> <p>23. Report in writing that the camp has been vacated and restored to pre-project conditions before acceptance of work.</p> <p>24. The work camp details should be included in the Construction Management Plan</p> |  |  |  |
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| 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"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Unsatisfactory compliance to EMP                            | <p>5. Appointment of EHS engineer to ensure EMP implementation</p> <p>6. Timely submission of monitoring reports including pictures.</p>  | <ul style="list-style-type: none"> <li>• Availability and competency of appointed supervisor</li> <li>• Monthly report</li> </ul>  | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |
| Damage due to debris, spoils, excess construction materials | <p>1. Remove all spoils wreckage, rubbish, or temporary 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</p>  | <p>PMU/PMCSC report in writing that (i) worksite is to be restored to original conditions;</p> <p>(ii) camp has been vacated and restored to pre-project conditions;</p> <p>b) (iii) all construction related structures not relevant to operation and maintenance</p> | <ul style="list-style-type: none"> <li>• Checking of records</li> <li>• visual inspection of sites</li> </ul> | Do |

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|  | <p>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/PMCSC to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.</p> | <p>(O&amp;M) are removed; and</p> <p>(iv) Worksite clean-up is satisfactory.</p> |  |  |
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## VI. MONITORING OF ENVIRONMENTAL IMPACTS ON PROJECT SURROUNDINGS

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

**Table 16: Monitoring Of Environmental Impacts on Project Surroundings**

| <b>Package No.</b> | <b>Status of Pre-Work Conditions(Recorded / Not Recorded)</b> | <b>Baseline Environmental Conditions (air, water, noise) Documented(Yes / No)</b> | <b>Action Proposed and Additional Measures Required</b>  |
|--------------------|---|---|--|
| <b>02MNG02</b>     | <b>Recorded</b>   | <b>No</b>   | Environmental monitoring of air and Noise is required for every 3months except monsoon season and water quality if any surface water bodies near project area.   |
| <b>02KDP01</b>     | <b>Recorded</b>   | <b>No</b>   | Environmental monitoring of air and Noise is required for every 3months except monsoon season and water quality if any surface water bodies near project area.   |
| <b>02PTR01</b>     | <b>Recorded</b>   | <b>Yes</b>  | Environmental monitoring of air and Noise is required for every 3months except monsoon season and water quality if any surface water bodies near project area  |
| <b>02UDP01</b>     | <b>Recorded</b>   | <b>Yes</b>  | Project is in preconstruction Phase Environmental monitoring of air and Noise is required which can be compared with construction Phase Monitoring results. For every 3months except monsoon season Monitoring has to be done. water quality monitoring is required if any surface water bodies near project area. |
| <b>02MNG01</b>     | Project is in Design Validation Stage                         | No  | Project is in Design Validation Stage. Environmental monitoring of air and Noise is required which can be compared with construction Phase Monitoring  |

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|  |  |  | results. For every 3months except monsoon season Monitoring has to be done. Water quality monitoring is required if any surface water bodies near project area. |
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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 results are presented in Table 17. The tests were conducted for PM10, PM2.5, SO2, and NO2. The Monitoring results shows all tested parameters are well within the CPCB's prescribed standards, except for PM10 at Kundapura and slightly above IFC standards for PM10 and SO2 at Kundapura and PM10 for most of the locations. The application of mitigation measures i.e. suppression of dust is required.

35. Complete test result certificates are available as back up papers with PMCSC and PIU. Mitigation measures, like dust suppression will be applied as per EMP. Instruction has been given to the contractor for improvement of application of mitigation measures.

**Table 17: Air Quality Monitoring Results**

| Town                            | Phase                                 | Sampling Locations  | Date of Monitoring | Parameters                        |                                   |                                     |                                    |
|---------------------------------|---------------------------------------|---|--------------------|-----------------------------------|-----------------------------------|-------------------------------------|------------------------------------|
|                                 |                                       |   |                    | SO <sub>2</sub> µg/m <sup>3</sup> | NO <sub>2</sub> µg/m <sup>3</sup> | PM <sub>2.5</sub> µg/m <sup>3</sup> | PM <sub>10</sub> µg/m <sup>3</sup> |
| Mangalore (Package no. 02MNG02) | During Construction                   | The contractor has not conducted monitoring exercise due to COVID situation |                    |                                   |                                   |                                     |                                    |
|                                 | Average During construction           |   |                    |                                   |                                   |                                     |                                    |
|                                 |                                       |   |                    |                                   |                                   |                                     |                                    |
| Puttur Water Supply (02PTR01)   | Construction Phase monitoring         | Seti Gudda  | 22-01-20           | 13.4                              | 19.1                              | 24.6                                | 58.6                               |
|                                 |                                       | Bannur  | 23-01-20           | 13.3                              | 16.8                              | 20.4                                | 52.7                               |
|                                 |                                       | Lingadagudda-Kabaka   | 23-01-20           | 10.4                              | 15.0                              | 20.4                                | 57.1                               |
|                                 |                                       | Kodipadi  | 22-01-20           | 10.0                              | 13.8                              | 19.5                                | 53.8                               |
|                                 |                                       | Karmala Near Microwave Station  | 23-01-20           | 13.8                              | 19.2                              | 23.5                                | 69.6                               |
|                                 |                                       | CTO-Darbe   | 22-01-20           | 9.8                               | 13.9                              | 20.6                                | 60.1                               |
|                                 |                                       | Balnad Helipad  | 23-01-20           | 9.9                               | 16.5                              | 18.3                                | 56.7                               |
|                                 |                                       | Balnad Keliyadi   | 22-01-20           | 9.2                               | 13.2                              | 19.4                                | 53.6                               |
|                                 |                                       | Kemmai  | 22-01-20           | 12.1                              | 16.2                              | 20.8                                | 55.4                               |
|                                 |                                       | WTP Nekkilady   | 22-01-20           | 13.7                              | 19.4                              | 22.2                                | 60.3                               |
|                                 |                                       | Kakkunje-Perutodi   | 22-01-20           | 14.1                              | 19.5                              | 25.5                                | 61.0                               |
|                                 | Average Construction Phase monitoring |   |                    | 13.8                              | 19.2                              | 25.5                                | 69.6                               |

| Town                                   | Phase  | Sampling Locations                        | Date of Monitoring | Parameters                           |                                      |  |                                    |
|--|--|---|--------------------|--------------------------------------|--------------------------------------|--|------------------------------------|
|  |  |   |                    | SO <sub>2</sub><br>µg/m <sup>3</sup> | NO <sub>2</sub><br>µg/m <sup>3</sup> | PM <sub>2.5</sub><br>µg/m <sup>3</sup> | PM <sub>10</sub> µg/m <sup>3</sup> |
| <b>Udupi Water Supply (02UDP01)</b>    | Construction Phase monitoring                | Near Anganwadi proposed OHT, Manipal      | 21.01.2020         | 12.6                                 | 17.8                                 | 24.4                                   | 67.5                               |
|  |  | Near Govt Polytechnic, Ananatha nagara    | 21.01.2020         | 14.6                                 | 18.5                                 | 27.5                                   | 73.4                               |
|  |  | Near Parkala OHT, Parkala                 | 21.01.2020         | 13.2                                 | 19.3                                 | 26.5                                   | 73.8                               |
|  |  | Near Indiranagara church, Indira nagara   | 21.01.2020         | 11.7                                 | 17.0                                 | 24.4                                   | 67.7                               |
|  |  | Subramanya Temple, Manchi                 | 21.01.2020         | 12.5                                 | 17.0                                 | 24.7                                   | 69.4                               |
|  |  | Near Al Ibaadah Indian School, Perampalli | 21.01.2020         | 15.1                                 | 20.0                                 | 26.5                                   | 75.4                               |
|  |  | Near Santhekatte proposed OHT             | 21.01.2020         | 14.4                                 | 18.5                                 | 28.4                                   | 76.4                               |
|  | <b>Average Construction Phase monitoring</b> |   |                    | <b>14.0</b>                          | <b>18.0</b>                          | <b>20.0</b>                            | <b>40.7</b>                        |
| <b>Kundapura (Package no. 02KDP01)</b> | <b>Construction Phase monitoring</b>         | Shasthri Circle                           | 10/01/2020         | 25.8                                 | 27.4                                 | 69.5                                   | 154.7                              |
|  |  | OHT Halekote                              | 10/01/2020         | 21.4                                 | 23.5                                 | 57.8                                   | 149.2                              |
|  |  | WTP Japthi                                | 10/01/2020         | 26.4                                 | 28.1                                 | 57.6                                   | 119.2                              |
|  |  | Parijatha Circle                          | 10/01/2020         | 22.1                                 | 24.7                                 | 48.0                                   | 98.5                               |
|  |  | Land Post Office                          | 13/01/2020         | 20.9                                 | 23.5                                 | 50.4                                   | 94.7                               |
|  |  | Basroor Main Road                         | 13/01/2020         | 27.5                                 | 29.6                                 | 45.1                                   | 80.3                               |
|  |  | Church Road                               | 14/01/2020         | 22.3                                 | 26.8                                 | 42.7                                   | 80.9                               |
|  |  | M Kodi                                    | 14/01/2020         | 19.6                                 | 22.8                                 | 42.5                                   | 68.2                               |
|  |  | OHT Kodi                                  | 14/01/2020         | 20.5                                 | 24.1                                 | 43.4                                   | 68.7                               |
|  |  | Public Park(Near Juma Masjid)             | 14/01/2020         | 14.2                                 | 16.9                                 | 25.8                                   | 49.6                               |
|  | <b>Average During Pre-construction</b>       |   |                    | <b>22.04</b>                         | <b>24.74</b>                         | <b>48.28</b>                           | <b>96.4</b>                        |
|  |  | <b>Standard as per CPCB</b>               |                    | <b>80.0</b>                          | <b>80.0</b>                          | <b>60.0</b>                            | <b>100.0</b>                       |
|  |  | <b>IFC standards</b>                      |                    | 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)

SO<sub>2</sub> :IS 5182 (Pt 2): 2001 (RA 2017) (Improved west and Geake method)

NO<sub>2</sub> :IS 5182 (Pt 6): 2006 (RA 2017) (Jacob and Hochheiser modified method).

36. The noise level monitoring has also been carried out for construction sites of Mangalore UGD, Puttur and Udupi WSS. Table 18 shows noise level data. Complete test result certificates for Kundapura, Puttur and Udupi WSS are available as back up papers with PMCSC and PIU. It is noted from the results that noise levels at Kundapura, Puttur and Udupi WSS project location is within the standard for commercial and residential areas. At sub-projects package locations, noise levels are above the residential area standard but below the commercial or industrial area standards of CPCB and IFC. Noise level monitoring to be continued as per environment monitoring program throughout the construction period for understanding increase or decrease trend of noise level at project locations. To mitigate high noise levels contractor to apply mitigation measures like control use of noise producing equipment, maintenance of equipment's and finally use of PPE by worker or mitigation measures as prescribed in EMP.

37. The next environmental monitoring activities have to be conducted within January to June 2020 to measure concentrations of parameters as done earlier and covering all running construction sites. The cost of the environmental monitoring is arranged from contractor budget.

38. The next environmental monitoring activities will be conducted within January to June 2020 to measure concentrations of parameters as done earlier and covering all running construction sites. The cost of the environmental monitoring is arranged from contractor budget (Ref. Appendix 2).

**Table 18: Noise Level Monitoring at project sites**

| Town                               | Phase                         | Sampling Locations  | Date of Monitoring | Day Time       |                |              | Night Time<br>Leq dB(A) |                |              |
|------------------------------------|-------------------------------|---|--------------------|----------------|----------------|--------------|-------------------------|----------------|--------------|
|                                    |                               |   |                    | L Min<br>dB(A) | L Max<br>dB(A) | Leq<br>dB(A) | L Min<br>dB(A)          | L Max<br>dB(A) | Leq<br>dB(A) |
| Mangalore<br>(Package no. 02MNG02) | During Construction           | The contractor didn't conduct the monitoring due to COVID situation |                    |                |                |              |                         |                |              |
|                                    | Average During Construction   |   |                    |                |                |              |                         |                |              |
|                                    |                               |   |                    |                |                |              |                         |                |              |
| Puttur Water Supply (02PTR01)      | Construction Phase monitoring | Seti Gudda  | 22-01-20           | 47.8           | 51.1           | 49.4         | 45.5                    | 49.2           | 47.3         |
|                                    |                               | Bannur  | 23-01-20           | 44.9           | 48.1           | 46.5         | 42.1                    | 46.2           | 44.1         |
|                                    |                               | Lingadagudda-Kabaka   | 23-01-20           | 41.2           | 45.6           | 43.4         | 37.6                    | 41.5           | 39.5         |
|                                    |                               | Kodipadi  | 22-01-20           | 47.4           | 51.6           | 49.0         | 45.9                    | 49.7           | 47.8         |
|                                    |                               | Karmala Near Microwave Station                                      | 23-01-20           | 42.8           | 46.4           | 44.6         | 40.5                    | 44.3           | 42.4         |
|                                    |                               | CTO-Darbe   | 22-01-20           | 46.1           | 49.2           | 47.6         | 42.8                    | 46.3           | 44.5         |
|                                    |                               | Balnad Helipad  | 23-01-20           | 44.8           | 48.4           | 46.6         | 40.5                    | 44.6           | 42.5         |
|                                    |                               | Balnad Keliyadi   | 22-01-20           | 46.2           | 50.1           | 48.1         | 42.1                    | 46.4           | 44.2         |
|                                    |                               | Kemmai  | 22-01-20           | 46.8           | 50.4           | 48.6         | 41.5                    | 45.3           | 43.4         |
|                                    |                               | WTP Nekkilady   | 22-01-20           | 42.4           | 46.5           | 44.4         | 38.6                    | 42.4           | 40.5         |
|                                    |                               | Kakkunje-Perutodi   | 22-01-20           | 44.6           | 48.7           | 46.6         | 44.3                    | 46.9           | 45.6         |
|                                    | Average During Construction   |   |                    | 47.8           | 51.6           | 49.0         | 45.5                    | 49.7           | 47.3         |

| Town                            | Phase                                  | Sampling Locations                        | Date of Monitoring | Day Time          |                   |              | Night Time<br>Leq dB(A) |                   |              |
|---------------------------------|--|---|--------------------|-------------------|-------------------|--------------|-------------------------|-------------------|--------------|
|                                 |  |   |                    | L<br>Min<br>dB(A) | L<br>Max<br>dB(A) | Leq<br>dB(A) | L<br>Min<br>dB(A)       | L<br>Max<br>dB(A) | Leq<br>dB(A) |
| Udupi Water Supply (02UDP01)    | Construction Phase monitoring          | Near Anganwadi proposed OHT, Manipal      | 21.01.2020         | 42.2              | 46.4              | 44.3         | 34.1                    | 38.8              | 36.5         |
|                                 |  | Near Govt Polytechnic, Ananatha nagara    | 21.01.2020         | 51.7              | 45.1              | 48.4         | 31.2                    | 35.8              | 33.5         |
|                                 |  | Near Parkala OHT, Parkala                 | 21.01.2020         | 41.8              | 45.2              | 43.5         | 34.7                    | 38.5              | 36.6         |
|                                 |  | Near Indiranagara church, Indira nagara   | 21.01.2020         | 50.1              | 53.2              | 51.7         | 40.5                    | 44.2              | 42.1         |
|                                 |  | Subramanya Temple, Manchi                 | 21.01.2020         | 44.4              | 48.8              | 46.6         | 36.0                    | 40.2              | 38.1         |
|                                 |  | Near Al Ibaadah Indian School, Perampalli | 21.01.2020         | 46.2              | 5.6               | 48.4         | 44.4                    | 47.8              | 46.1         |
|                                 |  | Near Santhekatte proposed OHT             | 21.01.2020         | 47.8              | 51.2              | 49.5         | 36.9                    | 41.2              | 39.1         |
|                                 | <b>Average During Pre-construction</b> |   |                    | <b>53.6</b>       | <b>63.7</b>       | <b>58.9</b>  | <b>51.0</b>             | <b>56.1</b>       | <b>53.3</b>  |
| Udupi Water Supply (02UDP01)    | Construction Phase monitoring          | Near Anganwadi proposed OHT, Manipal      | 21.01.2020         | 42.2              | 46.4              | 44.3         | 34.1                    | 38.8              | 36.5         |
|                                 |  | Near Govt Polytechnic, Ananatha nagara    | 21.01.2020         | 51.7              | 45.1              | 48.4         | 31.2                    | 35.8              | 33.5         |
|                                 |  | Near Parkala OHT, Parkala                 | 21.01.2020         | 41.8              | 45.2              | 43.5         | 34.7                    | 38.5              | 36.6         |
|                                 |  | Near Indiranagara church, Indira nagara   | 21.01.2020         | 50.1              | 53.2              | 51.7         | 40.5                    | 44.2              | 42.1         |
|                                 |  | Subramanya Temple, Manchi                 | 21.01.2020         | 44.4              | 48.8              | 46.6         | 36.0                    | 40.2              | 38.1         |
|                                 | <b>Average During Construction</b>     |   |                    | <b>53.6</b>       | <b>63.7</b>       | <b>58.9</b>  | <b>51.0</b>             | <b>56.1</b>       | <b>53.3</b>  |
|                                 |  |   |                    |                   |                   |              |                         |                   |              |
| Kundapura (Package no. 02KDP01) | Construction Phase monitoring          | Shasthri Circle                           | 10/01/2020         | 23.2              | 63.5              | 58.2         | 47.3                    | 47.3              | 49.3         |
|                                 |  | OHT Halekote                              | 10/01/2020         | 38.4              | 48.5              | 44.0         | 38.4                    | 43.5              | 40.0         |
|                                 |  | WTP Japthi                                | 10/01/2020         | 53.5              | 68.8              | 63.2         | 46.8                    | 59.9              | 52.5         |
|                                 |  | Parijatha Circle                          | 10/01/2020         | 47.7              | 65.2              | 55.9         | 40.5                    | 50.5              | 43.8         |
|                                 |  | Head Post Office                          | 10/01/2020         | 48.1              | 55.8              | 51.2         | 43.3                    | 45.5              | 44.0         |
|                                 |  | Basroor Main road                         | 10/01/2020         | 49.6              | 55.2              | 51.7         | 41.2                    | 47.6              | 45.6         |
|                                 |  | Church Road                               | 10/01/2020         | 51.8              | 64.9              | 55.8         | 39.5                    | 49.3              | 41.9         |
|                                 |  | M Kodi                                    | 10/01/2020         | 50.4              | 56.2              | 52.5         | 44.8                    | 46.3              | 47.3         |

| Town | Phase                              | Sampling Locations           | Date of Monitoring | Day Time          |                   |              | Night Time<br>Leq dB(A) |                   |              |
|------|------------------------------------|------------------------------|--------------------|-------------------|-------------------|--------------|-------------------------|-------------------|--------------|
|      |                                    |                              |                    | L<br>Min<br>dB(A) | L<br>Max<br>dB(A) | Leq<br>dB(A) | L<br>Min<br>dB(A)       | L<br>Max<br>dB(A) | Leq<br>dB(A) |
|      |                                    | OHT kodi                     | 10/01/2020         | 48.4              | 55.2              | 51.8         | 38.9                    | 49.8              | 42.2         |
|      |                                    | Public Park Near Juma Masjid | 10/01/2020         | 50.1              | 56.2              | 52.5         | 44.8                    | 49.3              | 47.3         |
|      | <b>Average During construction</b> |                              |                    | <b>48.5</b>       | <b>58.9</b>       | <b>53.6</b>  | <b>42.5</b>             | <b>48.9</b>       | <b>45.39</b> |
|      |                                    |                              |                    |                   |                   |              |                         |                   |              |

**Monitoring conducted during report period from Jan to Jun 2020**

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. For Udupi, Kundapura and Puttur WSD packages, monitoring has been conducted for drinking water and bore well water. All concentrations are within the prescribed limits. Result certificates are available with PIU and PMCSC. The water quality monitoring results are given in Table 19.

**Table 19: Water Quality Monitoring Results**

| Town                                  | Phase                                 | Sampling Locations   | Date of Monitoring | Parameters |                    |       |       |                         |                       |               |              |                         |                          |  |
|---------------------------------------|---------------------------------------|--|--------------------|------------|--------------------|-------|-------|-------------------------|-----------------------|---------------|--------------|-------------------------|--------------------------|--|
|                                       |                                       |  |                    | Ph         | Total Hardnes<br>s | TDS   | Ca    | Magness<br>ium as<br>Mg | Chlori<br>de as<br>Cl | Sulp<br>hate  | Fluo<br>ride | Iron<br>as<br>Fe        | Nitr<br>ate<br>as<br>NO3 |  |
| Mangalore<br>(Package no.<br>02MNG02) | During<br>Construction                | The contractor did not conduct the monitoring due to COVID situation |                    |            |                    |       |       |                         |                       |               |              |                         |                          |  |
|                                       | Average<br>During<br>Constructio<br>n |  |                    |            |                    |       |       |                         |                       |               |              |                         |                          |  |
|                                       |                                       |  |                    |            |                    |       |       |                         |                       |               |              |                         |                          |  |
| Puttur Water<br>Supply<br>(02PTR01)   | Construction<br>Phase<br>monitoring   | Treated Water<br>Nehru Nagar   | 23-01-2020         | 7.12       | -                  | 350   | -     | -                       | -                     | 34.4          | -            | -                       |                          |  |
|                                       |                                       | Raw Water<br>Nekkilady<br>Kumardhara river                           | 23-01-2020         | 5.18       | -                  | 952   | -     | -                       | -                     | 83.4          | -            | -                       |                          |  |
|                                       |                                       |  |                    |            |                    |       |       |                         |                       |               |              |                         |                          |  |
| Udupi Water<br>Supply<br>(02UDP01)    | Construction<br>Phase<br>monitoring   | Near Indiranagara<br>church , Indira<br>nagara                       | 22.01.2020         | 6.92       | 312.6              | 614   | 62.6  | 37.9                    | 112.9                 | 62.3          | 0.48         | BDL                     | 4.8                      |  |
|                                       |                                       | Subramanya<br>Temple, Manchi   | 22.01.2020         | 7.14       | 284.6              | 580   | 44.8  | 41.7                    | 102.9                 | 36.2          | 0.44         | BDL                     | 4.1                      |  |
|                                       |                                       | Near Santhekatte<br>proposed OHT                                     | 22.01.2020         | 6.64       | 82.3               | 82    | 16.3  | 10.0                    | 36.9                  | 1.36          | 0.26         | 0.3                     | 0.98                     |  |
|                                       | Average<br>During<br>construction     |  |                    | 7.14       | 75.2               | 184.6 | 19.74 | 7.65                    | 24.99                 | 29.99         | 0.09         | 0.24                    | 2.92                     |  |
|                                       |                                       |  |                    |            |                    |       |       |                         |                       |               |              |                         |                          |  |
| Kundapura<br>(Package no.<br>02KDP01) | Constructio<br>n Phase<br>monitoring  | Raw Water  | 10/01/2020         | 7.5        | 26.4               | 47    | 11.8  | 4.1                     | 8.2                   | 15.6          | 0.02<br>9    | BDL<br>(DL<br>0.02<br>) | BDL<br>(DL<br>0.01<br>)  |  |
|                                       |                                       | Surface water at<br>Halekote   | 10/01/2020         | 7.05       | 14.5               | 118.5 | 5.2   | BDL(DL<br>2)            | 13.2                  | BDL(<br>DL 5) | 0.01         | 0.1                     | 0.4                      |  |

|  |                                    |   |            |             |              |              |             |            |              |             |              |              |              |
|--|------------------------------------|---|------------|-------------|--------------|--------------|-------------|------------|--------------|-------------|--------------|--------------|--------------|
|  |                                    | Surface water at public park near masjid. | 10/01/2020 | 7.0         | 12.24        | 109.2        | 4.90        | BDL(DL 2)  | 10.06        | BDL(DL 5)   | 0.037        | 0.15         | 2.31         |
|  |                                    | Treated water at WTP Japthi               | 10/01/2020 | 7.3         | 19.7         | 45           | 10.7        | 3.5        | 10.5         | BDL(DL 5)   | BDL(DL 0.01) | BDL(DL 0.02) | BDL(DL 0.01) |
|  | <b>Average During construction</b> |   |            | <b>7.21</b> | <b>18.21</b> | <b>79.92</b> | <b>8.15</b> | <b>3.8</b> | <b>10.49</b> | <b>15.6</b> | <b>0.02</b>  | <b>0.12</b>  | <b>1.35</b>  |
| 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 <sup>th</sup> 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.

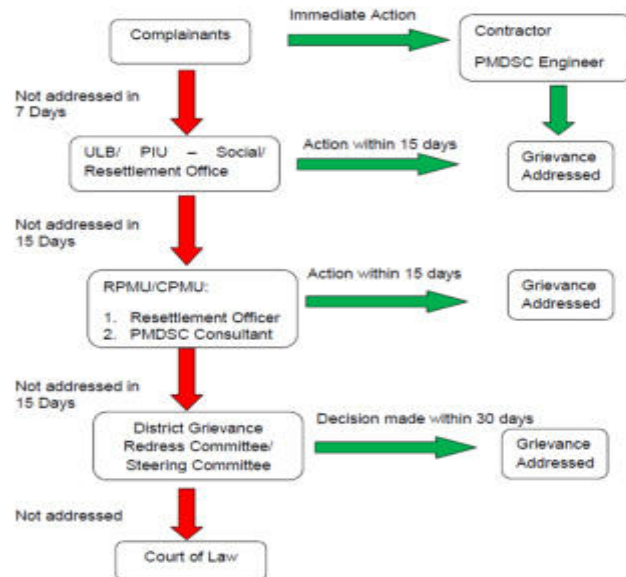
42. Due to COVID 19 Pandemic Situation formal consultations were not conducted during reporting period.

## **VIII. GRIEVANCE REDRESS MECHANISM**

43. 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.

44. 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.

45. 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**

46. 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.

47. Already complaint register and accident register are kept at the contractor level. registration of grievances and addressing of grievances is attached as **Appendix 30 to 32**. Till date all grievances are resolved at the contractors' level. Accident record for reporting period is not available with the contractor. 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 and also to maintain Accident register.

48. Project level GRC has been set up on 23rd August 2018. Office memorandum is attached as **Appendix 28 and 29** .

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

49. Based on environmental monitoring conducted during Jan-Jul 2020, KIUWMIP Project 2 is in mixed (partial to fully complied) compliance level of environmental safeguards. Due to Covid there was no/minimal work from Mar to Jun 2020. The main partial non-compliances include:

50. Keep the locals and shopkeepers in loop with respect to the advance information at pipe laying areas of Mangalore, Kundapura, and Puttur. Time period for construction work for particular area along with the contact details of PIU, consultant, contractor to be displayed on project display board for any grievances or suggestion for Mangalore UGD sites, Kundapura and Udupi.
51. No or partial use of project display board for Mangalore UGD package and Kundapura 24X7 water supply.
52. Need to improve use of PPE by contractor's workers. Use of PPE should be at all times as per site condition and work type. Particularly use of shoes, hand gloves and safety belt (when working at height). Ear plugs and nose masks should be provided for heavy vehicle drivers and in emergency for Mangalore UGD project.
53. Temporary placement of caution tape is noted for all the packages. Improvement/complete use of caution tape at all working areas required
54. Improvement of housekeeping and labour staying arrangement is required for Kundapura camp and store yard.
55. Kundapura 24X7 water supply Project, at Kodi Beach OHT site Scaffolding should be used and proper safety measures should be taken.
56. Improvement of material storage for Kundapura 24X7 water supply and Mangalore UGD packages required.
57. Improvement of housekeeping and labour camp is required for Mangalore UGD
58. Improvement is required for first aid box. First aid materials are not sufficient.
59. Environmental monitoring for air and Noise quality should be done for Mangalore UGD.
60. Hard Barricading should be provided at Kodi beach OHT and CRZ compliance Condition should be followed by Contractor.
61. For Kundapura, Kodi beach OHT site, Compensation paid, regarding tree cutting permission from Forest Department needs reaffirmation.
62. HIV AIDS training programs not carried out at Mangalore UGD, Kundapura 24X7 water supply.
63. Table 20 provides the recommended corrective action plan to address the non-compliances and partially compliances.

## **X. CORRECTIVE ACTIONS**

64. The corrective actions to be implemented as reported in the visits and status of implementation of comments as provided by ADB, as shown in Table 20.

**Table 20: Corrective Action Plan Status**

| <b>Comments</b>  | <b>Action required</b>   | <b>PMU response with target date</b>   | <b>Status as on date Jun 2020</b>  |
|--|--|--|--|
| <b>Environmental monitoring</b>  |  |  |  |
| Preconstruction phase monitoring for all 4 awarded packages and construction phase monitoring for Mangalore UGD is not conducted                             | Immediately conduct Air, water and noise monitoring for all four awards packages | Kundapura and Mangalore not conducted. Remaining will conduct before start of Construction | Kundapura monitoring was done in the month of Jan, 2020. Mangalore UGD monitored in Sep, Oct and Dec months. Yet to submit officially by contracting agencies to PMDCSC.<br><br>Puttur (Oct-Pre & Jan-Post) and Udupi (Nov-Pre & Jan-Post) monitoring conducted before construction. |
| As per IEE during construction phase once sampling per quarter is required but a monitoring only one-time monitoring is conducted for Kundapura package only | Conduct environment monitoring one in 3 month and report in SEMR                 | Will be submitted by contractor in this quarter (30.09.2019).                              | Contracting agency have not conducted environment monitoring like air, noise and water monitoring in this quarter as date given 30.09.2019.<br><br>Monitoring was done in the month of Jan, 2020 in Kundapura. The construction period is expected to end by Jun, 2020.              |
| Rational for selected sampling location, is not provided in report methodology for collection and analysis of sample is not provide in report.               | Select sampling location as describes in IEE and provide rational for selecting  | Will be submitted by contractor<br><br>In this quarter (30.09.2019)                        | Contracting agency have not conducted environment monitoring like air, noise and water monitoring in this quarter as date given 30.09.2019.<br><br>But, purposive (convenient) sampling  |

| Comments  | Action required  | PMU response with target date  | Status as on date Jun 2020  |
|---|--|--|---|
|   |  |  | was done. (where maximum pollution can be expected or maximum expose to pollution). Report it is not provided (usually it will not be provided) |
| Comparison of monitoring result with ADB's SPS acceptable limits is not provided is SEMR<br><br>For Kundapura monitoring results are above acceptable limits as per ADB's SPS 2009  | Compare result of monitoring with acceptable standard as per ADB's SPS<br>Corrective actions to be taken , if needed | Will be submitted by contractor in this quarter (30.09.2019)                             | See appendix 3 & 5 of IEE of Kundapura. SEMR of PMDCSC to be compare with standards given in IEEs.  |
| <b>02MNG02 – Mangalore UGD</b>  |  |  |   |
| <b>NOC Form NHAI –</b><br>Awaiting approval – 1100 WW-3 Kudroli to STP at Kavoor NH-66, at Kuntikan Junction NH Crossing.   | Follow up from NHAI is required  | KUIDFC RPMU and PIU is following up regularly will be monitored by TM on a regular basis | Under Progress<br><br>Awaiting for approval from NHAI (expected in one week)  |
| <b>Railway NOC</b> -Awaiting approval -450 WW-7. JeppuBappal to RMH at Ekkur Near Sooterpete railway level crossing railway crossing –NOC from Railway authority applied on 17-07-2017 NOC yet to be obtained Charges paid to Railway authorities | Follow up from Railway authority is required   | KUIDFC RPMU and PIU is following up regularly will be monitored by TM on a regular basis | Permission obtained<br><br>Work completed at site   |
| Pending NoCs<br><br>• Electrical poles at Ashok Nagar   | Follow up for department is required   | KUIDFC RPMU and PIU is following up regularly will be monitored by TM on a regular basis | •Permission obtained<br>Work completed at site<br>•Permission obtained<br>Work completed at site  |

| Comments   | Action required   | PMU response with target date  | Status as on date Jun 2020   |
|--|---|--|--|
| <ul style="list-style-type: none"> <li>Utility Shifting - MESCOM for Electrical poles shifting.</li> </ul>   |   |  |  |
| <b>02KDP01 Kundapura 24X7</b>  |   |  |  |
| Details estimation of backwash and sludge management plan for Kundapur WTP is still pending  | Provide sludge and back wash management plan with all proposed location                     | Will be provided by 20.9.2019. it is under review of RPMU office   | It was informed by TMC chief officer that the backwash facility is not required as there is zero discharge and the water is utilized by farmers.   |
| NOC from National Highway authority road cutting - NOC Obtained – on 25 /04/2019-No National Highway crossing but a stretch of 0.11 Km for laying clear water main is proposed along the service lane of NH-66 crossing –NOC from National highway authority was applied on 25-01-2019 | Follow up from NHAI is required for proposed stretch of 0.11 km for laying clear water main | KUIDFC PRMU and PIU is following u regular will be monitored by TM on a regular basis                                  | First Trenchless method not given approval by NHAI. For this work completion, the highway crossing is not required. A letter sent to NHAI for approval withdrawal. The feasible to complete the task was to execute through existing pipeline which has already crossed NH. So no need to send request letter to NHAI again. |
| Utility Shifting –payment for BSNL 's Copper cable damage charge is yet to be paid   | Payment to be made to BSNL and get NOC  | KUIDFC, RPMU and PIU is following up regular will be monitored by TM on a regular basis<br>Payment is being made soon. | All payments to BSNL cables damages paid up to date.   |
| Advance information to the locals and shopkeepers at pipe laying area of Mangalore and Kundapura is not always provided Time period for construction work for area not displayed   | Inform at least 15 days in advance about upcoming construction works                        | Noted. As soon as work start same will be adhered to   | Whenever work is in progress the public was informed. At pipeline, BOQ quality of pipeline is already executed as on date. Now, only 2 OHTs and SCADA and instrumentation and  |

| Comments   | Action required  | PMU response with target date  | Status as on date Jun 2020   |
|--|--|--|--|
|  |  |  | <p>Valves and Bulk meters are left to be executed.</p> <p>Mangalore UGD also advance information about the construction is being informed to the public.</p> <p>Time period for construction work to be displayed regularly.</p> |
| Contact details of PIU consultant displayed on project display board for any grievances or suggestion for Mangalore UGD sites and in Kundapura yet to be provided.   | Display all details on all ongoing construction sites                  | It has been provided. Further strengthening will be done as per ADB suggestions. | Display Board contact details to be presented, directions are being given continuously.  |
| Need to improve use of PPE by contractor's workers. Use of PPE should always be as per sit condition and work type. Particularly use of shoes. Hand gloves and safety belt (when working at height) year plugs and nose masks Should be provided of heavy vehicle drivers and in emergency for Mangalore UGD project | Encourage use of PPEs on construction site in daily tool-box trainings | Noted and will be improved   | <p>Complied</p> <p>Mangalore- contracting agency given PPEs like shoes, jackets, gloves and ear plugs to all the workers</p>   |
| Temporary placement of caution is noted for all the package Improvement/complete use of caution tape at working areas required   | Use of caution signs at working areas                                  | Noted and will be improved further   | Except KODI there are no major work activities at site. If any work activities will be found contractor will ensure the initiation of using caution tape.  |

| Comments  | Action required  | PMU response with target date   | Status as on date Jun 2020  |
|---|--|---|---|
| Improvement of housekeeping and labour staying arrangement is required for Kundapura camp and store yard                        | Design area for storage of waste and other material in store yards and keep all pathways clean | Noted and will be maintained as suggested.  | At the moment, daily labours (for Halekote site) are only being used to complete the remaining work. No labour camp is there at the site.<br><br>At present KODI OHT work is under progress. A separate labour camp is made for labours with required facilities. |
| Kundapura 24X7 water supply Project, at Halekote OHT site scaffolding should be used and Proper safety measures should be taken | Use steel and tubular type scaffolding as describe in contract agreement                       | Noted and will be maintained as required  | All structure work completed. The scaffolding is removed after the construction of Halekote OHT. Standard ladder is provided for safe lift.   |
| Kundapura-Hard Barricading should be provided at Kodi beach OHT.  | Hard barricading Should be provided at Kodi beach OHT  | Noted and will be maintained as required  | Partial barricading provided.   |
| Health Check-up's and HIV AIDS training program not carried out for ongoing Kundapura 24X7 water supply and Mangalore UGD       | Conduct health checkup and HIV AIDS awareness training to construction workers                 | Noted and Contractor /PMDSC<br><br>Will arrange regularly in the following months.              | Health checkups have been done in Dec for Mangalore UGD. No evidence of HIV and AIDS training programme. Evidence to be provided. Contract agency to conduct. Kundapura claim health check being done, yet to provide evidence.                                   |
| Details of EHS and other trainings to be conducted  | Conduct and provide details of EHS trainings   | Training conducted on 13 <sup>th</sup> and 14 <sup>th</sup> June ,2019<br>Further trainings are | Contract agency to conduct EHS training at least once in a month.   |

| Comments | Action required | PMU response with target date          | Status as on date Jun 2020      |
|----------|-----------------|--|---------------------------------|
|          |                 | planned by PMDCSC in the coming months | PMDSC also to conduct training. |

## SAUW Semi-Environmental Monitoring Report Review – Information Log

**Instructions:** Provide information based on SEMR submitted by Project Management Unit (PMU). This log sheet will serve as record of the review findings, comments, and/or further actions. A copy of the SEMR log sheet should be (i) provided to PMU for their record; (ii) attached to the SEMR to be disclosed on ADB website; (iii) used as reference for review of next SEMRs; and (iv) inputted in the SARD Safeguards Compliance Tracking System.

|                                |   |   |                                       |                                  |
|--------------------------------|---|---|---------------------------------------|----------------------------------|
| Project title:                 | India: Karnataka Integrated Urban Water Management Investment Program (KIUWMIP) – Tranche -2  |   |                                       |                                  |
| Loan Number:                   | 3726-IND  | Project Number:   | 43253-027                             |                                  |
| Overall Project and Objectives | <p>1. The Karnataka Integrated Urban Water Management Investment Program (KIUWMIP) 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 &amp; 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 &amp; sanitation within an IWRM context.</p> <p>2. The Program will be implemented over a four-year period and will be funded by a loan via the Multitranche 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 2 tranche of the investment. As the Detailed Project Report costs have exceeded substantially compared to the costs indicated on the basis of feasibility studies, ADB would finance water supply in 4 towns namely (1) Kundapura, (2) Puttur (3) Udupi (4) Mangalore under Tranche-2 and UGD in one town namely Mangalore.</p> <p>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.</p> <p>4. In Tranche 2 main outcome will be providing Water supply to Kundapura, Puttur, Mangaluru and Udupi; and Replacement of Old Sewerage Mains at Mangalore.</p> |   |                                       |                                  |
| Approved Categorization        |   | Category A  |                                       | Category C                       |
|                                | ✓   | Category B  |                                       | FI                               |
| Loan Effectivity Date:         |   |   | Frequency of Reporting                | Semi- Annually                   |
| Project Officer                | Akira Matsunaga   |   | Project Analyst                       | Edgardo G. Moises,               |
| Reporting Year                 | 2020  | Coverage Period   | January to June 2020                  | 1 <sup>st</sup> SEMR of the year |
| Date of PMU submission to ADB  |   | First submission – 08 October 2020<br>Revised Submission – March 2021 | Date of ADB’s feedback/comment to PMU | 22 October 2020<br>22 March 2021 |

| Item  | Findings in the SEMR | Comments | Action/s Required | Response by PMU |
|---|----------------------|----------|-------------------|-----------------|
| <b>A. Project Safeguards Team</b> (check loan agreement and PAM requirements) |                      |          |                   |                 |

| Item             | Findings in the SEMR   | Comments  | Action/s Required   | Response by PMU  |
|------------------|--|---|---|--|
| PMU <sup>1</sup> | Mr Shashisekhar SP,<br>Environmental Expert  | Complied - Details of KIUWMIP<br>Environmental Safeguard Team is provided in<br>table 2   | Regular training<br>on EHS / EHS<br>Manual to be<br>continued and<br>follow up of<br>required NOCs.   | Training is being planned<br>for tackling COVID 19 and<br>also for the EHS manual.<br>Informed PIU, Contractors<br>of the same |
| PIU <sup>2</sup> | <p>1. Mr. Shiva Kumar, Assistant<br/>Executive, PIU, Mangalore,<br/>Package 02MNG02</p> <p>2. Mr. Harish Valmike,<br/>Assistant Engineer, AEE, PIU,<br/>Kundapura, Package 02KDP01,<br/>In-charge Environment safeguard<br/>compliance</p> <p>3. Mr. Shamant, Assistant<br/>Engineer, AE, PIU, Puttur,<br/>Package 02PTR01 In-charge<br/>Environment safeguard<br/>compliance</p> <p>4. Mr Vijayanand, Assistant<br/>Engineer, AE, PIU, Puttur</p> <p>5. Mr. Rajshekhar, Assistant<br/>Executive Engineer, AE, PIU,<br/>Udupi, Package 02UDP01</p> | Complied - Details of KIUWMIP<br>Environmental Safeguard Team is provided in<br>table 2   | <p>Conduct /<br/>participate in<br/>regular trainings<br/>on EHS and good<br/>construction<br/>practices for<br/>workers,<br/>consultants and<br/>PIU staff.</p> <p>Follow up for<br/>closure of all<br/>pending issues</p> | Informed the PIU to be<br>actively involved.   |
| Consultants      |  | <p>Complied - Details of KIUWMIP<br/>Environmental Safeguard team is provided in<br/>table 2</p> <p>As of now there is no Environmental<br/>specialist in PMCSC</p> | <p>Conduct regular<br/>trainings EHS<br/>and good<br/>construction<br/>practices for<br/>workers, PIU and<br/>PMU staff</p> <p>Deploy<br/>environmental<br/>specialist in</p>   | Informed EGIS to deploy<br>Env specialist since Feb<br>2020.   |

<sup>1</sup> PMU – project management unit

<sup>2</sup> PIU – project implementation unit (For DWSNIP – project coordination units are PIUs)

| Item   | Findings in the SEMR  | Comments  | Action/s Required   | Response by PMU   |
|--|---|---|---|---|
|  |   |   | PMCSC soon possible   |   |
| Others (e.g. auditor, external monitoring team, etc)   | 1. Mr. Madhukar, DRS Infra Tech Pvt, Ltd., Package 02MNG02<br>2. Mr. Vijay Monaveera, Laxmi Civil Engineering services, Package 02KDP01<br>3. Mr. Y Amruth, Suez Projects– DRS Infra Tech, Package 02PTR01<br>4. Mr. Pradeep Shetty, Suez Projects– DRS Infra Tech , Package 02UDP01  | Complied - Table 4 provide information on Environment Safety Officer of contractors   | Provide regular trainings to EHS officers of contractor for ADB's requirements                                      | Informed  |
| <b>B. Overall Project and Subproject Description (summarize number and type of packages)<sup>3</sup></b> |   |   |   |   |
| Number of Packages with civil works (check if consistent with latest procurement plan)                   | Following five (5) packages are considered in tranche -2<br><b>A. Water Supply</b><br>1) 02KDP01 - Construction of Bulk & Distribution Network - Operator assisted in Kundapura – 82.51% Physical progress against total quantity as of 30 <sup>th</sup> June 2020<br><br>2) 02PTR01 - Construction of Bulk & Distribution Network - Operator assisted in Puttur – 23.74% Physical progress against total quantity as of 30 <sup>th</sup> June 2020<br><br>3) 02UDP01 - Construction of distribution Network - Operator assisted in Udupi – 25.53% Physical progress against total quantity as of 30 <sup>th</sup> June 2020<br><br>4) 02MNG01 - Construction of Bulk & Distribution Network - Operator assisted in Mangalore – under Design Validation stage | Final IEE of 02PTR01 and 02UDP01 to be completed after completion of detailed design. | Based on design validation survey IEEs of 02PTR01 and 02UDP01 need to be updated and submitted to ADB for approval. | Action has been initiated and will be completed in Mar 2021 |

<sup>3</sup> DB/DBO – design-build or design, build, and operate or where contractor will finalize the detailed engineering design; civil works contract – enough details of the package is known and used as basis for bid/contract's Technical Specification

| Item  | Findings in the SEMR   | Comments  | Action/s Required   | Response by PMU   |
|---|--|---|---|---|
|   | <b>B. Sewerage</b><br>5) 02MNG02 - Replacement of pumping mains - 65.53% Physical progress against total quantity as of 30 <sup>th</sup> June 2020         |   |   |   |
| Number of DB/DBO packages and status (see footnote 3)   | As per table 3, no package is of DB/DBO type   | None  | No action required  | -   |
| Number of civil works packages and status (see footnote 3)  | As per table 3, One sewerage package is civil works rest four water supply packages are of Civil Works and services type, details are provided in table 3. | None  | No action required  | -   |
| IEEs cleared for awarded packages?  | As per table 4 and 5, all IEEs for awarded packages are cleared  | None<br><br>Final IEEs for Puttur, Udupi and Mangalore water Supply are pending | Final IEEs for packages 02MNG01, 02UDP01 and 02PTR01 required submit to ADB for approval. | Action is being taken to submit Final/Updated IEEs in month on March 2021                                 |
| Safeguard documents disclosed on project website?   | As per table 5 all approved IEEs are disclosed on ADB and KUIDFC's website, it also provides weblink of disclosed IEEs on PMU website                      | Links provided in SEMR are not directly hyperlinked with the IEE document.      | Provide searchable weblink of disclosed IEEs  | agreed  |
| SEMR information on package-wise implementation phase (bidding, on-going, construction, completed, under operation, others)   | Table -3 provides package wise components and physical progress  | None  | Update the progress report periodically   | Informed EGIS to deploy Env Specialist. However, Contractors are asked to submit progress report monthly. |
| <b>C. Status of compliance with statutory clearances</b> (check IEE for the complete list, summarize the findings for each package – obtained/under application and if obtained, specify validity period) |  |   |   |   |
| Environmental Clearance (EC)  | Not required   | None  | None  | -   |
| Forest Clearance  | Not required   | None  | None  | -   |
| No Objection Certificate/Letter   | Table 6 provides Status of Compliance with National and State  | Table 6 provides status of NOCs following NOCs are pending                      | Apply for renew of NOCs before its expiry date  | Informed respective PIU to take action and report the same.   |

| Item   | Findings in the SEMR   | Comments   | Action/s Required  | Response by PMU   |
|--|--|--|--|---|
| Site location clearance  | Legal Requirements for following requirements<br><br>Water (Prevention and Control of Pollution) Act. 1974   | None   | Follow up action is required for getting NOCs from other government departments. | Informed respective PIU to take action and report the same. |
| Permit/Consent to Construct (or equivalent)  | 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)  |  |  | Informed respective PIU to take action and report the same. |
| Permit/Consent to Operate (or equivalent)  |  |  |  |   |
| Road-cutting permit  |  |  | Follow all statutory conditions of NOCs  |   |
| Utilities shifting permit  | Statutory permission from National Highways Authority for road cutting<br><br>Statutory permission from Railway authority<br><br>Statutory permission from PWD<br><br>Utility shifting<br><br>Labour licence under The Contract Labour (Regulation & Abolition) Act, 1970. (Central Act w.e.f. 07-09-70)<br><br>Labour compensation insurance<br><br>ASI clearance for working near Mangaladevi Temple, in Mangalore |  |  | Informed respective PIU to take action and report the same. |
| Tree-cutting permit  | Not Obtained - 6 nos. Tree felling (at Kodi Beach OHT site) 2,28,000 Rs Compensation paid to the affected person for Cutting of coconut trees.   | Coconut Trees are in the list of trees feeling exemption list. If exemption list of trees in Govt. Land, then permission should be taken from Tree officer | Get and provide copy of NOC from tree officer                                    | Informed PIU to take action                                 |
| Others (specify)   |  |  |  |   |
| D. Status of Compliance with loan covenants (verify items in SEMR with the project's loan agreement) |  |  |  |   |
| Procurement of goods, works and consulting services (Schedule 4, Item 9)                             | Complied   | Details are provided in table -7   | None   | -   |
| Safeguards environment   | Being complied   | Details are provided in table -7   | Conduct regular monitoring and   | Informed contractors and piu to take action                 |

| Item  | Findings in the SEMR  | Comments   | Action/s Required   | Response by PMU                             |
|---|---|--|---|---|
| (Schedule 5, Item 10)   |   |  | update in next SEMR   |   |
| Human and financial resources to implement safeguards requirements (Schedule 5, Item 10)                                      | Complied  | Details are provided in table -7                   | None  | -   |
| Safeguards-related provisions in bidding documents and works contracts (Schedule 5, Item 11)                                  | <b>Being complied</b>   | Details are provided in table -7                   | Conduct regular monitoring and update in next SEMR  | Informed contractors and piu to take action |
| Safeguards monitoring and reporting (Schedule 5, Item 12)   | Complied and ongoing 1 <sup>st</sup> SEMR was submitted on 25 July 2019, 2 <sup>nd</sup> on 05 March 2020 and 3 <sup>rd</sup> SEMR on October 2020        | Details for current SEMR to be updated             | Information about current SEMR to be updated.   | Informed contractors and piu to take action |
| Prohibited list of investments (Schedule 5, Item 13)  | Complied  | Details are provided in table -7                   | None  | -   |
| Labor standards, health and safety (Schedule 5, Item 16)  | Complied in document and during implementation  | Details are provided in table -7                   | Conduct regular monitoring and update in next SEMR  | Informed contractors and piu to take action |
| <b>E. Contractors Compliance with Environmental Safeguards Requirements</b>   |   |  |   |   |
| Appointment of Environment, Health and Safety (HSE) and/or nodal person   | Table 4 provides details of package-wise Contractor/s' Nodal Persons for Environmental Safeguards   | None   | None  | -   |
| Submission of site-specific EMPs  | No details for submission of site-specific EMPs are provided in SEMR  | Update the date of submission and approval of SEMP | Provide details with dates for submission of SEMP.<br><br>Add details of change in scope from approved IEE (if any) | Subsequent IEEs to capture the same.        |
| Submission of SEMP implementation report ( <i>specify in comments frequency – daily, weekly, monthly or quarterly basis</i> ) | SEMP implementation report are provided in in following tables<br>Table 10: Compliance to SEMP of the Package- UGD in Mangalore City, Package No. 02MNG02 | None   | None  | -   |

| Item  | Findings in the SEMR   | Comments  | Action/s Required  | Response by PMU  |
|---|--|---|--|--|
|   | <p>Table 11: Compliance to EMP of the Package- Water Supply System in Kundapura City, Package No. 02KDP01</p> <p>Table 12 and 13: Compliance to EMP of the Package- water supply system in Udupi city – Package No. 02UDP01</p> <p>Table 14 and 15: Compliance to EMP of the Package- water supply system in Puttur city – Package No. 02PTR01</p> |   |  |  |
| Site verification by PMU, PIU, or consultants ( <i>verification report should be attached to the SEMR</i> )       | Package wise details of site verification done by PIU or PMU staff is detailed in SEMR compliance tables.  | Date of monitoring and name of person required to be updated in each point. | Prepare inspection checklists for regular monitoring and update in next SEMR           | EHS manual will contain the inspection lists. Will be report in next SEMR. |
| SEMR compliance matrix on mitigation measures implementation (matrixes are based on approved SEMP)                | SEMR compliance matrix, is based on approved SEMP  | None  | None   | -  |
| Other information   |  |   | -  | -  |
| <b>F. Environmental Monitoring based on EMP</b>   |  |   |  |  |
| Rationale   | None   | Rational for selected sampling location, is not provided in report          | Provide rational for sampling site selection   | Informed the contractors   |
| Parameters to be monitored are commensurate to the impacts, mitigation measures, and project/ subproject/ package | Table 17 provides air quality and table 18 provides noise quality monitoring results for construction phase of Mangalore UGD (02MNG02) and pre -construction phase of Puttur (02PTR01) and Udupi (02UDP01)   | No monitoring was reported for Kundapura Package                            | Implement the EMP measures strictly for control of air pollution at construction site. | Informed the contractors, PIU to take action.                              |
| Sampling locations identified and appropriate   | Sampling location are identified as mentioned in IEEs  | Monitoring results for Kundapura are missing                                | Provide rational in text why these parameters are exceeding the                        | Informed the contractors, PIU to take action.                              |

| Item   | Findings in the SEMR   | Comments  | Action/s Required  | Response by PMU                               |
|--|--|---|--|---|
| Sampling frequency identified and appropriate  | Sampling results of air and noise quality for month of October 2019 for Udupi and Puttur and Sampling results for Mangalore for month of December 2019 are provide | As per IEE one sample per quarter is required, for semiannual report at least 2 sampling for Kundapura and Mangalore UGD to be conducted. | acceptance limits, is it due to poor implementation of EMP or some external factors?   | Informed the contractors, PIU to take action. |
| Sampling collection and analysis are in accordance with internationally accepted practices   | None   | Methodology for collection and analysis of sample is not provided in report.  | Categorize each sample into Industrial Residential, Rural and Other areas<br><br>Provide details of last and next planned sample<br>Provide Sampling collection and analysis methodology | Informed the contractors, PIU to take action. |
| Standards and performance indicators are compliant with ADB SPS requirements <sup>4</sup> (provide justification if less stringent standards are used) | None   | Some parameters are above acceptable limits of CPCB and IFC.  | Strictly follow EMP measures   | Informed the contractors, PIU to take action. |
| <b>G. Environmental monitoring results (narrative based on presented results)</b>  |  |   |  |   |
| Visual inspection ( <i>refer to EMP tables in the IEE where visual inspections are required to determine if there are environmental impacts</i> )      | Table 10 to Table 15 provides details of visual inspection conducted by PMDCSC and PIU staff   | none  | Use checklists for visual inspection and report summary in next SEMR   | Informed the contractors, PIU to take action. |
| Air quality results  | Table 17 provides Air Quality Monitoring Results   | Some parameters like PM10 are acceding the CPCB's standard limits at location like  | Conduct Air quality monitoring   | Informed the contractors, PIU to take action. |

<sup>4</sup> ADB SPS (Appendix 1 para 33) requires projects to apply pollution prevention and control technologies and practices consistent with international good practices as reflected in internationally recognized standards such as the World Bank Group's Environmental, Health and Safety Guidelines (<https://www.ifc.org/ehsguidelines>). These standards contain performance levels and measures that are normally acceptable and applicable to projects. When host country regulations differ from these levels and measures, the borrower/client will achieve whichever is more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the borrower/client will provide full and detailed justification for any proposed alternatives that are consistent with the requirements presented ADB SPS.

| Item  | Findings in the SEMR  | Comments   | Action/s Required  | Response by PMU                               |
|---|---|--|--|---|
|   |   | Shasthri Circle, OHT Halekote, WTP Japthi of Kundapura<br><br>Ensure contractor is Implementing EMP measures strictly.                   | for all required locations as per IEE  |   |
| Water quality results   | Table 19 provides Water Quality Monitoring Results                      | None   | Add summary of water quality test report in main text of report  | Informed the contractors, PIU to take action. |
| Noise level results   | Table 18 provides Noise Monitoring Results                              | None   | Implementation of EMP to be followed strictly<br><br>Explain the category of sampling location (Industrial area, Commercial area, Residential Area, and Silent Zone) | Informed the contractors, PIU to take action. |
| Others  | Pre – construction phase EMP implementation report is missing in report | Pre-construction phase EMP monitoring are missing from report  | Provide pre-construction phase environment monitoring for all packages<br><br>Ensure conducting all environmental samplings as scheduled in IEE                      | Informed the contractors, PIU to take action. |
| <b>H. Consultations and/or FGDs during the reporting period</b> |   |  |  |   |
| Number  | No details of consultation were provided for reporting period           | No details of consultation was provided for reporting period<br><br>Due to COVID -19 no consultations was conducted in reporting period. | Conduct and provide details of consultation in next SEMR   | Informed the contractors, PIU to take action. |
| Reason/s for consultations/FGDs                                 | No details of consultation were provided for reporting period           | No details of consultation was provided for reporting period   | Conduct and provide details of consultation in SEMR  | Informed the contractors, PIU to take action. |
| Number of participants  | No details of consultation were provided for reporting period           | No details of consultation was provided for reporting period   | Conduct and provide details of   | Informed the contractors, PIU to take action. |

| Item   | Findings in the SEMR   | Comments   | Action/s Required   | Response by PMU                                       |
|--|--|--|---|---|
|  |  |  | consultation in SEMR  |   |
| Number of <b>female</b> participants   | No details of consultation were provided for reporting period                        | No details of consultation was provided for reporting period   | Conduct and provide details of consultation in SEMR             | Informed the contractors, PIU to take action.         |
| <b>I. Trainings, Workshops, Seminars during the reporting period</b>   |  |  |   |   |
| Number   | No details in SEMR for reporting period (January to June 2020)                       |  | Conduct / Record more trainings conducted                       | Informed the contractors, PMDCSC, PIU to take action. |
| Topics   | No details in SEMR for reporting period  | Trainings on EHS, ADB SPS2009, Local laws, HIV, gender, GRM, labour laws, traffic management and spoil management etc require to be conducted on regular basis | Conduct / record training and provide details in next SEMR      | Informed the contractors, PMDCSC, PIU to take action. |
| Number of participants   | No details in SEMR for reporting period  | None   | None  | -   |
| Number of <b>female</b> participants   | No details in SEMR for reporting period  | None   | None  | -   |
| <b>J. Grievance Redress Mechanism</b>  |  |  |   |   |
| GRM per PAM or IEE/EARF established  | Details of established GRM is provided in Section IX                                 | None   | None  | -   |
| GRM notified via publication or notice boards  | GRM notification is annexed in Appendix 28 and 29                                    | None   | None  | -   |
| GRM members identified   | GRM Members are identified and details are provided in Appendix 28 and 29            | None   | None  | -   |
| GRM members have capacity to address project-related complaints ( <i>detailed information on capacity development of GRM members such as trainings, workshops, briefings, etc should be attached in the SEMR</i> ) | GRC members are senior government officers, generally dealing with public grievances | No details of training/ workshop conducted for GRC members is provided in SEMR   | Provide details of training/ workshop conducted for GRC members | Informed the contractors, PMDCSC, PIU to take action. |
| Number of meetings conducted ( <i>attach minutes of the meeting</i> )  | None for reporting period  | Details of GRC meetings are not provided in report   | Provide details of GRC meeting in main text of SEMR             | Informed the contractors, PMDCSC, PIU to take action. |
| <b>K. Complaints Received</b> ( <i>detailed information on nature of complaints, summary and status of resolution</i> )  |  |  |   |   |

| Item  | Findings in the SEMR  | Comments   | Action/s Required   | Response by PMU                                       |
|---|---|--|---|---|
| Number of complaints  | Scan copy of complaints received for Mangalore, Puttur and Udupi are attached in Appendix 30-32 | The complaint register was not updated or provided for complaints received in reporting period of SEMR   | Provide summary and details of complain received during reporting period.   | Informed the contractors, PMDCSC, PIU to take action. |
| Nature <i>(provide summary of issues/concerns)</i>  | Scan copy of complaints received for Mangalore, Puttur and Udupi are attached in Appendix 30-32 | Not provide for reporting period   | Provide GRM Summary in main text of SEMR  | Informed the contractors, PMDCSC, PIU to take action. |
| Status of resolution  | Scan copy of complaint received for Mangalore, Puttur and Udupi are attached in Appendix 30-32  | Not provide for reporting period   |   | -   |
| <b>L. Summary of Issues and Corrective Actions</b>  |   |  |   |   |
| Major issues/concerns (specify)   | Details are provided in section IX (after section X) of SEMR                                    | Details were not updated for current reporting period and points from last SEMR are repeated again   | Provide compliance report along with photos of resolved issue in SEMP.<br><br>Correct the section number            | Informed the contractors, PMDCSC, PIU to take action. |
| Corrective Action to be implemented, timeline, responsible person/s, and budget are clearly specified   | Details are provided in section IX (after section X) of SEMR                                    | Details were not updated for current reporting period and points from last SEMR are repeated again   | Provide details of time spent and budget used in implementing corrective action plan in next SEMR                   | Informed the contractors, PMDCSC, PIU to take action. |
| <b>M. Status of Corrective Action Plan from Previous Reporting Period (list all and provide status)</b> |   |  |   |   |
|   | Details of corrective action plans are provided in section IX (after section X) of SEMR         | Firm timeline of closing the issues pointed out in previous site visit and SEMR are not provided in table 20.<br>Timeline for closures of issues are already passed but not action was taken to resolve the issues | Provide firm timeline for closing the issues pointed out in previous site visit and SEMR along with photo evidence. | Informed the contractors, PMDCSC, PIU to take action. |
| <b>N. Appendixes</b>  |   |  |   |   |
| Photos included?  | Photos from last SEMR are Included in appendix -1   | Provide package wise photos for current reporting period<br><br>Also include the photos for closing of issues raised in previous SEMR and Site visits.   | Prepare and present package wise photolog for current reporting period.   | Informed the contractors, PMDCSC, PIU to take action. |

| Item                               | Findings in the SEMR  | Comments  | Action/s Required  | Response by PMU                                       |
|------------------------------------|---|---|--|---|
|                                    |   | Photo is highlighting the non-compliance issues   | Re-check the captions of photos  |   |
| Summary of consultations included. | None  | None were provided from reporting period  | Provide details of issues discussed in Appendix and summary of discussion in main text of SEMR   | Informed the contractors, PMDCSC, PIU to take action. |
| Site EMPs (attach sample?)         | Site specific EMPs of construction stage for all all packages with compliance atatus are attached as Appendix 20                                    |   | Update SEMP based on latest design validation survey   | noted   |
| Checklists?                        | Not provided  | Checklist for site inspection is not provided in SEMR   | Develop and provide site inspection checklist for PMU,PIU and consultant team.   | Informed the contractors, PMDCSC, PIU to take action. |
| Others                             |   |   |  |   |
|                                    | Table 6For 02KDP01 under the Column utility shifting “BSNL - Copper cable damaged – BSNL Copper cable damage charge letter enclosed as Appendix 49” | The Appendix 49 attached with report presents the toolbox training record, similarly many other attached Appendix numbers are not matching with what mentioned in report. | Correct the references of Appendix number in main text of report and in file names   | Done  |
|                                    | Table 8: Overall Compliance with SEMP - The information under column Action Proposed and Additional Measures Required is same as last SEMR          | The recommendation for overall compliance is same as last SEMR with “no improvement” but the status of SEMP is mentioned as satisfactory                                  | Change the status of status of SEMP/CEMP Implementation to “below Satisfactory” or the update the action already taken in reporting period | Informed the contractors, PMDCSC, PIU to take action. |
|                                    | “Subsection A” Provide description based on the observations and records - The observation and records are same as last SEMR                        | The observation and record need to be updated for current reporting period  | Update the observation and record for current recording period   | Informed the contractors, PMDCSC, PIU to take action. |
|                                    | Para 33 says Spoil management Plan Submitted by Udupi, Puttur,  | The spoil management plan and permission for waste dumping for Kundapura is still missing is SEMR   | Follow up is required for waste dumping  | Informed Kundapur PIU and Contractor.                 |

| Item | Findings in the SEMR   | Comments  | Action/s Required   | Response by PMU                                       |
|------|--|---|---|---|
|      | Mangalore and Kundapura 24x 7 water supply Contractors   |   | permission for Kundapura subproject.  |   |
|      | Table 9- The column “transport” recommended updates from last SEMR   | The updates in transportation plan is pending from last SEMR  | Follow up is required for update in transportation plan   | Informed the contractors, PMDCSC, PIU to take action. |
|      | Para 37 - The accident register details are given as Annexure 45, 46.  | The details of accident in Appendix is not updated for reporting period                                       | Update the information in Appendix for reporting period, change the nomenclature in report from Annexure to Appendix.                               | It is being maintained. Will be updated in next SEMR  |
|      | Para 38 - Para Says “satisfactory. Improvement is noted for all the running packages”  | The said improvement is not reflected in the SEMR report  | Kindly update the improved changes from last SEMR   |   |
|      | Table 10, 11,12, 13 and 15 - The Column Compliance status is missing<br><br>No dates are provided under column Date of monitoring conducted<br><br>Accept first row all names under column “Name of Person Who Conducted the Monitoring” are missing | The status of compliance is missing<br><br>Dates and name of person conducted monitoring is missing the table | Update the required information in table and update the tables for reporting period.  | Informed the contractors, PMDCSC, PIU to take action. |
|      | Table 17 - Some parameters like PM10 are acceding the CPCB’s standard limits at location like Shasthri Circle, OHT Halekote,WTP Japthi of Kundapura  | Implement the EMP measures strictly for control of air pollution at construction site.                        | Provide rational in text why these parameters are acceding the acceptance limits, is it due to poor implementation of EMP or some external factors? | Informed the contractors, PMDCSC, PIU to take action. |

| Item   | Findings in the SEMR                             | Comments  | Action/s Required   | Response by PMU            |
|--|--|---|---|----------------------------|
|  | Comments from last SEMR                          | Comments from last SEMR report are still not complied | Add Comments raised during last in follow up action of SEMR | Will be done in next SEMR. |
|  |  |   |   |                            |
| O. Review and clearance for disclosure               |  |   |   |                            |
| Reference  | 3 <sup>rd</sup> SEMR report                      |   |   |                            |
|  | Name   |   | Date  |                            |
| Reviewed by  | Govind Singh Rathore                             |   | 12 October 2020   |                            |
| Noted by   | Anik Ajmera                                      |   | 21 October 2020   |                            |
| Response to ADB comments by:                         | Shashisekhar SP                                  |   | 14.3.2020   |                            |
|  |  |   |   |                            |
| Status/Remarks                                       |  |   |   |                            |
|  | 2. Send comments to PMU for response to comments |   |   |                            |
| Review and clearance for disclosure for revised SEMR |  |   |   |                            |
| Reference  | 3 <sup>rd</sup> SEMR report revised              |   |   |                            |
|  | Name   |   | Date  |                            |
| Reviewed by  | Govind Singh Rathore                             |   | 22 March 2021   |                            |
| Noted by   |  |   |   |                            |
| Response to ADB comments by:                         |  |   |   |                            |
|  |  |   |   |                            |
| Status/Remarks                                       |  |   |   |                            |
|  |  |   |   |                            |
|  |  |   |   |                            |