ICHALKARANJI, MAHARASHTRA

ADOPTING INTEGRATED URBAN WATER MANAGEMENT IN INDIAN CITIES (AdoptIUWM)

Tender document for Pilot Project on
Wastewater treatment for Kala Nallah near Indira Nagar using decentralized treatment plant and reuse of treated wastewater at

Section 1: Background to AdoptIUWM Project

ICLEI South Asia in partnership with ICLEI European Secretariat and Association of Belgian Cities and Municipalities (VVSG) is implementing the European Commission funded Project on Adopting Integrated Urban Water Management in Indian Cities (AdoptIUWM) in 2 cities of Rajasthan (Kishangarh and Jaisalmer) and 2 cities of Maharashtra (Solapur and Ichalkaranji) for capacity building of cities towards closing the urban water loop by managing water, wastewater and storm water as part of the same cycle (interactions of waste with water are also being looked into).

Section 2: Background of Pilot project and Kala Nallah

Ichalkaranji with population of 2.87 lakh (as per Census 2011) is an industrial city located in Kolhapur district. Most of the textile industries in the city discharge their industrial effluent into nallah without treatment. These nallahs meet Panchganga and Krishna River which are the source of drinking water for the city. Owing to untreated wastewater discharge from Ichalkaranji and upstream cities as well as industrial effluent discharge, pollution of water sources in the city is a key problem. Ichalkaranji also faced a Hepatitis outbreak in 2012 which claimed several lives and the City Administration has been taken to court for this. The city has installed a CETP for 12 MLD near the textile cluster but there are still several small scale textile industries scattered across the city which are not treating their effluents. There are total 5 major nallahs in Ichalkaranji city namely Tilavani, Talandge, Kabnur, Chandur and Kala nallah. Kala nallah is the most polluted nallah in the city and ultimately drains into Panchganga and Krishna river. Untreated wastewater from several industries, untreated domestic wastewater and other pollutants have turned the nallah ‘black’.

Composite wastewater flows through Kala nallah comprising of industrial wastewater, treated effluent from 12 MLD CETP, overflow from sewage pumping station, waste water from slaughter house, untreated domestic wastewater from the city, leakages from the sewerage network and some agricultural runoff. Black colour of the nallah and prominent odour associated with H2S indicate anaerobic conditions across the length of Kala nallah. The pilot project aims at treating wastewater flowing through the Kala nallah near Indira Nagar/ Jadhav Mala slum area using decentralized treatment systems and reuse for non-consumptive purposes like irrigation.

Section 3: Key interventions for diversion and treatment of stream from Kala Nallah near Indira Nagar using decentralised treatment system

Based on surveys and stakeholder consultations, the following interventions are proposed:

Decentralized wastewater treatment

The pilot project aims at treating 0.5 MLD of total wastewater flowing through the Kala nallah near Indira Nagar/ Jadhav Mala slum area using Ecotechnological treatment Green Bridge™ system. The actual flow of the drain is around 15 MLD. A diversion of 0.5 MLD in a small stream from main polluted drain will be diverted and will be treated separately using ecotechnological treatment system i.e. combination of plants and microorganisms. The treatment facility is based on in-built eco-equilibrium of bio-degradation and bio-absorption processes with neither electricity nor skilled maintenance are required. The artificial trench will be developed near Disha English medium school, in which two green bridges with pond will be installed. The treated water will be used for agriculture or other non-consumptive purposes.

The proposed plan of eco-restoration of selected stretch (about 130m to 150m) of Kala Nallah involves the use of two Green Bridges™ at the distance of about 50 – 75 m depending on the suitability of each site location (As per the specifications in annexure 1,2). These Green Bridge™ system shall be installed across the drain to filter out the pollutants and to be retained in the system for ecological conversions, sorption and assimilation in the biological communities developed in the Green Bridge™ and Green Lake System. Also to support aquatic biodiversity and surrounding ecosystem along the banks of newly developed trench, plantation of selective species will be done. Before wastewater enters the Green Bridge™ through the diverted stream, a metal screen shall be installed to arrest non-biodegradable floating materials. This metal screen is to be installed upstream of the Green Bridges to facilitate the transport of collected waste to appropriate disposal site.

Scheme components (details given in annexure 1 to 4)

- Removal of debris, solid waste from selected stretch of drain
- Diverting required flow for the treatment from original drain by creating small artificial channel
- Installation of screen to trap floatable and non-biodegradable solids
- Installation of Green Bridge™ with green pitching on the banks as per design at selected site
Treatment of wastewater to agreed standards and reuse of treated wastewater for agriculture or other secondary purposes

**Operation and Maintenance would have to be undertaken in accordance with details given in Annexure 3:**
- Mandatory daily removal of collected debris, plastics, garbage and other non-biodegrables from the metal screen for effective performance of the Green Bridge™ system
- Daily watering the plants around the treatment stretch in non monsoon period and trimming of plants once in a month as per the growth
- Removal of silt collected at the inlet of Green Bridge™ once in the month if needed
- Any other work specified by Technical Consultant, ICLEI – SA and Ichalkaranji Municipal Council (IMC) depending on site conditions
- Safety and security of site and systems during construction and maintenance phase

Note: All requisite permissions from Authorities are to be undertaken by the Contractor. ICLEI South Asia and Technical Consultant would facilitate the same but it would be the Contractors responsibility to procure these permissions. Contractor would be required to procure a Utilization Certificate for completion of the project to the satisfaction of ICLEI South Asia and Ichalkaranji Municipal Council.

**Section 4: Local stakeholder Committee**
A local stakeholder Committee (including farmers) would be constituted and would be responsible for routine supervision of the plant and other systems and structures provided under the AdoptIUWM pilot project in partnership with Ichalkaranji Municipal Council (IMC). This Committee would work in partnership with IMC and ICLEI South Asia towards the maintenance of the plant. Role of the Committee would include (but not limited to):
- Overall supervision and operation of the structures and systems created under the project.
- The key responsibility for daily maintenance would be with the IMC but the Committee would facilitate the same and provide additional support, where required. Regular maintenance of the structures and systems created under the pilot project would be undertaken by the IMC in partnership with local stakeholder committee as per details given in Annexure 3
- Ensuring safety of all structures and systems created under the project after complete withdrawal of contractor
- Ensuring proper functioning of the treatment plant and other structures and systems created under the project. In case of any emergency or issues with the functioning of the plant, representative from IMC and ICLEI South Asia is to be contacted.
- Committee would meet once in a month to take decisions on status of functioning of the wastewater treatment system and reuse facility.
- The Committee should facilitate all visits and/or inspections by ICLEI South Asia and IMC department at any time
- Identify 2 local youth as plant operators in the long term. These operators would be trained by the contractor and consultant from ICLEI South Asia in maintenance of the plant and other structures. The users can pay a monthly allowance to these ‘plant operators’.

**Section 5: Safety and surveillance**
The following measures need to be taken by the contractor:
1. Provision of safety equipment like boots/shoes, gloves and jacket to workers and plant operators
2. Routine maintenance of the treatment system vegetation during initial period is required. Occasional planting and tending might be required after initial period.
3. Provision of all equipment and solutions/items required for maintaining adequate cleanliness and hygiene standards, to the satisfaction of ICLEI South Asia, IMC and local stakeholder Committee.
4. Regular checking of the areas where the recycled water is being used.
5. Eco friendly agents are to be used for plant maintenance, in accordance with instructions from ICLEI South Asia.

**Section 6: Quality Control**
1. Officials from ICLEI South Asia or IMC would undertake regular inspection of the site work during implementation phase as well as during 1 month operational phase (and subsequently till December 2017 as per agreement with IMC). The officials shall check the Contractor’s work and notify the Contractor of any Defects that are found. The officials from ICLEI South Asia and/or IMC can visit the site at any time for inspection without prior notice and can instruct the Contractor to search for a Defect and to uncover and test any work that the Official considers may have a defect. The Contractor shall permit the official(s) from ICLEI South Asia or IMC to check the work and notify the Contractor of any defects that are found.
2. The Contractor shall permit the official(s) from ICLEI South Asia or IMC to check the work and notify the Contractor of any defects that are found.
3. If the official instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a defect all such test/tests shall be carried out by the Contractor at his own cost and shall be deemed to be included in the rates given by Contractor.
4. The official(s) from ICLEI South Asia and/or IMC can give notice to the Contractor informing him/her of any defects after or during implementation and/or during Operation and Maintenance phase. Every time notice of a defect is given, the Contractor shall correct the notified Defect within the length of time specified by ICLEI South Asia in the Notice issued to the Contractor.
for defect correction. If the Contractor has not corrected a defect within the time specified in the notice, ICLEI South Asia will assess the cost of having the defect corrected, and the amount will be recovered from the Contractor.

5. The official(s) from ICLEI South Asia and IMC can undertake survey of slum dwellers and get feedback from them on the functioning of plant, etc. The Contractor and Local Stakeholder Committee shall facilitate and show cooperation for all such inspections and surveys.

6. All material supplied or used for the project shall be in accordance with National Standards. Officials from ICLEI South Asia and/or IMC can inspect the materials being used for the implementation work and any material found defective or below standards would have to be replaced by the Contractor at own cost. ICLEI South Asia would not be liable to pay any costs of material/labour/transport/other for any below standard material used for implementation.

7. In case a defective or below standard material is found by the officials from ICLEI South Asia and/or IMC, the same shall be notified to the Contractor in writing and the Contractor would be required to replace the material within 15 days of letter of notification. In case of failure to replace the material, ICLEI South Asia reserves the right to stop implementation work on site and delays or termination in accordance with Section 21 would be charged.

8. The Contractor cannot sublet the entire work or any subcomponent of the work unless agreed in writing with ICLEI South Asia. In case of subcontracting, the costs would have to be borne by the contractor and ICLEI South Asia shall not liable to pay any costs to the subcontractor. Management of the subcontractor would be the responsibility of the Contractor.

9. Protection of works or material during construction period and subsequent operation and maintenance phase shall be the sole responsibility of the Contractor. ICLEI South Asia shall not be liable to any damage/claim arising from this.

10. The Contractor should ensure that pipes don’t lead to any leakages. In case of leakages detected during implementation or during O&M phase, the Contractor shall permanently fix these leakages at own cost.

11. The Contractor shall ensure safety and proper functioning of all equipment and systems on site.

12. The Contractor shall train the stakeholders from Local Stakeholder Committee (including ‘plant operators’) and concerned IMC officials in maintenance of systems and structures created to ensure regular O&M post withdrawal of support.

13. The material waste from construction work shall be reused or disposed of by the contractor in accordance with the standards.

14. The Contractor should ensure that waste piles for more than one week are not maintained on site.

15. All material purchased by the Contractor as part of the contract shall be new and of best quality according to the specifications and shall be free from defects (including concealed fault, deficiency in design, material and workmanship). The Contractor shall take approval (on quality of material) from representative from ICLEI South Asia or IMC at the time of delivery of material on site or at the time of use for construction or other works on site. Materials replaced/repaired under guarantee/warranty period shall have further warranty for a period of 12 months from the date of repair/replacement.

16. All areas that are hazardous for humans or animals should be duly provided with fencing or protection. The Contractor should ensure that the implementation of the wastewater treatment plant and/or any other structures or systems created under the project are such that it ensures adequate protection from diseases and unwanted microbes.

17. IMC would be required to take due precautions to ensure that no infections or diseases spread from the plant. In case of any such instance, ICLEI South Asia would have no liability towards the same.

18. During the contract period including 1 month operation & maintenance phase, any broken parts/dried vegetation of the system/other services are to be replaced within 3 days of such event at the cost of the Contractor with equivalent or better model/type in consultation with ICLEI South Asia and Technical Consultant for the project.

19. Any accidents or damages caused to users or any other person from structures/systems created under the projects would be the liability of the Contractor alone. ICLEI South Asia or IMC would have no legal or financial bindings for the incident or any implications arising out of the incident.

20. Size of all equipment/materials used should be as per National standards.

21. All information displayed at the site should be in Marathi.

22. Monitoring of quality of treated wastewater would be undertaken monthly by Ichalkaranji Municipal Council and/or Technical Consultant through State level designated agencies. Any irregularities in water quality monitoring results requiring improvements in the basic structure or implementation of the plant would have to be corrected/repair/replaced by the Contractor for 1 month O&M period after completion. No additional payments would be made for this.

23. Samples or details of items should be discussed (including specifications/brand/make) with ICLEI South Asia and IMC before ordering. If upon delivery without prior approval, the product is found below standards, the contractor would have to replace the same with good quality product, as per the satisfaction of ICLEI South Asia, at own costs.

24. Contractor shall bear all costs of any repairs/replacement of faulty material/items for the structures and systems created under the project within the 1 month operational phase that come under the scope of work of the contractor. No additional costs for this would be entertained.

25. Any issues related to the trench maintenance or choking of drains or fixtures or clogging of wastewater treatment system, etc should be resolved by the contractor at own costs.

26. The contractor would participate in IEC activities to train the locals and IMC staff on proper use of treatment systems in partnership with ICLEI South Asia. IEC material can be displayed at site.

27. Drawing showing plant details and importance and detailing of each stage should be provided as a board on the construction site by the Contractor in partnership with ICLEI South Asia.

28. During the operation and maintenance phase, the contractors’ authorized representative should visit the site at least once a month (preferably once a week) and immediately address any concerns or issues that are brought to the notice of this representative within a period of 3 days. In case of issues that might take longer to address, written permission from ICLEI South Asia or IMC is required.
South Asia should be obtained. In case written permission is not obtained and the issue is not addressed within the stipulated time, penalties/termination in accordance with Section 20 would be applicable. In case of complaints that are brought to the notice of the contractor in writing or verbally in between the duration of site visits, the same shall be addressed by the contractor within 3 days. For issues taking longer, written permission from ICLEI South Asia should be obtained, otherwise penalties/termination in accordance with Section 20 would be applicable.

29. The contractor should note that no permanent civil construction in the nallah bed would be permitted.

30. The Contractor should ensure that the flow of the nallah is not obstructed completely at any point of time during or after construction.

31. The contractor would be accountable to the IMC for successful functioning of the Green Bridge™ system as per standards in Annexure 4 even beyond the scope of this contractor in accordance with the contract/agreement between IMC and the contractor till December 2017.

Section 7: Water Quality Monitoring

Monthly water quality monitoring of the plant would be undertaken by Ichalkaranji Municipal Council and Technical Consultant through State or National government recognized institutions/ agencies. The treated wastewater quality is required to meet agreed standards between ICLEI South Asia, IMC and Technical Consultant. IMC would be sharing results of these reports with ICLEI South Asia. Any irregularities identified in the water quality testing reports would be shared with the Technical Consultant and any design changes or modifications that might be required to ensure treatment quality in accordance with the standards would be notified to the Contractor in writing by ICLEI South Asia along with the Technical Consultant for the project. The Contractor would be required to address these design flaws at his/her own costs, unless agreed in writing with ICLEI South Asia and IMC. Water quality reduction as per Annexure 4 has to be achieved by the decentralized wastewater treatment plant.

Treated wastewater would be reused for irrigation if it meets the prescribed standards for water quality in accordance with Central Pollution Control Board guidelines for Water Quality (Water Quality Class ‘E’ for Irrigation, industrial cooling, and controlled disposal: pH between 6.0 and 8.5, Electrical conductivity less than 2250 micro mhos/cm, Sodium Absorption Ratio less than 26, and Boron less than 2 mg/l). Treated wastewater quality standards would be measured and certified by State government authorized agencies through IMC facilitation. Upon certification of water quality, the treated wastewater can be used for irrigation for farmers in neighbouring areas.

Section 8: Layout of structures on Site

Annex 1

Section 9: Key specifications

Annex 2

Section 10: Eligibility

Organizations or individuals can bid for this contract. At least 2 of the following conditions are required for eligibility for this project:

1. Minimum 5 years of experience in implementing similar projects related to construction of decentralised wastewater treatment plants and/or Nallah restoration projects for ULBs in Maharashtra and/or India.
2. Contractor should have carried out successful completion of work for at least two projects with the ULB or state government or other authorized departments for wastewater treatment/ Nallah restoration/ river cleaning with bioremediation technology etc. or for civil works for a cost of at least Rs. 5 lakh each. Contractors should furnish the self-attested copy of work orders for these works and a copy of certificates of award from the concerned institute.
3. Minimum turnover of Rs. 10 lakh during last 2 years would be required in case of organizations or turnover of minimum 5 lakh rupees (for last 2 years) would be required in case of individuals.

Additional information

4. Contractors with PWD or ULB or any other authorized government department registration and valid license would be preferred.
5. Experience of working in the State or city would be an additional benefit
6. Contractors with experience in decentralized low cost wastewater treatment plants will be given preference
7. Contractors listed/empanelled under Swachh Bharat Mission or any other National or State government empanelment shall be preferred.

Section 11: Details required in contract document

Technical Bid

1. Credentials of organization and or individual
2. Details of at least 2 similar or civil projects implemented by the organization/individual with documentary proof for the same
3. Registration certificate
4. PAN or TIN number details
5. Audited accounts statements for last 3 year
6. Tender Submission Form (Annexure 5)

**Financial bid**

1. Financial bid for tasks listed in the tender document and Annexure 1 to 4. The total cost should include implementation costs and costs for O&M of the structure till December 2017 (after successful functioning of the plant) and systems created. Financial bids should be inclusive of all taxes, etc.

2. Item wise break up for all annexure components (Annex 2)

3. Financial details of the organization to prove eligibility

Note: All Technical and Financial bids should preferably be in English. The financial bid should be in accordance with the State government Schedule of Rates. Financial bid should include all costs including taxes, transport, labour, etc. and should be all inclusive. Tenderers are encouraged to visit the site before submission of bid.

Soft copy of the tender document (technical and financial) should be mailed to ICLEI South Asia on the contact details mentioned in this document.

**Section 12: Ernest Money Deposit**

The selected Contractor would be required to submit an Ernest Money Deposit worth 5% of the total tender cost finalized with ICLEI South Asia (after negotiations). This amount would be deposited as security of bank guarantee from Nationalized bank and the selected Contractor shall have to sign a contract with ICLEI South Asia within 15 days of award of project. Upon successful completion of project, this amount would be added to the final payment made to the Contractor. The Ernest Money Deposit should be deposited by successful Contractor at the time of signing the contract with ICLEI South Asia, payable at New Delhi. Ernest Money Deposit should be valid for a duration of 3 months from the date of submission of bid.

**Section 13: Terms of Payment**

- **First instalment**: 35% mobilization advance against Ernest Money Deposit (valid for 3 month period) and submission of the following to the satisfaction of ICLEI South Asia:
  a. Report on any modifications to the design or bill of quantities (after site visit with ICLEI South Asia and Technical Consultant) with the consent/approval of ICLEI South Asia and Technical Consultant
  b. Signing of agreement between IMC and Contractor on ensuring achievement of results as per Annexure 4 and ensuring successful functioning of the plant after achieving the desired results for treated wastewater for a period of 6 months as per Annexure 4 till December 2017. All costs for ensuring the desired water quality are being covered under the existing contract and no additional payments shall be made to the contractor beyond March 2017 to maintain desired quality of treated wastewater till December 2017 as per Annexure 4.

- **Second instalment**: 45% against completion of the following to the satisfaction of ICLEI South Asia:
  a. Purchase and delivery of all material on site and Cleaning of selected stretch and diversion of small trench from main stream for eco-restoration project.
  b. Preparation of site for Green Bridge installation. off site- Procurement of required supportive material for Laying of Green Bridge™ system, Purchase of bacterial culture - ecofert - Proprietary material, metallic screen for arresting solid waste, Biomats, gabions, etc.
  c. Completion of construction of decentralized wastewater treatment plant in accordance with details given in Annexure 1 to 4
  d. Installation of Green Bridge and developing green lake system as per design, bank stabilization. plantation growth and initiation of wastewater treatment
  e. Training of ‘plant operators’ and other stakeholders from Local Stakeholder Committee and IMC in operation and maintenance of structures and systems in partnership with ICLEI South Asia and the Technical Consultant.
  f. Participation in Focus Group discussions, stakeholder workshops or other project workshops, as per requirement of ICLEI South Asia
  g. Defining O&M mechanism for the structures and systems created under the project

- **Third instalment**: 20% after stabilization of green bridge and successful performance and functioning for one month (to the satisfaction of ICLEI South Asia and IMC), completion of following tasks and submission of reports:
  a. Successful functioning of decentralized wastewater treatment plant over one month
  b. Demonstration of successful handover to trained personnel from Local stakeholder Committee and IMC for operation and maintenance of structures and systems.
  c. Completion report for construction works and monitoring results giving all details of technical specifications and costing used for the project and details of usage and maintenance and any precautions that need to be taken for maintenance in future, including status of water quality before and after treatment to show effectiveness of the plant

**Section 14: Operation and Maintenance (O&M)**

After successful completion of civil work of the plant and proper functioning, initial water quality testing would be undertaken by Technical Consultant to ensure adherence to agreed standards. Once successful performance of the plant has been established, the operation & maintenance of the plant for a period of 1 month (and subsequently till December 2017 as per agreement with IMC).
would be undertaken by the contractor (overall) in partnership with IMC (daily maintenance). The task distribution between Contractor and IMC for plant maintenance is given below:

The key tasks and responsibilities of the contractor include:

- Ensure safety and stability of the structures and systems created during the O&M period and the subsequent one month operational period.
- Addressing any repairs/replacements of civil work or wastewater treatment system’s vegetation required during the 3 month O&M phase
- During the 3 month period, if any design changes or modifications are required to be made to the plant to ensure adherence to standards, the same shall have to be undertaken by the contractor at own costs
- Any damage caused to the existing structure due to poor construction or material would have to be replaced/repaired by the contractor at own cost
- Safeguard treatment system plantation from stray animals by provision of adequate protection
- Safeguard expensive equipment on site
- Ensure desired water quality as per Annexure 4 is achieved.
- Any other problems/issues that arise linked to the contractor’s scope of work and require regular or intermittent maintenance.

The key tasks including (but not limited to) O&M of the system are to be conducted by IMC and as per details given in Annexure 3 including:

- Removal of collected debris, plastics, garbage and other non-biodegradable from the metal screen and other routine operations
- Periodical maintenance of treatment system i.e. changing of biomats, Repairing/Replacement of damaged parts, culture addition after handover by the technical consultant and contractor.
- Sampling & analysis - one set of untreated & treated samples

Section 15: Timelines

The Contractor would be required to complete the construction of decentralized wastewater treatment system for Kala nallah for selected flow and site (along with other tasks listed under Section 3, Annexure 1 to 4) within 45 days of award of contract and would be required to undertake Operation and Maintenance for the next 1 month as part of the contract (and subsequently till December 2017 as per agreement with IMC). The contractor is required to take due consideration for practical problems and schedule once submitted should strictly be adhered to. Any deviation of more than 15 days from the proposed schedule would invite penalties/termination in accordance with Section 20.

For the purpose of reporting to European Commission, upto a maximum of 3 months after completion of the project, inputs from the contractor might be sought by ICLEI South Asia and the contractor would be required to provide the same.

Section 16: Labour and Material

1. All labour required for the completion of the task would be provided by the Contractor in accordance with the laws of the land
2. Any incidents that occur on site or with the labour during the course of the contract would be the liability of the Contractor alone. ICLEI South Asia and IMC would not have any liability in such case
3. Contractor’s supervisor should visit the site at least once a week to ensure smooth and safe working during implementation and at least once a month during O&M phase.
4. All labour or manpower involved in the project by the Contractor should be above 18 years of age
5. The Contractor shall in respect of labour employed by him or his/her sub-contractor comply with or cause to be complied with the Contractor Labour Regulation in regard to all matters provided therein.
6. Any loss of material or accidents or loss of life during the course of the contract would be the sole responsibility of the Contractor.
7. Contractor has to make his own arrangement for power and water required for implementation work. Any other terms for water tanker or electricity supply or generator will not be accepted.
8. The Contractor shall maintain safety of workers on site and should provide the appropriate safety equipment and gears for the same. No additional costs for this can be charged to ICLEI South Asia
9. The Contractor shall indemnify and keep indemnified ICLEI South Asia and IMC against:
   i. Any claim arising out of third party loss/ damage to life or property caused by/ during execution of the work.
   ii. Any claim arising out of loss/ damage to the workmen engaged by the contractor during execution of the work.
   iii. Any claim due to non-compliance of applicable PF/ Labour laws, ESI regulations etc.
   iv. Any claims arising from any accidents or emergency situations related to labour or residents, arising from the project, during the course of the tender or afterwards
10. The Contractor should maintain an attendance register on site during implementation phase and ensure all workers mark their attendance and signature. This list can be checked at any time by ICLEI South Asia representative.
11. Drinking water, food and other requirements for the labour shall be met by the Contractor
12. Any damages to structures or systems created by the contractor within the 3 month period would be the responsibility of the contractor. ICLEI South Asia and IMC shall have no liability for the same. In case of any such repairs/damages, the contractor would be required to replace or reconstruct the structures/systems/other components at own cost.

13. The Compliance of the Safety and Health provisions are of utmost importance to ICLEI South Asia. The Contractors must note that ICLEI South Asia will take a serious view of any noncompliance report of Safety norms and standards. ICLEI South Asia has a right to order stoppage of work till rectification is carried out for all safety norms and standards.

14. Provision of First Aid Kit should be ensured on site during the entire implementation period and O&M period (after successful performance of the project).

15. Contractor may arrange for regular medical check-ups of his/her labour during the execution phase. To maintain health and hygienic conditions for labour is the sole responsibility of the contractor.

16. Information on Emergency contact numbers and details shall be provided to labour supervisor by the Contractor.

Section 17: Complaint Redressal

1. The Contractor shall ensure that the work on site should be conducted such that no construction or other works lead to any disturbance or complaints from neighbouring areas or IMC.

2. Any complaints arising during the implementation phase or during the 1 month operation and maintenance period after implementation would be the responsibility of the Contractor and ICLEI South Asia or IMC would not be liable to address these complaints. These complaints would be addressed by the Contractor at his/her own costs.

3. In case of any complaints related to quality or timing or other aspects of the work or material used for the project (by local stakeholders or IMC or ICLEI South Asia), the Contractor shall be liable to address the same within 48 hours of the complaint being informed to the Contractor (verbally or in writing) at own cost. In case of failure to address complaints within the stipulated time, a written notice shall be sent to the Contractor by ICLEI South Asia to resolve the complaint within a period of one week. In case of noncompliance to meet the terms of the notice, the Contractor can be penalized or the contract can be terminated at ICLEI South Asia’s discretion in accordance with Section 20.

Section 18: Variations during implementation

If during implementation, the Contractor and ICLEI South Asia deem it necessary to undertake any task or implement any works that were not envisaged at the time of contract signing but are crucial for successful implementation of the Contract and it has been verified that the Contractor did not intentionally hide such a requirement or the task is not arising due to incompetence or inexperience of the contractor, then in such cases, an amendment to the Contract would be required for the project as an annexure. The costing for this additional task shall be as per the item wise costs quoted by the Contractor at the time of bidding and the total amount of such variation cannot exceed 20% of the total Contract value.

Section 19: Extension

Any extensions to the contract can only be entertained if approved by ICLEI South Asia in writing. In such cases, the financial bid for the contract shall remain unchanged. No additional payments would be entertained for the extension period.

Section 20: Penalty and Termination of Contract

1. Failing the delivery schedule mentioned in the contract document or failure to adhere to the timelines submitted by the contractor would attract a penalty at the rate of 1% (of the total tender cost) per week with maximum ceiling of 10% will be charged for non-completion of the work in prescribed time limit. If the work is not completed during this penalty period, then contract can be terminated, Earnest Money Deposit will be forfeited and Contractor can be blacklisted. The contractor should prepare the schedule considering all practical situations and any deviations from the schedule once provided would not be entertained.

2. In case of termination of Contract, the Contractor shall be paid on pro rata basis for the services successfully delivered to the satisfaction of ICLEI South Asia till the time of termination of Contract.

3. Penalty would not be applicable of the delay is due to:
   (a) Force majeure or (b) Abnormally bad weather or (c) Serious loss or damage by fire, or (d) Civil commotion, local combination of workmen strike or lockout, affecting any of the trades employed on the work, or (e) Any other cause, which, in the absolute discretion of ICLEI South Asia, is beyond the Contractor’s control.

4. Then upon the happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to ICLEI South Asia but shall nevertheless use constantly his/her best endeavours to prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the ICLEI South Asia to proceed with the Works.

Section 21: Dispute Resolution

In case of conflict, both parties shall use their best endeavours to settle any dispute or claim arising out of or relating to the Contract and their attachments thereto through amicable discussions. If not amicably settled within sixty (60) days of the dispute or claim arising, the decision of ICLEI South Asia would be considered binding. In case the Contractor has objections to the decision of ICLEI South Asia, the dispute would be decided by a panel of three (3) external Arbitrators chosen mutually by ICLEI South Asia.
and the Contractor. The parties agree that the decision of the majority of the Arbitrators so appointed shall be final and binding upon the parties.

Section 22: Corrupt or Fraudulent Practices

1. ICLEI South Asia expects the Contractors to observe the highest standard of ethics and integrity during the procurement and execution of such Contracts.
2. If any bidder, even after selection, is found to indulge in malpractices or is found to have submitted false information at the time of submitting the bid or the quality of work is not found satisfactory by ICLEI South Asia, such Contractor can be disqualified by ICLEI South Asia after giving a written notice. If the Contractor fails to produce justification to the satisfaction of ICLEI South Asia or continues with the malpractices, ICLEI South Asia can terminate such a Contract at any time without giving prior notice.

Section 23: Bid Validity

All bids submitted shall remain valid for a period of 45 days from the time of submission. Any bids submitted for a lesser duration can be disqualified.

Section 24: Deliverables

- Successful completion of construction of Kala Nala wastewater treatment plant for the selected flow and site in accordance with details given in Annexure 1, 2 to the satisfaction of ICLEI South Asia
- Artificial diversion and trench formation to the main nala stream (as per details provided by Technical Consultant)
- Operation and maintenance of all structures and systems created under the project for at least one month and subsequently till December 2017 as per agreement with IMC
- Training of ‘plant operators’ and other local stakeholders from nearby locality and IMC officials in operation and maintenance of structures and systems in partnership with ICLEI South Asia and the Technical Consultant
- Participation in Focus Group discussions, stakeholder workshops or other project workshops, as per requirement of ICLEI South Asia
- Completion report for construction works (1 month from award of contract) giving all details of technical specifications and costing used for the project and details of usage and maintenance and any precautions that need to be taken for maintenance of the treatment units in future
- Successful functioning of decentralized wastewater treatment plant for Kala nallah and all other structures/systems created under the project as given under Annexure 1 and Annexure 2, for at least one month and then subsequently till December 2017 in accordance with agreement with IMC
- Demonstration of successful handover to trained personnel from Local Stakeholder Committee and IMC for operation and maintenance of structures and systems.

Section 25: Force Majeure

Contractor would take all necessary steps to ensure prompt delivery. They would not, however, be held responsible for any delays due to circumstances beyond control. ICLEI SA would not have any liability in case of circumstances beyond control arising from natural disasters or manmade disasters or act of God.

Section 26: Duration of Tender

This tender would remain open for a duration of 15 days from the day of issue. The shortlisted Contractor(s) (one or two maximum) would be interviewed and would be required to give a presentation to the Municipality (costs of this meeting are to be borne by the Contractor). After approval of Municipality, the Contractor would be finalized.

Section 27: Notification of successful Consultant

The bid shall remain open for a total of 15 days from the day of floating the tender. Successful/shortlisted Consultant(s) would be notified latest by 15th January, 2017.

Section 28: Additional Information

- ICLEI South Asia has the authority to call off this tender or make any changes or amendments to the contents of this tender in part or full, at any time, without giving any reason. The tenderers shall have no cause for objection or claim or action against ICLEI South Asia or IMC for not selecting their tender.
- Sales Tax, VAT/TIN/PAN registration number should be mentioned in the tender document and the bills/invoices raised after selection
- The Contractor would be answerable to ICLEI South Asia, local stakeholders and representative(s) from IMC.
The Contractor would have to raise an invoice for payment at each stage along with the required supporting documents.

Financial bid quoted by the Contractor shall be inclusive of all taxes and additional costs. No other costs, than those mentioned in the contract shall be entertained unless agreed mutually between ICLEI South Asia and the Contractor.

All costs of transportation of material to the site are to be borne by the Contractor. No additional payments shall be made for this.

Bids where the unit rates are found to be significantly higher than the standard costs can be disqualified.

The total cost of tender and item rates for the contract shall be fixed for the entire duration of the contract and no changes to the same shall be entertained at any cost.

All costs should be in INR. In cases where INR is not specifically mentioned, it shall be implied that the costs are in INR.

ICLEI South Asia might enter into negotiations on the financial bid with the shortlisted Contractor(s).

The Contractor and/or any staff or subcontractor associated with the Contractor can be liable to audit or check by staff from European Commission and Contractor and all such staff or subcontractors shall cooperate in case of such audits or site visits by European Commission.

Contractors can request for prebid conference call or site visit (at own cost) before submitting the tender.

All tenderers are requested to visit the site before submitting the bid. Details of exact location of the site can be taken from the contact person listed below.

Conditional tenders would not be accepted.

Section 29: Contact person
Ms. Meesha Tandon, Senior Manager, Sustainability Management, ICLEI South Asia, Email: meesha.tandon@iclei.org
Address: ICLEI South Asia, NSIC Complex, Okhla Industrial Estate, New Delhi 110020
Tel: 91 11 4106 7220
Fax: 91 11 4106 7221
Annexure

Annexure 1: Schematic Layout of treatment plant

Overall layout of Green Bridge Structures and systems
Cross Section of Green Bridge:
Cross Section of Trench
Annexure 2: Key Specifications

Financial Estimates
Contractor is requested to provide quote for material and services required for implementation of the following works. Please note that all works are to be read in conjunction with the bid document and the annexure documents.

Note: In any case contractor should not construct any kind of permanent structure and/or obstacle to the flow in main stream of the said nala.

Summary of costs

The installation of Green Bridge™ as per designs and guidance from SERI, in association with Local Authority.

Capital Expenditures

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Rate</th>
<th>Amount In Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>DSR Items</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td><strong>For Trench formation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dimensions:</strong> Trench Length - 130m, Trench width at bottom - 4m, Trench width at top - 6m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lake width at bottom - 8m, Lake width at top - 10m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material upto a distance of 50 m. beyond the building area &amp; stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.5 m.) By Mechanical Means Spec. No.: Bd.A.1 Page No. 259</td>
<td>698.40 cu.m</td>
<td>cu.m</td>
<td>698.40</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Transporting the excavated material from site to 3 km outside including loading unloading etc complete</td>
<td>698.40 cu.m</td>
<td>cu.m</td>
<td>698.40</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td><strong>For Main stream Diversion</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Dimensions:</strong> Main Stream width at top – 8 m Main Stream width at bottom - 6m</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material upto a distance of 50 m. beyond the building area &amp; stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.5 m.) By Mechanical Means Spec. No.: Bd.A.1 Page No. 259</td>
<td>1100.40 cu.m</td>
<td>cu.m</td>
<td>1100.40</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Transporting the excavated material from site to 3 km outside including loading unloading etc complete</td>
<td>1100.40 cu.m</td>
<td>cu.m</td>
<td>1100.40</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Providing and erecting structural steel for sakav with all bracing gusset plates etc. as per detailed design and drawing or as directed including cutting, fabrication, hoisting, erecting, fixing in position, making riveted/bolted/welded connection and oil painting with two coats complete. Spec. No.: As directed by Engineer in charge.</td>
<td>1</td>
<td>MT</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Providing and laying concrete pipes of I.S.NP. class of 225mm diameter in proper line, level and slope including necessary collars, excavation, laying, fixing with collars in cement mortar 1:1 and refilling the trench complete. Spec. No.: Bd.V.41, Page No. 573</td>
<td>1</td>
<td>Rmt</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Material required for construction of Green bridge</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 7.1 Providing and construction 1000 mm thick dry masonry wall for green bridge

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.4 cu.m</td>
<td>cu.m</td>
</tr>
</tbody>
</table>

### 7.2 Providing sand bed 300 mm thick

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8 cu.m</td>
<td>cu.m</td>
</tr>
</tbody>
</table>

### 8 Dewatering on BHP basis by using water pump including diversion of stream, providing coffer dams, earthen unds etc as may be necessary for foundation and other parts of the works and pumping out water during and after excavation as may be required a) by using 3.0 BHL Pump Note: Prior approval of Superintending Engineer will be necessary. Spec. BR 4 Page No. 104.105

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 hours</td>
<td></td>
</tr>
</tbody>
</table>

### Sub Total Non DSR Items

### 9 For Green Bridge system and Benthic eco-system

#### 9.1 Providing and laying 600 mm thick ecofert – Proprietary bacterial consortia

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5 Ton</td>
<td></td>
</tr>
</tbody>
</table>

#### 9.2 Providing and laying biomat to enclose ecofert layer of Green Bridge system

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 sq. m</td>
<td>sq. m</td>
</tr>
</tbody>
</table>

#### 9.3 Planting saplings on top of biomat

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 nos.</td>
<td></td>
</tr>
</tbody>
</table>

#### 10 Providing and laying biomat along the slopes of the stream

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>383 sq. m</td>
<td>sq. m</td>
</tr>
</tbody>
</table>

#### 11 Providing plantation along the trench

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>145 nos.</td>
<td></td>
</tr>
</tbody>
</table>

#### 12 Providing, constructing coffer dam in river basin / dam storages as per type design including excavation, filling, the middle portion with B. C. soil (in gunny bags if required). Providing impervious / semi-pervious materials on both side of B.C. soil (in gunny bags if required) including ramming, compacting to the satisfaction of Engineer-in-charge. (Temporary till the construction completes and maximum for 2 months)

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 cu.m</td>
<td></td>
</tr>
</tbody>
</table>

### Sub-Total

### Total

---

**Specification of ecofert – Proprietary bacterial consortia**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Tan, Free flowing powder</td>
</tr>
<tr>
<td>Odor</td>
<td>Pleasant, yeasty</td>
</tr>
<tr>
<td>Bulk density</td>
<td>34-41 lb per cubic foot</td>
</tr>
<tr>
<td>Screen Mesh Size</td>
<td>98% through 15 mesh</td>
</tr>
<tr>
<td>Moisture Content</td>
<td>Less than 15 %</td>
</tr>
</tbody>
</table>
Annexure 3: Operation and maintenance required for the treatment plant

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Operation &amp; Maintenance</th>
<th>Frequency</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Removal of collected debris, plastics, garbage and other non-biodegradables from the metal screen and other routine operations</td>
<td>Daily</td>
<td>By IMC</td>
</tr>
<tr>
<td>2</td>
<td>Periodical maintenance of treatment system i.e. changing of biomats, Repairing/Replacement of damaged parts, culture addition</td>
<td>If required</td>
<td>Contractor</td>
</tr>
<tr>
<td>3</td>
<td>Sampling &amp; analysis - one set of untreated &amp; treated samples</td>
<td>2 samples per month</td>
<td>By IMC and Technical Consultant as per agreement</td>
</tr>
<tr>
<td>4</td>
<td>Experts' visits including travelling, accommodation, man-day</td>
<td>visits per year</td>
<td>By Technical Consultant as per agreement</td>
</tr>
</tbody>
</table>

Total Cost
### Expected outcomes of proposed Project

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Expected reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>COD/BOD</td>
<td>50 – 80%</td>
</tr>
<tr>
<td>Toxic Metal reduction*</td>
<td>25 – 35 %</td>
</tr>
<tr>
<td>Odour and mosquitoise control</td>
<td>100%</td>
</tr>
<tr>
<td>DO incremental</td>
<td>4-8 times</td>
</tr>
</tbody>
</table>

*If concentration of toxic metal is increased during summer season then metal reduction may be achieved upto 50% depending on inlet concentration of metals.*
Annexure 5: Tender Submission Form

To

Executive Director
ICLEI South Asia
NSIC Complex, Okhla Industrial Estate
New Delhi 110020

I/We have read and examined the following documents relating to………………………………
………………………………. ………………………………………………………………… (Name of the Work)
including the main bid document and Annexure 1and 2 (____).

I/We hereby tender for execution of the work referred to in the aforesaid documents in accordance with the terms and
conditions contained or referred to therein and in accordance in all respects with the specifications, designs, drawings
and other relevant details at the rates furnished in the bid document and within the period(s) of completion as stipulated
in Annexure documents and our proposal.

In consideration of I/We bidding for the tender, I/We agree to keep the tender open for acceptance for 90 days from the
due date of submission thereof and not to make any modifications in its terms and conditions which are not acceptable
to ICLEI South Asia.

A sum of Rs. ______ will be deposited as Earnest Money Deposit in the form of Demand Draft in favour of ICLEI
South Asia, payable at New Delhi at the time of signing of contract with ICLEI South Asia.

If I/We fail to keep the tender open as aforesaid of make any modifications in the terms and conditions of the tender
which are not acceptable to ICLEI South Asia or after signing of contract are unable to provide work or services to the
satisfaction of ICLEI South Asia as per the terms of the contract and annexure documents, I/We agree that ICLEI South
Asia shall without prejudice to any other right, be at liberty to forfeit earnest money absolutely. Should this tender be
accepted, I /We agree to abide by & fulfil all the terms conditions of aforesaid document and the annexure documents.

If after the tender is accepted, I/we fail to commence the execution of the work, I/We agree that ICLEI South Asia shall
without prejudice to any other right or remedy is at liberty to forfeit the said earnest money absolutely.

Signature of contractor………………………
Organization_____________
Date____________