

**KERALA SOLID WASTE MANAGEMENT
PROJECT (KSWMP)**

**ENVIRONMENTAL AND SOCIAL
MANAGEMENT FRAMEWORK**

**VOLUME II
EXECUTIVE SUMMARY**

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Prepared by

SUCHITWA MISSION

GOVERNMENT OF KERALA

KERALA SOLID WASTE MANAGEMENT PROJECT (KSWMP) ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

EXECUTIVE SUMMARY

A. Project Overview

1. The Government of Kerala (GoK) intends to utilize financial support from the World Bank and Asian Infrastructure Investment Bank (AIIB) for KSWMP which aims to strengthen the institutional and service delivery systems for Waste Management services in urban areas in Kerala through Kerala Solid Waste Management Project (KSWMP) (P168633). The project will be jointly co-financed by the World Bank and AIIB (105m\$ each). The AIIB and the World Bank will cooperate with each other in co-financing the Project also in accordance with the applicable environmental and social provisions of the Co-financing Framework Agreement and agreed in the Project Co-lenders Agreement. The AIIB has agreed to apply the environmental and social management measures described in this Environmental and Social Management Framework (ESMF). KSWMP is proposed as a World Bank - Investment Project Financing (IPF) Operation for the period 2020 to 2025. The Project Development Objective is to strengthen the institutional and service delivery systems for solid waste management in Kerala. Accordingly, the project comprises three components.
 - Component 1: Institutional development, capacity building, and project management support: This includes technical assistance to Local Self Government Department (LSGD) and ULBs, Training, awareness, Information, Education Communication (IEC), and Project Management Support
 - Component 2: Grant support to ULBs: This component will provide financial grants to the participating ULBs for improving their Solid Waste Management (SWM) systems and capacities, primarily (a) primary collection and transportation systems; (b) waste segregation and at source treatment for biodegradable waste (households, institutions and markets/commercial spaces); (c) Rehabilitation of the existing Material Collection Facilities (MCFs) and development of new integrated Material Recovery Facilities (MRFs); (d) development of biodegradable waste management and disposal facilities; (e) closure/remediation of small scale existing dumpsites and g) COVID 19 response support activities.
 - Component 3: Development of regional solid waste, Construction, and Demolition (C&D) waste and Biomedical Waste (BMW) processing, recycling and disposal facilities, and legacy waste management systems.
2. Since KSWMP is funded under the IPF instrument of the World Bank, its Operational Policies (OPs) and Bank Procedures (BPs) are applicable for the project. Project Concept Note Review for the KSWMP program was before 01 October 2018 (the cutoff date¹ for application of the World Bank's new Environmental and Social Framework (ESF)). Hence the World Bank Safeguard policies apply to this project.

B. Safeguards Policies Applicable

3. The subproject activities would be implemented in various towns and regions of the State of Kerala in India. The exact locations of the specific project investment activities are not known at this stage. Considering the large project interventions at regional levels such as regional / cluster level landfill

¹ ESF is applicable to all project financing prepared post 01 October 2018

facilities, safeguards category for the KSWMP Project is determined as 'A' according to the World Bank's Safeguards Policy OP/BP 4.01 (Environmental Assessment), while the overall environmental risk is assessed as Significant. The World Bank's Safeguards Policy OP 4.01 (Environmental Assessment) is triggered for the project; necessitating the preparation of an ESMF for the project to guide subproject preparation. Some of the project activities including the development of treatment and disposal facilities and existing municipal waste dumping sites may be near natural habitat areas considering the geography of the State. Though overall impacts on these would be positive; as a precautionary measure OP/BP 4.04 (Natural Habitats) and OP 4.09 (Pest Management) are triggered, and suitable mechanisms to screen and manage subprojects near-natural habitats and manage the use of pesticides are planned. Though there will be no direct impact on physical cultural resources, such impacts and chance-finds may not be ruled out during excavation works involved in civil construction, dumpsite improvements, and landfill development works. Hence, OP/BP 4.11 (Physical Cultural Resources) has been triggered. A comprehensive Strategic Environmental Assessment (SEA) for Waste Management Sector in Kerala was undertaken covering all project locations in the State. SEA analyses the sensitivities of Kerala State specifically the project ULBs, potential environmental and social impacts due to proposed development, suggested improvements to the existing policy, strategy, systems; and interventions required for better environmental outcomes of proposed facilities.

4. Social Safeguards Policies Triggered: Based on the assessment, the project would result in a) benefits to the urban communities including tribal and b) creating livelihood opportunities for the vulnerable. The project could have risks of a) land loss, b) loss of livelihoods of ragpickers and dry solid waste sellers, etc. c) landfill sites close to the tribal groups, d) exclusion of vulnerable including women planning process, livelihood opportunities and skill development. Hence based on the impact on land and livelihoods, the Operational Policy on Involuntary Resettlement (4.12) is triggered. Though the number of tribal contributes to only 0.3 percent of the urban population, the tribal communities may be following their own traditional and cultural practices and thus the Operational Policy on Indigenous people (4.10) is triggered.
5. Impact assessment of the proposed subprojects reveals that most of the likely adverse impacts could be minimized or eliminated by following regulations, guidelines, and adopting standard mitigation measures. Also, there is ample scope to enhance some of the beneficial impacts to be generated from the proposed project. The ESMF prepared for the KSWMP program acknowledges these impacts, and integrates measures for assessing, mitigating/managing these during pre-planning, planning, implementation including construction, and O&M and handover.

C. The SEA-ESMF

6. **The SEA - ESMF for KSWMP is presented in two Volumes: Volume I and Volume II.**
 - Volume I:* **Introduction and Strategic Environmental Assessment for Waste Management Sector in Kerala**
 - Volume II:* **ESMF**
 - Executive Summary
 - Part A:* Environment Management Framework (EMF)
 - Part B:* Tribal Development Framework - Social Management Framework (TDF-SMF)
 - Part C:* Resettlement Policy Framework (RPF)
7. The ESMF has been prepared with an objective to manage the environmental and social impacts through appropriate measures during the planning, design, construction, and operation of various sub-projects and linked activities/associated facilities of KSWMP. The framework identifies the level of safeguard and due-diligence required for all categories of sub-projects and provides specific guidance on the policies and procedures to be followed for environmental and social assessment,

along with roles and responsibilities of the implementing agencies to ensure effective environmental and social management. This ESMF aims to ensure the following:

- Integration of environmental and social aspects into the decision-making process at all stages the entire KSWMP project and all its sub-projects including WB and AIIB-financed activities; including planning, design, implementation, and work closeout, operation, and maintenance (O&M) of sub-projects by identifying, avoiding and/or minimizing adverse environmental and social impacts early-on in the project cycle,
 - Enhancement of positive/sustainable environmental and social outcomes through sensitive planning, design, and implementation of sub-projects,
 - Avoidance or minimization of impacts on cultural properties and natural habitats and/or other direct/indirect impacts through careful planning and safeguards.
8. As the exact project locations of the interventions are not yet known, to integrate environmental and social considerations in subprojects and effective safeguards management, the borrower has prepared an Environmental and Social Management Framework (ESMF consisting of EMF, TDF-SMF, and RPF). The ESMF describes the existing environmental and social sensitivities of Kerala State, potential impacts due to proposed development, suggested improvements to existing systems, and interventions for better environmental and social outcomes of proposed facilities, and mitigation hierarchy. Long term impacts on sensitive areas are avoided through exclusions and screening. The ESMF includes guidance for interventions near-natural habitats and Physical Cultural Resources Management Framework including chance find procedures in addition to indicative Environmental and Social Management Plans (ESMPs) for various types of interventions² and Environmental Codes of Practices (ECoPs), and World Bank Group guidance on EHS Guidelines for Water, Sanitation, Solid Waste Management, and Health Care Facilities. It also includes special guidance from WHO and the WB on COVID waste management, health care, and Civil Works and Labour management during this emergency, The ESMF guides screening, assessing, planning, and implementing mitigation measures; supervision, and monitoring mechanisms; estimated budget for EMF implementation (72.7 cores INR or 9.6 Million USD) and disclosure requirements. A negative list of investments has been included to avoid any major irreversible environmental impact, to be complied by SM and participating ULBs while planning investment sub-projects.

D. Environmental Assessment

9. A Strategic Environmental Assessment (SEA) for Waste Management Sector in Kerala was undertaken to understand the baseline situation concerning environmental characteristics, National / State regulatory mechanisms, and institutional capacities for environmentally sound planning, design, and management of proposed interventions. The SEA provided an understanding of the potential environmental issues associated with the solid waste management sector in Kerala as a whole, and particularly those which might specifically arise directly or indirectly by varied project activities in the project areas under consideration.

Environmental Features

10. The State of Kerala is unique in its geographic features (including western coastal low-land extending north-south with parallel estuaries and wetlands, crisscrossing rivers and canals, steeply slopping, forested and biodiverse Western Ghats along the eastern side); climatic conditions (hot-

² The subprojects proposed are of different types ranging from household / community level composting , to regional treatment and disposal facilities. Indicative EMPs for all types of subprojects known at this stage are provided in Guidance Manual as part of EMF. This will enable implementing agencies / contractors to update and use these in EIAs and follow during implementation.

humid, tropical with high rainfall) and environmental characteristics; and is disaster-prone. Its socio-economic peculiarities, of a rural-urban continuum with a spread of development, and highly dense coastal strip and midlands have resulted in the unavailability of appropriate land for public services. Lack of a robust solid waste management system has resulted in negative externalities on its environment, biodiversity, and society at large. It is hence important to devise sustainable solid waste management options well suited to Kerala and to improve institutional capacities to devise, plan, and manage these.

Existing Waste Management Practices

11. It has been estimated that municipal solid waste generation rates are higher in the coastal belt, which is around 545 gm/capita/day in Municipal Corporation areas whereas, the waste generation rate in the midland belt is about 454 gm/capita/day and it is about 383 gm/capita/day in highland areas. The average municipal solid waste generation rate in Municipalities works out to 419 gm/capita/day whereas, in Municipal Corporation areas it works out to 545 gm/capita/day. Based on this estimate, the total waste generation projection for 2020 for the 93 ULBs in the State is estimated at 3755 TPD while it is estimated as 1974 TPD for the 87 municipalities. Domestic waste contributes 55 to 65 percent of total waste, while commercial establishment and markets are the second-highest generators of waste. Currently, rejects and inerts are disposed-off in available spaces. The project aims to bring in an improvement in this situation; targeting the entire SWM value chain starting with the preparation of SWM Plan and awareness creation/capacity-building efforts. Thus, the implementation of the project would minimize the environmental pollution scenario in the State as it targets all major waste generators –93 ULBs.
12. Considering an average of 5 TPD of C&D wastes per town and 40-50 TPD of Municipal Corporations, total C&D waste generation for all ULBs may be estimated as around 750 - 800 TPD. The state has no C&D Waste management facility today. C&D Waste gets dumped in solid waste dumping yards, water bodies, or road verges along with other wastes or is used to fill low lying land.
13. The State, with a hospital bed strength of 1,13,530 has only one Common Biomedical Waste Treatment Facility (CBMWTF). This facility is unable to take care of entire biomedical waste generated at hospitals and health care institutions spread across the length and breadth of the state. Biomedical wastes (including household biomedical wastes generated daily and increased quantities generated during emergencies like COVID 19) gets mixed with solid wastes and are dumped in dumpsites or waterbodies.
14. It is envisaged that by improving waste management, the project would lead to positive impacts in the environmentally sensitive and disaster-prone State of Kerala; where negative externalities of the current waste management practices have started impacting the environmental well-being, health and socio-economic condition of the people; more so during disasters. The project interventions are not likely to cause any adverse, large-scale, significant, and/or irreversible impacts. The project would lead to positive impacts, including pollution prevention, increased resilience to the impacts of climate-induced natural hazards such as flooding, improved primary health, improvement in the socio-economic conditions, and its forward linkages.
15. SEA outlines the institutional and policy support and environmental considerations for implementing effective SWM in Kerala. It discusses the siting considerations, design, and safeguards requirements to be incorporated effectively factoring in the physiographical and socio-economic characteristics of the region. It provides directions on the following:
 - 1) Suggestions on Policy level interventions including the need to (i) Bridge the Gaps in existing SWM system; shifting from the existing policy focusing on the household's responsibility to manage

the wastes in a fully decentralized manner to aligning it with the National Policy / Rules focusing on end-to-end solutions and regional approaches considering the geographical and demographic spread of the state and its high densities and urban-rural continuum model of development. The state is in the process of updating the State Policy and aligning it with the National policy which will guide successful implementation of SWM here; (ii) Land strategies aiming at remediating and improving all available pieces of land used currently for SWM thus reducing the need for new land; and following cluster based approach; (iii) Integrated management of waste-sheds focusing on both urban and rural areas, key valuable environmental components, devising appropriate measures for different geographies, tackling the issue of marine plastics through targeted regional interventions of dumpsite improvements, IEC and awareness and clean-up drives (specially in response to emergencies like COVID19); (iv) retrofitting environmental considerations by including considerations while preparing WM plans for municipalities and tackling critical biomedical waste and C&D waste related issues as well and implementation of local governments efforts on prohibiting littering; v) Recycling Reuse and Extended Producers Responsibility (EPR) to be promoted by encouraging reuse and waste minimisation in regulations and circular economy; iv) Improving Capacities for SWM and other Environmental Infrastructure Services with adequate institutional set up at State and District level and ULBs. Inputs to improve Existing SWM facilities in the State and regularise WM to make monitoring effective.

2) Inputs to improve Existing SWM facilities in the State; including (i) inputs to material recovery and remediation of dumpsites, and improving the environmental and safety considerations; (ii) improvements to existing (minimal) waste treatment facilities at households community and ULB levels (in few ULBs) and provision of required treatment and disposal facilities for SWM, Biomedical Waste & C&D waste; (iii) Guidance on improvements to legacy sites; (iii) guidance on Collection and Transportation of wastes.

3) Directions for designing and managing facilities considering the regional environmental conditions; including (i) Planning for Integrated end to end WM by preparing SWM plans at the onset; (ii) Regional / Clustered Facilities; thus minimizing the landfill requirements in flood-prone and dense coastal areas, (iii) environmental criteria for siting and construction and management of landfills, treatment systems considering the eco-fragility, climate, geography, lineaments, development pattern and disaster prone-ness of the State; and natural habitats; (iv) key considerations for Collection and Transportation, of Wastes and scheduling including the width of roads and densities in certain areas, scheduling, type of waste, fly/odor menace and leachate, (v) Waste Collection, Recycling Facilities and safeguards and siting criteria for locating these.

4) Inputs to Institutional Strategy including (i) coordination and planning for Regional Facilities, institutional support for collaborative actions and monitoring needs; (ii) Professional Development of Women's Groups for SWM Services including specialized training to improve service standards and skills to professionally deliver services; (iii) Awareness and Participation involving with all citizens during all stages effectively; (iv) Monitoring of SWM Infrastructure and Services; (vii) Linking Physical Planning to Infrastructure Development and integrating with overall planning/project development process of decentralized planning and its institutions to embed this in the state's institutional fabric and for acceptance; ensuring technical support through specialized consultants at various levels for waste management; (viii) Effective Partnership with other Agencies of the State who can contribute to the various implementation and monitoring support.

16. Development of waste management facilities and services in Kerala will reduce Greenhouse Gas (GHG) emissions of around 3.9 million tons (emitted during the last 15 years) mainly due to non-processing of organic fraction of the waste and can be avoided through the treatment of waste to recover energy (bio methanation) or resources like compost; help in remediating / developing models for remediating existing dumpsites with accumulated 2216920 MT of waste, avoid leachate

generated of from unprocessed waste in Kerala estimated at 1.944 MLD per day or 709.56 MLD per annum finally polluting the land and water, prevents 20 percent of total serious fires in the State contributed by open burning of waste, eliminate untreated biodegradable waste of the order of 2418 TPD by recovering resources and minimizing the impacts due to open dumping, 1305 TPD of rejects and inerts reaching the dumpsite and ultimately the valued environmental components like lakes (with accumulated 4276 tonnes of plastic garbage in bottom sediments of Vembanad Lake in Alleppey region alone) and forests, and recovering around 200 acres of dumpsites.

17. The project will, however, result in manageable construction and operation stage negative environmental impacts which can be mitigated and managed by incorporating the required infrastructure and safeguard mechanisms. The assessment reveals no large scale, significant, and/or irreversible impacts due to the proposed project interventions. The program will avoid undertaking any activities that will cause significant conversion or negative impacts on natural habitats and sensitive environmental receptors unless it is concluded there is no other viable alternative for the siting of the project. SWM Plans which would be prepared as part of the project for each ULB / town would set the stage for investments based on sound scientific understanding of the SWM value chain and technological options, environmental aspects of the town, regulatory requirements aiming at improved and sustainable environmental benefits, including their disaster, and climate-related sensitivities, among others. The proposed project activities incorporate improved environmental and safeguards management as an integral part of the project objectives and implementation.
18. The state has got many accolades for its decentralized waste management approaches. The State's efforts to treat waste at source are laudable. However, a review of the environmental condition of the state with respect to existing waste management infrastructure and services presents the need to develop facilities to dispose of rejects, inerts, and to upcycle the recyclables. It is important to improve existing systems to minimize and manage negative externalities; more so, as the waste quantities are increasing with natural growth in population.

E. Environmental Management Framework

Applicable Environmental Regulations

19. National and State regulations, international treaties and agreements, and the World Bank Operational Policies will be considered for siting criteria, environmental pollution control requirements, institutional arrangements, ensuring occupational health and safety, resource utilization, and considerations on natural habitats and physical cultural aspects. Several national and state-level environment laws will apply to KSWMP program, including the Environment (Protection) Act, 1986; Environmental Impact Assessment Notification, 2006, Water (Prevention and Control of Pollution) Act, 1974; Forest (Conservation) Act, 1980; The Wildlife Protection Act, 1972, Air (Prevention and Control of Pollution) Act 1981; The Insecticides Act 1968, Rules (and National/State orders banning pesticides/insecticides), The Noise Pollution (Regulation and Control) Rules, 2000; SWM Rules, 2016; Plastic waste Management Rules 2018, C&D Waste Management Rules 2016, BMW Management Rules, 2016. The central government has prepared clear guidelines to guide the investments including for Legacy Waste Management. The environmental rules and regulations applicable at the state level for the project include Kerala State Policy on SWM, 2018, Kerala SWM Operational Guidelines, 2017, Kerala Municipalities Act 1994, Kerala Preservation of Trees Act, 1986, The Kerala Biological Diversity Rules, 2008, Kerala Conservation of Paddy Land and Wetland (Amendment) Act, 2018, Kerala State Disaster Management Rules 2007 and subsequent amendment in line with Disaster Management Act, 2005 National Policy on Disaster Management, 2009, Kerala Municipality Building Rules, 2019 and Kerala Panchayat Building Rules, 2019.

20. Also, the following policies of the World Bank are applicable for Program: a) Environmental Assessment (OP/BP 4.01), b) Natural Habitats (OP/BP 4.04), c) Physical Cultural Resources (OP/BP 4.11), d) OP 4.09 Pest Management and World Bank Policy on Access to Information and Disclosure. The ESMF also recommends WBG EHS Guidelines for all projects, and WBG Industry Sector Guidelines, guidance on banned Pesticides by the World Health Organisation (WHO) and safe use, as applicable to the sub-projects.

EMF Process

21. EMF describes the process to be adopted to screen the subprojects to decide on including/excluding them; to categorize based on defined criteria and to manage these using either full-fledged EIAs and EMPs or using Generic EMP. EMF describes the process, institutional mechanism, and budget to undertake Screening, Scoping, Assessing, and Incorporation of mitigation measures during the project cycle involving a) Sub-project Initiation, b) Sub-project Preparation, c) Sub-Project Implementation, d) Monitoring and Evaluation; presented in **Figure A**.

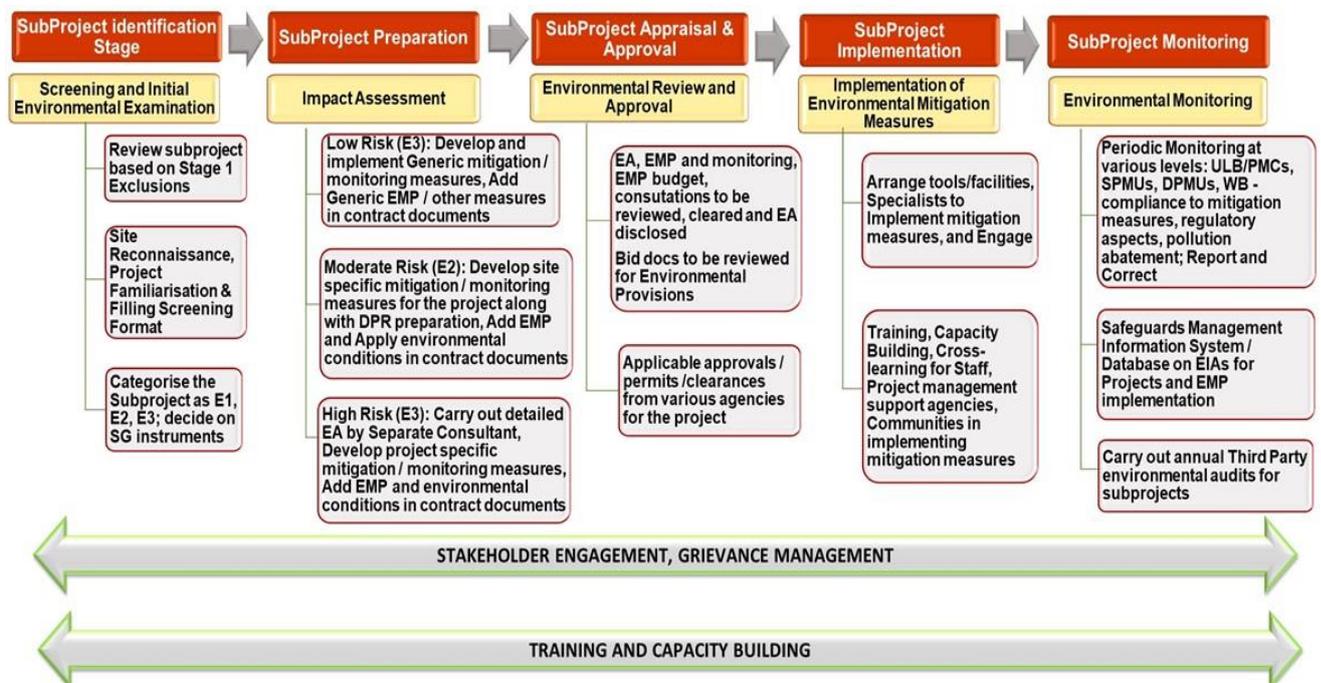


Figure A: EMF Process

Environmental Management for KSWMP

22. Depending on the type of investments and nature of activities, proposed subprojects will have varying impacts on the environment. Hence, the type and extent of environmental assessment to be carried out to identify and mitigate the impacts also largely depends upon the complexities of project activities and exact locations. It is important to identify the probable impacts of all activities including WB and AIIB-financed activities and plan for mitigation measures early on, to manage them effectively. To facilitate effective screening, under KSWMP Program, the subprojects are grouped into different categories – E1, E2, and E3 linked to extent and severity of impacts (depending on the type of activities and locational characteristics) and regulatory requirements. Based on analysis of various National/State regulations and the World Bank Policies and EHS Standards, EMF suggests including exclusion criteria and screening, impact assessment, various guidance for incorporating environmental components, a framework to manage physical cultural

resources, natural habitats, and pest management. These guides to follow the more rigorous requirements in case of any discrepancy between the National/State regulations and World Bank policies/standards.

23. As per the ESMF, the first step will be to conduct an Initial Environmental examination where the environmental issues will be identified and screened through a two-stage process: a) Stage 1 Exclusion list and Stage 2: Environmental Screening Form. The objective of filling this checklist is to collect basic information on baseline parameters, issues, and potential impacts. Based on this, the sub-projects will be categorized.
24. Based on the screening process undertaken, Environmental Specialists of the District Environmental and Social Development Unit (D-ESDU) (for city-level investments) / State Environmental and Social Development Unit (S-ESDU) (for regional / cluster level investments) would finalize the project categorization into E1, E2, E3 as per severity and extent of expected environmental impacts.
25. Projects categorized as E1 will follow the requirements of Bank OP 4.01 Category A project's requirements, and E2, E3 projects will follow the requirements of Bank OP 4.01 Category B project requirements. Specialists shall apply adequate experience and expertise-based judgment to determine the category of subprojects. ESMF describes the process for managing and mitigating anticipated impacts by a) undertaking Environmental Impact Assessments (EIA) and preparation of site and design specific EMPs for Category E1 and Category E2 projects, and c) using Indicative EMPs for Category E3 projects provided in the Guidance Manual of the EMF. Also, a set of Environmental Codes of Practice is included in the Guidance Manual of the EMF to guide the integration of environmental aspects in planning and project-related activities. Physical Cultural Resources Management framework, Pest Management, and Natural Habitat Management Framework also have been included in The Guidance Manual to guide the preparation of relevant plans if such aspects are encountered in the project. A Safeguards Management Information System developed and updated will enable a full review of safeguards measures continuously by the World Bank. The Bank would review and monitor all safeguard documents and safeguards management as part of regular review, missions, and special technical visits and will share details with AIIB for their involvement as per Framework Agreement.

Guidance for Subproject EIAs/EMPs

26. Thus, ESMF for KSWMP guides to prepare subproject EIAs and manage subproject environmental aspects during the pre-construction /planning phase, during implementation, and operation and maintenance stages; as follows.
 - Guidance on Project Screening, Impact Assessment, Institutional Framework for implementation and O&M stages, including EMP in contract documents and overseeing implementation and reporting, and Audit for monitoring the effectiveness of subproject Environmental Management are provided in the ESMF,
 - Indicative EMPs are provided, which could serve as a guide for developing site-specific EIAs and EMPs when project details are finalized,
 - Guidance on Chance find procedures for Physical Cultural Resources, mitigation measures to be included in EMPs,
 - Guidance on the preparation of natural habitat management plan,
 - Environmental Codes of Practice for various project activities to guide environmental management of certain project activities including those which are low-impact, low-risk, temporary and reversible, and readily managed with good practices during the implementation of the proposed project interventions. The Contractor's Environmental and Social Experts can

use these while preparing and implementing Contractors EMP at work start also as additional guidance to what is included in EMPs.

F. Tribal Development Framework - Social Management Framework

27. According to a rapid social assessment³ the project is expected to lead to the overall wellbeing of the urban population in participating ULBs; formalise the value chain of SWM leading to improved livelihood opportunities for service providers (Municipal workers, Haritha Karna Sena, Kudumbasree, transport workers, workers in processing facilities, etc.); improve working conditions for service providers; promote responsible behavior in waste generators to reduce the quantum of waste generated at the source, and reduce the land required to process BDW and NBDW through decentralized practices for waste minimization and diversion.
28. Land will be required for investment sub-projects for the development of SWM facilities at the city/regional level. Indigenous People (IP)⁴ will largely benefit from the project but it would be important to ensure that they are included in the planning and implementation process through culturally appropriate communication and engagement tools. On the negative side, there is a risk of sites close to the tribal groups/habitations so the TDF-SMF provides a screening format that has a negative list indicating distances from tribal habitations for selection of sites. Based on the impact on land and livelihood, the Operational Policy on Involuntary Resettlement (4.12) is triggered. Despite IPs being only 0.3 percent of the urban population, the tribal community may be following their own traditional and cultural practices and thus the Operational Policy on Indigenous people (4.10) is triggered
29. Key social risks arise due to (i) exclusion of women, vulnerable and tribal communities from planning process as well as accessing benefits such as livelihood opportunities and skill development; (ii) poor community participation throughout the sub-project cycle; (iii) incidence of GBV and inadequate response or support services ; (iv) weak accountability and transparency communication and service delivery; (v) health and safety risk of unorganized labor engaged in SWM; (vi) weak enforcement of labor laws and lack of labour influx management plans (in case migrant workers will be hired); (vii) ineffective communication and limited capacity to bring about behavior change towards SWM; (viii) negative impact on host community at the landfill and waste management sites; (ix) loss of livelihood of the most vulnerable such as rag-pickers and informal recyclers and scrap-dealers when SWM operations are formalised (since they are currently dependent on informal activities to manage municipal waste -primarily NBDW); (x) lack of availability of adequate unencumbered land for waste management and disposal facilities; and (xii) ineffective systems for community feedback and unresponsive grievance redressal systems. The COVID19 pandemic is aggravating economic, health, education, and livelihood crisis impacting the access to basic services and pushing the already vulnerable to further margins.

³ Due to COVID-19 lockdown, the assessment is based on secondary literature, technical assessments and baseline information collected through survey and consultations in 12 sample municipalities covering 1,222 entities (household, commercial and institutions) and individual level interviews. However, the consultation with stakeholders was disrupted due to COVID -19. The use of social media and other tools such as key informed interviews could not be carried out. The stakeholder consultations for TDF-SMF-RPF will be carried out within 6 months of effectiveness and the feedback will be incorporated in revised TDF-SMF-RPF prior to redisclosure. Consultations and studies were carried out for the preparation of SEA and EMF. Consultations on the Draft EMF will be conducted post COVID-19 and comments will be incorporated to finalise the document.

⁴ The tribal population of Kerala is 1.45 percent (484,387) of the state's total population (3,34,06,061). Tribal population in the urban areas' accounts for 0.3 percent of the total urban population. Except for Kalpetta (10.2 percent) and Mananthavady (11.1 percent), the Scheduled Tribe (ST) population percentage in the ULBs is in the range of 0.09-1.10 percent of the total population.

30. Based on the social assessment, the Tribal Development Framework-Social Management Framework (TDF-SMF) and Resettlement Policy Framework (RPF) has been prepared in accordance with the Operational Policies 4.12 and 4.10 respectively, and national and state laws on land acquisition.
31. TDF-SMF includes (i) Screening to identify social risks and impacts including specific risks and impacts on tribals, (ii) Social Impact Assessment based on identified risks and impacts and for preparation of SMP/ TDP/ RAP, (iii) Stakeholder mapping, Citizen Engagement and Social Behaviour Change Communication Strategy. This covers Free Prior Informed Consultation (FPIC) with tribals, awareness for social mobilization, behavior change of waste generators, participatory planning, and monitoring, strengthening local governance, accountability, transparency, social audit and a robust grievance redressal management system. (iv) Strategies to ensure inclusion (women and vulnerable) to enhance their voice in project planning; (v) Gender Action Plan for closing gender gaps and enhancing benefits to women with a focus on last mile women SWM workers who are the most vulnerable in the value chain (vi) GBV Action Plan for prevention and response on sexual harassment, abuse, violence in sites and institutions; (vii) Labor Management procedures for improving database, systems, accountability of hiring agencies/contractors for working conditions, rights, welfare, benefits, opportunities, and restoration of livelihoods particularly the informal/unorganized labor in SWM. This also provides code of conduct for labor camps and guidance for preparing labor influx management plans incase migrant workers are hired (viii) Institutional mechanisms to ensure effective social management at ULB, District and State level; (ix) Screening criteria for selection of investments for infrastructure facilities and scheme cycle covering the process for planning and implementation of sub-projects; (x) capacity development plan; (xi) reporting monitoring systems and indicators; and (xi) budgets

G. Resettlement Policy Framework

32. RPF is quite comprehensive and includes a) Kerala Government has developed state rules under RFCTLARRA 2013, to facilitate negotiated purchase of assets (2015) with enhanced package provided under the State level Resettlement and Rehabilitation Policy, 2017. This Entitlement Matrix of this RPF is aligned with the RFCTLARRA 2013, State Rules, Direct Purchase 2015 including the State R&R Policy, 2017 and the World Bank Policy 4.12 on Involuntary Resettlement. It is estimated that about 90 acres of land for dump sites is available with 10 ULBs, which is not fully utilized. As per the National Manual on Solid waste management for 20 years, approximately 100 acres of land will be required. To address the land availability risks in the project, the risk mitigation plan includes alternative tracks that will be pursued by the implementing agency identification of (i) unencumbered government land identification (ii) reclaim land and use for new processing/disposal facilities, (iii) private land parcels for acquisition under Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 (RFCTLARRA 2013).
33. The primary objective of this RPF is to provide better standard of living to the Project Affected Families (PAFs)/ Project Affected Persons (PAPs) including ragpickers or at least restore their standard of living as it was before project. If the PAFs/ PAPs were Below Poverty Line (BPL) category before the project, then this RPF aims to bring them Above Poverty Line (APL). Accordingly,
- Compensation and Rehabilitation and Resettlement assistance will be paid to the Titleholders and Non-Titleholders, before taking possession of land and displacement, if any.
 - All asset compensation will be at replacement cost.
 - No sub-project civil works will be initiated unless compensation for land and assets and rehabilitation and resettlement assistance is provided in full to all eligible PAFs and PAPs.

- During the Social Impact Assessment, mapping of key stakeholders of the land acquisition will be carried out. These are likely to include those affected by land acquisition and the host community. Consultations will be carried out in each Municipality with community through Ward Sabhas. Household interviews and Focus Group Discussions with affected families, and formal meetings with Municipalities and officials concerned will be carried out in structured manner for which the indicative Road Map for Stakeholder Consultations is included.
- Livelihood Assistance will be given in the form of Income Generation Assets (IGA) to be chosen by the PAFs/ PAPs including ragpickers who constitute project affected people. The Project will provide information to the PAFs/ PAPs on alternative income generation activities suitable for the area and help them in making right choices. Livelihood Restoration and Enhancement schemes will be designed in consultation with affected persons so as to benefit them. Based on the information collected on Livelihood Restoration and Enhancement activities through the census socio-economic surveys, the Support organisation will identify suitable Livelihood programs for the project affected persons.
- The Revenue Department at district, will be responsible for Land Acquisition, Resettlement and Rehabilitation (LARR). The jurisdictional Additional Collector being the competent authority for land acquisition, s/he will also look into Resettlement and Rehabilitation and s/he will be supported by the Project Director, SPMU in implementation of resettlement plan.
- Progress related to payment of land acquisition compensation and Rehabilitation and Resettlement entitlements will be documented and quarterly reports (in some cases with lesser frequency such as monthly, as required) will be sent to the World Bank.

H. Social Management

34. **Stakeholder and Citizen Engagement:** Citizen Engagement plan builds on the people-centric approach adopted by the state through decades of decentralized practices. The project will encourage partnerships between Service Providers and Waste Generators through each phase of the project. Some of these include public disclosure, information dissemination, participatory planning, and implementation, Social and Behavior Change Communication (SBCC) strategy, user satisfaction survey, responsive GRM, and social audit. Through a structured and continuous process of engagement and inclusion, the project will build acceptance, collaboration, a greater sense of ownership, and sustainability of investments. Support organizations will be engaged for social mobilization, facilitation of ward meetings, the inclusion of various stakeholders particularly the vulnerable. Minutes of meetings, attendance, representation of vulnerable groups (women, IP, unorganized labor), evidence on display and disclosure of information, and Social Audit findings will highlight the effectivity of citizen engagement. Annual consumer surveys and quarterly reviews of GRM reports will help identify the lacunae in both generators and service providers and will help to close the feedback loop.

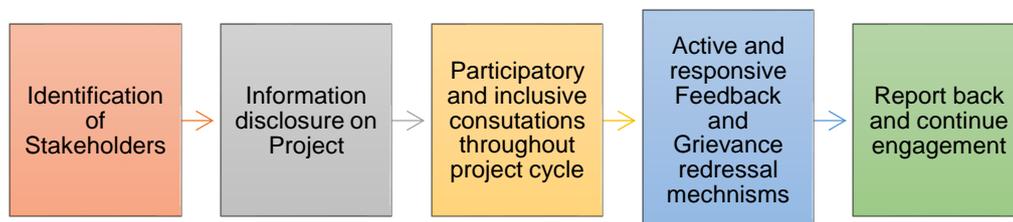


Figure B: Stages of Stakeholder Mapping and Citizen Engagement

35. **Social Inclusion: Social Inclusion:** Urban areas in Kerala are home to groups like the poor and or slum dwellers, scheduled castes and scheduled tribes, intra and inter-state migrants, unorganized labor, people with disabilities, and elderly who risk being left out of the project benefits. The project aims to reach 4.7 million people across 93 municipalities in Kerala. 52 percent are women, 7 percent are Scheduled Castes, 0.5 percent are Scheduled Tribes, 14 percent are Christian minorities. Despite decentralization, political representation, awareness, mobilization, and social welfare measures, breaking out of traditional stratification or access to social mobility remains difficult due to inersectional vulnerabilities . There are risks of exclusion from accessing project information, exclusion from the planning process, exclusion from SWM Services, exclusion from livelihood opportunities, exclusion from GRM. The socially vulnerable groups are listed in **Figure C** and the SMF provides a stage-wise activity for ensuring Social Inclusion through the project cycle.

Waste generators	Service providers	Land related risks
<ul style="list-style-type: none"> • Women • SC • ST • Slum dwellers • Elderly • PwD • OBC, minoroties, single women 	<ul style="list-style-type: none"> • Women elected leaders • Women project staff • Women SWM workers • Sub contracted workers • Sub contracted women workers • Sub contacted migrants • Rag pickers 	<ul style="list-style-type: none"> • Host communities in case of labour influx • People living next to landfills • Land dependents: Lack of adequate unencumbered land for waste management and disposal facilities

Figure C: Socially Vulnerable Groups Susceptible to Risks of Exclusion

36. **Gender:** Women in Kerala enjoy a better status in society than their counterparts in the rest of India as reflected in the much lower gender gap in literacy, education, health, employment and mobility. However, significant gender disparities exist in the state in terms of political, workforce participation rate (16 percent for women in comparison to 51 percent for male) and human capital investment like technical and scientific sectors. Also, unpaid, unaccounted, invisible work in the domestic spheres, all the social tasks which are low paid, use high mobilization skills and are time-consuming continues to be women's prerogative. As a result, even in SWM sector women are more often considered for roles that include collection or sorting, cleaning, or separating of the waste. As primary collectors and the first point of interface between the waste generators and waste processors, women constitute a high proportion of informal labor force in urban areas. Using a gender lens to view service providers and waste generators under SWM in 93 municipalities of Kerala shows that the gender disparities⁵ are prominent and need to be addressed to avoid negative impacts on women. SWM roles risk reinforcing gender stereotypes; unhealthy work conditions of SWM workers; insecure, low-paid, scavenging, mechanical work, waste collection and segregation has been handed out to those women in Kudumbashree who are poor, belong to lower caste, have not received skill training⁶. Caste based stigma attached to waste works often traps them into these roles for life. Apart from this another gap is the absence of clear roles and opportunities for women as elected leaders or as service users whereby they risk getting excluded in the facilitation and participation of the planning process. Based on the gender analysis and identified risks and gaps, the project will focus on increased opportunities for employment and income generation as well a

⁵ In agencies offering door to door collection services, the staff range between 15 to 38 persons, mostly women who undertake collection whereas men were involved in segregation and sale. Baseline survey shows that 25 percent of women that had been involved in work in the past year in 34 municipalities, were engaged for less than 6 months. Lack of data makes the challenges face by women less visible.

⁶Kudumbashree women are seen collecting waste from the households and commercials to the municipal dumping sites and retrieve paper, plastics, rags, metals or everything that possesses intrinsic value and sell the reusable items to middlemen for onward processing, composting of bio-degradable waste etc. Women are highly disadvantaged in this work. They are generally paid less for the wastes. They work in cramped and unsanitary conditions for long hours and low returns. These are women from slums, with low educational levels and lower caste backgrounds (International Journal of Business and Administration Research Review. Vol.I, Issue No.2, Nov-Jan2014.)

as enhanced participation, leadership, and decision making by women—in the community and within households. The project will ensure equal opportunity and benefits for Women staff and workers, improved employment terms, working conditions. The project will support activities to upgrade skills, increase income benefitting through other verticals in SWM chain including access to entrepreneurial opportunities. The project will prepare a baseline report which will include (i) number of women engaged in the value chain of SWMs; (ii) existing income levels and skills (iii) opportunities for socially excluded women to access other verticals of SWM value chain including business opportunities. The RF indicators for measuring gender outcomes will include: (i) Number of women received skill upgradation training; (ii) Number of women linked to higher SWM value chain activities and entrepreneurial activities; (iii) Percentage (%) Increase in women SWM workers accessing other SWM services.

37. **Gender-Based Violence:** As per the World Bank GBV risk rating tool, the project scored a 6.25 numeric rating putting it in a low-risk category. However, the decadal growth of all types of crimes against women in Kerala has been increasing. This includes rape, domestic violence, molestation and eve-teasing, dowry death, murder, immoral trafficking, wife battering, child abuse, and desertion. To respond to GBV grievances, GoK has developed the multiple mechanisms⁷ but challenges in this area prevail. The GVB action plan includes the formation of Internal Complaints Committee for Implementation Agency, Mapping of Hotspots, mapping existing GBV service providers, Facilitating GBV awareness and sensitization programs, Augmenting existing GBV response, and support mechanisms and integrating with the project GRM.

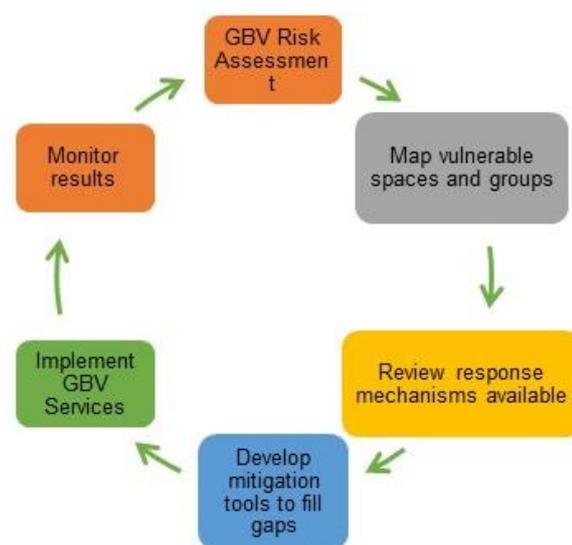


Figure D: GBV Response Cycle for the Project

I. Institutional Arrangements for Environment and Social Management

38. The State Project Management Unit (SPMU) for KSWMP is the Suchitwa Mission, which is currently the nodal agency in the state for decentralized Solid Waste Management. It has its District Offices which will function as the District Project Management Units (DPMUs). SPMU will coordinate ULB level activities in each district through its DPMUs. Proposed institutional arrangements for Environmental and Social Management of the whole KSWMP (including all WB, AIIB financed subprojects/activities) is presented here.

The project activities will be overseen by SPMU established in SM and DPMUs at each District. SPMU will have a State Level Environmental and Social Development Unit (S-ESDU) and each

⁷ i) Bhoomika Centres (One Stop Crisis Cells) located in hospitals for fast track multi-sectoral inter-agency support to victims of domestic violence; (ii) Jagratha Samithis formed in all rural and urban local bodies to discuss issues of atrocities and to spread awareness against violence; (iii) Kudubashree Gender Corner which helps link victims and survivors to support services; (iv) three 24X7 emergency response and rescue services for seeking immediate and extended support to women and children facing sexual violence; (v) toll free helpline called Pink Patrol; (vi) Gender help desk called Snehita and (vii) Mithra Help line (181).

DPMU will have a District level ESDUs (D-ESDU). S-ESDU will have an Environmental Engineer, a Social Development Specialist, a Gender Specialist, and a Communications Specialist to support the implementation of the ESMF-TDF-RPF. The SPMU will be the focal point for the communication with the Bank on the safeguard's aspects of the program.

39. D-ESDU will have an environmental engineer and a social development cum communication specialist. ESDU will be supported by the PMC. The PMC will have environmental and social experts and ensure the services of biodiversity / natural habitat specialists for subprojects near-natural habitats. Attached to D-ESDU, a District level support organization will be mobilized for outreach programs, social mobilization, and other activities to build a partnership with the community through the life of the sub-project cycle. At the ULB level, a Project Implementation Unit (PIU) will be formed with ULB Engineers, Health Officer, Town Planning / other officers and the Environmental Engineer to be newly recruited.
40. **Sub-project Preparation and Implementation:** All the sub-projects will go through; a) a comprehensive environment and social screening, b) identification of risks and impacts, c) environment and social impact assessment based on the risks and impacts identified during screening, d) preparation of the environment and social management plans such as ESMP-TDP and RAP, as required, e) implementation and monitoring of the environment and social management plans, and f) capacity building and IEC campaigns during the sub-project cycle. This will be coordinated by concerned ESDU, with support from ULB/PIU, TSC, PMC, and support organizations.
41. **ULB Level Subprojects:** Technical support for preparation and implementation of safeguards instruments at the ULB level will be provided by district-level TSCs hired by each DPMU, which will include environmental engineers, natural habitat/ biodiversity specialists (for subprojects near Natural Habitats) and social cum communication experts. The Terms of Reference for TSCs will include the scope of work to ensure compliance with ESMF. The subprojects will need to be screened as per ESMF and results will be forwarded to the D-ESDU for confirmation on the categorization and issuance of ToR for preparation of safeguard instruments. In the case of subprojects that may impact Natural Habitats, the Biodiversity Management Committee of the ULB will review the screening and guide the ToR preparation. The Support Organization will be overall responsible for various IEC activities for sensitizing the communities and undertaking consultations for wider acceptance of the proposed investments. They will facilitate the integration of community needs, carry out FPICs required to prepare the DPRs and Safeguard Instruments. Safeguard documents E1 category investments will be prepared by an independent consultant other than the TSC who is in charge of DPR preparation. For E2 projects TSC will prepare the ESAs as part of DPR preparation. For E3 projects, TSC will compile the filled-in screening Formats and applicable Generic ESMP and will submit to DESDU for approval and records. ESAs of E1 and E2 subprojects will be sent to S-ESDU after reviewing by D-ESDU. ESAs of E2 projects will be cleared by S-ESDU; while those of E1 category projects or any special projects/under any special circumstances will be sent to the World Bank for review and clearance after reviewing by S-ESDU. The PIU Engineers, Health officer, and support organization will directly supervise the contractor / DBOT operator and guide the implementation of ESMPs with TSC support. The PIUs will support and coordinate for government approvals and statutory clearances. The PIU will submit the compliance reports on clearances, permits, and environmental and social safeguards to D-ESDU.
42. **Regional Level SWM Treatment/Disposal Facilities, C&D Waste, and Bio-Medical Waste Management Facilities:** S-ESDU will be responsible for screening the regional subprojects and the DPRs including safeguard documents will be prepared by TSC other than for E1 category projects, for which an Independent agency will be hired. The Support organization will be

responsible for various IEC activities for sensitizing the communities and undertaking consultations as part of the citizen engagement plan for wider acceptance of the proposed investments.

43. For sub-projects both at the ULB level and regional level, if a RAP is required, the ESDU at the state level will coordinate with the Revenue Department, which plays a main role in land acquisition and compensation and resettlement and rehabilitation entitlements disbursement, to ensure that the required resources are committed for the preparation of RAP. The social development expert at the DPMU will coordinate with the district level empanelled SIA unit to carry out the SIA to prepare the RAP in accordance with the RPF. The safeguard instruments (i) screening, (ii) ESIA, (iii) ESMP, (iv) RAP will be included in bidding documents, and other procurement documents, after the clearance procedure mentioned above.
44. The Proposed Institutional Framework for Safeguards Management for KSWMP is in **Figure E**.

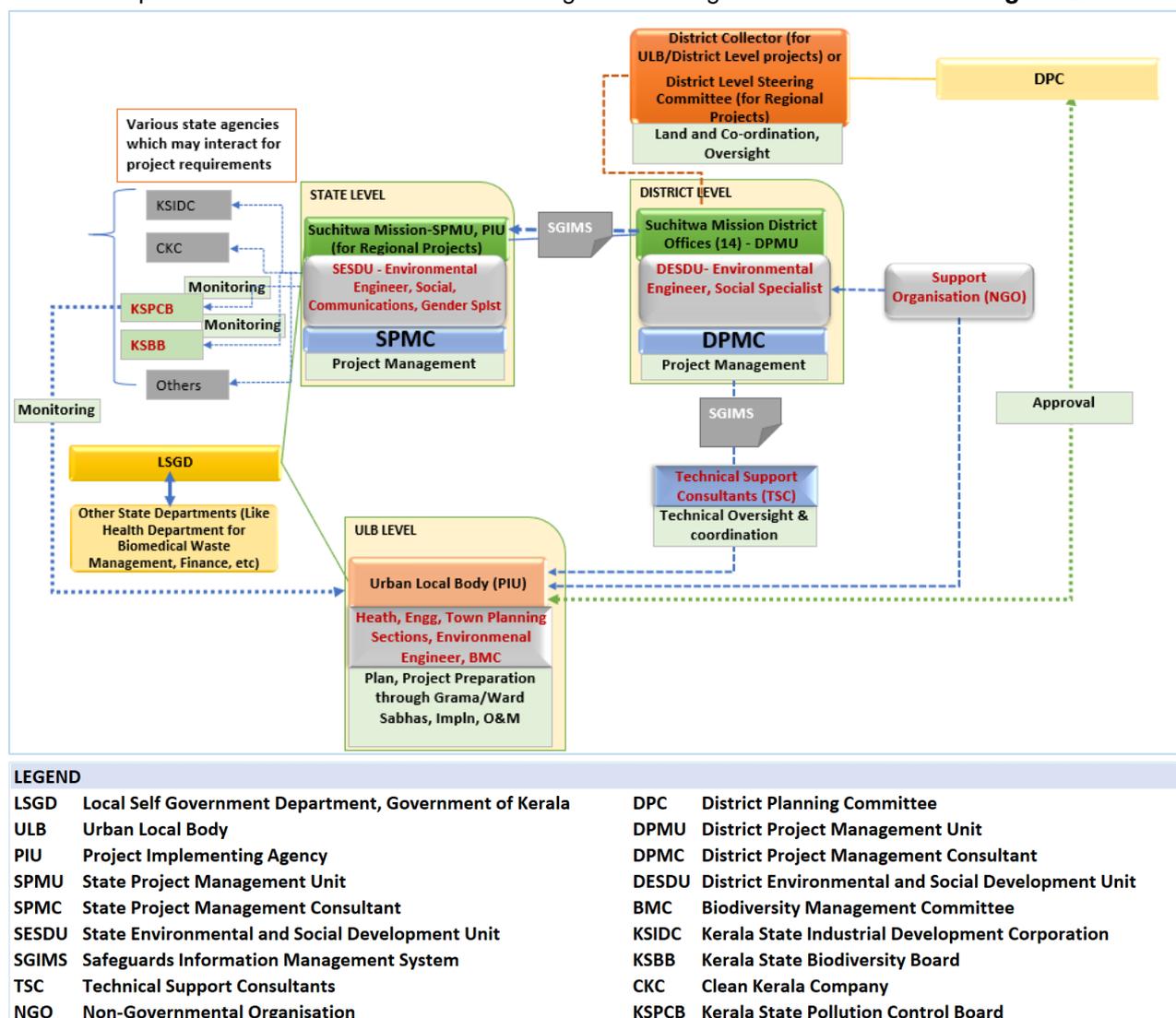


Figure E: Proposed Institutional Framework for Safeguards Management for KSWMP

J. Capacity Building

45. The ESDU will be responsible for the overall capacity development portfolio on the environment and social themes for the state, district, and ULB level training, workshops, exposure visits, online

learning, peer learning, and guided mentorship. This will first include a TNA, preparation of a Training Calendar, building a pool of resources like modules, toolkits, master trainers, expert agencies, and facilitators. Database on trainees and trainers to be timely updates, resources repository to be prepared and training reports and feedbacks to be digitized. The environment and social experts of DPMU will be responsible for coordinating the activities of the support organization, prepare and implement district-level capacity building programs for all stakeholders.

46. ESMF training includes ESIA methods, preparation and implementation of ESMP, consultations and public hearing, regulatory requirements, ESMF adoption, and compliance, sustainable planning of waste management facilities, Technologies, and Service Standards, and operations, climate change resilience, mitigation, and adaptation and other aspects as may be necessary during the project. Training will be carried out through expert agencies in social and environmental aspects, with/without the support of the Kerala Institute of Local Government (KILA). SPMU will make a conscious effort to mainstream the environmental aspects of other training programs under this project. SPMU will also enhance the capacity of its staff through orientation programs, training, exposure visits to similar projects implemented, courses, and participation in both national and international training courses and seminars/workshops. It is also suggested to organize workshops during years 2, 4, and at the end of the Project for cross-learning between the project experiences of D-ESDUs/PIUs.
47. The World Bank specialists shall provide adequate training to S-ESDU / D-ESDU safeguard specialists thrice during the project duration: well-spaced to update the new techniques, practices and to effect cross-learning. Through this, the project safeguard specialists can attain the necessary guidance to train the subproject staff.
48. The proposed training/capacity building activities for ESMF implementation will be supported through the *Component 1* of KSWMP.

K. Monitoring and reporting:

49. For effective management of safeguards, the project SPMU will prepare a Safeguards Information Management System (SGIMS) for monitoring ESMF compliance and recording the improvements in environmental and social parameters. SGIMS will be integrated with the overall project MIS. This will be updated daily by PIU and DESDU and will be continuously monitored and reviewed by SESDU. SIGMS reports will be sent to the Bank every quarter so that the Bank could effectively track E2 and E3 projects as well. The indicators will include parameters on the environment and social inclusion, citizen engagement, behavior change, enterprise development, land required, the livelihood of the vulnerable, labor compliance, GBV, and GRM. Thematic monitoring, Annual Environment Audit, and Social Audit will be carried out. The ICT tool developed to track the implementation of the sub-project scheme cycle and action plans on real-time and geo-referenced will be the source of data for reporting on compliance. This will enable remote monitoring even during emergencies like COVID 19. The progress report will include monthly concurrence monitoring, thematic reports, and annual compliance of ESMF –TDF-RPF. Environmental and Social Experts of D-ESDU shall i) undertake a monthly visit to subprojects to ensure compliance with ESMPs, TDP-RAP and guide and support PIUs/TSC/Support Organization/contractors to oversee safeguards management, ii) review monthly progress reports by PIUs to resolve any issues, and iii) prepare quarterly progress reports on ESMF implementation (based on the monthly reports of PIUs and their observations during monthly visits) and submit to S-ESDU, iv) join the field visits undertaken by S-ESDU and the WB as part of the monitoring of the subprojects. The WB will also review, monitor, and guide ESDU as part of the mission and special technical visits as required and support in training the ESDU specialists and PIUs. Annual Environmental and Social Audit will

be carried out for all E1 projects, sample E2, and E3 projects to monitor ESMF compliance during preparation and implementation.

L. Grievance Redress Mechanisms

50. Government of Kerala offers local level, state level, face to face, telephonic and online complaint registration services: (i) Chief Ministers Public Grievance Redressal Cell- network connecting more than 10000 officials (offices) equipped with Modern technology to receive petitions from the public, (ii) The Local Self Government Department offers a complaint icon on its website (<https://pqlsgd.kerala.gov.in/>) for citizens to submit online complaints, (iii) Citizen's Call Centre (CCC) is a single-window, IT-enabled facility of Government that enables Government to Citizen (G2C) interface- includes consumer toll-free helpline for all government services, and (iv) ULB websites also have a complaint icon which has many options but it does not have an option for SWM or sanitation. The assessment indicates that citizens are not aware of the systems available and for SWM related matters, they approach Ward Councilor or Municipal office to submit physical complaints. While there are gaps in people's awareness and actual use of the existing systems, other key gaps include lack of a system for tracking, response time, escalation and alert systems, redressal time, and closure of grievance. The project will strengthen the system and augment it with a toll-free number so that it is accessible by all including women and vulnerable groups. The response mechanism for environmental safeguards related complaints, labor-related complaints⁸, and gender-based violence cases are also mandated in the project. Here too the priority will be to review, strengthen, and augment the existing systems. All complaints (received through any means) to be digitally recorded so that they can be tracked. The resulting indicator will target 80 percent of the complaints registered resolved within 30 days.



Figure F: GRM Flow

51. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to

⁸ GoK has a complaint portal for migrant workers but its accessibility and effectiveness needs to be reviewed. In addition, contractors are mandated to provide a complaint number for site specific and labor camp specific complaints. This can be further integrated with the project GRM for tracking and monitoring.

the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org

M. Consultation and Disclosure

52. Various consultations were conducted during the preparation of this ESMF. Focus Group a) Discussions with various institutional stakeholders including ULBs, Pollution Control Board, Clean Kerala Company, Haritha Keralam Mission, Town Planning Department, KSIDC and many others involved in SWM operations and management, b) questionnaire-based surveys of sample households (1222 households) in around 13 percent of all ULBs under the project, c) waste quantification at different types of generators, and characterization/sampling studies in 5 select cities (5 percent of ULBs) covering all geographic regions (180 household samples and 144 non-domestic establishment samples – 3 days) d) detailed study to ascertain the condition of existing dumpsites in 18 ULBs (20 percent of ULBs with 3 percent overlap with ULBs selected for other two studies). Thus, around 30 percent of the Project ULBs were studied and data analyzed to ascertain at waste generation and composition, current practices, issues and impacts of the current system, and opportunities for improvement. Surveys and Consultations were carried out from December 2019 to February 2020.
53. A state-level consultation workshop was organized by the LSGD on 5/02/2020 the findings of the field survey on waste characteristics and quantities, environmental assessment, citizens' perception of SWM services rendered, assessment of existing and potential technologies for SWM and assessment of regulatory framework, and to discuss the outline of the proposed Environmental and Social Management Framework. More than 70 persons including state government officials from LSGD, Environment Department and SPCB, district officials (Planning officers and Suchitwa Mission district coordinators), Mayors/Chairpersons of Project ULBs actively participated in the workshop. The workshop endorsed the findings of the assessments, proposed recommendations, and support for the preparation of ESMF.
54. The ESMF was disclosed both in English and Malayalam on the Suchitwa Mission's (SPMU) website for feedback from stakeholders in May 2020, before the appraisal. This will be further updated following the consultations to be conducted within six months of board approval for redisclosure. Subproject-specific ESMP-TDPs-RAPs will be disclosed in English & Malayalam – hard copies in SPMU, respective DPMUs and ULB offices and soft copy, on their respective websites.
55. ESMF was disclosed in the country and in-World Bank external website in May 2020, to meet 120 days disclosure requirement. This will be further consulted with the public and stakeholders in three regional level workshops after COVID 19 imposed lockdown. Comments/suggestions will be incorporated and ESMF will be updated.

N. ESMF Performance Indicators

56. The key performance indicators to be monitored for successful implementation of ESMF will be the following:
- Number of subprojects for which preparation and Implementation of ESIA's / ESMP and (other instruments) were carried out in a time-bound manner,
 - Number of all incidents (required under Systematic Incident Reporting Tool) during the construction phase,

- Status of compliances with regulatory requirements and clearances,
- Number of ULBs with Improved (as compared to baselined) air, water, soil quality due to developed facilities
- Number of tribal and other vulnerable groups accessing benefits and services. To be measured by DPMU quarterly and consolidated annually by SPMU,
- Number of ragpickers' accessed livelihood activities. To be measured by DPMU quarterly and consolidated annually by SPMU
- Number of women employed and benefiting from the value chain. To be measured by DPMU quarterly and consolidated annually by SPMU,
- 80 percent of grievances resolved within 30 days of registration. To be measured every quarter by DPMU and consolidated half-yearly by SPMU,
- Number of RAPs fully implemented before initiation of civil works. To be measured annually by SPMU,
- 80 percent of the community satisfied with improved service delivery. To be measured half-yearly by DPMU.

57. Conclusion

This ESMF document for KSWMP is the guidance document for the management of environmental aspects and safeguard management for all components of the project. This is a living document and shall be updated, if required; following the consultations, approval, and disclosure requirements of the World Bank.