

**Kerala Solid Waste Management Project (KSWMP)**  
**Terms of Reference for Hiring Technical Support Consultancy (TSC) Services**

**A. BACKGROUND**

The Project Development Objective (PDO) for the proposed Kerala Solid Waste Management Project is to strengthen the institutional and service delivery systems for SWM in Kerala. In particular the project aims to adopt sector wide integrated value chain approach for enhancing the service delivery for waste management in Kerala. The project comprises of combination of technical and financial assistance to the participating ULB's and the state government to improve their institutional and organizational capabilities and strengthen the infrastructure for solid waste management. The proposed KSWMP project will support the 93 ULBs and the project design comprises of three components:

1. **Component 1: Institutional development, capacity building and project management.** The component will provide technical assistance and capacity building at state and local level for (a) undertaking SWM institutional and policy reforms; (b) planning, designing and implementing investment sub-projects for climate smart and disaster resilient SWM infrastructure and services improvement; (c) organizational development of participating ULBs for inclusive and sustainable SWM service delivery; and (d) awareness generation, gender inclusion and stakeholder engagement. This component will also provide project management, coordination and monitoring support at state, district and local levels. Lastly, this component will also provide technical support to LSGD, SM and participating ULBs for (i) developing guidelines and systems for COVID-19 related waste management, sanitization and public hygiene practices to be rolled out across all urban areas, and (ii) carrying out social awareness generation, sensitization and training programs for all the key stakeholders and citizens

2. **Component 2: Support to ULBs for SWM.** The component will provide incentive grants to the participating ULBs for improving their SWM systems and capacities, mainly on (a) primary collection and transportation systems for solid waste (b) source segregation and treatment for Biodegradable waste (BDW) at decentralized level, (c) Rehabilitation of the existing MCFs/RRFs and development of new integrated MRFs, (d) development of BDW management facilities, (f) closure/remediation of existing dumpsites and development of disposal cells as interim disposal facility, (g) public space cleaning, sanitization, waste removal activities as well as cleaning & sanitization of government offices, hospitals, community level waste recycling/processing facilities, (h) protective gears, equipment, masks, chemicals, disinfectants etc. for sanitation & waste management workers, (i) operations and maintenance payments for performance-based contracts & tipping fee for regional disposal and (j) implementation of environment and social risk mitigation actions as per KSWMP safeguard documents<sup>1</sup>.

3. **Component 3: Development of regional SWM facilities.** This component will finance regional processing and recycling facilities; transfer stations and regional sanitary landfills for municipal solid waste disposal; and closure/remediation of existing waste dumpsites. These down-stream activities aim at completing the value chain and will be managed by Suchitwa Mission (SM) and implemented in compliance with the National SWM Rules 2016 and the guidelines issued by Central Pollution Control Board. In addition, this component will also finance the biomedical waste management facilities and construction and demolition (C&D) waste management facilities. A cluster approach will be adopted for the planning, design and development of regional facilities. For each of the regional landfills, a waste-shed areas (WSA) will be established around the land parcels identified by the government.

The proposed project will support all 93 ULBs in Kerala including 6 Municipal Corporations and 87 municipalities spread across the 14 districts in the state of Kerala – the ULB's are small and medium sized municipalities with 90% of ULB's having an area of less than 50 sq.km.

**Implementation arrangement:** Suchitwa Mission (SM) under Local Self Government Department (LSGD) will be the primary implementation agency for the project and will be responsible for the implementation, management, coordination and monitoring of KSWMP at the state level. The Executive Director of SM will act

---

<sup>1</sup> KSWMP safeguard document refers to Environment and Social Management Framework (ESMF), Environment Management Framework (EMF), Social Management Framework (SMF), Tribal Development Framework (TDF), Resettlement Policy Framework (RPF)

as Project Director (PD) and a dedicated SPMU is being established under him supported by a full-time Deputy PD and a team of core technical staff for carrying out core functions of the project. To monitor and coordinate the activities of ULBs, the SM will set up DPMUs in each of the 14 districts of the state, housed in the District Collector's office. At the local level, all the participating ULBs will be required to constitute a PIU under the Secretary (executive head) of the ULB

## **B. OBJECTIVE OF THIS ASSIGNMENT**

Suchitwa Mission (hereinafter called the 'Client') plans to procure Technical Support Consultants (TSC) at the district level to provide end to end support to the ULBs in preparation and implementation of 5-year city wide SWM plan including technical/engineering, environment, social and overall institutional/governance support to the ULBs for SWM services improvement. This will include sub-project planning and design; contract management and implementation supervision; supporting in environmental and social safeguard requirements, as per Project Implementation Manual<sup>2</sup> (PIM) and Environment & Social Management Framework<sup>3</sup> (ESMF). The TSC can be a single firm or consortium / JV with expertise on technical, institutional, environmental and social safeguard requirements of the Bank on solid waste management projects.

TSC will be required to deploy a dedicated team in each district to support the ULBs in the respective districts with the below scope of work comprising of:

- Activity 1 – Technical assistance for SWM planning and institutional reforms.
- Activity 2 – Technical support for SWM sub-project preparation and implementation
- Activity 3 – Environmental safeguard management support for SWM sub-project planning, preparation and implementation
- Activity 4 – Social safeguard, gender inclusion, citizen engagement and communications support for SWM sub-project planning, preparation and implementation

## **C. SCOPE OF WORK**

### **Activity 1 – Technical assistance for SWM planning and institutional reforms:**

#### **Sub-Activity 1.1 – Solid waste management plan preparation and sub-project prioritization:**

The consultant should support the ULBs in preparing and obtaining the SPMU's approval of the 5-year solid waste management plan (SWMP) as per technical guidelines in the PIM and national SWM rules. The city level SWM plans should identify the interventions to achieve the service level benchmarks as per GOI guidelines for SWM. This will include:

- a. Diagnostic and baseline assessment of existing municipal solid waste management infrastructure and service delivery systems in the city including necessary field work, surveys, investigations and consultations as detailed in the PIM. Gaps need to be identified specifically across the entire SWM value chain in consultation with the ULB.
- b. Preparing the 5-year solid waste management plan (SWMP) as per the national and state guidelines, state level SWM strategy and in consultation with both generators and service providers. The SWM plan preparation should adhere to the detailed stepwise guidance provided in the PIM. The SWMP should be prepared following a sector wide integrated approach and should outline the interventions to improve the infrastructure and service delivery across all the nodes of SWM value chain. The interventions should include but not be limited to (a) interventions to increase the source segregation, (b) expand coverage of household level BDW treatment systems (c) centralized SWM (BDW and NBDW) treatment/processing/recycling facilities (d) safe disposal facilities for residual waste (e) interim solutions for waste disposal through rehabilitation/conversion of existing dumpsites. The SWMP also should plan and design systems for the full coverage of collection and transportation of segregated solid waste in accordance with the SWM rules and the guidelines outlined in the PIM. The consultants while preparing the SWMP should also consider the

---

<sup>2</sup> PIM is being prepared by the SM currently and will be shared with the selected consultants during the kick-off phase of the assignment.

<sup>3</sup> Draft ESMF has been publicly disclosed on SM's website and World Bank website, and can be accessed by the bidders, if needed. Final ESMF will be disclosed in a few weeks.

possibility of exploring the opportunities for regional sub-regional projects for treatment and disposal and pose it to SPMU/DPMU as regional/sub-regional sub-projects. The type of procurement for each of the sub-project vis-à-vis (a) performance-based service / management contract (b) BOQ / rate contract (c) EPC and (d) DBOT should be detailed in the SWMP.

- c. The SWMP should be prepared to ensure that the SWM service delivery as identified in the plan is financially sustainable. This would include the cost recovery planning for sustainable O&M through a mix of fiscal instruments available to the ULBs including levying separate user charges for SWM services, plan funds and/or general budget surpluses.
- d. The SWM plan should detail the institutional arrangements for implementation of the SWM Plan in line with the guidelines detailed in the PIM
- e. The consultant should support the ULBs in prioritizing the investments identified in SWMP based on the consultation with stakeholders, implementation readiness (specifically land identification with social consensus), technical risk screening, extent of addressal to climate change, service delivery value chain integration, environment and social safeguards screening, compliance with national regulations and world bank policies and financial sustainability.
- f. The consultant should also integrate the outputs of sub-activity 3.1 (environmental assessment of SWMP) and sub-activity 4.1 (social safeguard requirement of SWMP under TDF-SMF) in finalizing the plan.
- g. Upon the finalization of the SWM plan, the consultant should support ULBs in obtaining the approval of the SWM plan with the SPMU
- h. Based on the approved 5-year SWM plans, the consultants should support ULB's every year in identifying SWM investment sub-projects to be included (with a specific head in the name of the project) in their annual development plans in consultation with stakeholders, to be approved by the DPC, as per the annual planning guidelines

#### **Sub-Activity 1.2 – Technical assistance support to ULB's on institutional, policy and financial reforms:**

Assist the ULBs in the implementation of key institutional, policy and financial reforms to ensure long-term sustainability of SWM services including

- a. Supporting ULBs in adopting a SWM bylaw to comply with the SWM rules, state's newly formulated SWM strategy. A model template of SWM bylaw would be provided by the SM.
- b. Assisting the ULBs in recruiting the key technical staff required to manage the SWM services,
- c. Supporting the ULBs in developing and implementing framework for cost recovery in consultation with stakeholders including the development and adoption of the gradual roll-out plan to levy user charges or any other modality of cost recovery instruments in line with the guidelines outlined in PIM and policy advise provided by LSGD/SM
- d. Supporting ULBs in identifying markets for products/by products from different waste management activities, deciding on prices of products/by products

#### **Sub-Activity 1.3 – Supporting ULB in project management, systems/procedures compliance, M&E and progress reporting activities:**

The Consultants shall:

- a. Support the ULBs in annual fiscal planning, budgeting, fund utilization and reporting activities (including the preparation of utilization certificates) as a part of their annual development plan cycle
- b. Support the ULBs in meeting the eligibility criteria (relating to institutional reforms, SWM planning, adoption of SWM bylaw etc.) for accessing the incentive grants including support in preparation and submission of a formal requisition (format as given in PIM) and required supporting documents for the verification of the eligibility criteria.
- c. Support to ULBs in demonstrating the compliance with all the Annual Triggers (ATs) relating to technical, fiduciary, safeguards and operational compliances as per the PIM.
- d. Support ULB in periodic progress reporting for physical progress, financial progress, Environment and social safeguard compliance, financial management compliance, procurement compliance as per PIM, templates provided by DPMU and ESMF.
- e. The consultant should prepare/periodically update the procurement plan for the ULBs specifying procurement methods and packages for all the identified procurement activities (including works, goods,

services) in accordance with the PIM, to ensure compliance with the World Bank’s procurement regulations;

- f. The consultant is also required to provide primary data collection, field survey and community consultation and coordination support to SPMU for regional / sub-regional SWM facilities that will be planned and implemented in their respective districts.

**Sub-Activity 1.4 – Supporting ULBs to implement, operate and update the SWM MIS system developed by SM, including but not limited to:**

- a. Updating ULB level data – baseline & annual data subsequently - on solid waste generation, collection, treatment & disposal in the MIS
- b. Updating sample water, air, soil quality, noise, biodiversity data near important environmental features, land-use, key SWM sites (storage, collection, transport, treatment, disposal of all types of wastes) in MIS (Collected while preparing SWM Plan & various environmental assessments, monitoring data, audits) - Baseline & annually.
- c. Updating and tracking compliance of labour laws applicable to all personnel and employers working under the KSWMP project in the MIS
- d. Updating ULB level data related to managing products/by products from treatment/processing of waste]
- e. Provide safeguard inputs/onsite compliance of safeguards as required in accordance with the KSWMP safeguard documents<sup>4</sup> into the MIS
- f. Provide required update/data/information/ monthly reports in the MIS on safeguard management plan implementation
- g. Updating the MIS with required information on the incident reporting, OHS, remuneration, compensation etc.

**Activity 2 – Technical Design support during sub-project preparation and implementation stage**

The indicative sub-projects that are envisaged as part of the component 2 of KSWMP for which the TSC consultants will provide support in implementation readiness, preparation and implementation include:

Type 1 sub-projects Services and goods/equipment contracts	Type 2 sub-project Rehabilitation of existing infrastructure	Type 3 sub-project New infrastructure
Expanding/strengthening solid waste collection and transportation systems	Rehabilitation and O&M of the existing MCFs/ RRFs/ recycling/ processing facilities	Development and O&M of new integrated MRFs and recycling facilities
Procurement of goods/equipment for expanding the coverage of household BDW management systems	Closure/remediation of existing dumpsites including development of interim safe disposal cells	Development and O&M of new centralized and decentralized (community/market level) BDW and NBDW management
Procurement of protective gears, equipment, masks, chemicals, disinfectants etc for sanitization services for waste management workers		

**Sub-activity 2.1 implementation readiness of sub-projects:**

Based on the sub projects prioritized in the SWM plan, the consultant should support the ULB’s in ensuring the implementation readiness of the sub-projects which will include:

- a. Supporting ULBs in identifying and screening of the land parcels as per the land siting guidelines mentioned in the PIM, following WB policies & National / state regulations and seeking the land ownership. The land

<sup>4</sup> KSWMP safeguard document refers to Environment and Social Management Framework (ESMF), Environment Management Framework (EMF), Social Management Framework (SMF), Tribal Development Framework (TDF), Resettlement Policy Framework (RPF)

parcels should also be screened from the environmental and social safeguard perspective, based on activities detailed in sub-activity 3.2 and 4.2, in line with the guidelines of PIM and ESMF.

- b. Supporting ULBs in obtaining the necessary technical, environmental and social safeguard related clearances as detailed in the PIM for the implementation of the subprojects.
- c. Supporting ULBs in identifying waste disposal facility for new / upgraded treatment/recycling facilities and dumpsite remediation projects, in line with national/state regulations.
- d. Supporting ULBs in undertaking technical screening investigations and fields surveys for sub-projects as per national rules, technical guidance in PIM.

#### **Sub-activity 2.2 – Support in sub-project preparation for Type 1 sub-projects**

For the Type 1 projects identified as part of the SWM plan, the consultants will support ULBs in:

- a. Implementation of the C&T plan prepared as part of the SWM plan and in line with the PIM
- b. Support the ULBs in contracting HKS (Haritha Karma Sena), Kudumbashree/or other private agencies through performance-based collection and transportation service contracts,
- c. Conducting necessary technical adequacy related due diligence, and finalization of the treatment equipment, including O&M requirements and KPIs, for the BDW management at household level based on the guidelines provided in PIM.
- d. Procurement of the agencies for supplying the household equipment for treatment of BDW based on the guidelines provided in PIM.
- e. Review of detailed break-up of the price quoted for Equipment and ensure that detailed Break-up covers all major heads as outlined in the PIM.

#### **Sub-Activity 2.3 - Support in sub-project preparation for Type 2 and Type 3 sub-projects.**

- a. The consultant should prepare BOQ documents / Technical Specifications / Feasibility Reports (FRs) / Detailed Project Reports (DPRs) as per requirement based on investment typology for the identified SWM investment sub-projects (Type 2 and Type 3) and adhering with the national SWM rules, other applicable state/national regulations and detailed guidance in the PIM.
- b. For the DBOT projects, the feasibility studies should include technical, environmental, social, financial and economic analysis of the potential solutions as per the requirements identified in PIM. The environmental and social analysis of the sub-projects should be integrated based on the outputs of Activity 3.3 and Activity 4.3. The Consultant shall ensure that the feasibilities shall meet the quality acceptable to the Client and the World Bank and should be in line with the guidelines outlined in PIM.
- c. The consultant through the interdisciplinary team constituting of social development, gender, community mobiliser, communication, livelihood and Labour experts, should ensure information dissemination and consultation with stakeholders- waste generators and service providers, on the design, environmental and social aspects of the sub-projects for feedback from them (including outreach and engagement with the most vulnerable groups)

**Sub-Activity 2.4– Support for procurement and contract management:** The Consultants shall support ULBs in the following activities:

- a. Prepare the bid documents in accordance with the procurement guidelines of the World Bank as detailed in the PIM, ensuring appropriate performance indicators are included in the Bid documents.
- b. Prepare that the various schedules in the bid documents, including technical specifications, construction schedules, incorporating applicable ESHS (Environment, Social, Health and Safety Standards and labour laws), O&M schedules, incorporating approved / cleared safeguard management plans, institutional responsibilities for E&S Management, KPIs and monitoring needs in the bid documents as per KSWMP safeguard documents and WB bidding requirements, environmental and social safeguards, as per the construction and operational requirements of the project.
- c. Provide coordination support to the ULBs for the approval of bid documents from the SPMU and seek no-objection as necessary.
- d. The consultant should support the ULBs in the evaluation of the tenders received from works contractors for item-based contracts. The consultant should review and approval of the detailed BOQ which shall form the basis for percentage of work completed and shall form the basis for payment to the contractor

- e. Provide handholding support to ULBs during tendering process, pre-bid meetings, minutes of pre-bid meetings and corrigendum/addendums, bid evaluation, negotiations (as applicable) and contract signing.

**Sub-Activity 2.5 – Implementation Supervision support of the sub-projects:** The Consultant shall

- a. Provide technical due diligence and quality assurance support for review, verification, improvement of the DPRs that would be prepared by the private operators for DBOT procurements in line with the DPR review requirements mentioned in the PIM
- b. Perform all necessary QA/QC activities required for overseeing the implementation of sub-projects and ensure that the construction activities in the sub-projects are in line with the approved designs, guidelines detailed as part of PIM.
- c. Construction works commence only after implementation of pre-construction requirements specified in approved ESIA/ESMP and TDP and site specific LMP (if applicable).
- d. Proof-check all the designs and processes designed by the contractors as per the guidelines detailed as part of PIM.
- e. Support the ULB in getting weekly reports from contractor regarding the work progress and proactively support ULB and contractor in resolving any issue which may affect the project progress
- f. Review the progress and quality of the works and prepare detailed assessment report for advising/recommending ULB on any necessary variations as per the guidelines mentioned in the PIM.
- g. Ensure that the construction completion of the subprojects, site restoration and the waste management is undertaken in line with the guidelines mentioned in the PIM and safeguard management plans.
- h. Witness Contractor's demonstration for proper functioning & operation as per the guidelines outlined in the PIM.

**Sub-Activity 2.6 – Post-implementation O&M support**

- a. The consultants shall monitor the investment sub-project during the O&M period (under DBOT contracts if any) for satisfactory performance till the end of the project contract, and share detailed reports on the quality of work along with recommendations for improvements as part of the monthly reports.
- b. Ensuring adoption of performance and O&M monitoring system for the sub-project and assist ULB in selection of Independent Engineers for the O&M phase/post culmination of the project contract and transition of the monitoring systems to ULB and Independent Engineers
- c. The Consultant shall develop an O&M protocol for each investment and provide necessary handholding support to ULBs so as to enable the ULBs to manage the created assets in a technically sound manner.

**Activity 3 – Environmental safeguard compliance during sub-project planning, preparation and implementation:**

**Sub-Activity 3.1 – Support the ULBs in the preparation of the Environmental assessment report of the SWM plan that will be prepared as part of the sub-activity 1.2. The Environmental assessment report preparation should be guided by the ToR as detailed in the EMF prepared as part of KSWMP safeguard documents**

**Sub-Activity 3.2 – Sub-project planning and implementation readiness support**

The consultant should support the ULB's in:

- a. Screening and categorizing all the sub projects as per Environment Management Framework (EMF) of the KSWMP safeguard documents.
- b. Integrating the requirements of KSWMP safeguard instruments for all sub-projects while preparing DPRs / Feasibility Reports etc.
- c. Undertaking site investigations and fields surveys for sub-projects as per KSWMP safeguard requirements.

**Sub-activity 3.3 – Sub-project preparation support- Preparation of Environmental safeguard instruments as mentioned in the EMF of KSWMP for the identified investments:**

- a. The consultant should refer the EMF<sup>5</sup> of KSWMP for screening the subprojects (Stage 1: Exclusion List & Stage 2: Screening Checklist), categorising the subprojects and in identifying the applicable safeguard

---

<sup>5</sup> EMF is a part of ESMF

instrument for the specific sub project and develop the safeguard instrument based on the guidelines mentioned in the EMF.

- b. For E2 category sub-projects the consultants will prepare the EIAs (based on the ToR provided in Annex 2) and for E3 category sub-projects, the consultants will prepare the applicable EMP and will submit to District Environmental and Social Development Unit (DESDU) in the DPMU for approval and records. This will be prepared in close coordination with the ULBs and stakeholders and follow consultation, clearance and disclosure procedures outlined in EMF. In case during the course of preparation, the sub-project details / site changes and category changes upwards (E2 to E1), the consultant shall discuss with ULB, PMUs and identify the need for an independent review of the EIA (if it became E1) and support ULB/SPMU in hiring a consultant. The TSC shall prepare EIAs if it has changed from E3 to E2.
- c. For E1 category sub-project, the consultant will (i) support ULBs to coordinate with SPMU for the hiring of separate consultants to prepare the subproject safeguard instruments and (ii) review the sub-project specific safeguard instrument prepared based as per the guidelines, requirements and procedures outlined in the KSWMP safeguard enabling the ULB to submit it to PMU and the Bank for review clearance.
- d. Generic or Indicative EMPs and Monitoring Plans for E3 sub-Projects are provided in the EMF which needs to be updated by the consultant based on the site conditions. For sub-projects for which indicative EMPs are not provided in EMF guidance Manual, the TSC shall support ULB in preparing EMPs.
- e. In case of sub-projects which may impact Natural Habitats, the consultants need to prepare a natural habitats management plan adhering to the requirement of the EMF and incorporate in ESMP, in consultation with Biodiversity Management Committee of the ULB. The Guidance in KSWMP safeguard documents including Pest Management, Physical Cultural Resources Management and other requirements for the type of sub-projects and location shall be followed.
- f. Support ULB in consultations, disclosure, and clearances from the PMU/the World Bank and incorporation of cleared ESMP in bid documents and verifying that adequate budgetary and institutional support is made by the bidders in the bids.

**Sub-activity 3.4 – Implementation of approved / cleared environment management plans of the sub-projects:**

The consultant shall:

- a. Ensure that the contractor has appointed sufficient EHS personnel in his team for implementation and support in on job training or guidance on daily ESMP implementation and monitoring
- b. Ensure that the appointed contractor updates the ESMP for the sub-project if required and support in approval of the ESMP prepared by the contractor
- c. Undertake on-site review and monitor the implementation of the approved / cleared environment management plans & pollution monitoring for compliance etc
- d. Coordinate with the M&E team of PMC to ensure reporting, monitoring and evaluation to fully address the safeguard issues of the sub-projects; provide a well-documented, evidence-based compliance reports to be incorporated into the annual reports; support ULB during missions, audit, special monitoring needs
- e. Ensure that the contractor prepares a construction-Environmental Management Plan (C-EMP) and review the C-EMP for adherence with (a) KSWMP safeguard documents (b) sub-project specific safeguard instruments. In case of any change in site conditions or variation in the critical components from the approved EIA, the consultant needs to ensure that the contractor updates the full EIA

**Activity 4 – Social safeguard compliance during sub-project planning, preparation and implementation**

**Sub-Activity 4.1- Support the ULBs in generating public awareness and collaboration during the preparation of 5-year SWM plan to comply with TDF-SMF by:**

- a. Implementation of Social Behaviour Change communication plan for the ULBs as per the KSWMP Communication Strategy
- b. Community mobilization for creating awareness and responsiveness towards the project
- c. Sensitizing the key stakeholders on the project design and the components
- d. Undertake free prior informed consultation in tribal hamlets.
- e. Facilitating peoples' participation in preparation of SWMP
- f. Build consensus among the communities for finalizing the 5-year SWMP
- g. Disclosing the SWMP in public places.

#### **Sub-Activity 4.2 – Sub-project implementation readiness support**

The consultant should support the ULB's in:

- a. Pre-planning - Undertaking screening of all sub-projects using the Social and Tribal Screening Format (STSF) to identify social risks to comply with TDF-SMF and RPF
- b. Determining the scope of SIA as per screening of the sub-projects to prepare social risk management plans such as Gender action plan, Tribal development Plan, livelihood action plan, labour management plan for each sub-project (if required) in accordance with the citizen engagement plan included in the TDF-SMF. for integration into Sub-Project DPR
- c. Undertake social Mobilization for planning of sub-projects including:
  - Community mobilization for creating awareness on the sub-project
  - Sensitizing the key stakeholders on the sub-project design, technology and sub-project components, and likely benefits and adverse impacts on communities
  - Ensuring participation of key stakeholders as per Citizen Engagement Plan (TDF-SMF) in planning of sub-project.
  - Ensuring that the vulnerable groups are represented
- d. Mobilize the host community to build consensus for the proposed sub-projects
  - Community mobilization for creating awareness on the sub-project
  - Sensitizing the key stakeholders such as opinion leaders among the host community on the sub-project design, technology and components, and the need for host community cooperation.
  - Ensuring participation of key host community stakeholders in preparation of sub-project.
  - Ensure outreach to the most vulnerable groups to ensure social inclusion
  - Build consensus among the host communities in preparing sub-project.

#### **Sub-activity 4.3 – Sub-project preparation support- Preparation of social safeguard instruments for the identified sub-projects**

- a. Preparation of the social impact assessment report and the other relevant safeguard instruments as per the TDF-SMF<sup>6</sup> of KSWMP and based on the outcome of the social screening of the sub-projects.
- b. Conduct Free Prior Informed Consultations with Tribals as per the citizen engagement plan included in TDF-SMF.
- c. Prepare TDP-SMP (including Gender Action Plan, Livelihood plan, Labour Management Plan,) as informed by SIA, as per TDF-SMF.
- d. Guide the DPMU and ULBs to disclose the Draft SIA and TDP-SMP to consult with stakeholders before finalisation and re-disclosure.
- e. Developing and linking informal workers to livelihood programs so that ragpickers, HKS, Kudumbasree members, etc. have access high-return entrepreneurial and income generation opportunities beyond segregation and recycling
- f. Coordinate with the revenue department for conducting SIA and preparation of RAP for the sub-projects which involve land acquisition.

**Sub-activity 4.4** Support in implementation of Social and Behaviour Change Communication Plan, Livelihood Action Plan, Citizen Engagement Plan, Gender Action plan, preventive Gender Base Violence Action plan, Tribal Development Plan, Capacity Building plan to comply with TDF-SMF and based on the requirement as identified in the screening of the sub-project using the Social and Tribal Screening Format (STSF) undertaken as part of sub-activity 4.2

#### **Sub-activity 4.5 – Support the Revenue Department in implementation of RAP including:**

- a. Jointly with Revenue Department, verify the project affected persons and update the database of the eligible Project Affected Persons (PAPs).
- b. Take into consideration the Social Impact Assessment database and RAP, prepared by District Magistrate empanelled SIA consultants, and update the same with the verified information and data.

---

<sup>6</sup> TDF-SMF is a part of ESMF



- c. Support revenue department in consultation processes for negotiated purchase of land, disbursement of compensation and entitlements.
- d. Develop and implement livelihood plan for those dependent on land and may lose livelihood due to land acquisition.
- e. Identify resource persons/ training institutions to provide hands-on training to the PAPs on the chosen livelihoods
- f. Assist the PAPs to establish linkage with financial institutions for facilitating credit
- g. Assist the PAPs to establish linkages with government departments, district administration to ensure they have access to the on-going development programs.

**Sub-activity 4.6 Monitor the Social aspects of the Contractor's Environmental and Social Management Plan (CESMP) and Labor Management Plan**

- a. Review the Contractor's Environmental and Social Management Plan (CESMP) including site specific labour management plan prepared by the contractor and approved by the SPMU/ DPMU and will suggest any revision, related to social aspects, based on the actual field condition in the ULBs
- b. Monitor the implementation of labor laws, the compliance with the Labor laws particularly in activities related to implementation of the sub-project.
- c. Assess the impacts of labor influx on the host community and monitor implementation of mitigation action plan including code of conduct for labour.
- d. Monitor the contractor's implementation of GAP, GBV Plan and grievance redress for the labor.
- e. Monitor compliance complying with the Covid-19 guidelines

**D. REPORTS, DELIVERABLES, PERIOD OF PERFORMANCE, PAYMENT**

**List of report and Deliveries.**

The project reports will be combination of (a) SWM plan (b) progress reports and (c) sub project specific technical reports/documents. At the start of the assignment, the consultant should support the preparation of the 5-year solid waste management (SWM) plan for each ULBs which will outline the priority investments that will be undertaken. After the preparation of the SWM plan, the consultant during the inception stage will prepare a detailed work plan which will define the schedule of outputs required from the consultant for each specific sub projects that will be pursued by the ULB. The schedule of the document preparation will be informed by the subproject schedule as identified in the SWM plan prepared for each ULB. The work plan as prepared in the inception stage should include definitive timelines for document preparation including all the technical studies and the safeguard instruments required for the subprojects as identified in the PIM of KSWMP and the work plan will form the basis for agreeing on the milestones with the client.

**Inception Report (IR)** needs to be submitted as the output of the inception stage and the report will include objective of the assignment, detailed methodologies and work plans, schedule of activities for the sub-project preparation, detailed work allocation of the key experts, mobilization plan. It is expected that the consultant will finalize the inception report in 6-8 months from the start of the project.

**After the completion of the inception stage, the consultants will have to submit progress reports which include:**

- a. **Monthly reports (MR).** The draft MR shall be submitted within a week from the end of the month for which the report is submitted. The MR shall *inter alia* include work progress on all components, tasks undertaken, details of the consultations, staff deployment, identifying the problems encountered, and indicating the corrective action taken or proposed.
- b. **Quarterly Reports (QR).** The draft QR shall be submitted within two weeks from the end of the quarter for which the report is submitted. The QR shall *inter alia* include work progress, team mobilization, tasks undertaken, results achieved, meetings held and persons met, planning of activities for next quarter, updated works schedule and staff mobilization plan, details of the consultations, staff deployment, identifying the problems encountered, and indicating the corrective action taken or proposed. The quarterly

reports shall also include monthly Progress and Construction Supervision report, as per the format prescribed in the PIM.

- c. **Annual Reports (AR):** The annual reports shall be submitted within week from the end of fiscal year for which the report is submitted. The AR shall *inter alia* include work progress, team mobilization, tasks undertaken, results achieved, meetings held and persons met, planning of activities for next quarter, updated works schedule and staff mobilization plan, status of M&E indicators, difficulties encountered, forecast of assistance required for each Part of the assignment from the client.
- d. **Final Report.** The completion report of the consultants providing the details of overall work progress and final documentations.
- e. **Sub-project specific documentation – BOQ/Technical Specifications/FRs/DPRs/item-rate contracts/Bid documents/ EIAs, EMPs/SIAs, SMPs, TDPs and RAPs, implementation supervision & progress review reports, quality assurance reports and other necessary technical reports for SWM investment subprojects:** The consultant shall submit sub-project specific draft and final (based on comments from Client) documents based on the requirements as outlined in PIM/ESMF and as per the project preparation schedule specified in the Inception Report. These documents should incorporate all the necessary surveys, investigations, technical assessments, social-environmental assessments, financial assessments, detailed designs/drawings, as required for the sub-project and as per the activities detailed in the ToR. The consultant needs to prepare the completion report of all the sub-project specific documentation and obtain the approval from SPMU on the sub project specific documentation as well as the completion reports.

#### **Report Format.**

- i. The consultants shall prepare all reports in English and complete digital files in a format and manner acceptable to the Client and the World Bank. The technical documents and safeguard instruments including the EIA reports, EMP, SIA reports, SMP should be in English and translated to Malayalam language.
- ii. All the reports will need to be reviewed and approved by the Project Director of the SM, and no-objection will be sought from the World Bank before being finalized for payments. The consultant will be required to make a power point presentation with all important deliverables.
- iii. The consultants shall prepare reports presenting the data, information, the assumptions and their justification, the analysis, and the conclusions and recommendations.
- iv. All the reports required by the TOR shall provide a clear presentation and include a table of contents and an executive summary. The main body of the text shall be organized in sections and concentrating on the finding and recommendations and their justification. Supporting data and analysis shall be contained in the Annex which will be referenced as appropriate in the body of the text. Report shall be as per actual site conditions. All paragraphs in the executive summary, the text, and the Annex, shall be numbered to facilitate communication across the contents of reports.
- v. The report shall be illustrated as appropriate with such drawings, sketches, tables, graphs, and maps to aid comprehension and assimilation of their contents.
- vi. The consultants will need to submit a draft template for all reports as part of the inception report which will be reviewed by the Client and WB for adequacy. The consultant will incorporate all suggestions and submit the deliverables accordingly.

#### **Period of Performance.**

The assignment will commence not later than 30 days from issuance of client's notice instructing the consultant to begin carrying out the services. The Consultant will support the client for a total period of 6 years. The consultant's performance will be evaluated at mid-term after completion of 3 years and decision will be taken to continue for another 3 years subject to satisfactory performance as assessed by SPMU.

#### **Payment.**

- The payments will be made based on the time-inputs as per the signed contract with adequate documentation and reporting on the technical work carried out by the team members. The deployment

plans will be pre-approved by SPMU on a monthly basis and outputs will be verified along with the deployment of the experts at the time of payment, to ensure that the agreed work was carried out.

- In case of poor/non-performance of services, the consultant may be requested to make changes in the key staff positions deployed by them at that moment to ensure delivery of scope of work and agreed work plan.
- The consultants are supposed to include the cost of only surveys required for DPRs and primary monitoring/surveys required for baseline environmental and social data as required for ESIAs/ESMPs, as part of the financial quotes. For the site contamination assessment and other investigation required for the dumpsites assessment, the consultant will be paid on actual basis after completion the investigation and obtaining the results.
- Before conducting the investigations, the Consultant has to procure three (3) market quotes of NABL accredited laboratory/technical institutions, get approval from the Client before finalizing the laboratory/technical institutions and shall be paid on actual basis post completion of such investigations.

**E. CLIENT’S INPUT AND SUPPORT**

The client will provide (i) all relevant documents, data, statistics, reports, and maps and (ii) arranging with meetings with government organizations as deemed necessary during the project execution.

**F. GEOGRAPHICAL SCOPE OF COVERAGE**

The geographical coverage for this ToR will include the districts covered under the Package B which are: Ernakulam, Alappuzha, Kottayam, Idukki. The ULBs covered in the district are provided below:

District	ULB
Alappuzha	1. Haripad
	2. Mavelikkara
	3. Cherthala
	4. Kayamkulam
	5. Alappuzha
	6. Chengannur
Ernakulam	1. Aluva
	2. Perumbavoor
	3. Moovattupuzha
	4. Maradu
	5. Eloor
	6. Thrikkakkara
	7. Paravur
	8. Angamaly
	9. Koothattukulam
	10. Piravom
	11. Thripunithura
	12. Kalamassery
	13. Kothamangalam
	14. Kochi (Municipal Corporation)
Idukki	1. Thodupuzha
	2. Kattappana
Kottayam	1. Erattupetta

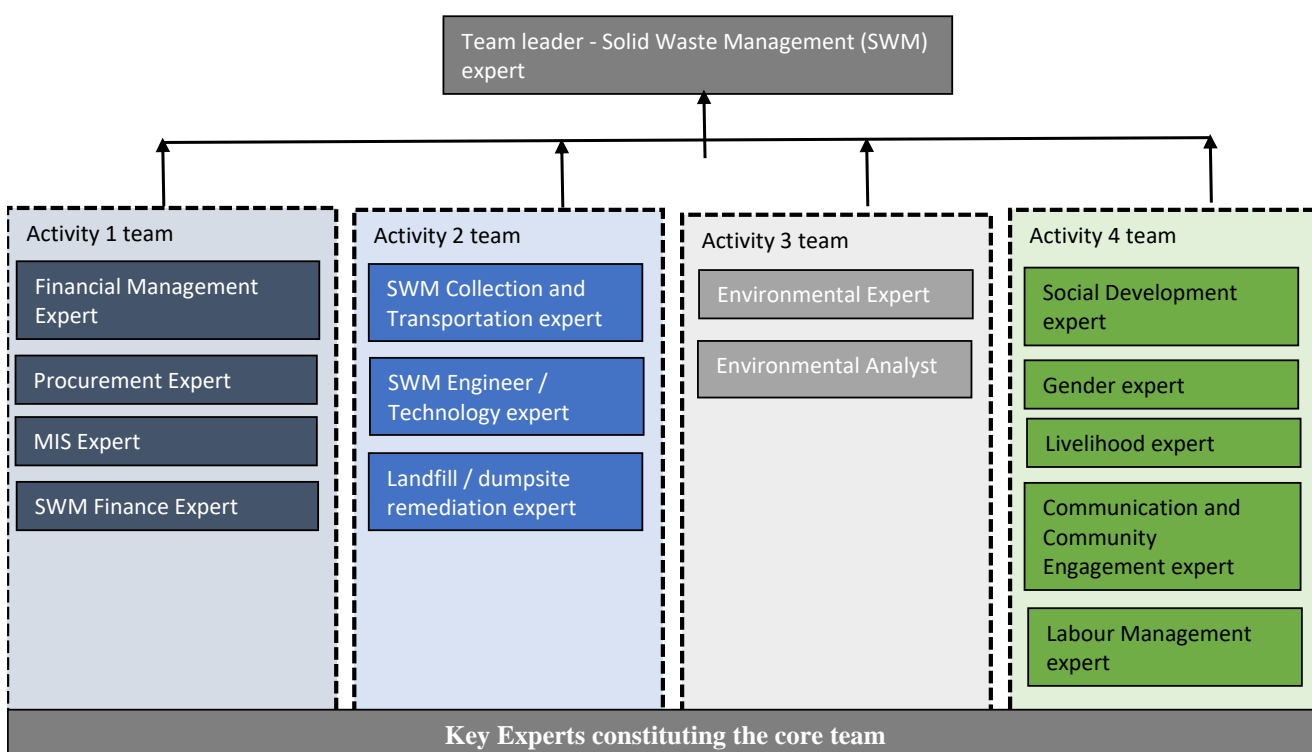
	2. Vaikom
	3. Changanassery
	4. Palai
	5. Ettumanoor
	6. Kottayam

Further details on the waste generation projection, population and the area of the ULBs that are included in the Package B are provided in the Annex 1.

**G. FIRM’S EXPERIENCE, LIST OF KEY POSITIONS AND THEIR ROLES AND RESPONSIBILITIES**

- a. The firm is expected to provide the required technical, infrastructure, administrative, accounting, engineering and management support to achieve the planned outputs.
- b. The firm is encouraged to propose a staffing and mobilization plan that best suits the needs of the project. The proposed staffing will comprise of key experts who will be placed full time at the district office. The non-key experts will be drawn down by the Team leader based on the requirement and the work plan as presented at the inception stage.
- c. The team structure and deployment plan in the TOR is for each district, and all the district teams in a package should be independent deployed and will be separately evaluated
- d. It is to be noted that the deployment of staff by the firm will be strictly monitored by the client and replacement of key team members will not be allowed under any circumstances. However, the firm may, with proper justification, request the client and the World Bank in writing for a replacement of a key personnel with an alternative whose credentials are either at par or more than the existing team member. It is to be further noted that the client or the World Bank are in no obligation to allow for replacement of the proposed team member.

**Key Resources summary**



The number of key experts (core team) that has to be deployed for each district included in the package is given below:

District	Package B			
	Alappuzha	Ernakulam	Idukki	Kottayam
Number of Experts				
Team leader - Solid Waste Management (SWM) expert	1	1	1	1
Financial Management Expert	1	1	1	1
Procurement Expert	1	1	1	1
MIS Expert	1	1	1	1
SWM Finance Expert	1	2	0	1
SWM Collection and Transportation expert	1	2	1	1
SWM Engineer / Technology expert	1	2	1	1
Landfill / dumpsite remediation expert	1	2	0	1
Environmental Expert	1	1	1	1
Environmental Analyst	1	1	0	1
Social Development expert	1	1	1	1
Gender expert	1	1	0	1
Livelihood Expert	1	1	1	1
Communication and community engagement expert	1	1	1	1
Labour Management Expert	1	1	0	1
<b>Sub-total</b>	<b>15</b>	<b>19</b>	<b>10</b>	<b>15</b>

In addition, the consultants are expected to provide resource pool for the entire package who will be deployed based on the requirement. The resource pool will consist of:

- SWM institutional and capacity building expert
- Structural Engineers
- Geotechnical expert
- GIS expert
- PPP project development expert
- Resettlement and Rehabilitation Specialist
- Field staff, support staff, survey analyst and documentation analyst

The consultant may add other project support persons (non-key) as required with prior intimation to the client with biodatas and work assignment.

I	Experts	Experience
<b>A</b>	<b>Key Experts (core team)</b>	
1	Team leader - Solid Waste Management (SWM) expert	<ul style="list-style-type: none"> <li>• Master's degree in Civil Engineering/Environmental with experience in urban infrastructure and strong background in municipal solid waste management.</li> <li>• Should have minimum 10years experience in advising and providing technical support to the urban local bodies in planning and designing SWM policies and projects.</li> <li>• Experience on working in the state of Kerala or similar states in terms of population density and geographical terrain (states with combination of coastal, mountainous and plain terrains)</li> <li>• Proficiency in Malayalam as speaking skill is necessary</li> </ul>

		<ul style="list-style-type: none"> <li>• Knowledge of the principles and practices of the operation and maintenance of solid waste management systems and of the related state and national regulations is essential.</li> <li>• The experience of leading a multidisciplinary team in IDA (multilateral/bilateral) financed infrastructure projects is essential.</li> <li>• Strong leadership, analytical, communications, interpersonal and project management skills is essential for this position</li> </ul>
2	Financial Management Expert	<ul style="list-style-type: none"> <li>• Master's degree in business studies/business administration with specialization in finance/accounts Must have an experience of working in at least 5 projects financed by external financing institutions like the World Bank.</li> <li>• A minimum of 10 years of experience in financial management with an in-depth financial knowledge of local governments – intergovernmental fiscal transfers, budgeting and planning mechanisms, fund flow management, revenue management, accounting, auditing, reporting and expenditure management is required.</li> <li>• Sectoral experience in solid waste management and working with local governments in India will be preferred.</li> <li>• Has experience of working in projects funded by multilateral development agencies such as the World Bank, ADB, among others</li> <li>• Has a good understanding of public financial management and international best practices in accounting and auditing at the local government level.</li> </ul>
3	Procurement Expert	<ul style="list-style-type: none"> <li>• Bachelor's degree in engineering with a minimum of 5 years work experience in procurement of public works.</li> <li>• Familiarity with the World Bank's 'Guidelines: Procurement of Goods, Works and Non-Consulting Services;' and 'Guidelines: Selection and Employment of Consultants,' and Bank's Standard RFP documents, Bidding Documents is essential.</li> </ul>
4	MIS Expert	<ul style="list-style-type: none"> <li>• BE / B. Tech. in Computer Science / Information Technology.</li> <li>• Minimum 5 years of experience of assessing, designing, developing and implementing of MIS and GRM systems</li> <li>• Experience in rolling out of software, handholding support and pot-implementation maintenance support</li> <li>• Experience of implementing MIS systems with urban local bodies is desired</li> </ul>
5	SWM Finance Expert	<ul style="list-style-type: none"> <li>• Masters degree in the field of finance or economics with atleast 10 years of relevant experience in solid waste management.</li> <li>• experience in evaluating urban infrastructure investments, assisting urban local bodies to use a range of options in resource mobilization for operation and maintenance of assets and services</li> <li>• Experience in working on projects financed by multilateral/bilateral financial institutions,</li> <li>• Experience of working on transaction advisory services</li> <li>• Experience of preparation of investment proposals for urban local bodies</li> <li>• Extensive conceptual and practical knowledge of government processes both at the national and local level is expected</li> <li>• Must have an experience of working on projects financed by external financing institutions like the World Bank.</li> </ul>

6	SWM collection and transportation expert	<ul style="list-style-type: none"> <li>• Bachelor's degree in civil/mechanical engineering with a master's degree in urban planning, urban management, construction management, or related discipline.</li> <li>• Minimum of 10years of experience in urban infrastructure projects with a focus on collection and transportation, related C&amp;T planning activities, development of service delivery infrastructure in ULBs for biodegradable and non-biodegradable waste collection, transportation, processing and treatment, recycling, collection, etc.</li> <li>• Regional experience of working in Kerala would also be preferred.</li> <li>• Experience or working in projects funded by World Bank, ADB, will be preferred.</li> <li>• Experience handling similar projects at the local government level.</li> <li>• Regional language (Malayalam) speaking, reading and writing skills will be preferred.</li> </ul>
7	SWM Engineer / Technology expert	<ul style="list-style-type: none"> <li>• Master's degree in Civil/Environmental Engineering/Geo tech or other disciplines of civil engineering with 10 years of experience in municipal waste management.</li> <li>• Experience in advising and providing technical support to the local governments in planning and designing SWM projects is required; experience must include planning and designing SWM processing, treatment, recycling, disposal facilities and an in-depth knowledge of various technological solutions and technical specifications for household waste treatment equipment</li> <li>• Proficiency in Malayalam as speaking skill is necessary</li> <li>• Has in-dept knowledge of the national and state level technical design guidelines, service level benchmarks and codes/standards that need to be complied with, while designing and implementing the municipal infrastructure project</li> <li>• Has extensive experience of working in development projects funded projects by multilateral agencies such as World Bank, ADB, among others.</li> <li>• Experience handling similar projects at the local government level in India</li> </ul>
8	Landfill / dumpsite remediation expert	<ul style="list-style-type: none"> <li>• Master's degree in Engineering with 10 years of experience in municipal waste management.</li> <li>• Experience of working in dumpsite remediation projects is required</li> <li>• Knowledge of the principles and practices of the operation and maintenance of solid waste management systems and of the related state and national regulations is essential.</li> <li>• Has extensive experience of working in development projects funded projects by multilateral agencies such as World Bank, ADB, among others.</li> <li>• Experience handling similar projects at the local government level in India</li> </ul>
9	Environmental Expert	<ul style="list-style-type: none"> <li>• Master's degree Engineering / Planning/Management (with Bachelor's degree in Civil or Environmental Engineering) with a minimum of 10 years work experience in urban infrastructure projects</li> <li>• Should have experience as the environmental expert in at least 5 solid waste management projects</li> <li>• Must have worked at least in one World Bank financed project and is familiar with the environmental safeguards requirements of projects financed by the World Bank or by another international finance institution.</li> <li>• Proficiency in Malayalam as speaking skill is necessary</li> <li>• He/she should have experience in working on projects in Kerala.</li> </ul>

10	Environmental Analyst	<ul style="list-style-type: none"> <li>• Minimum Bachelor's degree in Civil or Environmental Engineering with a minimum of 5 years work experience environmental safeguards - in urban infrastructure projects.</li> <li>• Must be familiar with the environmental safeguards requirements of projects financed by the World Bank or by another international finance institution.</li> <li>• Proficiency in Malayalam as speaking / reading / writing skill is necessary</li> <li>• He/she should have experience in working on projects in Kerala.</li> </ul>
11	Social development expert	<ul style="list-style-type: none"> <li>• Ph.D./Masters in social sciences and relevant applied sciences with a minimum of 15 years work experience working as social expert in urban infrastructure projects</li> <li>• Should be the key social expert with at least experience in Urban development program with focus on solid waste management projects</li> <li>• Experience of working with tribals and on livelihoods, IEC, communications and urban development</li> <li>• Must have worked in at least one project financed by the World Bank and is familiar with the World Bank's social safeguards requirements in projects.</li> <li>• Proficiency in Malayalam as speaking skill is necessary</li> <li>• He/she should have experience in working on projects in Kerala.</li> </ul>
12	Gender Expert	<ul style="list-style-type: none"> <li>• Gender specialist with more than 10 years on supporting gender with Masters in Sociology or related applied sciences</li> </ul>
13	Livelihood Expert	<ul style="list-style-type: none"> <li>• Experience of more than 10 years on and urban Small Manufacturing Enterprises and Financial Intermediaries with Masters in economic or related applied sciences</li> </ul>
14	Communication and Community Engagement Expert	<ul style="list-style-type: none"> <li>• A minimum of 10 years of extensive experience in stakeholder consultations, communications and engaging with communities on SWM issues.</li> <li>• Experience handling similar projects at the local government level.</li> <li>• Regional language (Malayalam) speaking, reading and writing skills is mandatory</li> </ul>
15	Labour Management expert	<ul style="list-style-type: none"> <li>• Law Graduate with a minimum of 7 years work legal practice that covers labour welfare laws</li> <li>• Proficiency in Malayalam as speaking skill is necessary</li> </ul>
<b>B</b>	<b>Non-key experts (Experts to be deployed based on requirement)</b>	
1	SWM institutional and capacity building expert	<ul style="list-style-type: none"> <li>• Institutional development expert should have master's degree in management and public administration</li> <li>• Must have a minimum 10 years of experience of advising national / state government on institutional and governance arrangements.</li> <li>• Must have policy, regulatory and institutional experience of working extensively on SWM sector.</li> <li>• Must have sound knowledge of the key policy requirements, policy and regulatory issues, and institutional issues at national, sub-national governments, urban local bodies for SWM services,</li> <li>• Should have experience of developing the SWM plans for the ULBs</li> <li>• Proficiency in Malayalam as speaking skill is necessary</li> <li>• Must have an experience of working on projects financed by external financing institutions like the World Bank.</li> </ul>
2	Structural engineers	<ul style="list-style-type: none"> <li>• A civil engineer with a master degree in Structural engineering.</li> <li>• Must have 5 years of proven track record in designing disaster resilient infrastructure in municipal solid waste management.</li> </ul>



		<ul style="list-style-type: none"> <li>• The experience must include seismic designing of structures and sub-surface infrastructure components</li> </ul>
3	Geotechnical Expert	<ul style="list-style-type: none"> <li>• A civil engineer with a master degree in Geotechnical engineering.</li> <li>• Should have 10 years of proven track record in designing sub-surface infrastructure</li> <li>• Must be conversant with various geotechnical investigations/studies, required for constructing infrastructure in disaster (floods, earthquakes, landslides) prone areas.</li> </ul>
4	GIS Expert	<ul style="list-style-type: none"> <li>• A civil engineer/urban planner with a master degree in GIS engineering.</li> <li>• Should have 10 years of proven track record in implementing GIS-related activities undertaken under projects financed by the World Bank or by another international finance institution</li> </ul>
5	PPP project development expert	<ul style="list-style-type: none"> <li>• MBA (Finance) /CFA or equivalent</li> <li>• 10 years experience in project funding, structuring of PPP projects.</li> <li>• At least developed 02 (two) PPP projects for which the Concessionaire has been appointed and the projects are inexecution and/or in operation mode in municipal solid waste sector.</li> </ul>
6	Resettlement and Rehabilitation Expert	<ul style="list-style-type: none"> <li>• Master in Social Sciences or equivalent</li> <li>• 10 Years experience in Resettlement and rehabilitation plans preparation and implementation</li> </ul>

**Deployment plan (estimated effort)**

<b><u>Team Structure of TSC</u></b>	<b>Full Time (FT)/ Part Time (PT)</b>	<b>Year 1 (number of months)</b>	<b>Year 2 (number of months)</b>	<b>Year 3 (number of months)</b>	<b>Year 4 (number of months)</b>	<b>Year 5 (number of months)</b>	<b>Year 6 (number of months)</b>
Team leader - Solid Waste Management (SWM) expert	FT	12	12	12	12	12	12
Financial Management Expert	PT	6	6	6	6	6	6
Procurement Expert	PT	9	9	9	9	9	9
MIS Expert	PT	6	6	6	6	6	6
SWM Finance Expert	PT	6	6	6	6	6	6
SWM Collection and Transportation expert	PT	9	6	6	3	3	3
SWM Engineer / Technology expert	PT	6	9	9	9	9	9
Landfill / dumpsite remediation expert	PT	6	6	6	6	3	3
Environmental Expert	FT	12	12	12	12	12	12
Environmental Analyst	PT	6	6	6	6	6	6
Social Development expert	FT	12	12	12	12	12	12
Gender expert	PT	6	6	6	6	6	6
Livelihood Expert	PT	3	3	3	3	3	3
Communication and community engagement expert	PT	6	6	6	6	6	6
Labour Management Expert	PT	3	3	3	3	3	3
<b>Total Man-months of Core team</b>		<b>108</b>	<b>108</b>	<b>108</b>	<b>105</b>	<b>102</b>	<b>102</b>

**Annex 1: List of ULBs in Package B**

District	ULB	Physiography	Population (Census 2011)	Area of ULB (sq.km)	Population density (per SqKm)	Approximate waste generation (TPD) (2021)
<b>Alappuzha</b>	1. Haripad	Low Land	15588	9.95	1566	7.59
	2. Mavelikkara	Low Land	26421	14.19	1861	12.86
	3. Cherthala	Mid Land	45827	18.61	2462	22.3
	4. Kayamkulam	Low Land	68634	21.4	3208	33.41
	5. Alappuzha	Low Land	174176	45.18	3855	84.77
	6. Chengannur	Low Land	23466	12.74	1843	11.42
<b>Ernakulam</b>	1. Aluva	Low Land	22428	6.64	3380	10.92
	2. Perumbavoor	Mid Land	28110	11.49	2447	13.68
	3. Moovattupuzha	Mid Land	30397	11.53	2637	14.79
	4. Maradu	Low Land	44704	12.46	3588	21.76
	5. Eloor	Low Land	31468	13.5587	2321	15.32
	6. Thrikkakkara	Low Land	77319	15.57	4965	37.63
	7. Paravur	Low Land	37245	19.88	1873	18.13
	8. Angamaly	Mid Land	33465	20.97	1596	16.29
	9. Koothattukulam	Mid Land	17253	22.87	754	8.4
	10. Piravom	Mid Land	27229	29.54	922	13.25
	11. Thripunithura	Low Land	69390	29.62	2343	33.77
	12. Kalamassery	Low Land	71038	39.42	1802	34.58
	13. Kothamangalam	Mid Land	38837	39.55	982	18.9
	14. Kochi (Municipal Corporation)	Low Land	602046	97.71	6162	339.21
<b>Idukki</b>	1. Thodupuzha	Mid Land	54317	27.97	1860	26.44
	2. Kattappana	High Land	42646	57.62	740	20.76
<b>Kottayam</b>	1. Erattupetta	Mid Land	34814	7.38	4714	16.94
	2. Vaikom	Low Land	23234	12.72	1827	11.31
	3. Changanassery	Low Land	47685	14.23	3351	23.21
	4. Palai	Mid Land	22056	16.39	1346	10.73
	5. Ettumanoor	Mid Land	26993	27.48	982	13.14
	6. Kottayam	Mid Land	55374	56.08	987	26.95

## ***Annex 2: Scope of Work for preparing the Environmental Impact Assessment (EIA) for E2 projects***

The following are the tasks to be performed by the consultants while conducting Environmental Impact Assessment for the E2 projects.

### Task 1 Project Overview

A succinct description of the proposed project shall be provided covering: (a) status analysis of the baseline scenario (b) description of each of the proposed components, activities and sub-activities. The task shall also bring out the rationale, the need for the proposed project and list out the various benefits of project implementation. As part of this activity, the consultant shall provide necessary maps to scale.

### Task 2 Data Assimilation: Primary, Secondary

The consultants shall review various earlier studies such as feasibility and detailed project reports, etc., of the project and understand the project and various aspects associated with the same. This shall provide a base to formulate the environmental and social surveys necessary for the project and assessing the impacts of the same.

### Task 3 Legislative and Regulatory Considerations

A review of the legal and regulatory provisions applicable to the project shall be carried out in this task. The review shall thus provide a complete list of regulatory formalities required for the project and various clearances required from different regulatory agencies including the State Pollution Control Board.

### Task 4 Preparation of Environmental Profile

The first activity under this task would be the determination of the project influence area based on the expected impact/influence of the project over the region. Based on the project area of influence, an environmental profile of the project influence area shall be prepared, based on appropriate primary and secondary surveys and field investigations. The extent and duration of surveys shall be judiciously decided by the consultant as per requirements of the environmental regulations applicable in India and guidelines of international funding agencies.

### Task 5 Determination of Potential Impacts

Based on the environmental profile of the project area prepared above and the proposed project activities discussed under Activity 1, the consultants shall carry out environmental screening to determine the nature of impacts and level of Environmental Assessment to be carried out. An analysis of various project alternatives, including the 'Project' and 'No Project' scenario shall be brought out and impacts shall be analysed for each

scenario. Based on the above analysis the best alternative that causes minimum or no impact shall be recommended for implementation.

#### Task 6 Stakeholder Consultations

The consultants shall carry out consultations (as required: min 2) with experts, NGOs, Forest Department (if applicable) and other selected Government Agencies and other stakeholders to (a) collect baseline information, (b) obtain a better understanding of the potential impacts (c) appreciate the perspectives/concerns of the stakeholders, and (d) secure their active involvement during subsequent stages of the project as appropriate.

#### Task 7 Preparation of EIA report, Development of an Environmental Management Plan / Determination of Mitigation measures

Using the outputs of the above tasks, the consultants shall develop an implementable Environmental Management Plan (EMP) for the project.

Task 8: Suitable monitoring arrangements & institutional responsibility for implementation shall be outlined in EIA report; including budgetary provisions made & additional requirements.

Task 9: Shall support in revisions, obtaining the required environmental clearances for the project