



INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

ENVIRONMENTAL AND SOCIAL SYSTEMS ASSESSMENT

ON A

PROPOSED LOAN

IN THE AMOUNT OF

US\$ 300 MILLION EQUIVALENT

TO

INDIA

FOR THE

TAMIL NADU CLIMATE RESILIENT URBAN DEVELOPMENT PROGRAM

P179189

(Draft Disclosed: August 2023, Final disclosure: November 2023)

Urban, Resilience and Land Global Practice

South Asia Region

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List of Acronyms

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| AMRUT | Atal Mission for Rejuvenation and Urban Transformation |
| CHS | Community Health and Safety |
| CSO | Civil Society Organizations |
| DLI | Disbursement Linked Indicators |
| DRM | Disaster Risk Management |
| ECSMF | Environmental Climate Change and Social Management Framework |
| E&S | Environmental and Social |
| EIA | Environment Impact Assessment |
| ESMF | Environmental and Social Management Framework |
| EMP | Environmental Management Plan |
| ESSA | Environmental and Social Systems Assessment |
| FCO | Fertilizer Control Order |
| FD | Finance Department |
| FGD | Focus group discussion |
| FM&P | Financial Management & Procurement |
| GDP | Gross Domestic Product |
| GIS | Geographic Information System |
| GO | Government Orders |
| GoTN | Government of Tamil Nadu |
| GRS | Grievance Redress Service |
| GSDP | Gross State Domestic Product |
| GST | Good and Services Tax |
| ICC | Internal Complaints Committee |
| ICT | Information and Communications Technology |
| IDIs | In-depth interviews |
| IIT | Indian Institute of Technology |
| IPF | Investment Project Financing |
| ISM | Implementation Support Missions |
| MAWS | Municipal Administration and Water Supply Department |
| MoEFCC | Ministry of Environment, Forest and Climate Change |
| MLD | Million Liters per Day |
| NDMA | National Disaster Mitigation Authority, Government of India |

| | |
|---------|--|
| NGT | National Green Tribunal |
| O&M | Operation and Maintenance |
| OHS | Occupational Health and Safety |
| OSR | Own Source Revenue |
| PAP | Program Action Plan |
| PCRs | Physical Cultural Resources |
| PE | Procurement Entities |
| PforR | Program for Results |
| PPSD | Project Procurement Strategy for Development |
| PWD | Public Works Department |
| RA | Result Areas |
| RCA | Root Cause Analysis |
| SBM | Swachh Bharat Mission |
| SC | Scheduled Caste |
| SDU | Sustainable Development Unit |
| ST | Scheduled Tribe |
| STP | Sewage Treatment Plant |
| SW | Solid Waste |
| SWD | Storm Water Drainage |
| SWM | Solid Waste Management |
| TA | Technical Assistance |
| ToR | Terms of Reference |
| TNCRUDP | Tamil Nadu Climate Resilient Urban Development Program |
| TNPCB | Tamil Nadu Pollution Control Board |
| TNUIFSL | Tamil Nadu Urban Infrastructure and Financial Services Limited |
| TNUDF | Tamil Nadu Urban Development Fund |
| TNUDP | Tamil Nadu Urban Development Project |
| TNSUDP | Tamil Nadu Sustainable Urban Development Project |
| UGSS | Underground Sewerage System |
| ULB | Urban Local Body (Municipal Corporation or Municipality) |
| WSIS | Water Supply Implementation Scheme |
| WSS | Water and Sanitation Services |
| WTP | Water Treatment Plant |

ENVIRONMENTAL AND SOCIAL SYSTEMS ASSESSMENT

SUMMARY

Introduction

1. An Environmental and Social Systems Assessment (ESSA) was conducted by the World Bank E&S team for the proposed Tamil Nadu Climate Resilient Urban Development Program (TNCRUDP - P179189) of the Government of Tamil Nadu (GoTN) supported by a Program-for-Results (PforR) financing instrument of the World Bank.¹ Following the requirements of the World Bank PforR Policy, these rely on country-level systems for the management of environmental and social effects.² ESSA Team assessed the extent to which the Program's environmental and social management systems are consistent with six-core environmental and social principles (hereafter *Core Principles*) contained in the PforR Policy and corresponding Key Planning Elements.

2. This ESSA Report is organized into seven Chapters introducing the Program, Purpose, Objectives of ESSA, Description of Environmental and Social Characteristics of the Program Region, Potential Environmental and Social Effects, Assessment of Environmental and Social Management Systems, and Implementation Capacity based on PforR Policy of the Bank and its Core Principles; Environmental and Social Inputs to the Program Action Plan, and Details on Consultation and Disclosure.

The Government program ('p')

3. To support the achievement of WSS sector targets in the Urban Vision 2031, the GoTN has set up a program (the program) with a total estimated budget of US\$2.15 billion aiming to provide universal access to WSS services in all major ULBs, including 21 municipal corporations and 138 municipalities. Objectives of the program are aligned with the Urban Vision 2031 and GoI missions AMRUT and SBM, including: (i) water tap connections to all households; (ii) rejuvenation of water bodies and wells, and recycling and reuse of treated used water; (iii) rainwater harvesting; (iv) scientific management of wastewater and having all used water, including faecal sludge, be safely contained, transported, processed and disposed; and (v) creation of green spaces. The GoTN program also emphasizes a shift in urban governance approach to promote citizen-friendly and transparent urban services.

Bank Financed PforR ('P') Scope, Objectives, and Key Results Areas

4. The proposed PforR Program ('P', the Program) will support a subset of the Government program in a subset of 21 ULBs, for six years between 2024 and 2029.

5. Financing. The overall government program ("p") is US\$2.15 billion. The World Bank (IBRD) will finance US\$279 million (or 35 percent) of the PforR ("P"). Apart from the PforR, there is an IPF-TA component for US\$30 million which is funded by US\$21 million from IBRD and US\$9 million from GoTN.

1 It is complemented by an Investment Project Financing (IPF) component focusing on technical assistance (TA) and capacity building, whose environmental and social effects will be managed by applying the World Bank's Environmental and Social Framework.

2 "Effects" is used throughout this document to refer collectively to benefits, impacts, and risks. The term "benefits" refers to positive consequences and the term "impacts" refer to adverse or negative consequences of actions taken. Risk is used to denote the potential for loss or damage of something of environmental and social value. Risk is typically expressed in terms of probability and severity of consequences occurring in the future.

Overall, the Program's annual allocation to the 21 participating ULBs represents on average about 55 percent of their total revenue budgeted for 2022-23, which is substantial to catalyze reforms.

Program Boundaries of the PforR Operation

6. The PDO of the Program is to improve access to climate-resilient urban services and to strengthen urban governance in participating Urban Local Bodies.

7. The Program focuses on both broader ULB-level institutional strengthening (results area 1 [RA1]) and improving WSS service delivery (results area 2 [RA2]). The Program recognizes that universal, climate resilient, and efficient service delivery faces constraints at two levels: (a) individual services are delivered with a focus on infrastructure construction, with a limited quality and sustainability orientation; and (b) the overall municipal administration system faces cross-cutting capacity and policy constraints, including weak orientation toward climate resilience. Various activities directly/indirectly under the Program to support the achievement of DLIs and RAs include GIS mapping, improving e-governance, improving institutional capacities including field teams, implementation of 3 subprojects under City Climate Action Plans (energy efficiency. Energy audit of municipal assets – streetlighting, municipal assets and WSS assets. Public green spaces), reduction in energy consumption and development of green spaces/municipal parks, pooled municipal bonds for ULBs, installing and operationalizing water and sewerage connections connected to a functioning STP that meets required effluent disposal standards, establish and operate a WSS quality surveillance program at city level by Year-3 and disclose the results publicly at least once every quarter, performance orientation, leakage reduction, energy conservation, and optimal use of existing assets, aiming to enable a shift from asset building to operational efficiency while also supporting climate adaptation and mitigation.

Program Implementation Arrangements

8. The Program's institutional framework will rely on the state's existing institutions that comprise a two-tier government system of state-level and ULB-level institutions. At the state level, TNUISL and DMA will be the nodal implementing agencies (IAs). At the ULB level, municipal commissioners and engineers will be responsible for implementing Program activities and achieving the required results, under the supervision and monitoring of state-level agencies. A Steering Committee has been established in GoTN to provide oversight, strategic guidance, and policy direction for major infrastructure projects in WSS and Urban sectors including the Program.

Environmental and Social Systems Assessment

ESSA methodology

9. The ESSA was carried out through a combination of on-site visits with direct consultations with the stakeholders, and desk-based exercises with virtual interactions/consultations. It included a review of the completed and ongoing AMRUT & SBM program works, and borrower's systems including policies, guidelines, regulations, standards, and procedures including the Environmental and Social Management Framework for the earlier TNSUDP which the borrower uses for all Externally aided projects, and DPRs and ESAs under preparation for TNCRUDP. ULBs in various physical regions of TN were covered by site visits and utilizing the possibility of virtual platforms. The ESSA team also ensured consultations were evenly spread across the hierarchy of institutions involved, including State level agencies, District level officials, ULB public representatives, ULB Officials and Engineers, and the communities. The team reviewed the capacity of existing systems at the state, district, and ULB levels to plan and implement effective measures for the environmental and social management of the Program and determine if any additional measures are required to strengthen it to manage risks and enhance benefits.

10. The ESSA specifically delved into systems and institutional capacities (planning, implementation, monitoring) for a) environmental due-diligence of the proposed interventions in various ULBs across the State; b) regulations and monitoring; and incorporation of screening for potential risks, alternative analysis, feasibility, design, implementation, and operations; and (c) process followed for multi-party virtual stakeholder consultations at the state and district level and interactions of program agencies with ULB representatives and communities.

Summary of Environmental and Social Risks and Impacts of the PforR

11. The ESSA included a detailed assessment of environmental risks and impacts of the RAs and interventions related to the DLIs proposed in the PforR. The assessment concluded the following:

- The Program is most beneficial to the growing ULBs towards rendering them resilient to climate risks through ensuring access to water and sanitation services, greening, and resource efficiency. Activities include Water and Sewerage Treatment facilities, and networks in multiple ULBs of TN, the greening of cities and towns, and activities to improve energy efficiency in municipal buildings/assets, in addition to the purchase of goods including computer hardware and support to multiple studies/technical assistance activities. The activities to be supported by the Program are likely to provide environmental benefits such as (i) Improved water supply and sanitation; (ii) resource efficiency /energy efficient equipment in WSS, Street lighting, and municipal assets, (iii) environmental enhancements including greening of the urban space, all contributing to the overall betterment of living conditions in ULBs and better environmental performance in the region.
- The Program will improve the urban services and infrastructure of 21 ULBs of TN, leading to substantial environmental benefits. ESSA assessed the overall risk rating for environmental aspects as 'Substantial' considering the possible pollution impacts and risks of disposal of untreated/suboptimally treated sewage and sludge (from STPs, and minimal from WTPs) into the environment (pollution and health implications) during implementation and operations with the (i) practice of bypass of untreated sewage from Pumping stations / STPs during rains, floods, cyclones, or O&M issues with STPs, (ii) disposal or distribution of sludge to the farmers without monitoring its quality (as consent conditions do not ask to monitor the same), (iii) performance and capacity of small contractors who would operate these small STPs,, and (iv) week monitoring of pollution by regulatory agencies. Such risks shall be screened, assessed, and managed, by following specific design and technology, environmental guidelines, and monitoring for instance the sludge will not be directly distributed to farmers without extended drying and monitoring. In addition, there may be moderate environmental, health, and safety impacts associated with the laying of networks, water quality (*existing pollution, or that contributed by other nearby/upstream activities*) and availability issues, and all other program activities including greening of open spaces and energy efficiency measures. These may be temporary in nature and require appropriate designs and mitigation measures to manage any potential adverse risks and impacts. Environmental risks of the program can be managed/mitigated by: (i) careful screening to avoid sensitive receptors and direct, indirect cumulative pollution and safety risks; (ii) improved capacities to design based on regulations, standards, and guidelines; (iii) E&S management plans and implementation following Regulations/consent conditions and guidance detailed in Environmental Guidance Section of Program Operations Manual; and (iv) strengthening the institutional supervision, awareness, and monitoring mechanisms.

12. Key **social risks** of the program interventions are –

- Inadequate citizen's involvement / participation in program planning, design, implementation and O&M
- Exclusion of sections of population living in non-notified slums in and around the administrative jurisdiction of the ULBs from receiving program benefits

- Involuntary resettlement of non-title holders occupying land on which physical assets envisaged under the program will be constructed without adequate remedies being provided for
- Temporary adverse economic and / or livelihood impacts on businesses and individuals during the implementation phase of the project

The likely social risks are site specific, limited in scope and scale and can be managed at the ULB level itself through proper social risk management planning and communication and outreach activities across the planning, implementation and O&M phases of the project.

Findings from the Analysis of Applicable E&S Systems: Policy, Legal and Regulatory Framework Governing the Program

13. ***Assessment and Management of Environmental Risks and Impacts:*** *National/State systems or regulations are not in place to screen, avoid, assess, mitigate, or manage environmental risks and impacts of the type of activities envisaged (STPs, WTPs, Greening the public spaces, solar interventions unless these are part of large building construction projects or area development projects; which is not the case here). Hence ongoing programs neither follow this mechanism nor do they have capacities or systems for managing these.* Hence it is recommended that to manage the environmental risks associated with the proposed Program, *TNUJFSL, and DMA shall follow Environment Guidelines in the Program Operations Manual. Environmental assessment shall include impacts on biodiversity, pollution prevention, linked facilities, possible use of contaminated land, and vulnerability of water sources to prevailing or possible contamination, climate impacts, and increased peri-urban development.*

14. ***National/State Regulations for minimizing pollution:*** Pollution and H&S standards and guidelines applicable to the Program shall be agreed, upon and compliance ensured by Program agencies. ***A) Disposal of Treated Sewage:*** At the National level, the disposal standards for treated sewage prescribed by the Ministry of Environment, Forest and Climate Change (MOEFCC) and National Green Tribunal (NGT) (more stringent) are different for cities of less than 1 million population³. Refer to standards prescribed by National/State regulators in ***Annexure I***. TNPCB - the regulator in the State follows the MoEFCC standards for Mega and metropolitan cities (same as NGT's suggestion), but less stringent disposal standards for smaller cities (less than 1 million; which is the case with all ULBs where STPs are proposed under the Program) thus leaving room for interpretation of standards to be followed. The Program shall (i) ensure that the disposal of treated sewage shall always follow the Consent Conditions of TNPCB, with an agreement ensure resources to upgrade STPs to meet the standards as required (when TNPCB/NGT advice higher standards or go for technologies which meet higher standards), (ii) encourage ULBs for maximum reuse of treated sewage in line with the existing policy. ***(B) Disposal of sludge:*** The standards for the disposal of sludge from WTP/STPs in India are yet to be prescribed by MoEFCC. Various quality standards are prescribed by National institutions, and agencies. Consent Conditions of TNPCB do not suggest the quality of sludge. Heavy metal contents suggested in Design Guidelines (CPHEEO) would help achieve those prescribed by international bodies for these parameters, but Faecal Coliforms, Helminth Ova, Salmonella etc. are not considered for designing sludge treatment/storage or disposal. In either case, consent conditions do not suggest monitoring of sludge quality. The quality of sludge from WTPs and STPs is not monitored and often ends up in agriculture fields of nearby regions/villages or pollute nearby waterbodies and low-lying lands. Fertilizer Control Order 1985 and its amendments of the Government of India are yet to prescribe standards for city compost from sewage sludge. Hence, the Program shall guide and invest to manage WTP and STP sludge appropriately complying with the relevant guidance on its treatment, disposal, and monitoring in the Program's Environmental Guidance Section of the Program Operations Manual. For example, the environmental guidance would guide ULBs to assess

³ Mega-Metropolitan Cities have a population of more than 1 crore, a Metropolitan Cities-Population more than 10 Lakhs, and Class-1 population of more than 1 Lakh.

the impacts and risks of all products, and byproducts and adopt environmentally appropriate sludge management options by adopting technologies and all available facilities where sludge can be used/reused in the ULBs, in line with applicable local regulations or draw upon global regulations for end use and improved technologies to ensure ‘no harm to environment or people’⁴ – for instance drying of treated sludge at STPs and then subjecting to further treatment, drying, longer days of storage, co-composting etc. for various end uses (as per the condition in each ULB) causing no harm to environment. A study and capacity building on Environmentally appropriate sludge management is also proposed.

15. ***National/State Regulations on Occupational Health and Safety (contamination and safety):*** The Program shall ensure through design that the need for manual scavenging shall not arise by ensuring machine holes and employing mechanical means. A study and capacity building on implementing the Manual Scavenging Act is also proposed. Usage of banned chemicals, pesticides, and exotic species needs to be curtailed; and monitored.

16. Design review following the Environmental Guidelines, including required clauses in Bid Documents, construction supervision including OHS, enforcing regulations, and monitoring and reporting on pollution and OHS are hence very important in all program activities including those for prior results. Use of Environmental Guidelines for the Program and adherence to regulations shall be verified by third party / independent Environmental Audit process.

17. However, one of the risks here is the higher cost of developing/upgrading facilities conforming to NGT standards for treated sewage after constructing the facilities, and sludge confirming the quality standards for end use. This is important, as the cost ULBs incur currently is meager for disposing of untreated/ suboptimal quality treated sewage and bypassed sewage into the environment and dumping all wastes and sludge from STPs, and WTPs in open land, low-lying land, water bodies/drains, or in dumping yards or SWM facilities. New systems which are more resource efficient, promoting a circular economy, and with end-to-end management and reuse of all products (TN has the policy to reuse treated sewage) and byproducts to negate environmental risks and impacts are quintessential for the Program to align with PforR Financing requirements and accordingly, it is proposed to send treated dry sludge from STP for further drying and monitoring before sent for various end uses.

18. The national laws, policies, and regulations governing the likely social risks relevant to the program are adequate to guide social risk management for the program.

19. While most of the State laws, policies, and regulations governing the likely social risks relevant to the program are also adequate, it is to be noted that the State laws related to land acquisition do not recognize the rights of non-titleholders and provide remedies to non-titleholders in case of involuntary resettlement. The State laws also do not provide for remedies to people who might suffer temporary economic / livelihood losses on account of public works carried out by the State government.

Findings from Analysis of Institutional Arrangements for Implementing the PforR and Managing E&S Risks

20. The analysis of institutional arrangements for the PforR and the key implementing agencies’ capacities for managing the environmental risks applicable to the Program reveals that the key implementing agency namely, the TNUISL has good capacities and systems for Environmental management built over decades of implementing the World Bank-supported projects following the

4 while Indian National standards take care of heavy metal contents in sludge, Faecal Coliforms, Helminth Ova, Salmonella sp. and others need more drying, addition of lime, and other treatment mechanisms, as in the case of unrestricted use of sludge manure by World Health Organisation, US Environmental Protection Agency or the Recommendation of Consortium of 7 Indian Institute of Technology (IIT) on National Ganga River Basin Authority (NGRBA) Environment Management Plan (GRB EMP) by the MOEFCC, GOI, New Delhi on Sludge Management -- to ensure no harm to the environment and people

Safeguards Policies; while DMA shall strengthen capacities at State and regional levels, and ULBs shall specifically have dedicated capacities to manage the environmental risks relevant to the program. If required, these capacities can be strengthened through the appointment of environmental experts and Health and Safety experts on a need basis through recruitment or designation. Adequate capacity building on pollution and health and safety management shall be ensured as part of the program.

21. TNUIFSL has a qualified, experienced, and competent senior social development specialist with the required qualifications, experience, and skills to manage/guide the management of the social risks and impacts of the program. However, DMA and the ULBs do not have the human resources, capacities, or systems for managing the social risks and impacts of the program.

Findings from Assessment of Program System Consistency with Core Principles of Bank's PforR Financing

22. The ESSA assessed program system consistency with the six core principles of ESSA. The broad summary of the assessment is as follows:

Core Principle #1 (Adequacy and Appropriateness of the Program's E&S Management Systems)

–

- The program's environmental and social management procedures do not *explicitly* follow the avoid-minimize-mitigate-compensate or offset E&S risk mitigation hierarchy.
- There exists (a) regulatory ambiguity in quality standards to be followed for the disposal of treated sewage into rivers and lack of continuous monitoring, and (b) a regulatory gap in the quality of sewage sludge from STPs disposed or provided to farmers in the region (outside ULBs). The Program will ensure STPs supported by the Program always follows TNPCB consent conditions or better standards; and ensure upgrading of STPs when TNPCB adopts NGT / more stringent standards for treated sewage disposal. Detailed Project Reports (DPRs) for investments would assess the sludge quality and reuse of sludge (quantities are expected to be less, as 8 STPs proposed in the Program are less than 20 MLD, while one is 30 MLD) need to treat and dispose sludge from WTP, and STPs; and while Indian National standards take care of heavy metal contents in sludge; Faecal Coliforms, Helminth Ova, Salmonella sp. and others (not addressed by national regulations) need more drying (hence filter press after centrifuge at STPs is proposed for dry sludge), addition of lime, and other treatment mechanisms, to reach better standards to do no harm to the environment and people. A study on sludge qualities for various end uses is proposed as part of the Program.
- Barring TNUIFSL, the two key entities responsible for planning and implementation of the program – viz. DMA and the participating ULBs – need to upgrade (skilled) human resources, systems, capacities to manage the likely E&S risks and impacts of the program. DMA has Environmental Expert at State level and shall designate (from existing pool) engineers at State & in ULBs on Environmental aspects; and train all officers on Environmental regulations and implementation. Project Management Consultants shall have required expertise on Pollution, Biodiversity and Cultural Heritage

Core Principle #2 (Impacts on Natural Habitats, Physical and Cultural Resources) –

- To the extent known and identified, if there are any potential adverse impacts of project activities and/or interventions on recognized physical cultural property, these activities and/or interventions are avoided.
- There are no formal procedure or guideline that mandates project proponents to follow the mitigation hierarchy principle in the management of risks on natural habitats, physical and cultural property except critical habitats and biodiversity hotspots and recognized physical and

cultural properties covered under National / State regulations. The program shall adopt exclusions to avoid impacts and risks on non-recognized habitats and cultural properties.

Core Principle #3 (Protection of Public and Worker Safety) –

- National and state laws governing public and workers' safety, prevention of child and forced labour, etc. are robust and adequate.
- Program implementing agencies lack the required resources and skills to ensure that contractors engaged in implementing the program activities comply with the laws in letter and spirit.

Core Principle #4 (Management of Land Acquisition, Loss of Access to Natural Resources and Involuntary Resettlement) –

- The National law governing land acquisition and resettlement and rehabilitation (RFCTLARR 2013) is fairly robust and adequate for the management of land acquisition and involuntary resettlement.
- State laws on land acquisition do not recognize the rights of non-titleholders occupying public lands or provide relief and / or remedies to people who are likely to suffer temporary economic / livelihood losses on account of program activities.
- To address the gap between the state laws and requirements under Core Principle #4, GoTN has committed to avoiding any program activity that would require land acquisition or entail involuntary resettlement from the project. These issues will be ascertained using a robust exclusion list and screening checklist.

Core Principle #5 (Cultural Appropriateness, Equitable Access to Program Benefits, Rights of Tribal and Underserved Communities) –

- The program is well entrenched within the social and cultural ethos of the state and, to the extent possible, aims to provide equitable access to program benefits to all sections of the population living within the defined administrative boundaries of the ULBs in which the program will be implemented.
- People living in areas that are immediately adjacent to the administrative boundaries of the ULBs or in hard-to-reach areas within the administrative boundaries may not benefit as much as others from the program and the program will have to devise ways to ensure equity of access to program benefits for such pockets of populations.
- The rights of tribal and underserved communities are not adversely impacted on account of any program activity.

Core Principle #6 (Avoidance of Social Conflict) –

- The program is not being implemented in areas of recognized fragility or in conflict / post conflict zones or areas subject to territorial disputes.
- It is unlikely that the program would contribute to underlying tensions or social strife.

Inputs to the Program Action Plan (PAP)

23. The Program must develop and follow a sustainable infrastructure design incorporating the end-to-end approach for all program activities thus preventing pollution and safety risks; including compounded risks during climate hazards. This shall apply also to prior results as well. The program shall develop and follow exclusions to avoid High-risk activities. The program shall follow either (i) the existing mechanism at TNUIFSL for EAPs to ensure screening and planning to avoid and/or mitigate impacts arising out of construction and operations; or (ii) or develop and use mechanisms for screening, assessing, mitigating,

and monitoring environmental risks and impacts. There shall be an Environmental Guidance developed and followed for the Design and EIA of the Program. For all program interventions, comprehensive program planning based on phasing, contingency plans, and emergency response mechanisms to support activities in case of unforeseen circumstances are essential.

24. The following activities will be excluded from the program (also for prior results⁵) because of the high environmental risk:

| | | | |
|--|---|--|--|
| Exclusions: (also applicable for Prior Results) in addition to all activities excluded by Regulations, and as per Bank's P for R policy (as in Bank's PforR Guidance Manual). | | | |
| 1. | Upgradation / Rehabilitation or repairs to existing STPs or WTPs without filling the gaps to align with applicable regulations/consent conditions of TNPCB, and (b) Construction of single STPs of capacity more than [50] MLD | | |
| 2. | Laying, redevelopment, upgradation, or operation of any sewerage networks (including mains, pipes, pumping stations, lift stations, etc.) and/or providing house service connections before/without connecting the network to a functional Sewage Treatment Plant with Consent from TNPCB | | |
| 3. | Water Supply without proper treatment to ensure quality as required by country regulations/standards and to prevent any health impacts | | |
| 4. | Construction and Operation of any Solid Waste Management Facilities | | |

25. The screening will determine the environmental sensitivities of each Program activity. Part 1 of the Screening checklist should be developed carefully to confirm the exclusions; as the P for R excludes High Risk activities. Only if the activity is not excluded, it shall proceed to the next stage of screening. ⁶

26. It is recommended to improve capacities for Environmental Management at all levels, during preparation and Implementation. introduce regular supervision and monitoring mechanisms. Construction supervision consultants shall also be mandated to identify risks and hazards, train and supervise all construction packages and report on OHS and incidents. There shall be an Environmental Audit to report on EHS aspects including screening and assessment of environmental risks. There shall be an appropriate work-close-out procedure, covering all aspects of the sustainability related to each program activity with a footprint.

27. Program Action Plan on the Environmental and Social Aspects are presented in the following **Tables A and B**:

Table A: Program Action Plan on Environmental Aspects

| Action Description | Responsibility | Timing | Completion Measurement |
|--|----------------|---|--|
| Screen, and assess environmental impacts of Program Activities, implement Environmental Management & Monitoring Plan (real-time monitoring & linking to TN Urban Tree) guided by the Environmental | TNUISL, DMA | Environmental Guidance is prepared and agreed upon as part of the Operations Manual before signing of Contracts for interventions and followed for all Program Activities | Confirmation by Annual Environmental Audit that Program activities followed the systems developed as in ESSA |

⁵ All Program activities including those considered for prior results shall follow these Exclusions

⁶ Since TNUDP and TNSUDP were Category A IPFs, the screening checklist did not have exclusion criteria for high-risk activities. This operation being a P for R requires to exclude High-Risk interventions which are not supported by P for R, and hence Screening Checklist shall be updated with Exclusions and Climate Screening

| Guidance Section of the Program Operations Manual | | | |
|---|--------------------|---|--|
| Develop Environmental management capacities at Program agencies including training and guidance to support the prevention of Manual Scavenging | TNUIFSL, DMA, ULBs | Develop before initiation of Program activities and continued throughout Program Implementation | Confirmation on Environmental management capacities, support activities including support to prevention of Manual Scavenging (refer ESSA) as part of Annual Environmental Audits |

Table B: Program Action Plan on Social Aspects

| Sl. No. | Action Description | Responsibility | Timing | Completion Measurement |
|----------------|--|---|---|---|
| 1. | Ensure: (a) All DPRs identify social risks using the screening checklist provided as an Annexure in the ESSA, (b) All DPRs follow the 'Avoid-Minimize-Mitigate-Offset' risk mitigation hierarchy to address identified social risks (c) Bid Documents have adequate resources provisioned for the management of identified social risks, (d) Contracts clearly specify contractors' responsibilities and liabilities w.r.t management of social risks and impacts, (e) Contractors' responsibilities w.r.t. management of social risks and impacts are rigorously monitored by PIUs and PMU | ULBs, TNUIFSL and DMA | Before signing of contracts for implementation (for (a), (b), (c) and (d)) Throughout project construction and O&M phases of the project | DPRs, Bid Documents, Contract Agreement (for (a), (b), (c) and (d)) Contractor's progress reports (monthly, quarterly, annual) |
| 2. | Develop a comprehensive Stakeholder Engagement Strategy and Action Plan – including an action plan for improving poor and marginalized sections of the population's access to the established grievance redressal system - and implement the same through the project period | TNUIFSL and DMA (with inputs from ULBs) | Within 2 months of Program effectiveness Implemented throughout project period | Stakeholder Engagement Strategy Action Plan to implement Stakeholder Engagement Strategy Action plan for strengthening and improving access to GRM Monthly reports from ULBs indicating no. of grievances received, mode of receipt, no. of grievances resolved, complainants' feedback. |

| Sl. No. | Action Description | Responsibility | Timing | Completion Measurement |
|----------------|--|---|---|--|
| | | | | Quarterly progress reports |
| 3. | Mainstream mechanisms to independently gauge citizens satisfaction on services provided by the ULBs and use feedback received for improvements in service delivery | ULBs (with inputs from DMA and TNUIFSL) | Within 6 months of Program effectiveness Implemented throughout project implementation period | Action Plan document Annual / bi-annual Citizen's Scorecards or Citizen's Satisfaction Reports |

Recommendations for Implementation Support

28. The Bank's implementation support should focus on building the environmental management capacity of program agencies through: (a) providing ToRs for Environmental Cells in various agencies – to hire environmental staff, (b) guiding the preparation of the Environmental Guidance Manual, & setting up systems and procedures for screening, monitoring, and reporting on environmental effects under the program; (c) ToRs for Annual Third Party Environmental Audit to track the overall performance of the program on environmental risks management, and (d) guidance for the awareness and competence building on environmental issues at all levels.

Disclosure and Consultations

29. The team undertook consultations at the state, district, and ULBs (during the development of the instrument) with relevant stakeholders including institutions, government departments, voluntary organizations, and communities. The draft ESSA and its executive summary translated to the local language: Tamil; were disclosed on TNUIFSL and DMA websites in August **2023**, to enable its wider reading before consultations held on September 22, 2023. Final ESSA will also be disclosed in-country and on the World Bank's external website before negotiations, after incorporating the comments and suggestions that emerged from reviews and consultations.

Way Forward

30. The Program shall ensure that Environmental Guidance is ready by the start of program activities, to guide all Program activities. All Program activities including those that shall be considered for 'prior results' shall follow the Design guidelines, Exclusions, Screening, and mitigation measures. EMP and Pollution management & Health and safety requirements and capacities to manage EHS in contracts shall be included in Bid documents. Adequate resources shall be ensured for the timely and effective implementation of environmental and social measures. The key recommendations are made as part of the Program Action Plan.

1 INTRODUCTION TO THE PROGRAM

1.1 Country and State Context

1. India's growth is expected to moderate in FY23/24 to 6.3 percent, from an estimated 6.9 percent in FY22/23, due to easing consumption growth and global growth spillovers. The country has made remarkable progress in reducing extreme poverty over the past two decades, and experienced rapid urbanization over the last four decades, which is expected to increase at a faster rate in coming decades, with limited improvement in urban infrastructure, green cover, or sustainable resource use while the climate-related hazards are increasing. Due to the growing urbanization, the urban local bodies (ULBs) are expected to play a significant role as economic engines and require dedicated efforts and capacities to upgrade basic services. Tamil Nadu is one of the most urbanized and economically developed States in India; with high priority for urban development and improved services pioneering in initiatives to address related challenges. The Bank has partnered with the Government of Tamil Nadu (GoTN) in its efforts to address development challenges in the urban sector through a series of urban development projects.

1.2 Sectoral and Institutional Context

2. Urbanization in TN is widely dispersed and encompasses 649 ULBs, including 21 municipal corporations, 138 municipalities, and 490 town panchayats. While there is relatively good coverage of urban infrastructure in the bigger ULBs, access to infrastructure and services, green spaces, water, and energy conservation, is limited in smaller ULBs, thus affecting the quality of life for their residents. This is true in terms of quality, coverage, resilience, and sustainability of infrastructure. To address the fast-growing demand for urban services in a sustainable and resource-efficient manner, the GoTN, led by the Municipal Administration and Water Supply Department (MAWS), has formulated the Urban Vision 2031 to achieve universal access to basic infrastructure and services in all ULBs aligning its investments with several national flagship urban programs and SDGs.

1.3 Government Program

3. To support the achievement of WSS sector targets in the Urban Vision 2031, the GoTN has set up a program (the program) with a total estimated budget of US\$2.15 billion⁷ aiming to provide universal access to WSS services in all major ULBs, including 21 municipal corporations and 138 municipalities. Objectives of the program are aligned with the Urban Vision 2031 and GoI missions AMRUT and SBM, including: (i) water tap connections to all households; (ii) rejuvenation of water bodies and wells, and recycling and reuse of treated used water; (iii) rainwater harvesting; (iv) scientific management of wastewater and having all used water, including faecal sludge, be safely contained, transported, processed and disposed; and (v) creation of green spaces. The GoTN program also emphasizes a shift in urban governance approach to promote citizen-friendly and transparent urban services.

1.4 Bank Financed PforR: Scope

4. **The proposed PforR Program ('P', the Program) will support a subset of the Government program** in a subset of ULBs. The boundaries of the Program are defined as follows:

- (a) **Duration.** The Program will be implemented over a period of six years between 2024 and 2029.
- (b) **Selection of participating ULBs.** A total of 21 municipal corporations and municipalities will be supported by the Program. Selection of the ULBs was based on WSS service provision gaps, vulnerability to climate change impacts, and a need for capacity support (especially for those recently upgraded as municipalities), GoTN's overall financing strategy, and exclusions applicable under World Bank PforR policies.

⁷ Funding sources include state budget, ULBs' own resources, as well as GoI grants from AMRUT and SBM.

Table 1: Alignment of the Program with the Government program

| | Government program | Program |
|----------------------------|--|---|
| <i>Objective</i> | To provide a clean and green environment, quality basic amenities, and vibrant public spaces; induce economic growth; and generate employment and mitigate poverty | To strengthen urban management and improve access to efficient and climate resilient urban WSS services in participating ULBs in Tamil Nadu |
| <i>Duration</i> | 2024–2031 | 2024–2030 |
| <i>Geographic coverage</i> | 158 municipal corporations and municipalities | 21 municipal corporations and municipalities in the state, excluding Chennai |
| <i>Focus areas</i> | Covering urban governance, WSS, and environmental improvement including restoration of water bodies and green spaces | Focusing mainly on urban governance, WSS, energy efficiency for municipal assets and green spaces |
| <i>Overall Financing</i> | US\$2.15 billion | US\$808.19 million |

1.5 Program Financing

5. The overall government program (“p”) is US\$2.15 billion. The World Bank (IBRD) will finance US\$279 million (or 35 percent) of the PforR (“P”). Apart from the PforR, there is an IPF-TA component for US\$30 million which is funded by US\$21 million from IBRD and US\$9 million from GoTN.

1.6 Program Development Objective(s)

6. The PDO of the Program is **to strengthen urban management and improve access to efficient and climate-resilient urban water and sanitation services in participating ULBs in Tamil Nadu.**

7. The PDO level outcome indicators are:

- People provided with access to functional WSS services (Number)
- ULBs with cost recovery of O&M expenses (through tariffs) above 90 percent in WSS services (Number)
- ULBs with adoption of CCAP including water security and emergency preparedness plans (Number)
- ULBs with OSR increase above 60 percent compared to baseline (Number)
- ULBs with institutional performance indicator score above 60 points out of 100 (Number)

1.7 Result Areas and PDO Level Outcome Indicators

Table 2: Snapshot of Result Areas, DLIs, and Fund Allocation for the Program

| Results Area | Responsible Agency | Disbursement Linked Indicators (DLI) | Allocated Amount (US\$, Millions) |
|--|--------------------|--|-----------------------------------|
| Results Area 1: Strengthening urban management, institutional framework and climate resilience | DMA (DLI 1-5) | DLI 1: Mobilizing OSR | 28.5 |
| | | DLI 2: Enhancing capacity for climate resilience planning | 5.6 |
| | TNUIFSL (DLI 6) | DLI 3 : Improving city-level climate resilience | 13.9 |
| | | DLI 4 : Improving fundamental institutional capacity | 13.9 |
| | | DLI 5 : Strengthening institutional capacity to manage resources in a sustainable, participatory, and transparent manner | 20.1 |
| | | DLI 6: Increasing ULB access to financial market | 4.0 |
| Result Area 2: Improving accessibility, climate resilience and efficiency of urban WSS Services | TNUIFSL | DLI 7: Delivering functional water and sewerage connections | 139.5 |
| | | DLI 8: Improving enabling environment for sustainable and climate resilient WSS services | 20.6 |
| | | DLI 9: Delivering operational, climate and financial efficiency of WSS services | 33.5 |
| Total | | | 279.0 |

8. The Program focuses on both broader ULB-level institutional strengthening (results area 1 [RA1]) and improving WSS service delivery (results area 2 [RA2]). The Program recognizes that universal, climate resilient, and efficient service delivery faces constraints at two levels: (a) individual services are delivered with a focus on infrastructure construction, with a limited quality and sustainability orientation; and (b) the overall municipal administration system faces cross-cutting capacity and policy constraints, including weak orientation toward climate resilience.

9. Various activities directly/indirectly under the Program to support the achievement of DLIs and RAs include GIS mapping, improving e-governance, improving institutional capacities including field teams, implementation of 3 subprojects under City Climate Action Plans (Energy audit of municipal assets – streetlighting, municipal assets and WSS assets. Public green spaces), reduction in energy consumption and development of green spaces/municipal parks, pooled municipal bonds for ULBs, installing and operationalizing water and sewerage connections connected to a functioning STP that meets required effluent disposal standards, establish and operate a WSS quality surveillance program at city level by Year-3 and disclose the results publicly at least once every quarter, performance orientation, leakage reduction, energy conservation, and optimal use of existing assets, aiming to enable a shift from asset building to operational efficiency while also supporting climate adaptation and mitigation.

DLI 1: conducting GIS mapping to increase property assessment, improving e-governance, and deploying field team to increase collection

DLI2: Under DLI 2, ULBs are expected to adopt the CCAPs, allocate 5 percent of their capital budget for at least three sub-projects identified in CCAP, and initiate implementation measures identified in the CCAPs. CCAP will also look at energy efficiency, and energy audit of municipal assets including street lighting, municipal buildings and WSS assets, and public green spaces. The IPF TA component will support ULBs to develop CCAPs, which will follow standardized guidelines to be issued by DMA.

DLI 3: reduction in energy consumption and development of green spaces / municipal parks

DLIs 4 and 5 aim to systematically strengthen participating ULBs' capacities for the management of resources and engaging with citizens for better service delivery

DLI 6: issuing pooled municipal bonds for the smaller ULBs; and (ii) larger ULBs to issue stand-alone municipal bonds. In both cases, an attempt will be made for these to be 'green' municipal bonds as per SEBI definition.

DLI 7: Delivering functional water and sanitation connections: incentives to install and operationalize functional household tap connections (FHTCs) and household sewerage connections - city-wide water improvement covering 70 percent of the city that deliver a minimum of four hours of supply every day, establish 24/7 water supply demonstration zones (metered) to encourage water conservation and financial sustainability, and provide household sewerage connections connected to a functioning STP that meets required effluent disposal standards.

DLI 8: ensure attention to WSS service quality and financial efficiency. As part of the Program Action Plan ULBs are expected to establish and operate a WSS quality surveillance program at the city level by Year-3 and disclose the results publicly at least once every quarter. In addition under this DLI, improve O&M cost recovery levels through tariffs.

DLI 9: Delivering operational, climate, and financial efficiency of WSS services. This DLI focuses on performance orientation, leakage reduction, energy conservation, and optimal use of existing assets, aiming to enable a shift from asset building to operational efficiency while also supporting climate adaptation and mitigation.

1.8 Expenditure Framework

10. The Program's expenditure includes GoTN and ULB investments and O&M in WSS services, green space, energy efficiency of municipal assets as well as Program management. The identified expenditure items will provide financing to the ULBs for undertaking project-specific investments, ULB level reforms, and institutional development activities that are critical to improving the service levels and overall performance of ULBs.

1.9 Program Implementation Arrangements

11. The Program's institutional framework will rely on the state's existing institutions that comprise a two-tier government system of state-level and ULB-level institutions. At the state level, TNUIFSL and DMA will be the nodal implementing agencies (IAs). At the ULB level, municipal commissioners and engineers will be responsible for implementing Program activities and achieving the required results, under the supervision and monitoring of state-level agencies. A Steering Committee has been established in GoTN to provide oversight, strategic guidance, and policy direction for major infrastructure projects in WSS and Urban sectors including the Program.

1.10 The organization of ESSA Report

12. This report is the ESSA for TNCRUDP Program and discusses the assessment of E&S systems and capacities for the Program. The report is organized into seven Chapters, as follows:

- **Chapter 1: Introduction to the Program:** presenting the overall program context and the details of the Governments program this program would support scope, and result areas of the Bank-financed P4R, the program implementation arrangements, and identification of E&S effects of program activities,
- **Chapter 2: Purpose and Objectives of ESSA** introduces the ESSA and its methodology,
- **Chapter 3: Environmental and Social Characteristics of the Program Region** provides an overview of the Environmental and Social characteristics of the region where program activities will be implemented and set the background for E&S analysis,
- **Chapter 4: Potential Environmental and Social Effects discusses Result Area (RA) wise Environmental Effects** (Benefits, Risks, and Opportunities to manage these),
- **Chapter 5: Assessment of Environmental and Social Management Systems and Implementation Capacity** discusses the guidance on E&S management for PforR Financing of the Bank, discusses the systems, regulatory aspects, gaps, and proposed actions to bridge the gaps through a systematic description of E&S effects to be considered as part of each of the ESSA 6 core principles namely; Environmental and Social Management, Natural Habitats, and Cultural Resources, Public and Worker Safety, Land Acquisition, Indigenous Peoples and Vulnerable Groups; and Social Conflict. It presents an assessment of the adequacy and consistency of the program's environmental and social management systems and related implementation capacity against the Core Principles and Key Planning Elements,
- **Chapter 6:** presents the **Environmental and Social Inputs to the Program Action Plan** for mitigating impacts and risks and enhancing environmental & social benefits and overall E&S management. This section lists the actions that the ESSA Team recommends be undertaken to address the system and capacity gaps and shortcomings identified in Section 5, which are grouped into two categories: (a) those that have been mainstreamed into program design and (b) those that are to be included in the Program Action Plan,
- **Chapter 7:** is on **Consultation and Disclosure** and describes the key formal and informal consultations undertaken as part of the ESSA process, important input and recommendations received, and how and when the ESSA was disclosed.

2 OBJECTIVES AND METHODOLOGY OF ESSA

2.1 Introduction to ESSA

1. As discussed in Section 1.1, since the program is supported by the World Bank's PforR financing instrument, it would rely on country-level systems for the management of environmental and social effects. The PforR Policy of the Bank requires that the Bank conduct a comprehensive ESSA to assess the degree to which the relevant PforR Program's systems promote environmental and social sustainability and to ensure that effective measures are in place to identify, avoid, minimize, or mitigate environmental, health, safety, and social impacts consistent with the six core environmental and social principles contained in Section III of the PforR Policy (hereafter, Core Principles), as may be applicable or relevant under PforR circumstances.

2. The ESSA (i) identifies the Program's environmental, health, safety, and social effects, (ii) assesses the legal and policy framework for environmental and social management, including a review of relevant legislation, rules, procedures, and institutional responsibilities that are being used by the Program; (iii) assesses the implementing institutional capacity and performance to manage potential adverse environmental and social issues; and (iv) recommends specific actions to address gaps in the program's environmental and social management system, and in the policy and legal framework and implementation capacity.

3. ESSA guides actions to ensure environmental and social management within the program at all levels. The ESSA also informs decision-making by the relevant authorities in the borrower country and aids the Bank's internal review and decision process associated with the program. The ESSA has been prepared in close coordination with the GoTN, and its Program agencies including TNUIFSL, DMA, and ULBs. The findings, conclusions, and opinions expressed in this document are those of the World Bank.

2.2 ESSA Methodology

4. The methodology focused on understanding the program activities, benefits, and risks associated with various activities, environmental and social conditions, and the existing institutional mechanism at various levels for implementation, management, policies, and regulatory aspects. It is to understand the gaps and recommend an action plan to not only address the gaps but also to ensure sustainable environmental and social effects under the program.

5. Towards this, an assessment of the government's program and various associated activities was made; mainly focusing on the proposed upgradation of facilities and services, which has a higher probability of risks and impacts. The assessment also took into consideration locational differences in activities, compliance with applicable policies and regulations, institutional capacities, and tools to support these. This helped in understanding the gaps and formulating the required actions to ensure that the proposed program meets the environmental and social requirements.

6. The following are the tasks involved in Environmental and Social Assessment:

Task 1: Screening and scoping of environmental and social risks of proposed activities

○ Subtask 1.1: Understanding the Ongoing Program

7. The World Bank team undertook a comprehensive review of program documents and other available details to understand the ongoing program and the extent and nature of various activities involved. In preparing the ESSA, a review of available secondary data was carried out, including extensive references to AMRUT guidelines, available Detailed Project Reports and Environmental and Social Assessments of various subprojects, details of AMRUT projects in WSS implemented and ongoing in the State and other parts of the country. Reports from GoI, and GoTN, on program implementation, past studies, and newspaper/media reports were also reviewed. The team also held detailed discussions with the representatives of the various Government Departments, and other stakeholders involved in the program to understand the ongoing program and its activities. In-depth interviews and semi-structured focus group discussions were held with about **75** officials across constituent agencies and departments.

○ **Subtask 1.2: Review of locational aspects and sensitivities of the ongoing and proposed program (including site sensitivities, community/stakeholder-related sensitivities)**

8. The team reviewed the program activities *viz a viz* the locational characteristics to understand the differentials in risk profiles in varied geographies of TN, through a comprehensive review of available documents/literature, audit reports, virtual site visits (videos of works going on; key infrastructure provided and their use), discussions with stakeholders. The locations were chosen to ensure diversity in the stage of project implementation, local culture, regional considerations, and terrain. For discussions on the Program and its risk management, to ensure sufficient spread of the sample; all the Program ULBs were covered through large group consultations utilizing the possibility of virtual platforms. Further, focused discussions on specific subjects such as environmental management, treated sewage and sludge disposal, and issues during the construction stage were conducted among the functionaries at the State and local levels. The ESSA team also ensured consultations were evenly spread across the hierarchy by consulting Assistant Engineers, Executive Engineers, and Superintending Engineers of ULBs and TWAD Board. Interviews and consultations were conducted on-site, and through online video conferencing or telephonically.

9. A careful stakeholder mapping was carried out to ensure that all relevant stakeholders are covered in the consultation process. Discussions and virtual 'site reviews' were undertaken from December 2022 – March 2023. Other stakeholders including state government functionaries, vendors, and consumers were also consulted. Discussions were also held with State and District offices of regulators including the Pollution Control Board, service providers like the Water Supply and Sanitation Department, TWAD Board, Local bodies and their overarching agencies including the Department of Municipal Administration, Directorate of Town Panchayats, and State level functionaries including Health Department, Water Resources Department, etc. During these consultations, the respondents shared how they are involved in the program, their role, impacts and risks, and the suggestions to address risks and gaps. The task team had detailed semi-structured questionnaire-based discussions with departments/ officials who manage the programs in regions with different climatic conditions⁸ (appropriateness and longevity of the equipment and construction technology, labour working conditions, overall safety during extreme events such as rainfall, cyclones, flash floods, coastal conditions of the excessive salt-laden atmosphere, water level fluctuations and availability in receiving water bodies, other infrastructure, and communities which depends on source (water supply) and receiving water bodies (of treated sewage), on dust and heat, need for special considerations, emergency response, and resilient recovery procedures).

10. ULBs are in distinct geographic areas, such as (i) coastal plains e.g.: Cuddalore, Thoothukkudi, and inland plains: e.g.: Avadi, Kanchipuram, Chidambaram, Annamalai Nagar, Thiruvaiyur, Karaikudi, Nagercoil; (ii) near Western Ghats and High hills e.g.: Rajapalayam, Theni Allinagaram, Dindugul; and (iii) Plateau and moderately Hilly areas e.g.: Vellore, Krishnagiri, Dharmapuri, Trichinapalli, Salem, Erode. Literature review and review of project-related documents were undertaken for all ULBs whereas representative ULBs were covered (virtual meetings and site visits) in these distinct geographic areas, including Cuddalore, Avadi, Kanchipuram, Thambaram, Chidambaram, Annamalai Nagar, Thiruvaiyur, and Salem. In addition, the discussion was held with ULBs falling in the Cauvery River basin, to understand the special issues related to water allocation, availability, and quality. Such discussions helped in understanding the environmental and social risks under which teams in such areas operate and the additional measures required to address some of them. Discussions also centered on the upgradation to existing infrastructure and construction of completely new infrastructure as well to indemnify risks. To ensure that all issues are covered as exhaustively as possible the team prepared detailed checklists or questionnaires which are available in **Annexure-V**.

○ **Subtask 1.3: Review of similar programs and their risks and benefits**

11. A study of similar programs and assessments of other ongoing Government programs and Bank projects / Programs in the sector and region, involving WSS, capacity building, and consultancies were

⁸Special considerations are necessary in different regions in response to climatic conditions. Some examples: In areas prone to heavy rainfall and flood, special emergency response procedures are necessary. Equipment performance can vary due to weather conditions and elements, especially humidity, heat, or dust. It is also necessary to ensure safety against floods, cyclones, slips and tree falls.

carried out to understand the risks and benefits associated with such programs and activities. The team was not able to gather information on other PforRs which supported Sewage Treatment Plants in India; however, examples in Pakistan, Egypt, and Albania were reviewed.

Task 2: Review of Regulatory Aspects

○ Subtask 2.1: Applicable regulatory / policy-related aspects to various program activities (including construction, consultancies, and capacity development).

12. The World Bank undertook a comprehensive literature review of existing policies, regulations, and standards at the National, State, and Local level applicable to overall environmental management and various Program activities. A review of subproject documents, and supervision documents of previous and ongoing World Bank projects/Programs in the sector, and AMRUT programs were also conducted. The Bank also reviewed the existing policy/Environmental and Social Management Frameworks (ESMFs) of other completed and ongoing projects supported by the Bank and other Multilateral and Bilateral agencies for understanding the frameworks used to manage environmental aspects in similar programs. This includes ESMF and EIAs of TNUDP III and TNSUDP which implemented multiple urban sector sub-projects including water and sanitation in various ULBs across TN.

○ Subtask 2.2: Review of compliance levels of ongoing programs

13. The Bank team discussed with TNUIFSL, DMA, sample ULBs and various departments involved and regulatory agencies to understand the compliance to regulations and policies that support better environmental effects. The Bank discussed the procedures followed for taking permits/consents for water, managing waste/wastewater, labour, and various program activities. The Bank reviewed available videos and photographs of ongoing works under AMRUT and other WSS projects in the State. The Bank also discussed the existing policy frameworks adopted in the State for the AMRUT program or other activities.

○ Subtask 2.3: Assessing the gaps in regulations and mechanisms

14. The Bank team assessed the level of compliance with existing regulations, especially on pollution and OHS, and siting in sensitive areas. Mechanisms to address the gaps in regulatory compliance were formulated to address the gaps identified as part of the above subtasks.

Task 3: Assessment of the environmental and social benefits and risks of the proposed program

○ Subtask 3.1: Review of Environmental Benefits and Impacts of proposed Program activities and their magnitude and likelihood

15. Through the above tasks, the Bank team reviewed the risks and benefits associated with various program activities, considering the Core Principles of ESSA. The team also assessed the magnitude and likelihood of risks and benefits associated with this program which will be implemented in multiple geographical locations of TN. The ESSA team held several meetings with TNUIFSL, DMA and ULB staff, including those directly involved in implementing the initiatives; the contracts, and the procurement department (to understand the responsibilities for environmental and social considerations in the contracts with vendors). This was essential to understand their perceptions about the benefits and risks of these programs and how the systems could be improved. The details of the stakeholders consulted are available in **Annexure IV**.

Assessment of Environmental and Social Benefits

16. The task team assessed the environmental benefits due to the proposed Program. The following were the components of the analysis:

- Environmental benefits (larger) of each program intervention in terms of improving the environment and service levels, energy / other resource savings, climate change, increased environmental awareness, and other environmental performance (including lesser pollution, better health of communities and environment),

- Understanding the considerations by AMRUT and applicable policies and regulations for better management of activities and processes during the project life cycle, which would ensure that the surrounding environment is not stressed, but benefitted in turn,
- The extent of inclusion of areas of environmental and cultural importance under various programs, which would benefit from improved urban services.

Assessment of Environmental and Social Risks

17. Existing and probable environmental risks due to various activities were assessed with respect to the core principles. The following were the components of the analysis:

- Types of environmental risks experienced during the project cycle as reported by various reports and studies, beneficiaries, officials, and as observed during site visits and discussions,
 - Risks anticipated during the project cycle; especially related to environmental (including impacts on water sources) management, wastewater/waste management, natural habitats and heritage, health, and safety of workers, and communities, including risks during special occasions and disasters,
 - Appropriateness of the efforts and considerations by the AMRUT program, State agencies and ULBs to ensure environmental risk management during project design and implementation,
 - Guidelines and standards developed by the State, and program agencies for environmental risk management and the extent of its coverage and suitability.
- ***Subtask 3.3: Arriving at possible risk avoidance, mitigation, management, and benefit enhancement measures***

18. An understanding of the benefits, risks, their severity; and availability of frameworks/standards/guidelines/regulations to manage it led to recommending possible management measures. To validate the risks and benefits, the bank team discussed with stakeholders and the various sections of this document have been written in consultation with the program teams.

Task 4: Assessment of Institutional Capacities and constraints

- ***Subtask 4.1: Review of the existing institutional mechanism at State/ Program and ULB Levels to manage the Program activities its risks, benefits, and regulatory requirements***

19. Review of Program documents, Government Orders, and discussions with various departments and implementing agencies helped in understanding the existing institutional mechanism for planning, designing, implementing, supervising, and monitoring the program. Roles, responsibilities, and capacities of various institutions involved at the State, District, Regional, and Local levels were reviewed. The review focused on the management of environmental and social aspects in an existing program and previous Bank-supported projects, mainly risk avoidance, reduction, mitigation, and management and enhancing the benefits during project design, implementation, and Monitoring and Evaluation (M&E) stages. To understand institutional aspects and gaps, the team undertook a) multi-party stakeholder consultations at the state and ULB levels, b) in-depth interactions with Program agencies; and c) interactions with Regulators.

- ***Subtask 4.2: Gap Assessment in terms of capacities, tools, and interagency linkages co-ordination***

20. Following the previous subtask, a gap assessment was undertaken on the need and provision of management mechanisms to manage environmental risks and enhance benefits. This included gaps in staff and resource supply, availability of guidance/frameworks and appropriate tools (hard /soft), and coordination mechanisms between agencies to manage the environmental and social aspects well during all stages.

- ***Subtask 4.3: Assessing the need to strengthen the existing mechanism to manage the environmental aspects of the proposed program***

21. Based on the gap assessment conducted during the subtask above, recommendations were made to strengthen existing mechanisms to manage environmental aspects. This includes suggestions on required

staff capacities at the State, District, ULB levels; frameworks to be followed for better environmental effects, tools, and mechanisms to ensure long-term management. This highlighted the possible opportunities for improving environmental performance including the following:

- (a) Improvement of the Institutional capacity of partnering agencies to effectively manage environmental risks.
- (b) Opportunities to upgrade existing procedures to avoid, mitigate, and manage environmental risks, and
- (c) Design training and capacity-building activities to ensure risk avoidance and enhancement of benefits.

22. During the March 2023 Pre-Appraisal Mission, the preliminary findings – benefits, risks, gaps, and recommendations (environmental and social) were shared with TNUIFSL and DMA. A draft ESSA was shared with GoTN for comments in August 2023 and subsequently for disclosure and consultations, and based on the consultations and feedback received, the report was revised for final disclosure. Details of the stakeholders consulted are presented in **Annexure IV**. The methodology for ESSA preparation (environmental aspects) is presented in **Figure 1** here.

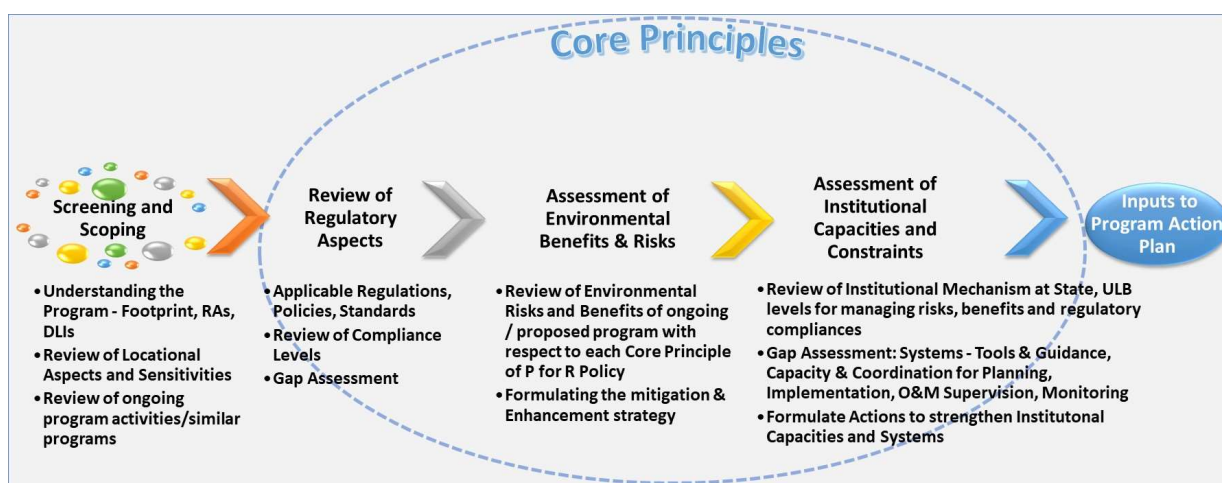


Figure 1: Methodology adopted for Environmental Systems Assessment

3 ENVIRONMENTAL AND SOCIAL CHARACTERISTICS OF TAMIL NADU

3.1 Physical Characteristics

3.1.1 Location, Physiography and Land uses

1. TN is the southernmost state of India bordered by Kerala to the west, Karnataka to the northwest, Andhra Pradesh to the north, the Bay of Bengal to the east, and the Indian Ocean to the south. It is the eleventh largest state and covers an area of 130,058 square kilometers. TN is the only state in India that hosts both the Western Ghats and the Eastern Ghats Mountain ranges which meet at the Nilgiri hills. The Western Ghats dominate the entire western border with Kerala, effectively blocking much of the rain-bearing clouds of the southwest Monsoon from entering the state. Geographically, TN is divided into four physical divisions: The hilly region (Western Ghats and Eastern Ghats), the plateau, the plain, and the coastline. Some of the ULBs including Krishnagiri, Dharmapuram, Erode, Salem Namakkal, Theni, and Rajapalayam are in hilly and plateau landforms; while Pudukottai, Thoothukkudi, Chidambaram, Tambaram, Avadi, Thiruvavur, Karaikudi, etc. are in riverine or coastal plains. Many of the cities are industrialized while few are sustained through small industries mainly based on agricultural products. Many of the cities/towns have depleted groundwater reserves and are situated in blocks that are at a high stage of groundwater development. Some are affected by industrial pollution, fluoride, salinity, etc.

- Planning, Designs, and Specifications for facilities (slopes, plinth, pumping, networks, etc.) shall be appropriate for different physical regions of TN
- WSSs shall be built on good analysis of water availability and quality, and impact assessments shall include Source Vulnerability Assessments
- Characteristics of coastal and hilly regions differ and hence, there shall be adequate consultations in both regions. Disaster profile, the river flows – perennial/ephemeral (seasonal), water availability, natural habitats, and cultural resources are important factors that determine interventions in each region.

3.1.2 Climatic Conditions

2. TN has a tropical climate; though overall climatic conditions in mountainous areas, plateaus, and coastal and interior plains differ. March to June is summer when most seasonal rivers are dry. May is the hottest, while January is the coldest month in TN. The relative humidity is highest in winter than in summer. Thick rain-bearing clouds are witnessed from October to December annually, bringing in coastal floods/flash floods in cities. Southwest monsoon occurs between June to August. Nilgiris, Kanyakumari & Coimbatore, Erode, Salem, and Dharmapuri areas get benefit from this monsoon. During this time the [western part of TN and the western ghats region receive 150cm of rain on average](#). Most of the eastern and central parts of TN become rain shadows during this season (as it lies on the eastern leeward side of the western ghats). Northeast monsoon occurs between October and December. Coastal and interior plains of TN benefitted from these rains. Northeast monsoon rain is associated with cyclonic formation. All interior, south, and western parts of TN receive less rainfall during this time. Coastal districts including Chennai, Cuddalore, Thiruvallur, Kancheepuram, Nagapattinam, Thiruvavur, and Thirunelveli receive a high amount of rainfall and witness floods.

- In the case of coastal TN, the design of WTPs, STPs, networks, and disposal of treated sewage, wastes, and sludge shall consider risks due to coastal impacts and cyclones.
- In drought-prone, hot districts, the work schedule shall be modified so that workers do not suffer from heat strokes.
- Interventions shall be assessed considering the extreme climatic conditions such as rains, cyclones and drought, and heatwaves. Segregation of SWD and sewage networks is important, from a pollution point of view, and also to prevent unaccounted stormwater from entering the networks (& thus the tendency to

bypass untreated sewage), pumping stations, and STPs.

- Another important consideration for designs shall be the presence of Dams if any near water sources. EIA shall analyse and confirm procedures for Dam Operations including EMP and emergency action plan considerations for workers and community health and safety related to the construction and operations of Program facilities near Dams / barrages

3.2 Environmental Features

3.2.1 Water Bodies, Rivers, and the Sea

3. The northern rivers of Tamil Nadu are Araniyar, Korattalaiyar, Palar, Cheyyar, Kollidam, Manimuthar, and Thenpennar. Among the rivers, the Palar and Pennaiyar flow from the headwaters of the Kolar plateau towards the east. Cheyyar and Agaram are two tributaries of Palar. The main river of the state is River Kaveri which originates in the Kodagu district of Karnataka. The Kaveri, the Kollidam, and the Vellar jointly drain central parts of the state. In the Kaveri delta, the distributaries such as Kollidam, Manniyar, Vennar, Vettar, Arasalar, Nattar, Mudikondan, Kudamuruti, and Veera Cholanar have formed a quadrangular, and alluvial plain. Bhavani, Noyyal, Moyar, and Amaravathi are the most important source of canal irrigation. Vaigai, Vaippar, Thamirabarani, Gundar, Chittar, and Kothaiyar are the important rivers in the southern parts of Tamil Nadu.

4. Major uses of water include human/animal consumption, irrigation, and industrial use. There are 17 river basins in Tamil Nadu. Kaveri is the only major basin. Of the others, 13 basins are medium and 3 are minor river basins. The State has been a victim of natural calamities such as cyclones, tsunamis, and floods more so during recent years and severe drought in certain years. According to the National Institute of Disaster Management, 13 districts of Tamil Nadu are vulnerable to high or very high cyclonic impact and flooding. Most of the ULBs under the program face water scarcity, especially during summer. Availability of water for Industrial use is important and the State policy suggests the reuse of wastewater for the purpose, and/or use of desalinated seawater. In addition, some of the cities/towns are dependent on River Kaveri, which receives allotted water as per agencies/committees constituted by the Central Government, namely, Cauvery Water Management Authority (CWMA) and Cauvery Water Regulation Committee (CWRC)⁹. Among the project towns/cities, Erode, Salem, Dharmapuri, Krishnagiri, Namakkal, Thuraiyur, Tiruchirappalli, Thiruvarur, Chidambaram, Dindigul, Pudukottai and Karaikkal also depends on Kaveri River system at large. Among these, [Thuraiyur](#), [Thiruchirapali](#), [Chidambaram](#), [Dindigul](#), [Pudukkottai](#), and [Karaikkal cities](#) may be dependent on the release of water unless the schemes are based on other underground sources. It is important to examine/assess water availability (while carrying out the Feasibility / DPRs for the proposed schemes) during all seasons and to maintain environmental flow as directed by the Hon'ble Supreme Court. Except for Nagercoil, Chidambaram, and Karaikkal, the ULBs under the project are identified as water-stressed ULBs by Jal Sakthi Abhayan under AMRUT.¹⁰

5. Some of the river stretches are polluted, with impacts aggravated by lean/controlled flows. River Sarabanga, River Thirumanimutharu, River Vasista, and River Cauvery, are Priority I polluted stretches, while River Bhavani is Priority IV, and River Thamirabarani, Priority V. Pollution Control Board has prepared an Action Plan to deal with Pollution in line with NGT recommendations. In areas where the

⁹ To resolve the issues related to river water-sharing, CWDT decided to make allocations to the states concerned whose cumulative demand stood at 1,260 thousand million cubic feet (TMC), while the total utilisable flow of the river, as per the tribunal's calculations, was only 740 TMC. On the basis of demands, the number of users, the area of the fertile delta and hydrological factors, the tribunal made an annual allocation of 30 TMC to Kerala, 270 TMC to Karnataka, 419 TMC to Tamil Nadu (of which 192 TMC was to be released by Karnataka and 227 TMC was to be generated from Tamil Nadu's own catchment areas) and 7 TMC to Puducherry. It also calculated that 10 TMC should be allowed for "environmental flows" and around 4 TMC would inevitably flow into the sea.

¹⁰

<http://amrut.gov.in/upload/newsrelease/5db809d263e6e5db80878c8e305d25b2c7e90c7GuidelinesforUrbanWaterconservationJalShaktiAbhiyan.pdf>

flow is lean/ephemeral, it is important to ensure a pollution free source for water supply projects – both due to other existing infrastructure / indiscriminate waste dumping, or program activities such as UGSS or waste management from other program activities (Construction, O&M). This should also be an important consideration in DPRs to decide on treatment disposal of treated sewage and sludge etc.

- None of the program activities including UGSS schemes shall pollute or disturb waterbodies- which either has less water release, especially during summers or faces flood situation during rains. In cities where both UGSS and WSSs are proposed (Avadi, Cuddalore, Dindigul, Kancheepuram, Karaikudi, Pudukottai, Thuthukkudi) locational aspects & pollution impacts need consideration in FS / DPRs and cumulative environmental impacts shall be assessed.
- Adequacy of the source shall be checked and ensured in all WSSs, including alternate sources for summer. Many ULBs (Thuraiyur, Tiruchirappalli, Chidambaram, Dindigul, Pudukkottai, and Karaikkal and others) may be dependent on the release of water from upstream States (mainly, Karnataka) unless the schemes are based on other underground sources.
- Recycling of wastewater (for industrial use, maintenance of solar panels, and greening of public spaces) is important in the proposed UGSSs to conserve this valuable reserve, especially in water-scarce / drought-prone areas, areas where there is a limit in the release of water through rivers and industrialized parts of TN, with proper treatment as per national regulations, and stakeholder consultation.
- No STP shall be connected to open drains or be without an underground closed sewage network. No network shall be constructed without an operational STP. Networks laid under the program shall not dispose/bypass untreated sewage into the environment. No industrial effluent shall be allowed into STPs or networks. Strict monitoring and secured manhole covers shall ensure no clandestine disposal of industrial effluents or stormwater let out into STPs constructed under the program even during NE monsoon as such actions would disrupt the STP functioning and efficiency. Proper Stormwater networks shall be constructed in all ULBs.

3.2.2 Natural Habitats

6. The Forest Cover of the State is 26,345 sq. km which is 20.26% of the State's geographical area. All regions of TN have forests and sensitive habitats. Some of the program activities may be near protected areas, forests, or valuable coastal sensitive habitats. Some of the cities in the western parts of TN such as Theni – Allinagaram, and Rajapalayam ULBs are near Western Ghat Biodiversity Hotspot with many Reserves and Wildlife Sanctuaries. Towards the east coast of Chennai are important habitats of the TN coast such as the Gulf of Mannar Marine National Park, Muthupet Mangroves, Pichavaram Mangroves, and sensitive coastal areas including beaches, important bird areas, seagrass meadows, and turtle nesting sites. WSS, UGSS, greening, and rooftop solar interventions in coastal areas and towns which are connected to the sensitive coasts through rivers and streams (esp. Cuddalore, Thiruvarur, Chidambaram, Pudukottai, Karaikudi) shall take into account the coastal sensitivities in screening (to avoid interventions that pose high impact/risk) design, disposal of treated/untreated products and by-products, construction wastes and disturbance to biodiversity (including noise, vibration, light) during construction and O&M. There are multiple takes, tanks, and systems irrigation Tanks called 'Eris' in ULBs which are also important for fauna, and flora and any works near these shall not impact the biodiversity or result in pollution. Coastal Regulation Zone clearances and permits from Forests, and Biodiversity perspective shall be arranged before the start of works and mitigation measures suggested in the permits shall be observed and monitored.

- The program shall exclude activities that might impact natural habitats, flora & fauna, coastal fisheries, and other activities and use screening, and assessment to arrive at mitigation measures to manage other impacts on sensitive environmental resources.
- Time and cost factors for clearances (including CRZ clearance) shall be built into the subproject schedule. No activity should initiate without applicable permits and clearances, and mitigation measures shall be followed to mitigate and manage any residual impacts.

- Disposal of solid/liquid wastes (incl solar panels, batteries, C&D wastes, and sludge) and construction-related disturbances shall be avoided in sensitive areas.
- Community involvement in project activities would minimize disturbance to common natural assets.
- Environmental enhancement measures deserve the highest priority

3.2.3 Cultural Heritage

7. All the ULBs under the program show the presence of multiple religious buildings, including temples and their tanks, churches, and Forts (of old English, Dutch, and local) within the city limits. Some of these are recognized and archeologically important while others are important to the communities around them. While Poompuhar underwater heritage city near / downstream of ULBS Chidambaram, Cuddalore, and Thiruvavur.

- Core areas of many ULBs are congested temple towns. This has a bearing on network laying-related risks and impacts, especially on OHS, CHS
- Some cities host important temple festivals and ritual observances. These shall be taken into consideration for planning & design, permission, clearances, networks
- Risks and impacts of sewage, sludge, and other impacts like the placement of solar panels, etc. on cultural heritage

3.2.4 Disaster Vulnerability

8. India is divided into four seismic zones, namely I, II, III, IV, and V. Zone V is the high-risk zone. Tamil Nadu falls under moderate and low-risk zones (zones II and III). The districts of Nilgiris, Coimbatore, Kanyakumari, Vellore, Thiruvallur, Chennai, Kancheepuram, Thiruvannamalai, Dharmapuri, Salem, and parts of Thirunelveli district are classified as moderate risk zone III. The rest of the districts in Tamil Nadu come under low-risk zone II.

9. The geographical setting of Tamil Nadu makes the state vulnerable to natural disasters such as cyclones floods and earthquake-induced Tsunami. About 8% of the state is affected by five to six cyclones every year, of which two to three are severe. Cyclonic activities on the east coast are more severe than on the west coast of India. *“Tamil Nadu is also subjected to annual flooding, including flash floods, cloudburst floods, monsoon floods of single and multiple events, cyclonic floods, and those due to dam bursts or failure. Every year, on average thousands of people, are affected, a few hundred lives are lost, thousands are rendered homeless, and several hectares of crops are damaged. Tamil Nadu is also prone to severe damaging earthquakes. Its people feel much more vulnerable to earthquake-induced tsunamis since the 2004 Indian Ocean tsunami, which affected the coast of Tamil Nadu and is destroying much of the marine biology and severely damaging the ecosystem. Crops, settlements, trees, birds, fishes, wildlife, and properties were destroyed. Precious coral reefs and mangrove areas were crushed by the huge tsunami waves that devastated South India, an environmental and economic setback that could take years to reverse. Power and communications were disrupted. The damage to humans, especially women and children, and animal life, was tremendous, resulting in emotional and mental trauma.”*¹¹ Especially in coastal Tamil Nadu, it is important to ensure disaster preparedness during construction and operations. Designs shall be strong to ensure the longevity of the infrastructure constructed.

¹¹ http://tnenvvis.nic.in/Database/TN-ENVIS_898.aspx

- Some of the program activities may be near or in disaster-prone areas. Storage of materials, scheduling of construction, typology of works, plinth heights, the layout of buildings, etc. shall avoid disaster impacts. The use of tanks/ponds for storage of treated sewage may cause impacts/risks on the communities during floods, as these are to be alternately used as storage receptacles/sponges during such times.
- Contractors, Operators and ULBs, and communities shall be trained and made aware of disaster preparedness and emergency response. Programs / E&S screening shall include disaster and climate screening checklist/tool. All infrastructure facilities created under the project shall have Disaster Preparedness and Emergency Response Plan as part of DPR.
- All facilities supported by the project shall withstand disaster impacts and risks. All infrastructure built under the program (including STPs, WTPs, networks, pumping stations, disposal points, labour camps, etc) shall be above the High Flood level considering impacts due to floods/flash floods. Location selection and Designs shall ensure that no facilities shall be impacted by Dams or face any risks due to existing/proposed dams.

3.3 Socio-economic Characteristics

3.3.1 Demography

10. Total population of Tamil Nadu as per 2011 census is 72 million of which male and female are 36,137,975 and 36,009,055 respectively. There are 21 ULBs of Tamil Nadu under the Program. The population of these ULBs is provided in the table below:

| Sl. No. | ULB | Administrative Status | 2011 Population |
|---------|-------------------|-----------------------|------------------|
| 1 | Avadi | Municipal Corporation | 344,701 |
| 2 | Kancheepuram | Municipal Corporation | 232,816 |
| 3 | Cuddalore | Municipal Corporation | 173,363 |
| 4 | Dindigul | Municipal Corporation | 207,225 |
| 5 | Erode | Municipal Corporation | 498,121 |
| 6 | Nagercoil | Municipal Corporation | 224,849 |
| 7 | Salem | Municipal Corporation | 829,267 |
| 8 | Tambaram | Municipal Corporation | 723,017 |
| 9 | Thoothkudi | Municipal Corporation | 372,408 |
| 10 | Tiruchirappalli | Municipal Corporation | 915,869 |
| 11 | Tirunelveli | Municipal Corporation | 474,838 |
| 12 | Vellore | Municipal Corporation | 504,079 |
| 13 | Dharmapuri | Municipality | 68,619 |
| 14 | Karaikudi | Municipality | 86,422 |
| 15 | Krishnagiri | Municipality | 71,323 |
| 16 | Namakkal | Municipality | 119,491 |
| 17 | Pudukottai | Municipality | 143,748 |
| 18 | Rajapalayam | Municipality | 130,119 |
| 19 | Theni-Allinagaram | Municipality | 94,453 |
| 20 | Thiruvannamalai | Municipality | 145,278 |
| 21 | Tiruvarur | Municipality | 58,279 |
| | | | 6,418,285 |

3.3.2 Literacy

11. Tamil Nadu is one of the most literate state in the country. Literacy rate has seen upward trend and is 80.09 percent as per 2011 population census. Of that, male literacy stands at 86.77 percent while female literacy is at 73.14 percent.

3.3.3 Urbanization

12. Tamil Nadu is one of the most urbanized and economically developed states in India. The state has experienced a high rate of urbanization over the last four decades with its urban population increasing from 19 million (34 percent of total population) in 1991 to 35 million (48.5 percent) in 2011 and 40.3 million (53 percent) in 2021.¹² It is anticipated to increase to 67 percent by 2030, which will be the highest in the country.¹³ Consequently, urban development is a key development priority for Tamil Nadu and the state has taken numerous pioneering initiatives to address related challenges.

13. Urbanization creates challenges in provision of potable drinking water for the millions and also in safe disposal of the sewage. At present, only select cities in the State have modern underground sewerage system to treat the sewage. It is the endeavor of the State to build modern underground sewerage system for all the ULBs. Solid Waste Management remains a challenge for the ULB in collecting and safely disposing the garbage. Special thrust will be given to modernize the SWM system for garbage free environment in the ULBs. The overall goal of urban solid waste management is to collect, treat and dispose of solid wastes generated by all urban population groups in an environmentally and socially satisfactory manner using the most economical means available.

14. A significant factor that has fostered inclusive growth in the State is broad-based urbanization that is driven not only by metropolitan cities, but also by localized economic processes. Urbanization in TN is widely dispersed and encompasses 649 ULBs, including 21 municipal corporations, 138 municipalities, and 490 town panchayats. While there is relatively good coverage of urban infrastructure in the bigger ULBs, access to infrastructure and services is limited in smaller ULBs, thus affecting the quality of life for their residents.

15. Tamil Nadu's urban residents are increasingly at risk of the impacts of climate variability. Urban flooding is the most frequent and damaging consequence of climate change-related risks in cities of Tamil Nadu due to *ad hoc* and unregulated urban development, inadequate drainage, and encroachments on water bodies and waterways. It is estimated that 20 percent of the urban population lives in slums, of which 30 percent live on the margins of rivers and watercourses and are adversely affected by floods. TN has also been grappling with the degradation of water bodies and availability of fresh water. Increasing water demand for multiple uses together with worsening climate effects are steadily limiting the reliable availability of water to cities.

16. To address the fast-growing demand for urban services in a sustainable and resource-efficient manner, the GTN, led by the Municipal Administration and Water Supply Department (MAWSD), has formulated the Urban Vision 2031 to achieve universal access to basic infrastructure and services in all ULBs. The key priorities for ULBs as stated in the Vision 2031 include: (i) improving accessibility and quality of urban services to meet the increasing service demands, especially in smaller ULBs and emerging growth centers; (ii) ensuring that infrastructure design and urban development are climate resilient and low-carbon in line with climate change projections; and (iii) strengthening the institutional capacity of ULBs to better plan, deliver and manage urban services and their public assets in a financially sustainable manner. The state is also actively aligning its investments with several national flagship urban programs,

¹² a) Policy Note 2022-2023, Municipal Administration and Water Supply Department, Tamil Nadu; b) Population Projection for India and States 2011-2036, National Commission on Population, Ministry of Health and Family Welfare, 2019.

¹³ Report and Recommendations of Fifth State Finance Commission Tamil Nadu 2017-2022, December 2016.

including the “Atal Mission for Rejuvenation and Urban Transformation 2.0” (AMRUT 2.0), and “Swachh Bharat Mission Urban 2.0.”

17. The MAWS department has made massive investment for undertaking critical capital investment works in the urban local bodies for water supply, roads and buildings, storm water drains, street lighting, solid waste management, sanitation and bus stands, commercial complexes etc. Even though urban investments have been stepped up significantly, the pace of infrastructure creation continues to lag behind population growth and demand for services. Two-thirds of cities are classified poor to average based on per capita water supply. Wastewater treatment capacity continues to be negligible vis-à-vis overall generation.¹⁴ While urbanization is correlated with positive development outcomes, it needs to be managed and planned for, to achieve inclusive growth, sustainability and improved quality of living.

3.3.4 Gender

18. Tamil Nadu’s performance in terms of indicators on gender has been consistently better than that of other states. The sex ratio in the state is 908 females per 1000 males.¹⁵ Women’s participation in the state’s economy is significant – the female labour force participation rate in TN is higher than the average recorded for India at 37 percent. Women workers in services form the highest share within the urban female workforce at 36.3 percent. Urban women workers prefer regular wage employment nearly 57% of the urban workers are engaged in this type of work¹⁶. Recruitments for public sector positions managed by the Tamil Nadu Public Services Commission have a 30 percent reservation for women. However, women’s participation in the formal workforce and their transition to high-quality jobs continues to be a challenge. Further, the relatively high rates of economic participation and asset ownership have neither translated into decision making power nor protected women from domestic violence. To address under-representation of women in technical job roles.

19. The state has made commitment to women’s empowerment and has actively announced that it would stop all kind of sexual harassment and gender-based violence. One of the strategy has been to take pro-active measures to increase FLFP. In its draft policy it aims to reach out to 10,000 women, who had quit jobs for raising their family and due to lack of mobility, and help them in a second career entry. The policy notes that women’s effective participation in the workforce and their transition to formal employment opportunities remain a challenge due to several reasons.

3.3.5 Economy and Growth

20. As discussed above, Tamil Nadu is the second largest state economy in India. It is also the most industrialized state in the country. The state accounts for around 9.26% of the urban population in the country. Though traditionally, Tamil Nadu has been an agrarian state, the census of 2011 shows that Services contributes to 54% of the GDP followed by manufacturing 33% and agriculture 13%.

Tamil Nadu is one of the largest contributors of software exports. The major cities where in this include Chennai, Coimbatore, Trichy. Salem and Madurai.¹⁷

3.4 Recommendations

21. Impacts and risks due to location, land use, physiography, natural sensitivities, cultural resources, and pollution impacts shall be adequately factored in during planning, siting, design, construction, permits/clearances, and O&M. Design of WTPs, STPs, and their networks, rooftop solar installations in municipal buildings, and greening interventions may have moderate to substantial impacts and risks on the surrounding environment, and hence it is important to have good designs to minimize these impacts and risks. A review of the environmental characteristics of the program region presents the importance

¹⁴ [Tamil Nadu State 12th Five Year Plan, Planning Commission of Tamil Nadu](#)

¹⁵ Drèze, J., & Sen, A. (2013). *An uncertain glory: India and its contradictions*. Princeton University Press.

¹⁶ [Women Workforce Participation in India, IWWAGE and LEAD University](#)

¹⁷ [Wikipedia](#)

of thorough environmental risk screening, assessment, and development of a mitigation hierarchy to manage the risks and impacts of the proposed Program.

4 POTENTIAL ENVIRONMENTAL AND SOCIAL EFFECTS OF THE PROGRAM

1. The following sub-sections discuss the Program activities planned under its Results Areas and their effects and risks. This helps understand the potential environmental and social effects of each activity. The program activities would result in moderate environmental risks for most activities; except for Sewerage Treatment Plants (bypass and disposal of untreated/treated sewage and sludge from all facilities) that present 'substantial' environmental risks.

2. A detailed description of the existing program in terms of its type of work and guidance, institutional responsibilities for implementation, supervision, and monitoring; impacts and risks, and opportunities for improvement are presented in this chapter. Detailed discussion on environmental aspects of the ongoing program and existing environmental regulatory regimes in the country and for TN as applicable for the proposed program (especially for infrastructure components) is presented in **Annexure VII**.

4.1 Assessment of Environmental Effects

3. The Program will improve the urban services and infrastructure of multiple ULBs of TN, leading to substantial environmental benefits. All Program activities would help improve service delivery on WSS in the growing ULBs of TN. The Program envisages (a) Technical sustainability through: Tap connections with meters, offering supply with required water quality and pressure, sewerage connections linked to functioning sewage treatment plants, city-wide Water and wastewater quality surveillance, (b) Financial sustainability through NRW plan, and reduction, WSS byelaws for volumetric tariff, Strategic Business Plan, Billing and collection efficiency, Improved cost recovery of O&M expenses and Energy Efficiency, (c) climate resilience and Water security through: Emergency response & preparedness plan, Water security, (d) Social Sustainability through Behavior change communication (BCC), (e) Institutional sustainability through Performance based contracts, Field-level leadership (FLL), Performance ranking and reward scheme, and institutional strengthening measures. All of the above would in turn contribute to improving better health and environmental quality in the program areas and its region.

4. Environmental Risks of RA 1 (implementing agency: DMA; DLIs: 1 – 5. TNUIFSL – DLI 6) - Strengthening urban management, institutional framework, and climate resilience; are *Low to Moderate*. Moderate risks are attributed to physical interventions related to the greening of municipal parks and improving energy efficiency in municipal assets. Result Area 2: Improving accessibility, climate resilience, and efficiency of urban WSS Services (Implementing agency: TNUIFSL; DLIs: 7 – 8); are *Low for DLI6) and Moderate to Substantial* mainly due to investments under water supply and sewage treatment.

5. Key risks categories of Program activities and possible measures to mitigate and manage these are presented here: (Risk categories are presented from High – Low)

Table 3: Key Environmental Risks of Program Activities

| Sl No | Program activities | Environmental Risks | Risk Category | Measures to mitigate risks | Responsibility & Mechanism to ensure implementation of proposed measures |
|--------------|---|--|----------------------|--|--|
| 1 | All program activities | <ul style="list-style-type: none"> - All exclusions as per P for R guidance note - Works in Legacy wastes and Contaminated Lands as works are in towns/cities - All activities which may impact Heritage areas, CRZ areas, Statutorily Protected or sensitive areas or habitats or their buffers, or which may need Dams & Water allocation between Basins | High | <ul style="list-style-type: none"> - Prepare/use an updated screening sheet with criteria for exclusion of High-risk activities to be avoided through screening | <ul style="list-style-type: none"> - TNUIFSL & DMA will prepare, include in Environmental Guidance the screening sheets & exclusion criteria for high-risk projects/activities & guide PIUs/Consultants to exclude such projects at the Concept stage. This will be further crosschecked during Environmental Audit |
| 2 | Construction Operations, Maintenance of STPs, pumping/lift stations, and sewers (new/improving existing) Sewerage Interventions | <ul style="list-style-type: none"> - Pollution impacts during Construction & O&M including Discharge or bypass of untreated, and partially treated sewage, sludge¹⁸, grit, and all types of wastes (solid plastic, e-waste, hazardous), due to daily operations, infrastructure and machinery failure, blockage or burst of sewers, climate risks in ULBs and surrounding region including rivers, lakes, other natural habitats, and cultural heritage as the Program towns may be coastal, near forests and/or have many natural features/heritage and may be prone to disasters | Substantial | <ul style="list-style-type: none"> - Avoid through screening- high risk activities/locations for establishing facilities, and disposal of sewage, sludge, wastes etc. - Exclude laying of sewers not connected to a treatment plant. No house service connections before connecting the network to Treatment Plant - Ensure good designs in DPRs factoring in placement depths and time schedule for laying various networks, inflow characteristics and quality, disaster impacts, HFL, additional storage & rerouting, sludge minimization and drying/treatment, disposal based on quality, recycling, and reuse of treated sewage and sludge (in Industries, Power / Cement Plants, Fertilizer Plants), protection/sensors for machine-hole covers and other requirements burst leak detection | <ul style="list-style-type: none"> - TNUIFSL & DMA will prepare, include in Environmental Guidance the screening sheets & exclusion criteria for high-risk projects/activities & guide PIUs/Consultants to exclude such projects at Concept stage. This will be further crosschecked during Environmental Audit - ToR for DPRs will be updated by TNUIFSL with these Design & climate requirements. Climate Screening & mitigation measures will be carried out for DPRs and mitigation measures included in DPRs - Environmental Guidance will guide on EIA EMP requirements & TNUIFSL, DMA and ULB to ensure its implementation & checked by Audit - The requirement that CESMP shall be updated by the contractor based on on-site conditions will be made explicit in the bid and Contract documents & EMP which would go into the Bid & Contract Documents by TNUIFSL & DMA |

¹⁸ the program focuses on towns of population ranging around 0.1 million to 0.2 million, sewage quantities in the range of 10 – 30 MLD, sludge quantities averaging 8 – 10 TPD from the latest technology

| SI No | Program activities | Environmental Risks | Risk Category | Measures to mitigate risks | Responsibility & Mechanism to ensure implementation of proposed measures |
|-------|--------------------|---|---------------|--|---|
| | | | | <ul style="list-style-type: none"> - - - n systems etc. - Assess impacts and risks through the conduct of EIA and update and approve the Generic EMP included in Environmental Guidance and include this in Bid documents and C-EMP updated by Contractor before implementation initiation (<i>enabling action</i>) - Manage using SOPs/Guidance, adherence to National standards - Monitoring of water bodies and sewage quality (inflow, outflow), review for corrective actions, and disclosure of monitoring data through EMIS - Include Environmental Guidance in the Environmental Audit for all activities with a footprint. - Ensuring Environmental experts at ULB, Regional, and State levels, & Capacity Building | <ul style="list-style-type: none"> - SOPs will be prepared and included in Environmental Guidance (part of OM) by TNUIFSL & DMA - These shall be assessed and ensured by EIA/EMP and verified by TNUIFSL, DMA during approvals & implementation monitored by ULB/PIU and reported - TNUIFSL, DMA & PIU/ULBs shall ensure capacities as per ESSA Annexure III & carryout capacity building based on a training schedule on Environmental aspects prepared as part of Environmental Guidance |
| | | - Industrial effluents and other pollutants, biomedical liquid wastes, and storm water reaching sewers/STPs | Moderate | <ul style="list-style-type: none"> - Good design through DPRs to avoid interlinkages between stormwater or industrial effluent drains and sewers at any point - Notice to Hospitals and household industries not to discharge their general wastewater other than sewage to sewers (<i>enabling action</i>) - Avoid connecting sewers, lift stations, STPs, other related infrastructure to any industrial effluent / other pollutants (incl. untreated liquid Biomedical wastes) - Sensors/ cameras, special designs, and other such mechanisms at machine-hole covers to prevent illegal disposal of effluents - Disconnecting stormwaters from sewers supported under the program | <ul style="list-style-type: none"> - TNUIFSL and DMA to include these requirements in Environmental Guidance & TOR for DPRs and included for DPR review. - These shall be assessed and ensured by EIA/EMP and verified by TNUIFSL, DMA during approvals & implementation monitored by ULB/PIU and reported - These will be checked as part of Environmental Audits - |

| SI No | Program activities | Environmental Risks | Risk Category | Measures to mitigate risks | Responsibility & Mechanism to ensure implementation of proposed measures |
|-------|---|--|---------------|---|---|
| | | | | <ul style="list-style-type: none"> - Strict licensing & permitting procedures for trucks carrying wastewater, effluents, septage, effluents as per the existing policy in all towns (<i>enabling action</i>) - Monitoring of sewage quality (inflow, outflow), review for corrective actions, and disclosure of monitoring data through EMIS | |
| 3 | Construction and O&M of WTPs and networks (new/improving existing) | <ul style="list-style-type: none"> - Source water stress or development status of Ground and Surface water sources, salinity intrusion and low water levels in nearby areas due to excessive pumping - Controlled release/allocation of surface water of the Cauvery River - Pre-existing ground water contamination due to metals, Salinity, iron, fluoride, nitrite, arsenic etc., - Contamination of water due to sub-optimally treated sewage, wastes (including those from Program activities) and sludge from WTPs | Moderate | <ul style="list-style-type: none"> - Permission requirements already in place for sourcing from Cauvery. Selection of appropriate sources, Conduct of source vulnerability assessment and source water protection plans (as part of EIA) at the design stage. - Address quality issues appropriately through providing treatment units and adoption of source protection measures – including for surface water sources - Monitoring of water quality, review for corrective actions, and disclosure of monitoring data through EMIS` | <ul style="list-style-type: none"> - TNUIFSL to include these requirements in Environmental Guidance & TOR for DPRs & EIAs and included for DPR & EIA review - These shall be assessed and ensured by EIA/EMP and verified by TNUIFSL, DMA during approvals & implementation monitored by ULB/PIU and reported - These will be checked as part of Environmental Audits - Monitoring data to be compiled & updated in EMIS, and disclosed through TN Urban Tree |
| 4 | All Program activities such as WTPs, STPs & Networks, Municipal Parks/Greening, Energy efficiency in Municipal Assets | <ul style="list-style-type: none"> - Pollution impacts during construction and upgradation incl. transport of materials, labour camps - Air/dust/fumes, noise, vibration, sediments, soil and water contamination due to solid, plastic and C&D wastes, e-wastes, packaging, fuel, wastewater and impacts on people, heritage & natural / modified habitats - Related Health and Safety risks due to pollution during construction, operations and maintenance | Moderate | <ul style="list-style-type: none"> - Screening to avoid high risk sensitive locations - Follow siting criteria, regulations for specific landuses, industry classification and permit conditions - Assessing, mitigating managing risks at sites considered - Provisions for Grievance management on pollution – treated sewage, water quality, sludge, pollution of land, water, air & odor, noise, health and safety and others - Monitoring, Supervision, Reporting - Dedicated capacities at State, Regional, ULB and Contractor levels, risk/hazard assessment | <ul style="list-style-type: none"> - TNUIFSL to include these requirements in Environmental Guidance & TOR for DPRs & EIAs and included for DPR & EIA review - These shall be assessed and ensured by EIA/EMP and verified by TNUIFSL, DMA during approvals & implementation monitored by ULB/PIU and reported - These will be checked as part of Environmental Audits - Monitoring data to be compiled & updated in EMIS, and disclosed through TN Urban Tree - Requirements on Prevention of Manual Scavenging to be part of Bid & Contract Documents. O&M |

| Sl No | Program activities | Environmental Risks | Risk Category | Measures to mitigate risks | Responsibility & Mechanism to ensure implementation of proposed measures |
|--------------|---------------------------|---|----------------------|--|--|
| | | (chemical uses), landscaping (pesticides), utility shifting, laying / maintenance of equipment and upgrading, installing energy efficient pumps etc. Risks may aggravate during extreme climate events – emergencies, disasters - There may be pollution due to erosion, fuel, used oil, chlorine and other chemicals, backwash & filter media, hazardous materials, solid/plastic/C&D/ electronic & hazardous wastes, scrap, Sludge (from STPs and WTPs), slurry, grit and batteries, wastewater also during extreme events | | procedures, and monitoring of standards during construction and Operations, regulations, and international good practices. - Strict adherence and monitoring of regulations prohibiting Manual Scavenging (including sewer cleaning (no manholes – only machine holes) to prevent health impacts and safety. - Emergency Management Plan - Preparing climate screening & climate responsive designs - Monitoring, Supervision, Reporting - Capacity Building, Health checkups | inbuilt in the Contract would ensure Contractors use such machines - Monitoring & capacity Building on Prevention of Manual Scavenging to be ensured ULB/PIU, TNUIFSL & DMA & checked through Environmental Audit - TNUIFSL, DMA & PIU/ULBs shall ensure capacities as per ESSA Annexure III & carryout capacity building based on training schedule on Environmental aspects prepared as part of Environmental Guidance, O&M inbuilt in the Contract would ensure Contractors use machines instead of humans for sewer cleaning |
| | | - Poor O&M practices resulting in lesser system efficiency, health, safety, pollution risks - wastes and material accumulated in sites and nearby areas, lack of chlorination impacting water quality, poor site protection including of borewells, poor housekeeping of e-wastes as from solar panels, batteries etc. | Moderate | - Ensure O&M responsibilities and sustainability through dedicated funding, - O&M manual/guidelines with Environmental guidelines - MIS to ensure pollution monitoring and Consent renewals - Citizen's scorecards for O&M | - O&M to be included in the contract by TNUIFSL, DMA, PIU/ULB - Environmental aspects for O&M to be included in Environmental Guidance by TNUIFSL & DMA - EMIS to be prepared to follow up on Consent renewals & Pollution monitoring to be part of EMIS by TNUIFSL & DMA - Citizens score cards to be developed for O&M, by TNUIFSL & DMA and data collected by ULB & reported |
| | | - Use of high energy consuming and resource intensive fixtures and designs, - Disturbance to trees, introduction of exotic/alien species during landscaping | Low | - Screening of sites & activities to avoid sensitive areas and activities - Better designs, specifications to ensure resource efficiency, waste management (incl packaging, and e-wastes) - Greening to consider exotic species, reliance on indigenous species, avoidance of banned pesticides/insecticides | - TNUIFSL to include these requirements in Environmental Guidance & TOR for DPRs & EIAs and included for DPR & EIA review - These shall be assessed and ensured by EIA/EMP and verified by TNUIFSL, DMA during approvals & implementation monitored by ULB and reported - These will be checked as part of Environmental Audits |

| SI No | Program activities | Environmental Risks | Risk Category | Measures to mitigate risks | Responsibility & Mechanism to ensure implementation of proposed measures |
|--------------|---------------------------|----------------------------|----------------------|---|--|
| | | | | - EMP to be followed to prevent impacts /risks; EMIS & Dashboards to publish the results | - Monitoring data to be compiled & updated in EMIS, and disclosed through TN Urban Tree |

4.2 Assessment of Social Risks and Impacts of the Program

6. The proposed PforR Operation has **two Result Areas (RAs)** and **eight Disbursement Linked Indicators (DLIs)**.

Result Area 1: *Strengthening Urban Management, Institutional Framework and Climate Resilient Planning.* This result area will focus on addressing critical binding constraints on urban management and climate resilient planning.

The DLIs linked to this Result Area include the following:

- DLI 1: Mobilizing Own-Source Revenue (OSR) of participating ULBs
- DLI 2: Enhancing ULB capacities for climate resilient planning.
- DLI 3: Improving ULB's institutional capacity in terms of lack of human resources etc.
- DLI 4: Strengthening ULB's institutional capacity to manage resources in a sustainable, participatory, and green manner

Result Area 2: *Improving Accessibility, Climate Resilience and Efficiency of Urban Services.* RA 2 concurrently strengthens WSS infrastructure, service delivery and operational and financial efficiency.

The DLIs linked to this Results Area are as follows:

- DLI 5: Delivering functional water and sewerage connections.
- DLI 6: Improving the enabling environment for sustainable and climate resilient WSS services.
- DLI 7: Delivering operational, climate and financial efficiency of WSS services.
- DLI 8: Increasing ULBs' access to financial markets.

7. The **Table 4** below analyses the likely social risks and impacts of the activities of the result areas and the activities that would be necessary to meet the DLIs under each result area.

Table 4: Social Risks and impacts of Program Activities

| Program Interventions | Activities to be Undertaken to meet the DLIs |
|--|--|
| Result Area 1: <i>Strengthening Urban Management, Institutional Framework and Climate Resilient Planning.</i> | |
| DLI 1: Mobilizing Own-Source Revenue (OSR) of participating ULBs | Year 1: All participating ULBs are expected to develop an OSR improvement plan. |
| DLI 2: Enhancing ULB capacities for climate resilient planning | Year 0: DMA will issue a set of standardized guidelines that will outline the scope for CCAPs to be prepared by the ULBs. Year 1: ULBs to hire consultants and establish a cell at cluster level to support them with the preparation of CCAP for better management and monitoring of climate actions under the Program. Year 2: ULBs to undertake preparation of CCAP aligning with the guidelines published by DMA. Year 3-6: ULBs to demonstrate energy savings. Through implementation of energy saving measures based on the energy audit. |
| DLI 3: Improving ULB's fundamental institutional capacity. | (i) HR management including due consideration on gender balance; (ii) budget, budget execution, accounting and transparency; (iii) capital expenditure and asset |
| DLI 4: Strengthening ULB's institutional | |

| Program Interventions | Activities to be Undertaken to meet the DLIs |
|--|---|
| capacity to manage resources in a sustainable participatory, and green manner. | management; and (v) citizen engagement and user-centric service delivery. |
| Social Impact: Activities related to achievement of DLI1 to 4 in RA 1 are likely to have high positive impacts. | |
| Social Risk Rating: Low Achievement of RA 1 would need the program to address potential social risks related to equity (in raising OSR, service delivery coverage, etc.) and inadequate citizen's involvement / participation in program planning, design, implementation and O&M. It is to be noted that currently, none of the ULBs participating in the PforR have the required capacities to manage the likely social risks and handle the possible adverse impacts that might arise if these risks are not properly addressed. | |
| Result Area 2: Improving Accessibility, Climate Resilience and Efficiency of Urban Services. | |
| DLI 5: Delivering functional water and sewerage connections. | <p>Incentivize ULBs to accelerate investments to enhance service delivery.</p> <p>Year 1: Each participating ULB to enter into a financing agreement with TNUISL's TNUDF as per an agreed framework to secure funds for WSS works.</p> <p>Year 2 onwards (Water Supply): Metered water supply connection at the household level in demonstration zones in about half of the participating ULBs.</p> <p>Year 2 onward (Sewerage): Increase numbers of new and / or rehabilitated household sewerage connections that are in turn connected to a functioning sewage treatment plant which meets required effluent disposal standards.</p> |
| DLI 6: Improving the enabling environment for sustainable and climate resilient WSS services. | <p>i. ULBs will develop strategic business plan for water supply and a city-wide inclusive sanitation (CWIS) plan.</p> <p>ii. The ULB will develop a WSS Emergency Response and Preparedness Plan (ERPP) focusing on critical climate-related threats to the service delivery, including clear guidance, roles and responsibilities on community communication.</p> <p>iii. The ULBs will issue binding tariff by-laws that require volumetric tariff for water supply and user charges for sewerage systems.</p> <p>iv. ULBs will be incentivized to improve O & M cost recovery</p> |
| DLI 7: Delivering operational, climate and financial efficiency of WSS services | <p>i. The ULBs will be sign performance -based contracts with operators/ contractors.</p> <p>ii. Non-Revenue Water (NRW) will be reduced to 20% during the program period.</p> <p>iii. The ULBs will be incentivized to increased flows into the existing sewage treatment plants</p> |
| DLI 8: Increasing ULBs' access to financial markets | TNUDF to support ULBs to access financial market through issuing municipal bonds. |
| Social Impacts: Outcomes of all activities related to achievement of DLIs 5 to 8 are likely to have high positive social impacts. For example, improved UGSS will lead to less water logging in the streets and | |

| Program Interventions | Activities to be Undertaken to meet the DLIs |
|--|---|
| less clogging of the drains; regular and improved water supply will free women from the burden of spending hours in collecting and storing water for household use and this time can be used to engage in more productive / remunerative work and also more leisure time. | |
| Social Risk Rating: Moderate | |
| <p>The likely social risks of the activities related to the achievement of DLIs 5 are: (i) Exclusion of sections of population living in non-notified slums in and around the administrative jurisdiction of the ULBs from receiving program benefits; (ii) Involuntary resettlement of non-title holders occupying land on which physical assets envisaged under the program will be constructed without adequate remedies being provided for; (iii) Temporary adverse economic and / or livelihood impacts on businesses and individuals during the implementation phase of the project; (iv) potential caste / class based social conflicts related to service delivery and / or coverage.¹⁹ Activities related to DLIs 6-8 are unlikely to have adverse social risks.</p> <p>The likely social risks are site specific, limited in scope and scale and can be managed at the ULB level itself through proper social risk management planning and communication and outreach activities though the planning, implementation and O&M phases of the project.</p> | |

8. As seen from the above **Table 4**, overall, the program is expected to have significant positive social impacts and low to moderate social risks.

4.3 Summary of E&S effects

9. The key environmental effects of the program are summarized as follows:

10. The program activities are aimed at improving the livability and resilience of the growing cities and towns of TN, by improving access to good water supply and sewerage disposal. This ensures better health of the communities through improved access to quality water and sewage treatment services, and greener and energy-efficient cities. Current sewage disposal practices in towns and cities result in health impacts including communicable diseases, impacts on biodiversity, and pollution in the receiving water bodies. This is compounded during summers when water availability is low, as well as during monsoons when most cities are affected by the vagaries of flooding and cyclones. TNCRUDP intends to improve the environment, resilience, and health of the cities/towns of TN. Program activities will not create long-term irreversible risks or impacts. The environmental benefits of the proposed Program are 'high' and it provides enormous opportunities to incorporate environmental enhancement measures in program activities and would ensure long-term environmental benefits.

11. Impacts and risks associated with the program may be due to EHS risks of Water Treatment and Sewage Treatment infrastructure during the construction stage, as also probable impacts due to disposal or bypass of untreated/sub-optimally treated sewage, sludge, or wastes into the surrounding environment during both constructions and O&M stages. Use of hazardous or Harmful substances such as asbestos, banned insecticides, lead, and Volatile Organic Compounds (VOCs) are avoided and proper monitoring and disposal of any hazardous material as part of the Program need careful consideration in construction and O&M criteria. The civil structures proposed in disaster-prone areas follow specifications to ensure structural and operational safety. Impacts and risks on natural habitats or resources are expected to be minimal, by following existing regulations; and can be avoided by following exclusion principles, guidance, regulations, good practices, E&S risk assessment, and management, and benefits can be enhanced by ensuring adequate capacities at all levels to guide and monitor environmental effects.

¹⁹ <https://timesofindia.indiatimes.com/articleshowprint/101146856.cms>

12. The key social effects of the program are summarized as follows:
13. By providing access to clean drinking water and UGSS to the growing urban population living in various cities in Tamil Nadu. Two of the direct and most visible benefits of the interventions would include: (i) reduction of young girls' and women's burden in household duties w.r.t. collection, transportation and storage of water, (ii) better health outcomes on account of access to clean drinking water at the household level as well as lesser likelihood of outbreaks of water borne diseases on account of clogged drains. The indirect positive impacts of these interventions are also manifold.
14. Some of the social risks of the PforR operation *could* include exclusion of poor and marginalized population who mostly live in slums and de-notified areas in the city from the program benefits. Also, project activities like laying of pipelines through in market areas might cause temporary loss of livelihoods to the street vendors and shop keepers. Moreover, new construction of OHT or STPs could lead to loss of dwellings to non-titleholders. Currently, the relevant State laws do not allow for payment of compensation to non-titleholders occupying government land or payment of compensation for temporary economic loss or loss of livelihoods. This is not aligned with the Bank's core principles for PforR financing²⁰ and, if not addressed as per the requirements of the Bank's core principles, might pose adverse reputational risks both the GoTN and to the Bank.
15. These risks can be managed through (a) detailed screening of program activities for identification of social risks and impacts; (b) use of the exclusion list (refer to Annexure VIII of this document) to filter out activities that are likely to have high or substantial social risks and impacts, (c) required provisioning in the DPRs to ensure adequate service delivery coverage in de-notified areas / slums and addressing of equity issues therein; (d) addressing potential caste / class based social conflicts related to service delivery and / or coverage in the ULBs and (d) sustained communication and meaningful engagement with the stakeholders across all phases of program from planning, design, implementation to O&M .

20 Core Principle # 4: Management of Land Acquisition, Loss of Access to Natural Resources, Involuntary Resettlement

5 ASSESSMENT OF ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEMS AND IMPLEMENTATION CAPACITY

5.1 Guidance in P for R Financing

1. As per the P for R Financing of the bank: A *program system* is constituted by the rules and “arrangements within a program for managing potential environmental and social effects,”²¹ including “institutional, organizational, and procedural considerations that are relevant to environmental and social management”²² and that provide “authority” to those institutions involved in the program “to achieve environmental and social objectives against the range of environmental and social impacts that may be associated with the Program.”²³ This includes existing laws, policies, rules, regulations, procedures, and implementing guidelines, etc. that apply to the program or the management of its environmental and social effects. It also includes inter-agency coordination arrangements if there are shared implementation responsibilities in practice.²⁴

2. Program *capacity* is the “organizational capacity” the institutions authorized to undertake environmental and social management actions to achieve effectively “environmental and social objectives against the range of environmental and social impacts that may be associated with the Program.”²⁵ This ESSA has examined the adequacy of such capacity by considering, among other things, the following factors:

- a) The adequacy of institutional organizations and division of labour, and the likelihood that the applicable E&S management systems can meet their goals.
- b) The adequacy of institutional capacity (staff, budget, availability of implementation resources, training, etc.) to carry out defined responsibilities under the applicable Program system.
- c) The effectiveness of interagency coordination arrangements where multiple agencies or multiple jurisdictions are involved.
- d) The past performance of the implementing agency in ensuring that the rules and procedures are being followed.

3. An assessment of the environmental and social management systems was carried out by the Bank team in co-ordination with the borrower to understand the adequacy of existing capacities to manage environmental and social effects identified as part of ESSA including management of risks and impacts (regular and during emergencies) and to enhance benefits. Capacity to manage risks and impacts and enhance benefits were added in terms of institutional capacities and gaps, the existence of appropriate legal and regulatory frameworks, procedures, tools, and guidance at the National, State, and Program level to effectively implement and manage the E&S requirements. Assessments are carried out to understand if the program’s environmental and social management systems are consistent with the core principles and key planning elements contained in the PforR Policy and whether the involved institutions have the requisite capacity to implement these systems’ requirements. Gaps identified through the assessment are proposed to be addressed through a set of actions that are compiled as Environmental and Social inputs to the Program Action Plan.

²¹ Drawn from Bank Guidance: Program-for-Results Financing Environmental and Social Systems Assessment, The World Bank Effective July 2019

²² Ibid

²³ Ibid

²⁴ Ibid

²⁵ Ibid.

5.2 Assessment of Core Principles - Environment

5.2.1 Core Principle 1 – Environmental and Social Management

5.2.1.1 Environmental Assessment

National Systems for Environmental Assessment

4. An assessment of program systems under the Core Principle 1 determined that TNCRUDP is aimed at the provision of mainly Water Supply and Sewerage Infrastructure and facilities in the ULBs, and other activities such as greening of public spaces, and energy efficiency-related interventions. Environmental Impact Assessment (EIA) or Environmental Clearance as under Environmental Impact Assessment Notification 2006, is not a statutory requirement for Water Treatment Plants, Sewage Treatment Plants and their networks, or greening public places (unless it is a large area development exercise >50Ha) and energy efficiency works in buildings.

5. However, for the projects (treatment plants, networks, or disposal) located in coastal zones, EIA is a requirement under CRZ Notification, 2019 of the MoEFCC of the Government of India as these are regulated activities in CRZ Zones. However, disposal of untreated wastes and sewage (note: in the case of bypass, wastes and sludge from WTPs, STPs) is a prohibited activity in CRZ Zones. Disposal of treated sewage and waste water requires No Objection from State PCBs.

Systems for Environmental Assessment at Program Agency level

6. TNUIFSL has systematized the use of ESMF at project level and EIA/EMPs at subproject levels over the years through TNUDP III and TNSUDP. TNSUDP (WB Safeguards category 'A') which closed in March 2023 demonstrated that ESMF can be used as a tool successfully for environmental safeguards management of subprojects. Following the successful management of TNSUDP using ESMF (based on WB Safeguard policies), external funding agencies demanded managing their projects using the updated ESMF following the new WB ESF, adding climate considerations in screening management. Thus, TNUIFSL has updated the TNSUDP ESMF and has decided to follow this for E&S management of all its Externally Aided Projects; though not for this Program. As of date, TNUDF project portfolio (E&S managed using ESMFs and other safeguard documents) is an impressive 505 subprojects, including 80 water supply subprojects (29 WB funded), underground sewerage in 57 cities/towns (27 under WB funding), 37 storm water drain networks, 6 cities street lighting, 207 roads, 20 bus stands, 86 solid waste management subprojects, 9 river/water body improvements, 1 bridge, 4 parks and 1 solar power plant. Among these, 10 are JICA-supported water supply projects, 143 are WB funded under various sectors (TNUDP III and TNSUDP and 283 old TN Urban projects), 52 are KfW supported, and 15 ADB funded.

7. DMA and some of the Program ULBs were involved in earlier WB-supported projects and coordinated the preparation of EIAs for Technical Assistance activities under TNSUDP, while these systems are not followed for any other project/program.

5.2.1.2 Rules, regulations and Standards on Biodiversity, Pollution Prevention and Health and Safety

8. **National Level:** In India, MoEFCC is responsible to lead the activities on the Environment agenda, including planning, promotion, co-ordination, and implementation. Broadly, the role of the MoEFCC includes (i) Conservation and survey of flora, fauna, forests, and wildlife; (ii) Prevention and control of pollution; (iii) Afforestation and regeneration of degraded areas; (iv) Protection of the environment and (v) Ensuring the welfare of animals. The above responsibilities are effectively discharged with the support of a host of robust policies and legislations promulgated at the National level and aimed at conserving and protecting the environment. Besides, important policies such as the National Conservation Strategy and Policy Statement on Environment and Development, 1992; National Forest Policy, 1988; Policy Statement on Abatement of Pollution, 1992; and the National Environment Policy, 2006 also guide the MoEFCC's work. In the implementation or enforcement side, agencies such as the Central Pollution Control Board (CPCB), Forest Department, Department of Archeology, Coastal Regulation Zone (CRZ) Authorities, and others are the technical arms of the Ministry which carry out specific legal and regulatory

functions. They provide permitting and clearance functions when required in projects/programs. Monitoring is undertaken directly through relevant agencies, or state counterparts. Separate committees are constituted for specific issues such as Forests and Biodiversity, and others, while a capacitated NGT, a judicial body²⁶ acts as the environmental watch dog setting stringent standards and monitoring the issues and non-compliances on the ground.

9. The above National-level regulatory and institutional systems are full-grown, in place and reasonably enforced across all sectors all over the country. Although individual states may also have promulgated state regulations on the same/similar themes, the National level regulations are the basic umbrella, under which the state-level regulations are created, and are expected to follow at the minimum. The state of Tamil Nadu has robust regulatory mechanisms and manpower to ensure compliance with National and State level regulations. Various environmental regulations at the National and State Levels and their applicability to the program are discussed in detail in **Annexure I**.

10. The legal/regulatory framework on social aspects ensures the following: (a) protection of the interest of SC and ST population, (b) non-discrimination based on religion, race, caste, and gender, (c) transparency with the right to information, (d) the right to fair compensation in case of land acquisition. A comprehensive listing and assessment of social policies, laws, and regulations, as applicable to the program is provided in **Annexure I**. Over-all, the provisions of the existing social legal/regulatory framework, including the stipulations to protect the interest of marginalized and vulnerable population such as the SCs and STs, are adequate though enabling institutional and technical capacity building is required for achieving full and more uniform compliance on the ground across the state.

11. **Consent to Establish & Operate:** STP, and WTP projects are categorized as RED category by PCB considering their significant pollution potential and need Consent to Establish and Consent to Operate (under Air and Water Acts) from Pollution Control Board and usually follow the most stringent among the rules, guidelines, and standards suggested by the MOEFCC, CPCB, NGT or other concerned agencies. Other program activities also shall follow applicable regulations by National and State agencies but do not need Consent from PCB except for specific work components/locations if applicable (such as Batching Plant).

12. **Discharge of Treated Sewage:** There are policies and guidance at the Central / National level on discharge norms for treated sewage. However, as in the case of most other State regulatory agencies, TNPCB follows the standards recommended by MoEFCC for the discharge of treated sewage – which has stringent permissible limits for discharge from mega metropolitan cities²⁷ and less stringent standards for metropolitan and other cities - and hence, monitoring by TNPCB also based only on MoEFCC standards; whereas many cities/projects in the country have adopted the NGT recommendation to follow the standards prescribed by MoEFCC for Mega & Metropolitan cities uniformly for all categories of cities which is more beneficial to the environment. ²⁸ MoEFCC has challenged NGT's recommendation, thus leaving room for interpretation of applicable standards. The Tribunal has already issued directions vide orders dated 28.08.2019 and 21.05.2020 for ensuring that no untreated sewage/effluent is discharged into any water body (*bypass from any part of sewage/drainage system*) and for any violation compensation is to be assessed and recovered by the CPCB so that the same can be utilized for restoration of the environment, complying with the principle of 'Polluter Pays' which has been held to be part of 'Sustainable Development' and part of right to life.

13. **Recycling and Reuse:** As per AMRUT Jal Shakti Abhyas, "In case, the city has got sewage treatment plants (STPs), ULB should ensure that treated wastewater is used for the following purposes:

26 A specialized judicial body equipped with expertise solely for the purpose of adjudicating environmental cases in the country.

27 More than 1 million population

28 In the case of Bank IPF projects, some states/projects follow NGT recommendations while others follow respective State PCB Consent Conditions in line with MoEFCC suggested limits

a. Recycling for use in agriculture/horticulture; b. Fire hydrants; c. Large scale construction activities; d. Made available to the industry if it consumes water in bulk; e. Supplied to power plants located within 50 Km of the city. As per directions of the Ministry of Power, Tariff Policy Circular dated 28 January 2016, it is mandatory that power plants within 50 km of STPs have to develop a system for the conveyance and use of treated wastewater.²⁹ Such environmental enhancement measures shall be part of the Program to improve environmental performance and circular economy, however, fully in line with regulations and guidance, including the quality of treated sewage supplied for agricultural use to confirm with guidelines for reuse of treated effluents for irrigation quality recommendations and consultation requirements with agriculturalists/end users). *Consent conditions are not suggestive of the standards and mechanisms for disposal of treated sewage for irrigation and standards for the reuse of treated sewage for groundwater recharge, industrial reuse, or irrigation. Hence treated sewage reused for irrigation may be of varied qualities, and might/might not be appropriate for particular crop types in the area of reuse. So the Program shall guide the conditions, standards, and consultations required with communities in case treated sewage is reused for irrigation.*

14. **Collection, Treatment, Disposal of Wastes:** SWM Rules, 2016 guides the segregated storage, collection, transport, treatment, and disposal of solid wastes. It suggests treating and reusing the wastes for beneficial use, and disposing of inerts and rejects in scientific landfills. It suggests standards for composts from biowastes in terms of metal content. Plastic Wastes are to be recycled as per PWM Rules 2016 and its amendments and unusable fractions can be used for energy recovery. Construction and Demolition (C&D) Waste management Rules 2016 suggests recycling and reuse of building materials C&D wastes and some ULBs have C&D waste management facilities. Various Rules on Batteries, Chemical, E-waste, and Hazardous waste management guides the management of solar panels, batteries, chemicals, and other wastes from all Program activities. The Program shall send solid wastes, grit, plastics, screenings, C&D wastes, solar panels, Electronic and electrical items, and hazardous wastes (as in used asbestos, sludge with hazardous content, etc.) to available facilities and plan to reuse upcycled wastes as much as possible. These rules apply to all Program activities.

15. **Disposal of Sludge:** At the National level, AMRUT Program's FSSM Policy Report³⁰ suggests sludge from STPs to be composted and disposed of after attaining Compost Quality standards prescribed in SWM Rules, 2016. The compost quality standards in SWM Rules 2016 are about solid wastes, and are silent about Faecal Coliforms, Salmonella or Helminth Ova which are observable in sludge, as against biodegradable solid waste. CPHEEO also guides the metal content in sewage sludge but is silent on the limits for Faecal Coliforms, helminth ova, salmonella, etc. appropriate for disposal. CPHEEO Advisory Note on Septage Management suggests that for the use of dewatered sludge as fertilizer in agriculture applications, it should satisfy the criteria of USEPA Class A Biosolids.³¹ Accordingly the bid document provides for dewatering of sludge by thickener, centrifuge and filter press. NIUA also suggests sludge be treated to USEPA Class A Biosolids standards.³² Tamil Nadu Faecal Sludge Operating Guidelines and Rajasthan State PCB Guidelines also advises the same USEPA and WHO³³ standards.³⁴ Fertilizer Control Order 1985 is yet to recognize fertilizer from Faecal sludge. However, FCO City Compost requires 'Nil'

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<http://amrut.gov.in/upload/newsrelease/5db809d263e6e5db80878c8e305d25b2c7e90c7GuidelinesforUrbanWaterconservationJalShaktiAbhiyan.pdf>

30 http://amrut.gov.in/upload/newsrelease/5a5dc55188eb0FSSM_Policy_Report_23Feb.pdf, p. 29

31

<http://cpheeo.gov.in/upload/uploadfiles/files/Advisory%20Note%20on%20Septage%20Management%20in%20Urban%20India.pdf>

32 Veditantla et al 2020. Background Note to Quality in Faecal Sludge Management, WASH Institute.

33 Pathogen standards as per WHO guidelines for reuse of faecal sludge in agriculture: Helminth eff<1/g of total solids, E-coli <1,000 number/g of total solids

34 (Section 2.5.1 Page 26)

value for Pathogens, faecal coliforms, salmonella and helminth ova. *TNPCB has no guidance/standard on sludge from STPs, (minimal from) WTPs, or its monitoring. In the case of STPs, TNPCB consent conditions stipulate the production of manure from sludge and encourage recycling/reuse of sludge for Biogas production, energy recovery, etc. WTP sludge quantity and composition depend on the source of water, while quality is not much of a concern (as it depends on chemicals used to treat water to reach the standards). In the case of STPs, the quality of sludge including the concentration of hazardous chemicals, metals, faecal coliforms, and other aspects are concerns for the health and safety of the operators/users. The absence of standards for the disposal of sludge is a policy gap at the National and State level, and most STP / WTP Projects either freely distributes sludge to farmers or follows the dumping of sludge in available low-lying areas, farmlands, or at existing SW dumping yards, while on the other hand, dumping of wastes is prohibited by SWM Rules, 2016. While the acceptable international standards for the use of sludge in agriculture recommended by various advisories is the USEPA Class A Biosolids standards, the cost factor involved is unacceptable to the client agencies. Hence the usual guidance is to convert sludge into manure using composting/vermicomposting.*³⁵ *Notwithstanding this, sludge generated from Nilothi STP in New Delhi meets USEPA Class A Biosolids standards which can be used for crops, gardens, and green spaces; while the seven New STPs of Brihan Mumbai Municipal Corporation are under development with Thermal Hydrolysis used for sludge to generate Class A sludge suitable for use as manure in agriculture. Other uses of dried sludge include brick making, use as landfill cover etc., while options such as injecting the sludge deep into the ground or disposing of in monofills are not particularly suitable in Indian conditions considering the climatic factors, high gas emission, high density of population, risk of fire, groundwater pollution, etc. Disposal of sludge in landfills is not an option for its high methane/other gas generation potential and safety aspects, and the SWM rules prohibit anything other than rejects/inerts from SW into landfills. Use of USEPA Class B Biosolids is also not a practical solution in India considering that the fields where sludge will be used are not within the ULBs where sludge is generated and transportation and usage need strict health & safety considerations for the workers, farmers, and communities, the need to store sludge for more time (in the range of 30 days) for pathogen reduction, prohibition on movement of men and animals on site for many days when applied, sensitivities of usage locations/farms that are outside ULBs where sludge is generated etc. Mechanisms to reach USEPA Class A Standards include Gamma Irradiation by Cobalt 60 as in Ahmedabad Municipal Corporation (BARC supported), solar/thermal drying while composting or co-composting with municipal solid wastes after sufficient drying etc. In the case of ULBs under TNCRU DP, with STPs of capacities less than 50MLD, sludge management would be easier and more efficient considering the lesser quantities of sludge. Options for sludge management shall be evaluated during Design (in DPR) and in EIA considering the quantity, quality, and various available facilities in the ULBs; to do no harm to the environment and people (Examples: as met by the standards prescribed by World Health Organisation, US Environmental Protection Agency in case of unrestricted use of sludge as manure or in line with the Recommendation of Consortium of 7 Indian Institute of Technology (IIT) on National Ganga River Basin Authority (NGRBA) Environment Management Plan (GRB EMP) by the MOEFCC). Standards shall be suggested in line with end use, quality, quantity, and available facilities in ULBs, in discussion with TNPCB, while monitoring of sludge quality and quantity shall be part of the monitoring plan. Such guidance shall be compiled and made a part of Environmental Guidance and this shall guide EIA/ EMP.*

35 Recommendation of Consortium of 7 Indian Institute of Technology (IIT) on National Ganga River Basin Authority (NGRBA) Environment Management Plan (GRB EMP) by the Ministry of Environment and Forests (MoEF), GOI, New Delhi on Sludge Management: The sludge dewatering should be done using thickener followed by filter press or centrifuge or any other equivalent mechanical device. Sludge drying beds (SDB) should be provided for emergency only. SDBs should be designed only for 25% of the sludge generated from primary and secondary processes. The compressed sludge should be converted into good quality manure using composting and/or vermicomposting processes. Energy generation through anaerobic digestion of sludges in the form of biogas and subsequent conversion to electrical energy as of now is viable only when sewage BOD > 250 mg/L. Single fuel engines should be used for conversion of biogas to electrical energy. Hazardous sludge, if any should be disposed of as per the prevailing regulations.

16. Other Program Activities such as Greening, Solar Roof Tops: Various standards and regulations are in place that apply to pollution management and design of green spaces and solar rooftop for municipal buildings, including building bye-laws, National Building Codes, URDPFI guidelines on area allocation for parks and green spaces etc. However, the impacts due to such activities are not assessed, nor are fully enforced or monitored by ULBs, Town Planning Department, or Pollution Control Boards (e.g.: disposal of solar panels).

Gaps in Existing Systems and Recommendations:

17. While the scale of works and environmental management are commendable, there is room for design interventions best suited to deal with climate and other risks; and environmental enhancements, including resource efficiency and adopting a circular economy; and adopting environmental best practices that would add to the overall enhancement of program effects and benefits. Absence of mechanisms to promote environmental sustainability and OHS in project designs by incorporating design considerations in DPRs, and tools/formats and capacities at ULBs to review, monitor, and enforce Pollution management, O&M of assets for long-term pollution management, OHS, CHS, O&M of assets are notable.

18. It is important to note that the use of EIA/EMPs for TNSUDP and other EAPs ensured that national and state regulations (in addition to WB / other MDBs' safeguard requirements) are followed and monitored in earlier projects. Hence it is important to follow similar systems for TNCRUDP as well using an MS Excel/ other software-based MIS for more efficient record keeping and access.

19. Controls on disposal of sludge from STPs and WTPs, regulations on the use of treated water for agriculture (by nearby communities), prevention of industrial effluents from mixing with domestic sewage, connecting open drains to STPs, etc., are the issues not covered under existing State level rules. This is observed as a gap in the environmentally sound implementation of the program activity, namely STP and networks (also applicable for rehabilitation of existing STPs or networks laying, considering STPs as associated facilities), and to an extent in the case of WTPs and its networks. The Program shall have appropriate guidance on environmental aspects for all agencies to uniformly follow based on end-use, and this should guide EIA/EMP.

20. In case of disposal of treated sewage, the Program shall ensure adherence to the TNPCB consent conditions but strive to follow NGT suggested standards uniformly applicable to all program ULBs irrespective of their class sizes. Else, in case MoEFCC notifies new standards in line with NGT recommendations during the Program implementation, design parameters may need to be changed resulting in considerable cost variations. In case of disposal of sludge, the Program shall strive to meet Biosolids quality to be used safely as manure as the capacity of STPs is less than 50MLD and sludge quantities would be lesser and good standards are easily achievable during most seasons (esp dry seasons; except probably during monsoons). It is important to employ (i) better treatment technologies including CSBR, SBR, and MBBR (basis whole life cycle cost), (ii) dewatering options such as usage of centrifuge, screw presses, and drying beds, (iii) sludge handling units and sludge reduction by recycling/reuse for Biogas/energy generation or any other suitable option; followed by (iv) co-composting with solid wastes with thermal/solar drying technologies or other technologies to produce good quality manure with extended drying/storing (while Indian National standards take care of heavy metal contents in sludge, Faecal Coliforms, Helminth Ova, Salmonella sp. and others need more drying, addition of lime, and other treatment mechanisms, to do no harm to the environment and people (as met by the standards prescribed by World Health Organisation, US Environmental Protection Agency in case of unrestricted use of sludge as manure or in line with the Recommendation of Consortium of 7 Indian Institute of Technology (IIT) on National Ganga River Basin Authority (NGRBA) Environment Management Plan (GRB EMP) by the MOEFCC). Standards shall be suggested in line with end use, quality, quantity, and available facilities in ULBs, in discussion with TNPCB, while monitoring of sludge quality and quantity shall be part of the monitoring plan. Such guidance shall be compiled and made a part of Environmental Guidance and this shall guide EIA/EMP.

5.2.1.3 Environmental Management: Assessment of Program Capacities

21. *Program Agencies:* The program will be implemented by TNUIFSL, DMA, and ULBs. For ULB-level interventions some may resort to the support of TWAD

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24. Board, CMWSSB, or Project Management Consultants for implementation, depending on their location and their need for additional capacities to implement these interventions. However, this will be known only at a later stage.

Experience in similar projects

25. The World Bank has had a long partnership with the Government of Tamil Nadu (GoTN) in the area of urban development starting from the 1980s with Chennai-centered MUDP-I & II and Tamil Nadu Urban Development Project (TNUDP-II & III). These projects, in addition to the creation of infrastructure assets, have influenced reforms in the urban sector as well as build new institutions such as the Tamil Nadu Urban Development Fund (TNUDF), a Trust established to fund urban infrastructure projects in Tamil Nadu. The Tamil Nadu Urban Infrastructure Financial Services (TNUIFSL) is the Fund Manager of TNUDF. The Bank funded projects have been going hand-in-hand with urban sector reforms in the state where Tamil Nadu has been one of the leading states in India. Under TNSUDP, the TNUIFSL ensured that the subproject implementing agencies prepared / used EIAs / EMP (12 nos) to manage the subprojects, and TA activities (26 nos). The program agencies such as TNUIFSL and DMA are experienced in delivering similar interventions as part of the TNUDP III and TNSUDP (World Bank supported) and other External Aided Projects (supported by ADB, KfW etc.).

26. Incident reports were reported for the mission periods including serious, severe and indicative incidents, and Detailed Incident Reporting and Safeguards Corrective Action Plans were submitted based on Root Cause Analysis for severe incidents. PIUs (ULBs, CMWSSB) provided monthly EHS reports and progress of agreed actions to PMU, while PMU reported these to the Bank in their Quarterly Progress Reports. Work close-out reports were prepared by each subproject at closure. Periodic training on environmental safeguards (virtual & on site) were provided to the PIUs, Contractors, in addition to scheduled site visits by PMUs, PIUs, and by TWAD Board or PMCs. Independent Annual E&S Audits helped in identifying the gaps in safeguards management and paved the way for EHS improvements.

E&S Management Capacities at Program Agencies

27. As described above, TNUIFSL has extensive experience in World Bank and other External Agencies funded projects. They have two qualified and experienced (more than ten years) E&S managers who manages E&S aspects, and reports to the management through the Vice President of TNUIFSL. DMA has an environmental expert for ESMF implementation under TA activities of TNSUDP pursued by DMA.

28. ULBs implement their projects through their Engineers who are well experienced in works. However, capacities to manage environmental aspects are less at ULBs. Further, many of the ULBs under TNCRUDP are different from the ones under TNSUDP or earlier programs, and hence their capacity is assessed as low. They usually seek the support of TWAD Board or PMCs for project-based capacities for Environmental management. This will not help in having systemic capacity development at ULBs to manage environmental aspects holistically. Systematic monitoring of E&S parameters is missing, though essential to ensure best environmental effects throughout the life of the infrastructure created.

29. Considering the scale of works under the Program, and other parallel ongoing National/State/ULB level and externally aided projects in program agencies, is important to have additional Environmental and OHS experts at various program agencies including TNUIFSL, DMA and ULBs is important. Regional level designated capacities to closely interact with various agencies for timely permits, clearances, to oversee environmental management and OHS/CHS will help systematizing effective environmental management. Trainings and peer to peer exchanges from similar projects on best practices and

environmental management will help in overall capacity strengthening at the State & ULB levels to ensure long term sustainable outcomes.

Environmental Management: Recommendations

30. To address the gaps highlighted through the assessment, ESSA recommends the following:

- (i) Environmentally appropriate design guidelines for sewage treatment and disposal: Develop design guidelines for STPs under the program following National Standards / regulations (in the absence of standards or guidance at the State level / Consent Conditions) on (i) Climate resistant planning and siting of infrastructure in DPRs/FS, (ii) treated sewage disposal conforming to TNPCB consent conditions at the minimum, but preferably the most stringent NGT standards & agreement to upgrade STPs to higher standards when Consent Conditions prescribes so; and mechanisms for disposal, recycle and reuse in nearby industries, irrigation, and groundwater recharge, (iii) disposal of sludge which is unsuitable for reuse, rejects/inert as appropriate for its quality (i.e.. If hazardous, it shall be disposed at TSDF), (iv) minimizing the sludge quantity (by using appropriate machinery/press, drying, reusing it for biogas generation etc.), and disposal of sludge, wastes, screenings from STPs following SWM Rules, 2016 (without any type of open dumping), or CPHEEO / MoHUA Advisory or whichever is appropriate based on end use³⁶, and (v) all networks appropriately placed, allowing no contamination, and without any possibility of industrial effluents / untreated hospital wastes being allowed to enter the networks.
- (ii) Program activities on sewerage and water supply shall confirm to Design guidelines and there shall be all-encompassing 360-degree wholistic designs for sewage treatment and disposal infrastructure under the program – including for treated sewage (for industries, irrigation, groundwater recharge, etc.), sludge, wastes, waste reuse and recycling and management of all rejects/inert. These shall be based on good studies as guided by National Rules/Guidance and may need developing supporting infrastructure, and mechanisms to improve sewage quality in case proposed to be used for irrigation, biogas/hydrogen fuel conversions, composting, etc. City Greening and Rooftop solar interventions shall also have climate considerations, and effective considerations for environmental (including siting, natural habitats, pollution, wastes etc. enhancement measures), OHS / CHS management.
- (iii) Environmental aspects should be made part of monitoring mechanisms under the Program and also considered for prior results under the program. This shall also be audited an independent environmental auditor.
- (iv) EIA should assess the cumulative impacts of disposal of sludge and treated sewage if (i) multiple STPs would dispose of these into the same rivers/watershed, (ii) rivers/watersheds receiving the treated sewage and sludge are used downstream for water supply, or other sources as part of the program or other projects/programs, (iii) treated sewage & sludge ultimately empties into the coasts of TN with sensitive Eco-sensitive areas such as Gulf of Mannar Marine National Park, and other critically vulnerable coastal areas of TN, and Heritage areas (such as underwater heritage areas – like *Poompuhar*; or coastal/other), (iv) STPs are in towns with industries which dispose effluents into watershed, drainage/sewage system, (v) impacts of STPs (existing, proposed) on the water quality at source of the proposed / existing WTPs, and (vi) any other condition requiring such assessment as identified during screening / EIA. All upgradation works (even partial) on existing treatment plants or networks or in cases where existing facilities are associated facilities of proposed interventions; and activities in brownfield locations for urban greening or Solar Roof tops will need an Environmental Audit of the existing facilities to ensure that the best environmental performance in line with regulations are also integrated into the proposed upgradation.

³⁶ while Indian National standards take care of heavy metal contents in sludge, Faecal Coliforms, Helminth Ova, Salmonella sp. and others need more drying, addition of lime, and other treatment mechanisms, as in the case of unrestricted use of sludge manure by World Health Organisation, US Environmental Protection Agency or the Recommendation of Consortium of 7 Indian Institute of Technology (IIT) on National Ganga River Basin Authority (NGRBA) Environment Management Plan (GRB EMP) by the MOEFCC, GOI, New Delhi on Sludge Management -- to ensure no harm to the environment and people

- (v) EMPs for each project activity shall be developed by the program prior to start of the program activities (including prior results) based on EIAs, and include all environmental considerations and regulatory requirements, and design shall be updated with these environmental considerations. These EMPs and Monitoring Plans with the Budget and manpower required to implement these shall form part of Bid documents and shall be updated to reflect final designs, once the contractor is on board.
- (vi) Develop mobile apps/tools/MIS for Stakeholders, Communities, and Officers to report on maintenance requirements of infrastructure and environmental performance, and link monitoring with TN urban tree.
- (vii) Constitute an Environmental Management Cell at DMA, which will be trained & collaborate with the strengthened Environmental unit of TNUISL and through them continuously guide the Environmental Engineering Cell (EEC) at the regional level and at each ULB to coordinate and manage environmental aspects, develop tools, guidance, provide training, monitor/supervise and report. Designate nodal EEC Environmental Engineers comprising experienced Engineers at Regional Level for each ULB under the Program, and support with Capacity Building on environmental management every quarter under the TA.

Detailed **Table** presenting the Assessment of Environmental aspects against Core Principle 1 is presented in **Annexure VII**.

5.2.2 Core Principle 2 – Natural Habitats and Physical Cultural Resources

31. Proposed program activities will be implemented in existing or new sites in ULBs, with possible risks on natural habitats and Physical Cultural Resources (PCR). With (a) disposal of sludge and treated wastewater, and wastes from program facilities, (b) noise levels and vibration and resultant (mostly construction stage risks and impacts) on air, water, land, and biodiversity may be expected to have an impact on these resources. This core principle applies only to those program activities which may impact such habitats or resources located near them, or possibly impacting such regional resources, which will be identified by EIA (For example, works or activities in the banks of water bodies including in coastal zones, water bodies, city lakes, hazard-prone areas, notified eco-sensitive zones, near forest areas, or in heritage buildings or premises used for any purpose or are valued by the communities; or discharge of waste, waste water or sludge).

Assessment of Program Systems:

32. National and State level laws and regulations exist for the regulation of activities in/near natural habitats, critical natural habitats, in the proximity of protected monuments, and for the management of chance finds. For conservation, maintenance, and rehabilitation of natural habitats, avoid conversion or degradation, and mitigating environmental risks and impacts, there exists various National, State, and local level laws and regulations. These include the Forest Conservation Act 1980 which regulates the use of forest land for non-forest purposes including the construction of buildings; the Wildlife (Protection) Act 1972 which prohibits activities that are harmful to protected species and areas; Eco-Sensitive Zone Notifications that regulate up-gradation/ development activities in ecologically sensitive areas around existing protected areas; Wetland (Conservation and Management) Rules 2017 that regulate activities in notified wetland areas; Coastal Regulation Zone Notification 2019 that regulates construction activities in coastal areas; State/local level Rules and bylaws that regulate the cutting of trees and provide for compensatory afforestation. Also, there are multiple notifications, rules, and permit/license requirements, and guidelines to prevent impacts of new developments, wastes and wastewater management, and discharge/disposal of rejects, inerts, treated sewage. There are certain aspects of Program activities that might impact these sensitive resources which could be avoided by following siting guidelines, regulations, and permit conditions. Some aspects need more due diligence and guidance, such as in disposal of treated sewage, its reuse for agriculture, sludge management, possible alien species in landscaping works, etc. Clear exclusion criteria and guidance on these shall be built by the program before initiating the program activities.

Assessment of Program Capacities:

33. Awareness and capacities at the Regional and ULB level on existing legal/regulatory regimes or the need to follow National/State/Local regulations are less. There is no dedicated responsibility at regional or ULB levels to ensure that requisite permits/licenses are arranged as required for the works/facilities before start of works or to periodically update such licenses and follow license/permit conditions which will improve overall environmental effects, especially for natural habitats and physical cultural resources. Under AMRUT, “no projects should be included and no project work order should be issued if all clearances from all the departments have not been received by that time.” This guidance under the Government program would ensure all permits and licenses before work. It is important to improve capacities and awareness of regulations and clearance procedures before initiating any activity (for example CRZ clearance).

Recommendations:

34. Based on the gaps identified through the assessment, the ESSA recommends the following:

35. Exclusion criteria, and design guidance to avoid high impacts and risks on Natural Habitats and Physical Cultural resources shall be prepared as part of Environmental Design Section of the POM and used (applicable for prior results, implementation of 3 projects from CCAP for DLI 2 outside the Program, but important for the result area)

36. Environmental enhancement measures shall be built into the design itself, respecting the natural habitats and cultural resources. This includes all activities to retain existing trees as much as possible and follow afforestation norms of ten times the no: of cut trees, green belt around all facilities, prohibition on the use of alien species, the greening of public spaces to consider child/elderly friendly and disabled friendly measures, material recycling and reuse including C&D wastes, energy saving measures, etc.

37. Develop institutional capacities to list out and follow applicable regulations (National/State/Local) and timely receipt and update of permits for all program activities and keep records in MIS.

38. Include training on regulatory provisions for implementing agencies.

A Detailed **Table** presenting the Assessment of Environmental aspects against Core Principle 2 is presented in **Annexure VII**.

5.2.3 Core Principle 3 – Public and Worker Safety

39. The works include the construction of WTPs, STPs, their networks, and supporting infrastructure including Overhead Tanks, Pumping stations, and others, the greening of public places, and energy efficiency in municipal assets including street lights, WSSs assets etc.. Some works among these are likely to have any risks or impacts on health and safety unless managed well. There could be construction and O&M stage risks emerging from poor design, construction, and O&M practices; mainly health and safety risks to host communities, road users, construction workers, workers who carry out operations and maintenance, and other staff, pollution due to smoke/noise/dust during construction and maintenance activities and pollution of water sources nearby due to discharge of solid and liquid wastes. There are also chances of disaster risks and impacts mainly due to climate/hazard proneness of some areas (such as cyclones and floods along the coastal east TN, and landslides in the hilly west).

Assessment of Program Systems

40. The program would benefit from including careful considerations on the health or safety of communities, and workers, during the construction, and O&M stages. The country has appropriate regulations including Labour Codes (Draft), Building and Other Construction Workers Act and TN Rules, Public Liability Insurance Act, The Factories Act, and others to ensure OHS and CHS.

41. Old dilapidated and unsafe buildings (as in the case of replacing pumps etc. for energy efficiency, integrating old structures in new WTP / STP & network schemes), old WTPs, STPs, and networks shall be used only after required strengthening. New network additions and the addition of a new separate treatment unit to an existing facility may be possible with strict OHS/CHS SOPs and capacities to supervise and monitor. Besides, works involving asbestos, and lead-based paints are avoided under the Bank-supported program through an 'Exclusion Criteria'. Ongoing P4R in Chennai, the capital city of TN, and surrounding towns/cities in its Urban Agglomeration (Sustainable Urban Services Program (SUSP) under Chennai City Partnership) also supports water supply and sewerage networks including support infrastructure such as pumping stations in high dense areas with high OHS, CHS risks, after including safety considerations in Bid Documents. Learnings on OHS, and CHS from these interventions under SUSP, and the now closing TNSUDP and the earlier TNUDP (all supported by the WB) will also help in the implementation of TNCRUDP.

42. Probable environmental issues during the construction stage include Noise and vibration due to construction and demolition work, localized soil erosion especially during rains/cyclones, disturbance to water bodies/water sources, local air quality impacts during excavations (for foundations), and material transport through unsurfaced roads, or open stacking of materials, stacking and use of hazardous materials or chemicals, and fuels, wastes, and wastewater discharges. Probable environmental issues during O&M include noise and vibration of machinery and work processes, transport-related air pollution, discharge of treated sewage, wastes (including solar panels, batteries), excavated soil, sludge and odor, and fire risks of gases produced during the process. In addition, the use of banned pesticides, and removal of topsoil, and invasive species need attention in case of greening efforts. It is recommended to restrict the size of each STP to not more than 50 MLD capacity.

43. Occupational Health and Safety (OHS) aspects include overexertion and posture-related discomforts and injuries to workers, slips (into pits mainly for foundations) and fall, work in sewage and water sources, work at heights (for example OHTs), striking objects and moving machinery, large equipment, and vehicles as in construction/demolition, traffic conflicts with workspace while laying networks, night time safety issues and vehicular – worker conflicts especially along the roads where networks are laid, dust, and other hazards due to fuels (used in diesel generators, machinery) / chemicals/paints and solvents, electrical hazards on site, utility shifting, and poor water, sanitation

and other facilities at the labour camps. The key risk of working with existing WSS infrastructure is the accidental uncontrolled flow of water or wastewater, high chance of electric shocks in wet conditions, and bursts of existing infrastructure during work which may create biological and choking hazards. Child labour and hazardous work conditions for those between 14 to 18 years are also important. One of the most highlighted issues during the operations of sewers and adding new networks is 'manual scavenging' without appropriate safety considerations. The country has appropriate regulations namely the Prohibition of Manual Scavenging Act 2013, and National Policy for mechanized Sanitation Eco-system, in addition to specific rulings from the Hon'ble Madras High Court regarding this. Bid documents shall clearly ensure contractor's commitment to adhere to the provisions of the Act, and this Program provides opportunities to further enhance the awareness, and capacity to implement these. Some of the Towns and cities of Tamil Nadu employs robots and machines (such as vacuum suckers) to clean sewers and septic tanks. DPRs will include the need for mechanical cleaning of sewers. O&M inbuilt in the Contract would ensure Contractors use machines instead of humans for sewer cleaning.

44. Community Health and Safety related issues include general work site hazards due to poor housekeeping or barricading (with reflectors, especially during situations when light is less, and during emergencies), poor work site lighting, traffic and pedestrian conflicts with work while laying networks, type of works, machinery, and materials on-site, labour camps, pipe bursts, temporary disturbance to existing water/sewerage systems in case of upgradation works, increased incidence of communicable and vector-borne diseases and traffic safety. It is very important to close (permanently or safely but temporarily, if work remains for next day) the opened pits and trenches however small or big they may be when workers move out of the pit or trench; with lighting awareness boards and watch and ward. This is also applicable to trenchless network laying. In case of an outbreak of communicable disease such as COVID 19 type pandemic-related risks, the interaction of workers/workspace with communities need good attention.

Assessment of Program Capacity

45. Though the regulations require Project proponents and contractors to fully adhere to OHS, and CHS and Labour laws during works and operations; and adequate supervision through a safety committee and trained safety officers, most of the works in the country (mainly by small and medium-sized contractors) are carried out without adequate safety considerations or reporting. Multiple layers of contractors and subcontractors and daily wage workers add to the poor safety culture. Though the Labour Commissioner is responsible overall for Labour related aspects, it is noteworthy that there is no specific institutional responsibility or capacity at National, State or program levels to ensure safe work practices and monitor these; thereby avoiding impacts on communities, workers, and others. While engineers, workers, and communities are aware of the structural needs, overall awareness on the need to follow and enforce safe worksite practices and, Labour facilities is minimal.

Recommendations

46. Based on the gaps identified through the assessment, the ESSA recommends these:

- Institutional mechanism (at State, Regional, ULB levels) to guide contractors on safe practices, coordinate with various departments, enforce monitoring of work safety, get required permits and record maintenance, incident reporting, RCA, CAP and follow up
- ToR for EIA and Bid documents to be updated to focus on OHS, CHS and identify all life and fire safety issues including for works on rivers, sensitive areas, hazardous works requiring work permit, disaster prone areas
- The following activities shall be considered in C-EMP as higher OHS, CHS risks, and avoidance, mitigation, and management measures built in as part of OHS, CHS Plan.

- Construction of water abstraction structures in rivers during monsoons works on parts of existing STPs, WTPs, and networks where water or sewage is present unless it is a separate work which do not interact with sewage/water
- Works involving hazardous materials, Lead-based paints, Asbestos, or purchase and Use of banned pesticides/Insecticides

For Manual scavenging, there shall be a Detailed study on Manual Scavenging (safe sewer cleaning) & progress of Various ULBs on the commitments under National Policy, Preparation of detailed OHS guidance in line with the National Policy & Act, to prevent manual scavenging and ensure safety in sewerage network/plants construction and O&M. This will eventually be part of Environmental Guidance & Training on OHS on Sewerage Construction and operations including on prohibition of Manual Scavenging. Some of the Towns and cities of Tamil Nadu employs robots and machines (such as vacuum suckers) to clean sewers and septic tanks. DPRs will include the need for mechanical cleaning of sewers. O&M inbuilt in the Contract would ensure Contractors use machines instead of humans for sewer cleaning.

47. Organize training programs for implementing agencies on safe work practices, WB EHS and monitor these during construction and operations, integrate monitoring of EHS aspects in MIS. Learnings on OHS, and CHS from water supply networks, sewerage networks, and pumping stations under other Programs/Projects such as the Sustainable Urban Services Program (SUSP - ongoing P for R under Chennai City Partnership Program in Chennai and its urban agglomeration), and the now closing TNSUDP (IPF) and other similar projects funded by external agencies in the region will also help in the implementation of TNCRUDP.

48. A Hazard assessment shall be conducted by the contractor to prepare OHS Plan. OHS briefing shall be provided to workers daily (toolbox talks); mainly as workers might be different during most workdays, considering the volatile labour supply in India. Subcontractors also should have the required capacities to monitor, and guide OHS and CHS. Hazardous installations, materials, safety measures, emergency exits, etc. should be marked appropriately and equipment shall be labeled. All workspaces shall be provided with signages in the local language, Hindi and English (with details of site engineer, and authorities) and work areas/machinery storage areas barricaded with hard barricades and adequate lighting and reflectors shall be provided to avoid falls. Hazards may be physical hazards due to rotating equipment, noise, vibration, electrical hazards, welding/hot works, painting works, site traffic, heat wave/temperature at work area during summers, flooding, cyclones; and working at heights. Chemical hazards are not expected, except in the case of fuel used for diesel generators; chlorine or other chemicals used in Plants; and cooking facilities used in labour camps. Work involving Asbestos is avoided, while radiological hazards are not expected. The Guidance shall ensure that any work in confined spaces is based on a work permit and well informed and organized with prior intimation to authorities and carried out by workmen of adequate expertise and PPEs in addition to emergency response arrangements. Wastes like (existing) asbestos if encountered need proper stacking, transport, and disposal in line with good practices; and shall not be disturbed (e.g.: drilling, breaking, poor stacking). There shall be mechanisms to guide and ensure the use of PPEs by all staff and workers, monitor the works, surveillance of worker health (e.g. considering COVID-related protocols), and training. There shall be a works register on-site to record worker attendance, insurance details, Identification details, health details, and an accident register to record all incidents/accidents including indicative incidents. Incident Investigation training shall be provided to engineers.

49. Communities shall be informed in advance about works in nearby areas, roads (for networks), and probable disturbances. There shall be no pollution or impacts on their properties or drinking water sources or religious structures/common properties due to works. Material transport shall be well managed to prevent impacts on communities. Drivers and vehicles shall have required licenses and approvals, and there shall be minimal interactions of people/students with construction vehicles and equipment. There shall be appropriate barricading or temporary buffers to prevent impacts on

communities due to smoke, dust, fall of materials, etc. Training shall be provided for emergency response. It is important to follow any pandemic safety protocols if applicable.

50. Accidents/incidents shall be reported within 24 hours to the Bank and the program shall investigate the cause and adopt prevention/control mechanisms in all sites immediately. There shall be effective GRM also accessible to workers. Child (up to 14 years) Labour shall not be used for any work and those in the 14-18 years age bracket shall not be involved in any hazardous activities, and this will need regular monitoring.

51. A detailed **Table** presenting the Assessment of Environmental aspects against Core Principle 3 is presented in **Annexure VII**.

5.3 Assessment of Core Principles – Social

52. The ESSA analyzed the consistency of the program systems with **core principles** as outlined in the Bank's Guidance on Environmental and Social Systems Assessment for PforR Operations. In so far as consistency of the **social systems** of the program are concerned, the ESSA concludes that the program systems are by and large consistent with the applicable core principles. The detailed findings from this assessment are outlined in Annexure VII of this document. The summary of the assessment is outlined in the following sub-sections.

5.3.1 Assessment of Program's Social Systems Against Core Principle 1 – Adequacy and Appropriateness of Program's Social Systems

53. The assessment concludes the following:

- The national laws that govern the management of social risks that are relevant to the program are adequate.
- The state laws are also by and large adequate. However, the state laws on land acquisition do not *contain adequate provision (as are there in the national law on land acquisition – RFCTLARR 2013) to address impacts on non-title holders occupying government land on which program assets are likely to be created or to compensate people suffering temporary adverse economic or livelihood impacts on account of project activities.*
- The above is a significant gap and needs to be addressed through appropriate measures which could include – (a) an amendment to the state laws and rules related to land acquisition and involuntary resettlement or (b) through excluding any or all project activity(ies) that might necessitate involuntary resettlement of non-titleholders or provisioning for required compensation and other remedies to project affected people.
- The program management arrangements at the highest level in GoTN and the implementing arrangements are adequate and the concerned entities at both the state level and the ULB level have the necessary legal and/or regulatory authority to commit resources and implement actions necessary for effective E&S assessment and management of social impacts and risks.
- Where appropriate and required, program systems include mechanisms to ensure objective, disinterested or independent assessments of E&S impacts.
- An early social risk and impact screening of the Bank's program (Section 4 of this document) as a part of the ESSA. The assessment concluded that the social risks and impacts of activities to be undertaken by various program implementing agencies ranged from low to moderate. At the sub-project level, ULBs are also in the process of preparing DPRs (through external agencies) and conducting preliminary E&S risks and impacts assessment. Basis these assessments, mitigation measures, if, as and where required, are being proposed for action during subsequent phases of the sub-projects.
- Program mechanisms are factoring in strategic, technical and site alternatives w.r.t. mitigation of social risks of the sub-projects to be supported through the PforR operation. However,

whether the “no action” alternative is also being actively analysed and factored in could not be determined.

- Opportunities to engage stakeholders on various issues are provided within the program design. However, at the ULB level, systematic stakeholder engagement on issues relevant to the project appears to be weak ad hoc and often outsourced to external agencies preparing DPRs or undertaking E&S assessments. Greater ownership and engagement of key project implementing agencies are required for stakeholder engagement.
- The current systems **do not explicitly promote** the application of the avoid-minimize-mitigate-compensate / offset mitigation hierarchy. However, in practice, this risk mitigation hierarchy is being implicitly followed. Basis this, program implementing agencies are also screening out or excluding any activity that might have substantial or high social risks and would require substantial compensation payouts or other ways of offsetting the impacts.
- With respect to the mitigation of identified social risks, the E&S management measures appear to be relevant and realistic. The management plans require time bound actions and have assignment of responsibilities for implementation and for monitoring / oversight.
- **Staffing and capacities for social risk management** - DMA and the ULBs do not have the qualified, experienced social specialists or systems to effectively plan, design and monitor social aspects of the program. TNUFSL has one senior social specialist who has substantial experience in managing and implementing externally aided projects and has the knowledge, experience and skills required to monitor and supervise the social risks of the PforR operations.
- **Stakeholder Engagement** – At the ULB level, there is no structured system to engage with citizens on a regular basis. The local councillors have monthly meetings with their constituency where only a small percentage of the population attend. The system of engaging citizens primarily rests with the interest and initiative of the Councillors and the Commissioners. However, during preparation of DPRs and implementation of the sub projects, meetings are held at the community level. These interactions are held more with the view to disseminate information about projects to citizens rather than to seek their views or opinions on project design or operations. Very often such interactions are undertaken by mostly by DPR consultants and / or contractors with limited involvement of ULB officials.
- **Grievance Management** - A common App based GRM has been developed by DMA and is accessible to citizens who have / have access to smartphones. This system registers grievances related to any services of the DMA and passes it on to the relevant divisions / ULBs for redressal. This system however is not readily accessible to a significant proportion of citizens who do not have / do not have access to smartphones or those who do not know how to use smartphones. This primarily comprises the most vulnerable sections of the population – the elderly, women, differently abled people, etc. Every ULB also has a walk in booth at the ULB headquarters which can be accessed by citizens to register their complaints, make applications, demand services, etc. These booths are often manned by a single ULB official who also has multiple competing responsibilities.

5.3.2 Assessment of Program’s Social Systems Against Core Principle 3 – Public and Workers Safety against Potential Risks

54. The assessment concludes the following:

- **Legal framework to address public and workforce safety and safety of individuals and communities** - The existing national and state laws, regulations and policies covering workers and workplace safety, child and forced labour, community health and safety are quite adequate. The implementing agencies and their contractors need comply with these regulations. The implementing agencies do not currently have the required skilled human resources to monitor compliance with these regulations. The DPRs and bid documents also do

not often include or highlight mandatory E&S laws and regulations that contractors need to comply with. In such a situation, contractors also do not include the full potential cost of compliances leading to these aspects getting overlooked during implementation and O&M phases.

- ***Borrower's measures to help protect individuals and/or communities from violence, intimidation, harassment, criminal activity, or other negative interactions with contractors, labourers, operators, or other workers associated with a project activity*** - The implementing agencies' contract documents include the need for contractors to enforce a Code of Conduct for all workers. This Code of Conduct requires workers to refrain from indulging in violence, harassment, intimidation, etc. amongst themselves and also with outside communities. Breach of this Code of Conduct can attract immediate retrenchment followed by penalties as applicable under law. Additional measures – such as codified procedures on Occupational Health and Community Safety, which do not currently exist, will strengthen the borrowers' ability to ensure better management of these critical issues.
- ***Laws or regulations to avoid the use of child and forced labour in the implementation of Program activities*** - The national and state legislations on child and forced labour are quite comprehensive and prohibit the use of child or forced labour. It is mandatory for the implementing agencies and contractors of the program to comply with these regulations. By and large, borrowers ensure that contractors comply with these regulations.

5.3.3 Assessment of Program's Social Systems Against Core Principle 4 – Management of Land Acquisition, Loss of Access to Natural Resources, Involuntary Resettlement

55. The assessment concludes the following:

- ***Avoidance or minimization of land acquisition and related adverse impacts –***
 - *Screening of all planned activities to determine whether they may require involuntary taking of land, relocation of residences or businesses, or restrictions on access to natural resources and identification of all significant impacts* - During DPR preparation and ESIA studies, all planned activities are screened to determine whether these may involve involuntary taking of land, relocation of residences or businesses or restriction on access to natural resources and other significant impacts. The state laws on land acquisition and resettlement and rehabilitation do not provide adequate relief or remedies to non-titleholders occupying government land. Consequently, this is a risk to the program and has been highlighted in the risk assessment section of this report. To address this, GoTN has committed to strictly avoid any land acquisition or involuntary resettlement of PAPs from the Bank funded PforR.
 - *Protection of individuals and communities from “forced evictions”* - Land might be required for some program activities and interventions (across one or many sub-projects at the ULB level). The Borrower will make every attempt to ensure that the land required for the project is taken from government lands available with various departments of the government or with the ULBs. In the event that private land is required for the project or sub-projects, the borrower will directly purchase the required land from the land owners. The assessment notes that the state laws do not recognise the rights of non-titleholders informally occupying government lands. In the past, if non-title holders have informally occupied government lands that is required for any government project, the Borrower makes every attempt to request the informal settlers to voluntarily vacate such lands. If such attempts fail, then it must be further noted that the borrower's systems *do not adequately protect individuals or communities from forced evictions*. However, instances of the Borrower being compelled to resort to “forced evictions” are very rare. The Borrower does not follow this practice for projects supported by multilateral financial institutions like the World Bank, ADB, etc. For this project, the Borrower has explicitly

committed to avoiding taking any land that are occupied by informal settlers or resorting to forced evictions. The Exclusion List (please see Annexure VIII of this document), which the Borrower has committed to adopting, also clearly specifies that there will be no forced evictions under this project and no land will be acquired without payment of full compensation to both titleholders and non-titleholders as specified under the The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement (RFCTLARR) Act of 2013

- ***Identification and addressal of economic or social impacts caused by land acquisition or loss of access to natural resources, including those affecting people who may lack full legal rights to resources they use or occupy***
 - *Consideration of impacts on various property regimes, including common property resources, customary or traditional rights to land or resource use, those who lack title or any recognizable claim, and Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, rights* - Currently, screening procedures only establish land ownership (i.e. whether land required for project activities and / or interventions are privately owned land, or government land). The screening does not consider the whole range of possible impacts on various property regimes, especially covering people with customary or traditional rights to land or resource use and those who lack titles or recognizable claims.
 - *Program processes requiring identification and mitigation of all significant impacts affecting informal users or occupiers of land (or other resources)* - While the screening of sub-project activities and / or interventions do identify informal users or occupiers of land, mitigation of any adverse impacts (viz. compensation for assets and structures in case of involuntary resettlement, provision of relocation assistance, provision of compensation for temporary economic / livelihood impacts (if any)) suffered by such informal users or occupiers are not mandatory as per the prevailing state laws and regulations on land acquisition and involuntary resettlement.
- ***Payment of fair compensation***
 - *Recognition of the principle of replacement cost when land acquisition or physical relocation is required and allowances for transitional expenses* – The borrower's system (vide the relevant national and state laws pertaining to land acquisition and involuntary resettlement) recognizes the principle of replacement cost when land acquisition or physical relocation is required. Payments to meet transitional expenses are also allowed. However, under this PforR program, GoTN has committed to avoiding any activity or intervention that might necessitate any land acquisition or involuntary resettlement.
- ***Provision of supplemental livelihood improvement or restoration measures if taking of land causes loss of income-generating opportunity (e.g., loss of crop production or employment)***
 - *Do program systems support livelihood restoration and support measures* - Presently the borrower's system does not provide for supplemental livelihoods restoration or other measures, when taking of land causes loss of income generating opportunity. However, in the past, if and as such instances have been encountered, the ULBs have provided remedies to compensate for temporary economic and / or livelihood losses based on prevailing daily wage rates or wage rates determined by the national rural employment guarantee scheme, whichever is lower.
 - *Do the Program systems include the necessary institutional provisions to ensure the effective implementation of such measures?* Currently the institutional provisions to ensure effective implementation of such measures are weak. The concerned project

entities at the state and ULB level lack qualified, experienced human resources and defined policies, procedures, tools and mechanisms to ensure effective implementation.

- *If not, can the Program provide supplemental payments to meet this requirement?* - The ESSA could not reach a definitive conclusion on whether the Program can provide supplemental payments to meet this requirement or is even willing to provide such supplemental payments. Discussions with senior TNUIFSL officials indicate that the program will make every attempt to avoid land acquisition and / or involuntary resettlement. However, if such instances are absolutely unavoidable, then the program management entities and the program implementing entities committed to following the relevant state laws governing such issues. Since the prevailing state laws and regulations do not recognize the rights of informal users and / or occupiers of government land, it is likely that such impacted parties might be requested to relocate at their own cost and risk. Failing which, these informal users and / or occupiers may be forced to relocate without being adequately compensated.
- ***Restoration or replacement of public infrastructure and community services that may be adversely affected by the Program (including measures in order for land acquisition and related activities to be planned and implemented with appropriate disclosure of information, consultation, and informed participation of those affected)***
 - *Does the borrower's system recognize the need to restore or replace public infrastructure lost or damaged because of Program activities? If not, what mechanisms are in place to address such concerns under the Program?* As per the existing system, the contractor engaged in civil construction will be responsible for restoration of any damage caused because of the activities under the sub projects. This is clearly mentioned in the contact document made by the ULBs with the contractors.
 - *Do land acquisition procedures include appropriate requirements for the informed participation of affected people?* - While no land acquisition is envisaged under the project, procedures related to land acquisition and resettlement and rehabilitation as required under the relevant national and state laws include requirements for the informed participation of affected people.

5.3.4 Assessment of Program's Social Systems Against Core Principle 5 – Cultural Appropriateness, Equitable Access to Program Benefits, Special Attention to Rights and Interests of Indigenous Peoples & Historically Underserved Communities

56. The assessment concludes the following:

- During the preparation of ESIA, the DPR consultant engages with a cross section of all stakeholder groups who would be affected by the sub project. At the project level however, the program would benefit immensely with a well defined communications strategy and a stakeholder engagement framework to help address the various issues related to the project in general and specific sub-project investments and activities.
- The program will be implemented in 13 ULBs across the state of Tamil Nadu. The population across all these ULBs is fairly heterogeneous and, while individuals and / or families belonging to different tribes might be a part of the population, these individuals or families are unlikely to suffer any impacts that are different from what other sections of the population would face. Tribal sub-sections of the populations in these ULBs do not identify themselves any differently from other sections of the population and also do not have any specific cultural, religious or traditional practices that might be adversely impacted by project activities.
- Currently there is no defined system or procedure for engaging with stakeholders across all phases of the project. Stakeholder are primarily engaged with during the initial stages of the project (i.e. during DPR preparation and during ESIA studies) and their views sought.

Thereafter, project related stakeholder engagement to discuss and / or obtain community support are mostly ad hoc and based on the interests and initiatives of the ULB officials and elected officials and are often event based rather than strategic.

- The Program did not propose any activities that will have adverse impacts on natural resources to which tribals have rights, resettlement from or restriction to tribals access to such lands or commercial exploitation of tribals cultural heritage.
- The ESSA could not reach a definitive conclusion whether measures to alleviate cultural, financial, or physical barriers that hamper the participation of socially marginalized or disadvantaged groups have been considered or not.

5.3.5 Assessment of Program's Social Systems Against Core Principle 6 – Avoidance of Social Conflict

57. The assessment concludes the following:

- The Program is not being implemented in areas of recognized fragility or in post-conflict zones.
- It is unlikely that the program will contribute to underlying tensions or social strife. However, the program will need to ensure transparency in disclosure of program information, inclusion of all sections of communities in program benefits (as and where applicable) and timely, responsive redressal of grievances. In some other areas of Tamil Nadu, mostly in rural areas, there have been caste-based conflicts and disturbances related to water supply and sewerage projects. The program management entities will need to understand the underlying causes of such conflicts, determine whether these might be applicable in the ULBs where the sub-projects will be implemented, and take appropriate proactive measures to avoid any such possibilities.
- Currently, the screening and design of program activities do not consider the risks of creating or exacerbating social conflict potentially arising out of project activities and / or interventions.
- Key program agencies are open to discussion with the Bank and consultation with stakeholders on all issues, including potentially sensitive ones.

6 ENVIRONMENTAL AND SOCIAL INPUTS TO THE PROGRAM ACTION PLAN

1. Previous sections of the report have looked at various actual/ potential environmental and social risks and challenges confronting the program, their likely impacts, and benefits within the existing legal and policy framework, and then assessed the consistency of the program with the core principles under PforR policy. It then went on to assess the capacities and adequacy of the existing institution to successfully handle these likely risks and to look at the capacities to take up the social and environmental management within the programs. The current section sums up the assessment of the previous sections and uses it to draw up specific social and environmental actions required for mitigating/minimizing those risks and challenges. E&S inputs to the Program Action Plan for the TNCRUDP program are discussed in detail here, to address the gaps identified through the assessment.

2. The risk screening suggests that the overall contribution of the programs is likely to be positive, owing to benefits. Positive impacts expected of the program interventions include overall health, better living standards, and better environmental conditions in the Program region and beyond. The program risks dealing with environmental and social aspects are reasonably covered but will require efforts to address the remaining gaps identified in the previous Chapter.

3. A set of actions have been arrived at to address the system and capacity-related gaps. These issues were discussed with stakeholders during the preparation process for the PforR and their suggestions were considered to arrive at the action plan. The action plan was consulted with program counterparts and stakeholders for including them in the Program Action Plan (PAP) for the TNCRUDP program, to ensure overall sustainable effects in the long term. During implementation, the World Bank will continue to consult with program counterparts and provide support to help resolve implementation issues. The Bank will also monitor PAP implementation and its effects as part of its progress review.

6.1 Proposed Actions to Improve Environmental Systems and Capacities

4. The government's program is marching ahead with activities to bring positive changes in the environment of ULBs. However, the absence of a dedicated unit to focus on environmental and social considerations in program design and implementation is noteworthy. While the existing program incorporates considerations for using durable materials and standard designs for civil construction in their program operations there exist ample opportunities to suitably factor in environmental considerations in program planning, implementation, and operation maintenance stages. Prior program screening and planning to avoid and/or mitigate impacts arising out of its operations is essential, and Incorporating environmental enhancement opportunities in program design. The program has not so far organized any training programs for the staff on environment-related aspects.

The **Table 13 in Annexure VII** summarizes the specific gaps between the program systems and the applicable core principles for environment aspects and recommendations.

5. *Screening and Exclusion of High-Risk Activities:* It is proposed to screen the project activities and exclude those which will entail higher risks. The following activities will be excluded from the program (also for prior results³⁷) to avoid high environmental risks:

Exclusions: (also applicable for Prior Results) in addition to all activities excluded by Regulations, and as per Bank's P for R policy (as in Bank's PforR Guidance Manual).

1. Upgradation / Rehabilitation or repairs to existing STPs or WTPs without filling the gaps to align with applicable regulations/consent conditions of TNPCB, and (b) Construction of single STPs of capacity more than [50] MLD

³⁷ All Program activities including those considered for prior results shall follow these Exclusions

2. Laying, redevelopment, upgradation, or operation of any sewerage networks (including mains, pipes, pumping stations, lift stations etc.) and/or providing house service connections before/without connecting the network to a functional Sewage Treatment Plant with Consent from TNPCB
3. Water Supply without proper treatment to ensure quality as required by country regulations/standards and to prevent any health impacts,
4. Construction and Operation of any Solid Waste Management Facilities

Screening will determine the environmental sensitivities of each Program activity. Part 1 of the Screening checklist should be developed carefully to confirm the exclusions; as the P for R excludes High Risk activities. Only if the activity is not excluded, it shall proceed to the next stage of screening.³⁸

6. *Program Action Plan on the Environment Aspects* includes the following:

- Agreement to follow systems to screen, assess, mitigate, manage, and monitor environmental aspects for all program activities and follow the same throughout the program period,
- Program to prepare Environmental Guidance (with guidance to address regulatory ambiguity/gaps and environmental best practices) as part of the Program Operations Manual and to Design and prepare EIA/EMPs of all program interventions. Update Environmental Provisions in all Bid Documents as guided by the Environmental Guidance,
- Constitute dedicated Environmental Cells at TNUIFSL and ULBs, Sustainable Urban Lab at DMA and its regional offices; mandated to coordinate and manage Environmental aspects, develop tools, and guidance, provide training on Pollution Management, Water Quality & Behavioral change), monitor/supervise and report. (Details in Annexure III of ESSA). Construction Supervision Consultant/PMC to conduct OHS, CHS monitoring of all packages, training to contractors and workers, and monthly reporting,
- Studies & capacity building to ensure OHS by Prevention of Manual Scavenging. O&M inbuilt in the Contract would ensure Contractors use machines instead of humans for sewer cleaning
- Annual Environmental Audit to confirm capacities, Gaps, and systems followed,
- Environmental monitoring dashboard with details of Pollution and H&S data on program activities and monitoring in TN Urban Tree.

7. Recommended Program Action Plan on Environment Aspects is presented in **Table 5**.

Table 5: Recommended Environmental Actions for Program Action Plan

| Sl. No | Action Description | Responsibility | Timing | Completion Measurement | Details on Actions |
|--------|--|----------------|---|---|--|
| 1 | Screen, assess environmental impacts of Program Activities, implement Environmental Management & Monitoring Plan (real-time monitoring & linking to TN Urban Tree) guided by the Environmental Guidance Section of | TNUIFSL & DMA | Environmental Guidance is prepared and agreed as part of the Operations Manual before the signing of Contracts for interventions and followed | Confirmation by Annual Environmental Audit that all program activities followed the systems developed for screening, assessing, mitigating, | A) Prepare, and follow systems to screen, assess, mitigate, manage, and monitor environmental aspects for all program activities, and agreement to allot the required Budget for the same (as identified in DPR, EIA / EMP, EMoP of each Program activity) and follow the same throughout the Program period B) Program to prepare Environmental Guidance (with guidance to address regulatory ambiguity/gaps and |

³⁸ Since TNUDP and TNSUDP were Category A IPFs, the screening checklist did not have exclusion criteria for high-risk activities. This operation being a P for R requires to exclude High-Risk interventions which are not supported by P for R, and hence Screening Checklist shall be updated

| Sl. No | Action Description | Responsibility | Timing | Completion Measurement | Details on Actions |
|--------|--|--------------------|---|---|---|
| | the Program Operations Manual | | for all Program Activities | managing, monitoring | environmental best practices) as part of the Program Operations Manual and to Design and prepare EIA/EMPs of all program interventions. (Refer to Footnote ³⁹) C) Update Environmental Provisions in all Bid Documents D) Environmental monitoring dashboard with details of Pollution and H&S data on program activities and H&S monitoring in TN Urban Tree as in Footnote ⁴⁰ - Confirmation annually by Annual Environmental Audit |
| 2 | Develop Environmental management capacities at Program agencies including training and guidance to support the prevention of Manual Scavenging ⁴¹ | DMA, TNUIFSL, ULBs | Develop before initiation of Program activities and continued throughout Program Implementation | Confirmation of Environmental management capacities and their activities as part of Annual Environmental Audits | A) Constitute a dedicated Environmental Cell in the PIU for TNCRUDP with designated Engineers & Environmental Experts which will be trained to collaborate with the strengthened Environmental unit of TNUIFSL and through them continuously guide the Regional offices at DMA regional levels and Environmental Engineering Cell (EEC) at each ULB to coordinate and manage Environmental aspects, develop tools, guidance, provide training (semi-annual or as required) training on Pollution Management, Water Quality & Behavioral change, monitor/supervise and report. This shall be in line with Annexure III of ESSA B) Agencies to coordinate required studies, training including a Detailed study on Manual Scavenging (safe sewer cleaning) & progress of Various |

³⁹Environmental Guidance Section to present sustainability guidelines – (a) on treated sewage reuse in nearby industrial areas, treated sludge reuse in fertilizer industries, low energy & water use, use of renewable energy, (b) treated sewage disposal standards to be followed (c) Treated sludge (WTP, STP) disposal standards in line with end use, (d) water quality standards and treatment, (e) monitoring and reporting requirements for sewage, sludge, and their disposal and end use, (f) H&S guidelines for construction and operations including for Water extraction structures, STP/WTP upgradations & network / infrastructure laying in rural areas/water bodies, multiple networks laying along roads, avoiding manual scavenging, (g) planning the laying of networks through same lengths of roads, (h) screening / exclusion criteria for High risk activities as outlined in the ESSA, (i) Source vulnerability & Source Water Protection Plan guidelines for EIA, (j) guidance on climate risks for interventions, (k) exotic species, pesticides, compensatory plantation, (l) any other as required based on Program design.

⁴⁰ At the minimum, treated Water Quality supplied, metals and pollutant removal from water abstracted, Treated Sewage Quality - NGT parameters & standards uniformly applicable to all Classes of cities, and CPCB / CPHEEO parameters for Metals/others), treated sludge quality (based on end use), and Waste and treated wastewater Quantity reused and type of reuse, length of networks without interconnections with drainage and industrial (even household industries) effluent connections, Type of species used for plantation, Compensatory Plantation, Licenses / Permits, Accident Database

⁴¹ SDU at DMA State & Regional Levels, Environmental Engineering Cell at Program ULBs, and strengthen Environmental unit at TNUIFSL to ensure management of Environmental aspects

| Sl. No | Action Description | Responsibility | Timing | Completion Measurement | Details on Actions |
|--------|--------------------|----------------|--------|------------------------|--|
| | | | | | <p>ULBs on the commitments under National Policy</p> <p>Preparation of detailed OHS guidance in line with the National Policy & Act, to prevent manual scavenging and ensure safety in sewerage network/plants construction and O&M. This will eventually be part of the Environmental Guidance</p> <p>Training on OHS on Sewerage Construction and operations including on prohibition of Manual Scavenging, O&M inbuilt in the Contract would ensure Contractors use machines instead of humans for sewer cleaning. This study on Manual Scavenging is proposed as part of initial Environmental Audit to work out SOPs to be followed for the Program activities.</p> <p>C) Study on sludge management for safe disposal/reuse (quality, mechanisms to achieve quality required for end- use)</p> <p>- Annual Environmental Audit to confirm capacities, Gaps, and systems followed</p> |

8. Recommended Program Action Plan to address the social risks of the program identified in Section 4 of this document, and the gaps between program systems and the Bank's guidance on ESSAs for PforR operations is presented in **Table 6** below:

Table 6: Recommended Social Actions for Program Action Plan

| Sl. No. | Action Description | Responsibility | Timing | Completion Measurement |
|---------|--|-----------------------|--|--|
| 1. | <p>Ensure:</p> <p>(a) All DPRs identify social risks using the screening checklist provided as an Annexure in the ESSA,</p> <p>(b) All DPRs follow the 'Avoid-Minimize-Mitigate-Offset' risk mitigation hierarchy to address identified social risks</p> <p>© Bid Documents have adequate resources provisioned for the management of identified social risks,</p> <p>(d) Contracts clearly specify contractors' responsibilities and liabilities w.r.t management of social risks and impact©(e) Contractors'</p> | ULBs, TNUIFSL and DMA | <p>Before signing of contracts for implementation (for (a), (b), (c) and (d))</p> <p>Throughout project construction and O&M phases of the project</p> | <p>DPRs, Bid Documents, Contract Agreement (for (a), (b), (c) and (d))</p> <p>Contractor's progress reports (monthly, quarterly, annual)</p> |

| Sl. No. | Action Description | Responsibility | Timing | Completion Measurement |
|----------------|--|---|---|---|
| | responsibilities w.r.t. management of social risks and impacts are rigorously monitored by PIUs and PMU | | | |
| 2. | Develop a comprehensive Stakeholder Engagement Strategy and Action Plan – including an action plan for improving poor and marginalized sections of the population's access to the established grievance redressal system - and implement the same through the project period | TNUIFSL and DMA (with inputs from ULBs) | Within 2 months of Program effectiveness Implemented throughout project period | <p>Stakeholder Engagement Strategy</p> <p>Action Plan to implement Stakeholder Engagement Strategy</p> <p>Action plan for strengthening and improving access to GRM</p> <p>Monthly reports from ULBs indicating no. of grievances received, mode of receipt, no. of grievances resolved, complainant' feedback.</p> <p>Quarterly progress reports</p> |
| 3. | Mainstream mechanisms to independently gauge citizens satisfaction on services provided by the ULBs and use feedback received for improvements in service delivery | ULBs (with inputs from DMA and TNUIFSL) | Within 6 months of Program effectiveness Implemented throughout project implementation period | Action Plan document Annual / bi-annual Citizen's Scorecards or Citizen's Satisfaction Reports |

6.1.1 Climate Adaptation and Mitigation Measures

9. The construction standards in TN mainstream disaster-mitigation measures of civil construction, while they adopt National guidelines for capacities and mechanisms for preparedness and response.

10. The program will support disaster preparedness, mitigation, and emergency response through adoption of climate screening checklist & design and mitigation measures for climate risks.

6.1.2 Capacity Building for E&S Aspects

Capacity Building

11. *Training & Capacity building of all IAs and stakeholders on Environmental Aspects*

- Audience: E&S units at ULB, Regional & State levels and departments, PMC, other associated agencies
- Topics: environmental management, regulatory environment for managing wastes and wastewater, enhancing environmental effects through best practices, and risk management, training on ESSA (including screening, analysis of alternatives, cumulative risks and impacts, EIA, EMPs, natural habitats, cultural resources, wastes and pollution,

- OHS, CHS, safe practices, Incident Reporting, RCA, CAP implementation, and emergency response)
 - Type of training: Dedicated expert sessions, Site visits, Peer-to Peer learning and knowledge sharing between program ULBs and between ongoing SUSP program at Chennai & surroundings and TNCRUDP on OHS, CHS aspects of water supply, sewerage networks laying and associated infrastructure provisions
12. Training of IA and contractors, consultants on Social Aspects would include:
- Screening to determine social impacts
 - Stakeholder identification and preparation of a Stakeholder Engagement Plans at the ULB level.
 - Gender assessment
 - Strengthening the functioning of SEA/SH Committees in the State and ULB levels.
 - Strengthening GRM, monitoring, analysis and reporting

6.1.3 Monitoring and Reporting on Environmental Aspects

13. PMU shall prepare Quarterly Progress Reports (at the end of each quarter, after effectiveness) in an agreed format (to be included in the Environmental Design Section of the Program Operations Manual prepared by the Borrower) either as part of overall program progress reports or as a separate document for reporting its activities to the Project Director and then to the Bank. Required documents, data, and best practice notes shall be provided to the Bank as required for Implementation Support Missions, Mid Term Review of Environmental aspects (MTR - draft shall be ready before MTR mission), and Implementation Completion. These reports/progress notes shall include details on the status of environmental management capacities and systems at State, Regional and ULB levels and contact details of Nodal Persons, training provided to staff, reporting formats and guidelines provided to agencies, documentation of EHS implementation and best practices (with photographs / short site videos), exclusions monitoring and management mechanisms, status, challenges and actions required to achieve environmental inputs to PAP and other required details.

6.1.4 ESSA inputs to Implementation Support Plan

14. The Bank's implementation support will focus on building the environmental management of CMA, District and ULB levels. This would include the following:
- (a) Review of ToRs for hiring appropriate Environmental Experts at CMA, District and ULB levels as specified in the ESSA
 - (b) Review and Guidance on Environmental Guidance Section included as part of the Program Operations Manual
 - (c) Review of updated ToRs for subproject EIAs for Water Supply and Sewerage
 - (d) In coordination with TNUISL, providing guidance and training to Regional and ULB level implementing agencies on exclusions and Environment Guidelines in the Program Operations Manual to enhance their capacity and effectiveness on Environment Management. This will include the following:
 - First level of screening – 'Exclusion' of high-risk activities from the P for R
 - Review of Generic EMPs prepared for all activities
 - Guidance on developing an institutional structure/plan for more effectively discharging environment management-related functions at Regional ULB levels and reporting/coordinating at the State level
 - Guidance on Developing environmental capacity building plan and training calendar
 - (e) Support to the PMU and PIU in orientation and training on Environment Management and OHS of:
 - Newly appointed project E&S staff

- Departmental staff (engineering as well as others)
- Contractors (senior management), Subcontractors, Vendors
- Contractors (site supervisors and other site staff)
- (f) Review of tendering and contracting procedures and Bid documents with Environmental aspects included
- (g) Provide guidance on environmental monitoring, record keeping, and responding to emerging issues as and when required
- (h) Guiding the implementing agencies in periodically reviewing the environmental performance of the project and preparing progress reports
- (i) Review of the ToRs for Annual third-party environmental audits and any guidance they may require in managing these audits
- (j) Guidance on best practices for environmental enhancement and follow-up / ensuring its implementation in all activities

7 CONSULTATION AND DISCLOSURE

7.1 Disclosure

1. This is the ESSA for the TNCRUDP PforR program, the draft of which will be disclosed in September 2023 (along with its executive summary translated to local language Tamil to enable its wider reading before consultations) in-country preferably in TNUIFSL and DMA websites (see: - http://www.tnuifsl.com/Disclosures/2023/ESSA_TNCRUDP.docx) and on the World Bank's external website, for stakeholder's review (government officials, industry associations, non-governmental organizations, civil society organizations, teachers, parents, communities and other relevant stakeholders), discussions, and formal comments. Stakeholder workshops to disseminate the findings of the assessment and the proposed inputs to the program actions took place on September 22, 2023 with NGOs / CSOs, communities, and all stakeholder institutions. The final ESSA will be disclosed in-country and on the World Bank's external website before negotiations, after incorporating comments and suggestions.

7.2 Stakeholder Consultations on ESSA

2. Stakeholder consultations were an integral part of the ESSA process and were carried out consistent with applicable World Bank principles. Sample ULB visits and discussions started in September 2022 during the identification mission, and detailed consultations started as early as February 20, 2023, and continued till March 31, 2023. Consultations were carried out with relevant institutions and government departments/agencies, experts, and beneficiaries, host and beneficiary communities, and workers for identification and assessment of environmental and social effects, and to recommend measures to improve environmental and social management capacity based on their comments and suggestions. The list of consultations and compilation of issues and comments discussed are presented in **Annexure IV**.

3. The **Table 7** below outlines the various stakeholders who were consulted during the preparation of the ESSA.

Table 7: Stakeholders Consulted for Preparation of ESSA

| Sl. No. | Stakeholder | Officials Consulted |
|---------|--|---|
| 1. | Tamil Nadu Urban Infrastructure Finance Services Limited (TNUIFSL) | Senior Social Specialist Environment Specialist & Consultant |
| 2. | Directorate of Municipal Administration (DMA) | Engineering and Environment Specialist Procurement and Finance Manager of TNUIDP Hygiene Advisor |
| 3. | TWAD Board | Virtual meeting with Engineers of Various section offices of TWAD |
| 4. | Directorate of Town Planning | Virtual meeting with Town Planning Department |
| 5. | Urban Local Bodies | Municipal Commissioner, Salem Municipal Commissioner, Krishnagiri (virtual) Municipal Commissioner, Avadi Municipal Commissioner, Kanchipuram Municipal Commissioner, Thuthukudi (virtual) Municipal Commissioner, Secretary, and Engineers, Chidambaram Municipal Commissioner Secretary and Engineers, Cuddalore Mayor, Salem Elected member, Salem |
| 6. | DPR Consultants | DPR Consultants in Salem, Avadi, Kanchipuram, Cuddalore, Chidambaram |
| 7. | State Pollution Control Board | Member Secretary Joint Chief Environment Engineer District Environmental Engineer |

| Sl. No. | Stakeholder | Officials Consulted |
|---------|-------------|--|
| 8. | CSO | Members of Indian Institute of Human Settlement (IIHS) in Tamil Nadu |
| 9. | Communities | During site visits |

4. During the consultations, the stakeholders provided inputs on the institutional arrangement for the proposed program, management of environmental and social aspects including implementation of TNCRUDP, Institutional Arrangement and Involvement of communities, Guidance, Training, Purchase of materials, Natural Habitats, and heritage near work areas, Water Availability and Quality, Pollution and Wastes, Land related aspects, OHS, and CHS, Monitoring, design, Greening, Complaint Redressal, and Disaster management. Inputs from the stakeholders are compiled in **Annexure IV**.

5. The summary of findings from the stakeholder consultations are as follows:

Social

- **All stakeholders pointed out that expansion water supply and sewerage services will benefit the community significantly.** Presently the water supply is irregular in most of the smaller towns. Large areas of smaller towns and cities do not have piped water supply. Most of these areas are inhabited by people from the weaker sections. Water is supplied in these areas through bore wells and tankers operated by the local bodies.
- **All the stakeholders emphasized that laying of UGSS will address the issue of frequent clogging.** Only a small percentage of ULB area is covered by UGSS. Most of the households have domestic septic tanks. Hospitals have a their own ETPs. The STPs. The lack of proper UGSS leads to flooding of rain water drains as they are often choaked with plastic waste. Poor sewerage has also repercussions like prevalence of water borne diseases. Most of the STPs have excess capacity and are able to handle more volume of waste water than what it is handling at present.
- **All stakeholders** agreed that there would be some percentage of exclusion of the marginalised section of the population from the water supply scheme as collecting tariff from the families living in the de-notified slum areas will be a problem.
- **The CSOs pointed out that** last mile connectivity in the slums is an issue in the ULB areas. Space for construction of toilets is limited which leads to creating non standard containment which pollutes the ground water. Laying of UGSS in these areas is also a challenge due to land issues - some land belong to slum clearance board, some temple or other department. In some ULBs the public toilets are directly connected to the storm water drains creating flooding on the roads.
- **Lack of Coordination between Departments:** Service delivery in urban Tamil Nadu fails to consider, the challenges of the cities such as competing demand for water, sanitation and storm water resources. The management of water supply, sanitation and storm water have never been in consonance but each of them have been independently planned and delivered as a separate service.
- **None** of the key implementing agencies *except TNUIFSL* currently have any qualified Environment and Social Specialists that could help the ULBs manage the E&S risks of the program. Apart from TNUIFSL no other implementing agencies have an environment and social management framework to manage environment and social risks and impacts.
- **All stakeholders** agreed that no land should be acquired under the program. Any new construction under the program (viz. Over Head Tanks, Pumping Stations etc.) should be on government lands. Sufficient land is available with the ULBs and the new construction will take place would be in government land.

- **IAs** agreed that lack of human resources is a major constraint at the ULB level to review the DPRs, BOD documents submitted by the contractors and effectively monitor the contractors on social aspects.
- **There was a mixed reaction on the accessibility of the GRM for citizens.** There are two systems of GRM. One at the central level which is digitized. Through this system a person can record one's grievances through a mobile app or on the website. There are also walk-in kiosks at the ULB level for citizens' who do not have access to digital means. There is a system of feedback by which a call is made to the citizen when the issue is sorted. Based on the responses of the ULBs to the grievances that are registered, an annual event is held at the capital where the best performing ULB is given an award by the Chief Minister.
- **Citizens' Engagement:** The most common strategy to engage citizens at the ULB level is through the Councillors who hold regular meetings with the ward members to understand their issues and concerns. The Commissioner also calls for unscheduled meetings of the citizens to discuss any issue. A number of cities have Citizens' Forum but they are not always effective and depends on the interest of the officials. All ULBs have Movement for Clean Cities a body created for water and sanitation issues. They meet every alternate Saturdays but its effectiveness depends on the officials.
- **All stakeholders** agreed that a robust communications and stakeholder engagement strategy would be really critical to ensure meaningful citizen's participation and transparency and accountability in information disclosure.

6. *Environment*

- **Institutional Arrangements** – The capacity of various agencies for design and implementation is good, however, they need much support in Environmental aspects. TNUIFSL and DMA has qualified Environmental experts in addition to Environmental/Civil Engineers to review, prepare and implement environmental aspects. Engineers at Regional offices of DMA and ULBs can help coordinate and supervise on Environmental aspects. There shall be clear responsibilities and time allocation for designated officers and hired officers and they need training/capacity building. In addition, as and when required, experts on Biodiversity, Pollution management and Cultural Heritage may need to be arranged and trained.
- **Overall Program** - Overall, the existing program and the Proposed one are very beneficial to the environment and health of communities. ULBs lack the resources and capacity to plan these. Communities & ULBs welcome the efforts to ensure STP, WTP, and greening activities in smaller ULBs. Wastewater disposal and reuse need stakeholder consultations especially if used for irrigation or industrial use.
- **Guidance, Training** - All agencies and contractors need required training for environmental management. Though there are regulations, engineers at all levels are not fully aware of their contents or requirements.
- **Water Availability and Quality** - Water availability is the most crucial aspect in TN especially, during summers/ non-monsoon periods. Drought conditions prevail and people look up to facilities that can assure water supply for at least to a few hours a day. Recycling and reuse of treated water, desalination etc. are the options under exploration.
- **Wastes** - Water Treatment plants and Sewage Treatment Plants produce different types of wastes and Sludge. However, usually, these are seen piled up in the facility or on nearby roads. This needs proper management; else this creates a menace during floods. Sludge and slurry are given off to farmers informally, often farmers are happy to use the sludge as it is good for crops, but sometimes there is concern about the quality.
- **COVID-19 Safety** - Covid 19 is no more a pandemic in TN. However, it will be good to prevent such pandemics by adopting precautionary measures, especially in worker camps.
- **OHS** - OHS is very important, especially in traffic networks where works are proposed to lay water and sewer lines. Mostly the contractor's subcontract works to small contractors and hires labour

(also migrants) from manpower vendors. They do not have systems to manage or train workers and OHS. This is important for the works of nature proposed here.

- Monitoring - Monitoring of water quality is very important, and it should be regular and results accessible to all. TN Urban Tree is a great initiative in this regard, and the Program shall ensure a monitoring dashboard in that.
- Design - Due diligence in design is very important. Currently, the works happen without much alignment with the proposed designs. It is important for pollution management, long-term sustainability, and OHS as well.
- Greening - Green belts are very essential, especially for Lift stations, pumping stations, etc. This helps prevent visual blight, and helps in shade, pollutant seeing, and absorption. Greening of municipal parks& other areas in the cities/towns and energy efficiency measures are important for all infrastructure.
- Disaster management - Designs shall consider the impacts of Floods, winds, Drought, Cyclones, Monsoons, Winds, and others and manmade disasters such as Fire.

7. **Annexure V** provides a detailed list of questionnaires/probe areas utilized for consultations. The consultation inquiries included the issues related to the capacity of related agencies, and community representatives to address these challenges, concerns, and risks.

8. Virtual consultations were held with NGOs, community groups, ULBs, Various departments providing water and sanitation services, TNPCB, Program agencies, and service providers. Site visits were undertaken to Program ULBs and those which were part of earlier Projects and AMRUT, SBM Programs of the Government.

9. Discussions and feedback from these consultations have helped in the preparation of the ESSA report and finalization of recommendations/actions for the Program Action Plan. This includes a state-level consultation held on September 22, 2023, with around 65 participants from a wide spectrum, including civil society representatives to provide feedback on the Program design and the recommendations made by ESSA. **Annexure IV** present the details of Stakeholder Consultation on the Draft ESSA.

10. The draft ESSA report has been revised considering suggestions from Bank's internal system as well as feedback from government officials, non-governmental organizations, civil society organizations, and other interested stakeholders and redisclosed in line with the Bank's requirements.

ANNEXURES

ANNEXURE I: Environmental and Social Management System Assessment

Environmental Management Capacity

This sub-section summarizes the ESSA team's evaluation of the capacity of the institutions to implement the Program's environmental management capacity. Metrics and other information on institutional capacities from State to ULB levels, such as staff, budget, and human resources. The effectiveness of inter-agency coordination arrangements and previous performance in environmental management in the context of similar projects and programs is also discussed.

Institutional Framework

Environmental Management System

Existing System: This section describes the environmental management system of the proposed program and is organized as per the following sections. Availability of specific frameworks for environmental management:

Policy and Legal Framework: This section provides an overview of the relevant environment and education sector laws, policies, regulations, procedures, and guidelines at the national and state levels. Below is a review of selected policies, laws, and regulations relevant to environmental management under the Program.

Relevant Environmental Sector Laws

National & State level Regulations

Applicable National and State regulations guide effective management of environmental and social aspects; including siting criteria, environmental pollution control requirements, institutional mechanisms, occupational health and safety requirements, resource utilization, considerations for cultural heritage, and social aspects as well as land acquisition, labour and working conditions, livelihoods, consultations, and information disclosure. A compilation of the key environmental and social regulations and guidelines applicable to various aspects under consideration in this project is presented here. There are several national/state-level regulations and policies potentially applicable to TNCRUDP. Following section details out these.

The Constitution of India: Article 48-A of the Constitution of India lays down a directive principle noting that the state shall endeavor to protect and improve the natural environment. Article 51-A of the Constitution declares it a fundamental duty of every citizen of India to protect and improve the natural environment and to have compassion for living creatures. The right to live in a healthy environment has been considered as a part of the fundamental right to life under Article 21 of the Constitution.

The need for protection and conservation of the environment and sustainable use of natural resources is reflected in the constitutional framework of India and the international commitments of India. The Constitution under Part IVA (Art 51A-Fundamental Duties) casts a duty on every citizen of India to protect and improve the natural environment including forests, lakes, rivers, and wildlife, and to have compassion for living creatures. Further, the Constitution of India under Part IV (Art 48A-Directive Principles of State Policies) stipulates that the State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.

After the Stockholm Conference, the National Council for Environmental Policy and Planning was set up in 1972 within the Department of Science and Technology to establish a regulatory body to look after environment-related issues. This Council later evolved into a full-fledged Ministry of Environment and Forests recently renamed as Ministry of Environment, Forests and Climate Change (MoEF & CC).

MoEF & CC was established in 1985, and today is the apex administrative body in the country for regulating and ensuring environmental protection, and lays down the legal and regulatory framework for the same. Since the 1970s, several environmental legislations have been put in place. Today, MoEF & CC and the Central and State Pollution Control Boards (CPCB and SPCBs) together form the regulatory bodies; while National Green Tribunal is tasked with providing an effective and expeditious remedy in cases relating to environmental protection, conservation of forests, and other natural resources, and enforcement of any legal right relating to the environment. Some of the important legislations at the national level for environmental protection are as follows:

National Environment Policy of India: This policy aims at mainstreaming environmental concerns into all developmental activities. The objectives of the policy include the conservation of critical environmental resources, integration of environmental concerns in economic and social development, efficiency in environmental resource use, etc. The policy outlines a range of strategies that aim at the conservation of existing environmental resources through regulatory reforms; emphasis on education, information, capacity building; inter-sectoral collaboration; etc.

Act/Rule/ Guidelines

Regulations/Policies related to Environmental Conservation & Management

- National Environment Policy, 2006
- The Environment Protection (Act) 1986 and The Environmental Protection Rules 1986
- Environmental Impact Assessment Notification, 2006
- The Water (Prevention and Control of Pollution) Act, 1974 and The Water Cess Act 1977
- The Air (Prevention and Control of Pollution) Act. 1981
- The Noise Pollution (Regulation and Control) Rule, 2000
- The Wildlife Protection Act, 1972
- The Wetlands (Conservation and Management) Rules, 2017
- The Biodiversity Act of India, 2002
- The Manufacture, Storage And Import Of Hazardous Chemical Rules, 1989
- Batteries (Management and Handling) Rules, 2001
- The Motor Vehicle Act, 1988 & Motor Vehicles Rules, 1989
- Tamil Nadu Air (Prevention And Control Of Pollution) Rules, 1983
- Tamil Nadu Water (Prevention And Control Of Pollution) Rules, 1983

Coastal Regulation Zone Notification, 2019 Regulations Related to Waste Management

- Solid Waste Management Rules, 2016
- Construction and Demolition (C&D) Waste Management Rules, 2016
- Plastic Waste Management Rules, 2016, amended 2018

- Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, amended 2019
- E-Waste Management Rule, 2016, amended 2018
- Bio-Medical Waste Management Rules, 2016 And Their Subsequent Amendments
- The Regulation of Persistent Organic Pollutant Rules, 2018
- The Regulation of Polychlorinated Biphenyls Order, 2016
- The Recycling of Ships Act, 2019

Pesticides/Insecticide-related Regulations:

- Insecticide Act 1968 and Rules 1971
- Draft Bill on Pesticide Management, 2020 introduced in Rajya Sabha in March 2020

Other Regulations/Policies/Guidelines applicable to various construction/implementation activities

- Central Ground Water Authority- 'Guidelines to control and regulate groundwater extraction in India' September 2020
- The Building & Other Construction Workers (Regulation of Employment & Conditions of Service) BOCW Act, 1996
- Child Labour (Prohibition and Regulation) Act, 1986 and Rules, amended 2016 and
- Child Labour (Prohibition and Regulation) Amendment Rules, 2017
- Minimum Wages Act, 1948
- The Bonded Labour System (Abolition) Act 1976
- Workmen's Compensation Act, 1923 & Rules 1924
- Interstate Migrant Workmen Act 1979
- Ancient Monuments and Archaeological Sites & Remains (Amendment and Validation) Act 2010
- Indian Treasure Trove Act, 1878
- Right to Information Act, 2005
- Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act 1989 and further Amendments 2018.
- The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013
- The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013
- Acts/ Rules applicable to land acquisition, RoW use, encroachments on municipal drains, etc.: The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement Act, 2013. The Honorable Supreme Court of India order, on removal and restriction of encroachment of religious structures on the public space.

These important environmental legislations have been briefly explained here with a description of their relevance in this project, availability of technical guidelines for its implementation, and institutional responsibility.

Technical Guidelines on Sewerage and Drainage at National Level

Central Government agencies have issued various guidelines for various aspects and associated aspects of sewerage and drainage projects. The most important guidance applicable to this project is listed herewith a description of the guidelines presented.

Central Public Health and Environmental Engineering Organisation (CPHEEO), Ministry of Urban Development (MoUD)

- Manual on Sewerage and Sewage Treatment Systems, 2013
- Manual on Storm Water Drainage Systems, 2019
- Manual on Operation and Maintenance of Water Supply System, 2005
- Manual on Solid Waste Management (applicable to screenings, sludge, grit, and other wastes from premises)
- Manual on Municipal Solid Waste Management – 2000
- Manual on Water Supply and Treatment -1999

Guidelines and Advisories

- Guidelines for Decentralized Wastewater Management
- Standard Operating Procedure (SOP) for Cleaning of Sewers and Septic Tanks
- Advisory note on Septage Management in Urban India
- National Policy on Faecal Sludge and Septage Management
- Advisory on Public and Community Toilets
- Advisory on Tariff for Water supply and Sewerage
- Recent Trends in Technologies in Sewerage System.

Central Pollution Control Board

- Guidelines for Management of Sanitary Waste, 2018
- Guidelines on Environmental Management of Construction & Demolition (C & D) Wastes
- Guidelines for management of health care waste as per BMW management Rules,2016

State-Level Regulations

Key State-level regulations applicable to the program include the following. Specific regulations applicable to Program activities shall be updated and discussed in EIAs. A detailed description of these regulations is presented here.

The following **Table 8** discusses the Environmental Rules and Regulations and their applicability to Program Operations

Table 8: Applicable Environmental Policies, Rules, and Regulations at the National & State Level

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
|---|--|----------------------------------|
| Regulations/ Policies related to Environmental Conservation & Management | | |
| National Environment Policy, 2006 | The National Environment Policy by the MoEFCC aims at mainstreaming environmental concerns into all developmental activities. It emphasizes the conservation of resources and points out that the best way to aid conservation is to ensure that people dependent on resources | MoEFCC |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
|---|---|--|
| | <p>obtain better livelihoods from conservation than from degradation of the resources. It argues that environmental degradation often leads to poverty and poor health outcomes among populations. The objectives of the National Environmental Policy are-</p> <ul style="list-style-type: none"> • Conservation of Critical Environmental Resources • Intra-generational Equity: Livelihood Security for the Poor • Inter-generational Equity: ensure judicious use of environmental resources • Integration of Environmental Concerns in Economic and Social Development • Efficiency in Environmental Resource Use • Environmental Governance • Enhancement of Resources for Environmental Conservation | |
| <p>The Environment Protection (Act) 1986 and The Environmental Protection Rules</p> | <p>The Environment (Protection) Act was enacted in 1986 to provide for the protection and improvement of the environment. It empowers the Central Government to establish authorities [under section 3(3)] charged with the mandate of preventing environmental pollution in all its forms and to tackle specific environmental problems that are peculiar to different parts of the country. The Act was last amended in 1991. This act was passed as an overall comprehensive act “for protection and improvement of environment”. Under this act, rules have been specified for the discharge/ emission of effluents and different standards for environmental quality. These include Ambient Noise Standards, Emission from Motor Vehicles, Mass Emission Standard for Petrol Driven Vehicles, General Effluent Standards, etc. in the exercise of the powers conferred under the Act, the following rules are devised</p> <ul style="list-style-type: none"> • The Water (Prevention and Control of Pollution) Act, 1974 and Water Cess Act, 1977 • The Air (Prevention and Control of Pollution) Act, 1981 • The Noise Pollution (Regulation and Control) Rules, 2000 • Environment Protection (EP) Act, 1986 • National Green Tribunal Act, 2010 • Waste Management Rules under EP Act including <ul style="list-style-type: none"> ○ Solid Waste Management Rules, 2016 ○ Construction and Demolition Waste Management Rules, 2016. ○ Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 2016, amended 2019 ○ E-Waste (Management) Rules, 2016, amended 2018 ○ Bio-medical Waste Management Rules, 2016, amended 2019 ○ Plastic Waste Management (Amendment) Rules, 2018 ○ Batteries (Management and Handling) Amendment Rules, 2010 <p>This umbrella Act brings in capacities at the Central and State levels to monitor and regulate environmental performance. It also laid the foundation for sector/ sub-sector-specific Rules and guidelines applicable to all States</p> | <p>MoEFCC, State Department of Environment & Forest CPCB, SPCB</p> |
| <p>Environmental Impact Assessment Notification, 2006</p> | <p>EIA notification 2006 and its subsequent amendments list out the type of project that requires Environmental Impact Assessment and Environmental Clearance from MoEFCC or State Environment Impact Assessment Authority before the commencement of any developmental work or project expansion. The notification gives stage-wise guidance for the processing of Environmental Clearance. The objective of the notification is to formulate a transparent, decentralized, and efficient regulatory mechanism to:</p> <ul style="list-style-type: none"> • Incorporate necessary environmental considerations at the planning stage • Involve stakeholders through the public hearing process • Identify developmental projects based on impact potential • Securing provision for mitigation efforts | <p>SEIAA/ MoEFCC</p> |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
|---|---|----------------------------------|
| | Sewage, Water Supply, projects do not fall under the purview of EIA notification. Greening of Public areas and Energy efficiency projects may fall under the purview if part of a building construction or area development project under the Notification | |
| The Water (Prevention and Control of Pollution) Act, 1974 and The Water Cess Act 1977 | <p>The Act is enacted to prevent pollution of water sources through industrial or any other construction activity and for maintaining or restoring of wholesomeness of water. The Act prohibits the discharge of pollutants into water bodies beyond a given standard and lays down penalties for non-compliance with its provisions.</p> <p>The act resulted in the establishment of the Central and State Level Pollution Control Boards whose responsibilities include managing water quality and effluent standards, as well as monitoring water quality, prosecuting offenders, and issuing licenses for construction and operation of any facility. This will include the generation of liquid effluent during construction/ civil engineering activities or from domestic activities in workers' colonies. Water (Prevention and Control of Pollution) Cess Act was enacted in 1977, to provide for the levy and collection of a cess on water consumed by persons operating and carrying on certain types of industrial activities. This cess is collected to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974. The Act was last amended in 2003.</p> <p><i>Prior CTE and CTO are applicable to establish STPs. Consent to Establish & Operate/ Authorization shall be obtained, before Establishing and commissioning the subprojects eligible for this under the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, and the relevant Rules under Environment (Protection) Act 1986.</i></p> <p><i>Effluent and stormwater analysis reports and flow details (once a week) and Water consumption returns (Monthly) shall be furnished to the District office of the State PCB.</i></p> | CPCB, SPCB, ULBs |
| The Air (Prevention and Control of Pollution) Act. 1981 | <p>The purpose of this act is to prevent, and control air pollution and preserve air quality. This act empowers Central and State Pollution Control Boards for managing air quality and emission standards, as well as monitoring air quality, prosecuting offenders, and issuing licenses for construction and operation of any facility. Air quality includes noise levels also. This act has notified the National Ambient Air Quality Standard for different land uses.</p> <p><i>Prior CTE and CTO are applicable to establish STPs under the Water (Prevention and Control of Pollution) Act 1974, the Air (Prevention and Control of Pollution) Act 1981, and the relevant Rules under the Environment (Protection) Act 1986.</i></p> <p><i>Emission analysis report and flow measurement (monthly) shall be submitted to the District office of SPCBs.</i></p> | CPCB, SPCB |
| The Noise Pollution (Regulation and Control) Rule, 2000 | <p>The Noise Pollution (Regulation and Control) rules are promulgated under the Environmental (Protection) Act, 1986. The noise pollution rules lay down terms and conditions as are necessary to reduce noise pollution, including during night hours. The rule provides ambient noise level standards for various types of land uses. PCB can take action if the sound level exceeds the standards by 10 dBA. Noise standard for different zones.</p> <ul style="list-style-type: none"> - Industrial zone- 75 & 70 dBA Leq during daytime and night-time respectively - Commercial zone- 65 & 55 dBA Leq during daytime & night-time respectively - Residential zone- 55 & 45 dBA Leq during daytime and night-time respectively - Silence zone 50 & 40 dBA Leq during daytime and night-time respectively <p><i>Construction vehicle/ equipment, construction and operation, and management of STPs, WTPs, networks and other activities, should comply with the standards as stipulated in the rule.</i></p> | CPCB, SPCB |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
|--|--|----------------------------------|
| The Wildlife Protection Act, 1972 | <p>The Wildlife Protection Act, 1972 has allowed the government to establish several Protected Areas like National Parks and Sanctuaries over the past 37 years, to protect and conserve the flora and fauna and their habitat.</p> <p><i>Prior recommendation of the National Board for Wildlife (NBWL) will be required</i></p> <ul style="list-style-type: none"> • <i>in case any subproject activity is proposed within the boundaries of a Protected area</i> • <i>in case any project requiring Environmental Clearance (under the purview of EIA Notification 2006 and its subsequent amendments) is located within the eco-sensitive zone around a Wildlife Sanctuary or National Park or in the absence of delineation of such a zone, within a distance of 10 km from its boundaries</i> <p><i>There may be many sensitive/ protected areas in various ULBs in different parts of TN.</i></p> | NBWL, SBWL |
| National Urban Sanitation Policy, 2008 | <p>Prioritizes state-wide sanitation strategies and city sanitation plans (CSP) with a focus on service-level benchmarking. The policy envisages a city sanitation task force.</p> <p>Provision for septage management exists but is not part of service-level benchmarking.</p> | |
| Advisory Note on Septage Management, 2013 & National Urban Faecal Sludge and Septage Management Policy, 2017 | <p>Development of a septage management sub-plan as part of CSP. Recognition of faecal sludge and septage management as a sanitation solution. Recommends septage management as an essential component for citywide sanitation. Focused on areas with no sewers, emphasis on the need for onsite and offsite sanitation systems to exist in tandem.</p> | |
| The Wetlands (Conservation and Management) Rules, 2017 | <p>Wetlands (Conservation and Management) Rules, 2017 are promulgated under the Environmental (Protection) Act, 1986 for prohibiting reclamation and degradation through drainage and landfill, pollution (discharge of domestic and industrial effluents, disposal of solid wastes), hydrological alteration (water withdrawal and changes in inflow and outflow), over-exploitation of their natural resources resulting in loss of biodiversity and disruption in ecosystem services provided by wetlands by conservation of wetlands. As defined in the rule, 'wetland' means an area of marsh, fen, peatland, or water; whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish, or salt, including areas of marine water the depth of which at low tide does not exceed six meters, but does not include river channels, paddy fields, human-made water bodies/ tanks specifically constructed for drinking water purposes and structures specifically constructed for aquaculture, salt production, recreation, and irrigation purposes. Whereas, 'wetlands complexes' means two or more ecologically and hydrologically contiguous wetlands and may include their connecting channels/ ducts</p> <p><i>The rules shall apply to the wetlands or wetlands complexes of the following types-</i></p> <p><i>(a) wetlands categorized as 'wetlands of international importance under the Ramsar Convention</i></p> <p><i>(b) wetlands as notified by the Central Government, State Government, and Union Territory Administration</i></p> <p>Section 4 of the rule elaborates on Restrictions of activities in wetlands which include handling or storage or disposal of construction and demolition waste covered under the Construction and Demolition Waste Management Rules, 2016; hazardous substances covered under the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 or the Rules for the Manufacture, Use, Import, Export, and Storage of Hazardous Microorganisms/ Genetically Engineered Organisms or Cells, 1989 or the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008; Solid waste dumping; Discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements; and any construction of a permanent nature.</p> <p><i>Since all activities will be implemented in the various ULBs spread across TN, there may be the presence of wetlands, this may be applicable; esp. construction, disposal of treated sewage, sludge etc.</i></p> | State Department of Environment |
| Regulations Related to Waste Management | | |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
|--|---|--|
| Solid Waste Management Rules, 2016 | <p>The Rules shall apply to every urban local body, other areas, and to every domestic, institutional, commercial, and any other non-residential solid waste generator except industrial waste, hazardous waste, hazardous chemicals, biomedical wastes, e-waste, lead-acid batteries, and radioactive waste. The rules define the duties of solid waste generators. The rules outline the responsibilities of line ministries, ULB's and other stakeholders, and the duty of the operator of the Solid Waste Processing and Treatment Facility.</p> <p><i>Labour camps, wastewater, WTP units, and all Program activities shall follow SWM Rules 2016. All capacity building/ training activities shall ensure management for bio waste, and packaging waste. General SW from STP including Grit shall be tested and channelized to the SWM system. Sludge from STPs to be composted and dried for long to remove coliforms, salmonella etc.; and standards for metal content mentioned in the Rules</i></p> | MoEFCC, Waste Generators, CPCB, SPCB, various stakeholders at the state/ local level, etc., ULBs |
| Construction and Demolition Waste Management Rules, 2016 | <p>Construction and demolition waste include waste comprising of building materials, debris, and rubble resulting from the construction, remodeling, repair, and demolition of any civil structure.</p> <p>As per rule-</p> <ol style="list-style-type: none"> 1. Every waste generator shall prima-facie be responsible for the collection, segregation of concrete, soil, and others and storage of construction and demolition waste generated, as directed or notified by the concerned local authority in consonance with these rules ((Rule 4 sub-rule (1)) 2. there should be no littering or deposition of construction and demolition waste to prevent obstruction to the traffic or the public or drains (Rule 4 sub-rule (4)) <p><i>All construction activities under the subprojects shall follow the C&D waste management rules. In addition, all silt, grit, pebbles, and such material from STP Grit shall be tested and channelized to the C&D WM system.</i></p> | MoEFCC, C&D Waste Generators, CPCB, SPCB, various stakeholders at state/ local level, ULBs |
| Plastic Waste Management Rules, 2016, amended 2018 | <p>MoEFCC issued the Plastic Waste Management Rules, 2016 to give thrust on plastic waste minimization, source segregation, recycling, and disposal effectively.</p> <p>These rules shall apply to every waste generator, local body, Gram Panchayat, manufacturer, Importers, and producer. Section 6 and Section 8 of the rule explain the Responsibility of the Local Body and the Responsibility of the waste generator respectively.</p> <p><i>All activities under the subprojects & capacity-building activities shall follow the Plastic waste management rules. Waste plastics from STP sieve/ Grit shall be tested and channelized to the SWM system.</i></p> | MoEFCC, Waste Generators, producers, CPCB, SPCB, ULB |
| Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016, amended 2019 | <p>The rule dictates the entity generating hazardous wastes (as defined in the rule), to take all practical steps to ensure that such wastes are properly handled without any adverse effects, which may result from such wastes. It stipulates proper collection, reception, treatment, storage, and disposal of such wastes and provides for the process/ mechanism to do so. Waste generators will need to obtain permission from the State Pollution Control Boards and other designated authorities for the storage and handling of any hazardous material.</p> <p>Schedule I of the rule lists processes that generate hazardous wastes.</p> <p>Schedule II of the rule provides a list of waste constituents with concentration limits</p> <p>Chapter 2 Section 4 states</p> <p><i>(3) The hazardous and other wastes generated in the establishment of an occupier shall be sent or sold to an authorized actual user or shall be disposed of in an authorized disposal facility. This applies to untreated sludge, treated sludge with a high amount of heavy metals/ hazardous components if any. This also applies to the use and management of asbestos and silica and other hazardous materials under the Program, and all chemicals/ fuel used must be checked for quantity to be stored on site.</i></p> | MoEFCC, CPCB, SPCB, State Government/ Administration, ULB |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
|--|--|---|
| E-Waste Management Rule , 2016, amended 2018 | <p>These rules shall apply to every manufacturer, producer, consumer, bulk consumer, collection center, dealer, e-retailer, refurbisher, dismantler, and recycler involved in the manufacture, sale, transfer, purchase, collection, storage, and processing of e-waste or electrical and electronic equipment listed in Schedule I of the rule, including their components, consumables, parts, and spares which make the product operational. These rules are applicable</p> <p>Two categories of electrical and electronic equipment namely (i) IT and Telecommunication Equipment and (ii.) Consumer Electricals and Electronics such as TVs, Washing Machines, Refrigerators Air Conditioners including fluorescent and other mercury-containing lamps are covered under these Rules</p> <p>Section 5 of the rule defines the responsibilities of the producer of e-waste.</p> <p><i>This applies to any E-Wastes generated as part of equipment installation, end-of life disposal, capacity building activities or general upgradation/ construction of facilities; including electric/ electronic appurtenances, bulbs, switches, wires, etc.</i></p> | MoEFCC, CPCB, SPCB, ULB |
| Bio-medical Waste Management Rules, 2016, amended 2019 | <p>To improve the collection, segregation, processing, treatment, and disposal of these bio-medical wastes in environmentally sound management thereby, reducing biomedical waste generation and its impact on the environment.</p> <p>These rules shall apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle biomedical waste in any form including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, Ayush hospitals, clinical establishments, research or educational institutions, health camps, medical or surgical camps, vaccination camps, blood donation camps, first aid rooms, forensic laboratories, and research labs.</p> <p>Schedule I provides guidelines for storage and disposal of various types of biomedical waste (including Liquid Waste)</p> <p>Schedule II defines Standards for Treatment and Disposal of Bio-Medical Waste i.e. incinerators, Plasma Pyrolysis or Gasification, Autoclaving, microwaving, deep burial, etc.</p> <p>Schedule III of the rule defines the responsibilities of Municipalities or Corporations, Urban Local Bodies, and Gram Panchayats along with other line ministries and concerned entities.</p> <p><i>This project would not deal with Biomedical waste except marginal quantities which might be emerging from drain outlets, machine holes, worksite & labour camps (small quantities) and sewage inlets mostly during the O&M phase. There shall be proper segregation, collection, and channelization of such waste to nearby authorized BWM facility.</i></p> | MoEFCC, Waste Generators CPCB, SPCB, ULB |
| Batteries (Management and Handling) Rules, 2001 | <p>MoEFCC under the provisions of the Environmental Protection Act, 1986 issued the Batteries (Management and Handling) Rules, 2001. The rules were enacted with the primary objective of ensuring the safe disposal of discarded lead-acid batteries. Rules mandate proper control and record-keeping on the sale or import of lead-acid batteries and recollection of the used batteries by registered recyclers to ensure environmentally sound recycling of used batteries.</p> <p><i>All activities having applicability of batteries, shall have in their plan measures stipulated to prevent the batteries from reaching the municipal stream.</i></p> | MoEFCC, CPCB, SPCB, ULBs |
| The Motor Vehicle Act, 1988 & Motor Vehicles Rules, 1989 | <p>The Act regulates all aspects of road transport vehicles. It provides in detail the legislative provisions regarding licensing of drivers/ conductors, registration of motor vehicles, control of motor vehicles through permits, traffic regulation, insurance, liability, offenses, and penalties, etc.</p> <p><i>This act will be applicable to all construction equipment/ plant and machinery including vehicles deployed during implementation. Motor Vehicles Rules, 1989 mandates Pollution Under Control (PUC) certificate for motor vehicles and valid licenses for eligible drivers.</i></p> | CPCB, SPCB, State Motor Vehicles Department, ULBs |
| Chemicals, Pesticides/ Insecticide related Regulations: | | |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
|---|---|---|
| Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 (MSIHC Rules, 1989) | These rules aim at providing control for the generation, storage and Import of hazardous chemicals. According to these rules, the user of hazardous chemicals has to follow procedures as stipulated in the rules to prevent and control hazards from such chemicals and to ensure safety and permission has to be obtained from the authority concerned for such activity. The list of chemicals and threshold limits of handling falling under the purview of these rules is provided in the schedule to the rules. <i>Hazardous chemicals if any stored/used for the project attracts the provisions.</i> | CPCB, SPCB |
| Insecticide Act 1968 and Rules 1971 | The Insecticides Act, 1968 and Insecticides Rules, 1971 regulate the import, registration process, manufacture, sale, transport, distribution, and use of insecticides (pesticides) to prevent risk to human beings or animals and for all connected matters, throughout India. All insecticides (pesticides) have to necessarily undergo the registration process with the Central Insecticides Board & Registration Committee (CIB & RC) before they can be made available for use or sale. The Act also has guidelines stipulated for the protective clothing of persons handling insecticides. Disposal of used packages, surplus material, and washing of insecticides are also included in the Act. <i>This act will be applicable for the sewerage network, STP, and networks and greening activities. No banned pesticides shall be purchased or used under the project.</i> | Central Insecticides Board and Registration Committees (CIB & RC), ULBs |
| Draft Bill on Pesticide management, 2020 introduced in Rajya Sabha in March 2020 | The purpose of the bill is to minimize risk to human beings, animals, living organisms other than pests and the environment, with an endeavor to promote pesticides that are biological and based on traditional knowledge. The bill on Pesticide management seeks to regulate the manufacture, import, sale, storage, distribution, use, and disposal of pesticides, to ensure the availability of safe pesticides and minimize the risk to humans, animals, and the environment. The Bill seeks to replace the Insecticides Act, 1968 | ULBs, Ministry of Agriculture and Family Welfare. |
| | | |
| | | |
| Other Regulations/ Policies/ Guidelines applicable to various construction/ implementation activities | | |
| Central Ground Water Authority- 'Guidelines to control and regulate groundwater extraction in India' September 2020 | Central Ground Water Authority (CGWA), constituted by the Government of India under Section 3 (3) of the Environment (Protection) Act (EPA) of 1986, in pursuance of the Order of the Hon'ble Supreme Court of India, has been regulating groundwater development and management in the country and has proposed the guidelines for groundwater withdrawal. The drawing/ proposing to draw groundwater through a pump of more than 2 HP and/ or through more than one functional tube well shall be required to seek NOC for groundwater withdrawal. NOC will be granted for drinking and domestic purpose only. NOC for groundwater withdrawal will be considered only in cases where the water supply department concerned is unable to supply an adequate amount of water in the area. Government water supply agencies are also required to seek NOC from the authorized officers for existing as well as new schemes based on groundwater sources. NOC shall not be granted for extraction of groundwater for construction activities in the project in Critical/ Over-exploited areas. Quantum of groundwater for purposes other than drinking/ domestic use shall not exceed 25% of total groundwater abstraction. <i>As per the revised guidelines of September 2020, applications for NOC for groundwater abstraction will be processed based on the category of groundwater assessment units and not by notified/ non-notified areas. ULBs shall arrange required water for construction purposes from its supply.</i> | ULBs |
| The Building & Other Construction Workers | As per the Act, the employer is required to provide safety measures at the building or construction work site along with other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodation, etc. to the workers. | Dept. of Labour; Govt. of TN |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
|---|---|--|
| (Regulation of Employment & Conditions of Service) BOCW Act, 1996 | These are comprehensive guidelines for the Occupational Health and Safety of Labourers. <i>This applies to all subprojects during construction and O&M stages where labour would be employed.</i> | |
| Child Labour (Prohibition and Regulation) Act, 1986 and Rules, amended 2016 and Child Labour (Prohibition and Regulation) Amendment Rules, 2017 | The Child Labour (Prohibition and Regulation) Act of 1986 designates a child as a person who has not completed their 14th year of age. It aims to regulate the hours and the working conditions of child workers and to prohibit child workers from being employed in hazardous industries. Children between the age of 14 and 18 are defined as "Adolescent" and the law allows adolescents to be employed except in the listed hazardous occupation and processes which include mining, inflammable substance, and explosives-related work, and any other hazardous process as per the Factories Act, 1948. <i>This applies to all subprojects during construction and O&M stages where labour would be employed.</i> | Department of Labour, TN Government |
| Minimum Wages Act, 1948 | This act sets the minimum wages that must be paid to skilled and unskilled labourers. The act is legally non-binding but statutory. Payment of wages below the minimum wage rate amounts to forced labour. Wage boards are set up to review the industry's capacity to pay and fix minimum wages such that they at least cover a family of four's requirements of calories, shelter, clothing, education, medical assistance, and entertainment. <i>This applies to all subprojects during construction and O&M stages where labour would be employed.</i> | Department of Labour, TN Government |
| The Bonded Labour System (Abolition) Act 1976 | The Bonded Labour System (Abolition) Act 1976: States that all forms of bonded labour stands abolished and every bonded labour stands freed and discharged from any obligations to render any bonded labour | PIU to ensure compliance |
| Workmen's Compensation Act, 1923 & Rules 1924 | The Act requires if personal injury is caused to a workman by accident arising out of and during his employment, his employer should be liable to pay compensation following the provisions of this Act. <i>Applicable during the construction phase. PIU should ensure through its contractors in case of any accident/ injury/ loss of life the workmen should be paid a minimum compensation as calculated under this act both during the construction and operation phase of the project. The reporting of accidents needs to be done in prescribed forms as per the act and the incident/ accident register needs to be maintained accordingly. The Act also gives a framework for calculating the amount of compensation and wages.</i> | Commissionerate of Labour PIU to ensure compliance |
| Interstate Migrant Workmen Act 1979 | The provisions of this Act regulate the conditions of service and protect the interests of interstate migrant workers. The project requires engaging interstate migrant workers for specialized activities. The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home up to the establishment and back, among others | Commissionerate of Labour PIU to ensure contractor's compliance |
| Ancient Monuments and Archaeological Sites & Remains (Amendment and Validation) Act 2010 | This Act is to ensure the preservation of ancient and historical monuments and archaeological sites and remains of national importance and for the regulation of archaeological excavations and the protection of sculptures, carvings, and other like objects. According to this Act, areas within the radii of 100m and 200m from the "protected property" are designated as "prohibited areas" and "regulated areas" respectively. No development activity is permitted in the "prohibited areas" . Development activities are not permitted in the "regulated areas" without prior permission from the Archaeological Survey of India (ASI) if the site/ remains/ monuments are protected by ASI or the State Directorate of Archaeology. <i>If any subproject is proposed within regulated areas of protected monuments, prior permission will be required from ASI. Pertinent to state that the act does not allow the development of any facility within the limit of the Prohibited Area.</i> | Archaeological Survey of India, State Dept. of Archaeology, ULB Department of Heritage |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
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| Indian Treasure Trove Act, 1878 | Whenever any treasure (anything of any value hidden in the soil, or anything affixed thereto) exceeding in amount or value ten rupees is found, the finder shall intimate District Collector in writing as soon as practicable. <i>The Act gives direction about the process to be followed in case of the chance finds.</i> | Archaeological Survey of India, State Dept. of Archaeology; District Collector, ULB Department of Heritage |
| Right to Information Act, 2005 | Provides a practical regime of right to information for citizens to secure access to information under the control of Public Authorities. The act sets out (a) obligations of public authorities for the provision of information; (b) requires designating of a Public Information Officer; (c) process for any citizen to obtain information/ disposal of request, etc.; and (d) provides for institutions such as Central Information Commission/ State Information Commission <i>Relevant as all documentation requires to be disclosed to the public.</i> | ULBs |
| Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act 1989 and further Amendments 2018. | To prevent atrocities against scheduled castes and scheduled tribes. The objectives of the Act clearly emphasized the intention of the government to deliver justice to these communities through proactive efforts to enable them to live in a society with dignity and self-esteem and without fear or violence or suppression from the dominant castes. With the reported misuse of the Act, In August 2018, the parliament of India passed the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Amendment Bill, 2018, to bypass the ruling of the Supreme Court of India laying down procedures for arrests under the Act. <i>Relevant in the context of safeguarding the rights of SC and STs.</i> | ULBs |
| The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 | An act that aims at providing a sense of security at the workplace that improves women's participation in work and results in their economic empowerment. It requires an employer to set up an "Internal Complaints Committee" (ICC) and the Government to set up a 'Local Complaints Committee' (LCC) at the district level to investigate complaints regarding sexual harassment at the workplace and for inquiring into the complaint in a time-bound manner. The ICC needs to be set up by every organization and its branches with more than 10 employees. <i>Applicable to all institutions of the Project</i> | ULBs |
| The Prohibition of Employment as Manual Scavengers and their Rehabilitation Bill 2011 & Act, 2013 | An Act to provide for the prohibition of employment as manual scavengers, rehabilitation of manual scavengers and their families, and for matters connected therewith or incidental thereto. The Bill prohibits the employment of manual scavengers, the manual cleaning of sewers and septic tanks without protective equipment, and the construction of insanitary latrines. <i>All the sub-projects where manual cleaning of the sewers and septic tanks shall be prohibited.</i> | ULBs, any person, agency |
| IS 11972 – 2002: Code of Practice for Safety Precautions to Be Taken When Entering a Sewerage System | The Government has also laid down standard. This standard lays down guidelines for selection of sewer-person and safety measures against gas hazard, infection with a view to provide some basic guidance for on selection of employees for sewer cleaning and proper job instructions for safe working in a sewerage system <i>Applicable</i> | ULBS, O&M service providers, contractors |
| Public Liability Insurance Act, 1991 | This act provides for providing immediate relief to the persons affected by accidents occurring while handling any hazardous substance and for matters connected therewith. <i>Applicable</i> | All Employers |
| The National Green Tribunal Act, 2010 | This act provides for the establishment of National Green Tribunal for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental. The National Green Tribunal established under this act is a specialized body equipped with the necessary expertise to handle environmental disputes involving multi-disciplinary issues. The Tribunal shall not be bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of natural justice. | NGT |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
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| Coastal Regulation Zone (CRZ) Notification, 2019 | This notification under Environment (Protection) Act, 1986 supplements the law on-site clearance by declaring certain zones as CRZ and regulates activities in these. Projects attracting this notification shall obtain CRZ clearance for implementation from the authority as required. <i>Applicable for all activities if falls under the CRZ purview.</i> | SCZMA, NCZMA, MoEFCC |
| The Fertilizer (Control) Order 1985 and its amendments | The FCO lays, down what substances qualify for use as fertilizers in the soil, product-wise specifications, methods for sampling and analysis of fertilizers, the procedure for obtaining license/registration as manufacturer/dealer in fertilizers and conditions to be fulfilled for trading thereof, etc. No agency/person can manufacture or sell fertilizer bio/organic fertilizer without conforming to standards notified by Central Government & license based on this from Notified Authority. If the manufacturer of organic fertilizer is a State Government or a municipality, it shall not be necessary for it to obtain the Certificate of Manufacture Specifications of city compost, and Organic Manure in Schedule IV shall, in the case of municipalities, be applicable only when it is traded in packaged form for use in agriculture. Moisture: Max 25% by weight, Color-Dark brown to Black, absence of foul odor, particle size min 90% to pass through 4mm, bulk density <1g/cm ³ , Organic Carbon by weight- 12%, NPK – 1.2 by weight min, etc. Ref Schedule 4, Pg 212. Pathogens Nil, Heavy metals mg/kg: Arsenic 10, Cadmium 5, Chromium: 50, Copper 300, Hg 0.15, Ni 50, Pb 100, Zn 1000 <i>Applicable if treated sludge or wastes from STPs, WTPs used as Fertilizer by farmers</i> | Notified authority – whole of Tamil Nadu for Fertilizers – Dy Director of Agriculture, Chennai |
| Energy Conservation Act, 2001 | Aims to reduce specific energy consumption in different sectors and sets up a specialized Bureau of Energy Efficiency to institutionalize energy efficiency measures, monitoring, and measurement at plant and macro-levels. | All agencies |
| Energy Conservation Building Code (ECBC) | The Energy Conservation Act 2001 that was passed by the Indian Parliament empowered the Central Government to prescribe an Energy Conservation Building Code (ECBC). This code applies to new commercial buildings with a connected load of 100 kW & more or contract demand of 120 kVA or more; Introduces passive design features such as daylight requirements and shading provisions; Introduces provisions of installing Renewable Energy Systems; Sets minimum energy efficiency standards for design and construction; Encourages energy efficient design or retrofit of buildings. | Building owners, ULBs |
| Key State Regulations | | |
| Chennai Metropolitan Area Groundwater (Regulation) Amendment Act, 2002 | This amendment to the original act was made to impose provision of rainwater harvesting in every building either private or government to augment groundwater storage in such manner as may be prescribed. The act also mentions that water bodies, including ponds, lakes, tanks and the like, whether public or private should be used only for the purpose of storage of water and not for any other purposes. These provisions are also included in the Panchayats Act and the Municipal Act. | ULBs |
| The Chennai Metropolitan Water Supply and Sewerage Act, 1978 | Chapter II- 6 (vi)- Without prejudice to the generality of the foregoing provision, the Board shall have power to prevent pollution of any water including any water sources, water course or channel utilized for the purpose of the Chennai Metropolitan Area. | ULBs, CMWSSB |
| TN District Municipalities Act, 1971 | Chapter VIII- 157, 159 - Prohibition of improper disposal of carcasses, rubbish, and filth and outflow of filth Chapter VIII-159 -Prohibition against throwing rubbish or filth into drains Chapter XV-316-Penalty for omission to take out a license for vehicle | ULBs |
| TN Public Health Act, 1939 Chapter IV -34, 35, 36 - | Sullage/sewage/injurious refuse not to be left into streets/public drains, pollution of water courses prohibited. Chapter VI, 44 - Power of Health Officer/local authority to abate nuisance and deposit of rubbish, etc., in street etc., Chapter XV, 129 - Rules, by-laws, penalties - punishable with imprisonment which may extend to three months or with fine or with both. | ULBs, CMWSSB, others |
| The Tamil Nadu Preservation of Private Forest Act, 1949 | Guidelines for extraction of trees from non-forest area stipulates that permission for tree cutting shall be taken from State Forest Department. | Forest Department |

| Act/ Rule/ Guidelines | Relevance | Implementing/ Responsible Agency |
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| The Tamil Nadu Hill Areas (Preservation of Trees) Act, 1955 | <p>This Act regulates the cutting of trees and cultivation of land in hill areas of Tamil Nadu, (Coonoor, Kodaikanal, Kotagiri, Ootacamund, Yercaud). Any tree-cutting in these areas requires permission from the Committee under this Act.</p> <p>Not applicable currently; in case any of the above areas fall under the Program this becomes applicable</p> | Special Committee |
| State Green Committee/District Green Committee | To consider the cutting of trees in public places and public offices. Ref G.O.(Ms).no.38 dated 02.07.2021 of the Environmental Climate Change and Forest (FR.13)Department, Government of Tamil Nadu | Forests |
| Tamil Nadu Urban Local Bodies and Chennai Metropolitan Area Septage Management (Regulation) Rules 2022 | <p>Removal of sewage, septage, illegal discharge, and tracking of trucks carrying sewage. Only issue license for desludging septic tank & disposing in treatment facilities. Shall bear the cost for cleanups if required. Use manifest, GPS.</p> <p>Came into force in January 2023</p> <p>Need a license for Collection, Transport and Disposal of faecal sludge and septage. Employees including drivers' workers to have medical insurance and other accident insurance (10 lakh). Prohibits vehicles being used for other industrial wastes. NO discharge in manholes, canals, rivers, creeks, water bodies.</p> | ULB, CMA, CMWSSB, Municipal Administration and Water Supply Department |
| Tamil Nadu Air (Prevention and Control Of Pollution) Rules, 1983 | In exercise of the powers conferred by section 54 of the Air (Prevention and Control of Pollution) Act, 1981 (Central Act 14 of 1981), the Tamil Nadu State made these rules in 1983. These rules are supplementary to the rules of the central government and describe the procedure for getting Consent from SPCB and fee structure. The rules also describe the procedure for air quality testing as well establishment of state air quality testing lab. | SPCB |
| Tamil Nadu Water (Prevention and Control Of Pollution) Rules, 1983 | In the exercise of the powers conferred by section 64 of the Water (Prevention and Control of Pollution) Act, 1974 (Central Act 6 of 1974), The state of Tamil Nadu has made these rules as supplementary to Central govt rules. These rules describe the procedure to conduct the business of SPCB, the procedure for getting Consent from SPCB for water, format for consent application and fee structure. The rules also describe the procedure for water quality testing as well establishment of state water testing lab. | SPCB |
| The regulation of Polychlorinated Biphenyls order, 2016 | The regulation of the Polychlorinated Biphenyls order has been framed by the central government in 2016. Vide this order, the manufacture and import of Polychlorinated Biphenyls has been completely banned. Its use shall be prohibited after 31Dec2025. Only research institutes can use this chemical. The procedure for handling and disposal is a hazardous waste management rules. | CPCB/SPCB |
| Septage Management Regulation & Operative Guidelines | Discusses septage management system required and guidelines for operation. Also mentions standards followed by TNPCB for discharge of treated sewage and Faecal sludge standards to be followed as there is no other standard prescribed | Municipal Administration and Water Supply Department |

Table 9: Comparison of Sewage Discharge Norms/ Orders in India

| Sl. No. | Parameters | General Norms ⁹ 1986 | | | | Draft Norms Nov. 2015 ^{**} | MoEF&CC notification, Oct. 2017 ^{**} | NGT Order 2019 ^{**} | TNCPCB Guidelines * | | | |
|---------|---|---------------------------------|--------------|-----------------|----------------------|-------------------------------------|---|------------------------------|---------------------------------|----------------------------------|------------------------------------|------------------------------------|
| | | Inland Surface Water | Public Sewer | Land Irrigation | Marine Coastal Areas | | | | Mega Metropolitan Cities | Class I cities | Others | Deep Marine Outfall |
| 1 | Biological Oxygen Demand (BOD) (mg/l) | 30 | 350 | 100 | 100 | 10 | 30 20 (in metro cities) | 10 | 10 | 20 | 30 | 30 |
| 2 | Chemical Oxygen Demand (COD) (mg/l) | 250 | - | - | 250 | 50 | - | 50 | 50 | 100 | 150 | 150 |
| 3 | Total Suspended Solids (TSS) ⁱ (mg/l) | 100 | 600 | 200 | 100 (process water) | 20 | 100 50 (metro cities) | 20 | 20 | 30 | 50 | 50 |
| 4 | pH | 5.5-9 | 5.5-9 | 5.5-9 | 5.5-9 | 6.5-9 | 6.5-9 | 5.5-9 | 5.5-9 | 5.5-9 | 5.5-9 | 5.5-9 |
| 5 | Total Nitrogen TN ⁱ (mg/l) | 100 | - | - | 100 | 10 | - | 10 | 10 | 15 | - | - |
| 6 | Ammoniacal Nitrogen as N | 50 | | - | 50 | 5 ^k | - | - | - | - | - | - |
| 7 | Free NH ₃ (mg/l) | 5 | | | 5 | - | - | - | - | - | - | - |
| 8 | Nitrate (mg/l) | 10 | | | 20 | - | - | - | - | - | - | - |
| 9 | Total Phosphorous Diss. PO ₄ as P (mg/l) | 5 | - | - | - | - | - | 1 ^l | 1 | 1 | 1 | - |
| 10 | Faecal Coliform (MPN/100 ml) | - | - | - | - | <100 | <1,000 | <230, <100 | Desirable-100 Permissible230 | Desirable-230 Permissible1000 | Desirable1000 Permissible10,000 | Desirable1000 Permissible10,000 |

Notes:

⁹ standards set in 1986 cover in total 40 parameters, which are not depicted here. NOTE: industrial wastewater standards are regulated under CETP (Common Effluent Treatment Plant) set, which is not focus on this study.

^{**} Standards applicable for discharge into water bodies and land disposal/applications, while reuse is encouraged. : NGT, Original Application No. 1069/2018, (M.A. No. 1792/2018, M.A. No. 1793/2018, I.A. No. 150/2019 & I.A.No. 151/2019).

^k As NH₄-N

* <https://tnpcb.gov.in/pdf/TNpcb&You2020.pdf>

Table 10: Key Guidelines for Sewerage, Water Supply, Wastes and related aspects at National Level

| Agency | Guidelines | Particulars |
|--|--|--|
| Central Public Health and Environmental Engineering Organisation (CPHEEO), Ministry of Urban Development | Manual on Sewerage and Sewage Treatment Systems – 2013 | <p>Part A of the <u>manual</u> is on the Engineering aspect related to the sewerage system. The manual provides detailed guidelines for: Planning, Design and construction of sewers, sewage pumping stations and sewage pumping mains, sewage treatment facilities, sludge treatment facilities, Recycling and reuse of sewage, Decentralized sewerage system, On-site sanitation, Preparation of city sanitation plan</p> <p>Part B of the <u>manual</u> is on Operation and Maintenance aspects related to sewerage systems and includes: Sewer systems, Pumping station, Sewage treatment facilities, Sludge treatment facilities, Electrical and instrumentation facilities, Monitoring of water quality, Environmental conservation, Occupational health hazards and safety measures, On-site systems</p> <p>Part C of the <u>manual</u> is on the Management aspect related to the sewerage system: Legal framework and policies, Institutional aspects and capacity building, Financing and financial management, Budget estimates for operation and maintenance, Public-private partnership, Community awareness and participation, Asset management, Management information system, Potential disasters in sewerage and management</p> |
| Central Public Health and Environmental Engineering Organisation (CPHEEO), Ministry of Urban Development | Manual on Operation and Maintenance of Water Supply System – 2005 | <p>The manual aims to serve as a guide for strengthening the technical, operational, and managerial capabilities required of the concerned personnel to operate and maintain water supply services as per acceptable norms of quantity, quality, sustainability, reliability, and cost. This manual provides systematic guidelines that provide the details of the operation, functioning, maintenance, and safety considerations of all the technical aspects related to water supply O & M including: Sources of water supply, Transmission of water, Water treatment plant, Disinfection, Reservoirs including service reservoirs, Distribution systems, Drinking-Water Quality, Monitoring, and Surveillance, Repair of pipeline, Drinking-Water Quality, Monitoring and Surveillance</p> <p>Water Meters, Instrumentation, Telemetry & SCADA Billing and collection, System management, Water audit and leakage control, Energy audit and conservation of energy, Human resources development, public awareness and customer relations, Safety practices, Public-Private partnership</p> |
| Central Public Health and Environmental Engineering Organisation (CPHEEO) Ministry of Housing and Urban Affairs | Advisory on On-Site and Decentralized Composting of Municipal Organic Waste, June 2018 | Methods to treat organic wastes, reduce, recycle, reuse, Waste to Compost systems: Waste to Compost systems for Individual Households, Small Communities, Apartments, etc. up to 10 Household; Waste to Compost systems for Medium-Sized Communities, Apartments, RWAs – for 11 – 300 Households; medium-sized Offices, Resorts, Canteens, Marriage Halls; Waste to Compost systems for large Communities, Apartments, RWAs, high rise buildings for 301 – 1000 Households; Large Offices, Large Hotels, Schools, Waste to Compost systems for Decentralized plants for more than 1000 Households operated by ULBs/ Institutions/ Outsourced agencies |
| Central Pollution Control Board | Guidelines for Management of Sanitary Waste, May'18 | It covers possible waste management options for such kinds of wastes. Role of various stakeholders etc. |
| Central Pollution Control Board | Guidelines on Environmental Management of Construction & Demolition (C & D) Wastes | <p>It discusses the Quantum & composition of C & D waste generation, Initiatives in promoting C & D waste products by Gol, C & D waste processing, Existing Guidelines on C & D waste management, Introduction to Guidelines on Environmental Management of C& D Wastes, Guidelines on Environmental Management of C & D Wastes – NOISE management, Guidelines on Environmental Management of C & D Wastes – DUST management, Guidelines on Environmental Management of C & D Wastes – Other issues</p> <p>Annexures on: Initiatives in C & D waste management in 69 cities (Literature Survey); Potential uses of C & D wastes, Global practices of the utilization of C & D wastes, Criteria for site selection of C & D waste processing facility</p> <p>Separate CPCB Guidelines: Guidelines on Dust mitigation measures in handling Construction material and C&D wastes </p> |

| Agency | Guidelines | Particulars |
|--------|------------|--|
| | | Guidelines on Environmental Management of Construction & Demolition (C & D) wastes |

Relevant Social Policies, Laws and Regulations

National and Tamil Nadu State Laws and Legislations Relevant for the Program (Social)

Table 11: Key National and Tamil Nadu State Laws and Legislations Relevant for the Program (Social)

| Sl. No. | Name of law/policy | Overview of key provisions | Applicability to P4R |
|---------|---|--|---|
| 1. | 74 th Constitutional Amendment Act, 1993 | Entrusted the Urban Local Bodies (ULBs) to prepare plans for economic development and social justice and their implementation under relevant schedules (Article 243G and 243W of the Constitution of India). Every ULB in India is having its own legislation for governance, planning development and assessment and taxation. The ULBs are committed to updating and modernizing their Municipal Acts and the rules framed under the Acts to best serve the citizens. | Applicable as all the planning and implementation of the Program is at the ULB level. |
| 2. | The Scheduled Castes and the Scheduled Tribes (Prevention of Atrocities) Act, 1989, and Rules, 1995 | Safeguards Scheduled Castes and Scheduled Tribes against wrongful occupation or cultivation of any land or premises or residence or Enjoyment of rights and services accessed/ owned/ allotted/notified for them | Relevant to the overall Program to ensure that SC and ST are not harmed or negatively impacted. |
| 3. | Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013 | Emphasizes social assessment and resettlement planning prior to issuance of the preliminary notification and provides for R&R benefits along with the compensation package. Some of the highlights are as follows: | Applicable if land is acquired for project facilities and/or if someone is displaced and/or livelihoods are affected. When the Act 2013 is applicable, the TN 2017 Rules are to follow. |
| 4 | The Tamil Nadu Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Rules, 2017 | <ul style="list-style-type: none"> Offers compensations upto 4 times the market value in rural areas and 2 times in urban areas. No displacement or dispossession until full payment of compensation and R&R benefits are made and alternative sites for resettlement have been prepared. Consent of no less than 70 percent and 80 percent respectively (in both cases) of those whose land is sought to be acquired in case of PPP or private projects is required. | |

| Sl. No. | Name of law/policy | Overview of key provisions | Applicability to P4R |
|---------|--|--|---|
| | | <ul style="list-style-type: none"> To safeguard food security and to prevent arbitrary acquisition, the Act directs States to impose limits on the area under agricultural cultivation that can be acquired. Specifies some additional provisions for SC and STs. | |
| 5 | The Tamil Nadu Slum Areas (Improvement and Clearance) Act, 1971 | An Act to provide for the improvement and clearance of slums in the State of Tamil Nadu. As a part of the Act, the government has the power to execute works of improvement to slum areas. | Applicable. Some of the water supply, drainage and sanitation activities may fall under this Act. |
| 6 | Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014 | This Act aims to regulate street vendors in public areas and protect their rights. It provides for periodic survey of all street vendors under the jurisdiction of the Town Vending Committee (in each zone or ward of the local authority) and registration and issuance of a Certificate of Vending to them. | Some of the activities under the Water Supply and Sanitation component, such as laying of pipelines, may have temporary or permanent impact on street vendors. |
| 7 | Tamil Nadu Street Vendors (Protection of Livelihood and Regulation of Street Vending) Rules, 2015 | These Rules have been made by the GoTN in exercise of the powers conferred by the 2014 Street Vendors Act. It provides for constitution of the Town Vending Committee, Grievance Redressal and Dispute Resolution Committees. | |
| 8 | Tamil Nadu Land Encroachment Act, 1905. | This Act deals with unauthorized occupation of Government land in Tamil Nadu and provides for liability of those unauthorizedly occupying land and manner of eviction. | Some of the activities under the Water Supply and Sanitation component, such as laying of pipelines, construction of OHT may encounter squatters and encroachers. |
| 9 | National Urban Sanitation Policy (NUSP) 2008 | The policy on integrated city-wide sanitation covers institutional strengthening, awareness generation, behavioral changes, pro-poor approaches and cost-effective technologies under city sanitation plans that should lead to open defecation free cities, as well as sanitary and safe disposal of all human and liquid wastes. | Promote community led improvement in overall sanitation and cleanliness in urban areas. |
| 10 | Prohibition of Employment of Manual Scavengers and their Rehabilitation Act, 2013 (Central Act 25 of 2013) | No person, local authority, or any agency to engage or employ, either directly or indirectly, any person for hazardous cleaning of as a sewer or a septic tank. | GCC has a Manual Scavenger List prepared through a self-declaration form to provide assistance. |
| 11 | Right to Information Act, 2005 | Provides a practical regime of right to information for Citizens to secure access to information under the control of Public Authorities. | Applicable. All project activities and agencies have appointed Public Information Officers and Citizens Charter. |
| 12 | Right to Service Act 2010 | Contains statutory laws and provisions to ensure time-bound delivery of public services to citizens of India. It also defines the | TN has not passed the RTS Act. |

| Sl. No. | Name of law/policy | Overview of key provisions | Applicability to P4R |
|---------|---|--|---|
| | | statutory mechanism to punish delinquent public officers if they fail to deliver the requested service within a stipulated time. | |
| 13 | The Tamil Nadu Backward Classes, Scheduled Castes and Scheduled Tribes (Reservation of Seats in Educational Institutions and of Appointments or Posts in the Services under the State) Act 1993 | Following percentage of reservation in Government, Legislature of the State, Local authority, Corporation or company owned or controlled by the Government: Backward Classes: 30%; Most Backward Classes and Denotified Communities : 20%; Scheduled Castes:18%; Scheduled Tribes: 1% | The vacant positions that will be created and filled under the project will be as per government rules and hence existing affirmative actions under the said regulation will apply. |
| 14 | Tamil Nadu Arunthathiyars Act, 2009 | 16% sixteen percent of the appointments or posts reserved for the Scheduled Castes shall be offered to Arunthathiyars, if available, in appointments or posts in the services under the State. | The vacant positions that will be created and filled under the project will be as per government rules and hence existing affirmative actions under the said regulation will apply. |
| 15 | The Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013 | This Act deals with prohibition of employment as manual scavengers and rehabilitation of manual scavengers and their families. This act protects the weaker sections, and, particularly, the Scheduled Castes and the Scheduled Tribes from social injustice and all forms of exploitation; and from the dehumanising practice of manual scavenging and a highly unequal caste system. | Applicable during the operation and maintenance of sewerage systems. |
| 16 | The Tamil Nadu Backward Class Muslims (Reservation of Seats in Educational Institutions including Private Educational Institutions and of Appointments or Posts in the Services under the State) Act,2007 | Reservation three and one-half percent of the appointments or posts within the thirty percent reservation for Backward Classes as provided in the1994 Act. | The vacant positions that will be created and filled under the project will be as per government rules and hence existing affirmative actions under the said regulation will apply. |
| 17 | Tamil Nadu Rights of Persons with Disabilities Rules, 2018 Tamil Nadu State Minorities Commission Act, 2010 | The Act protects and safeguards the disabled and minorities. | Applicable |
| 18 | The Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 | An act that aims at providing a sense of security at the work place that improves women's participation in work and results in their economic empowerment. It requires an employer to set up an "Internal Complaints Committee" (ICC) and the Government to set up a 'Local Complaints Committee' (LCC) at the district level to investigate complaints regarding sexual harassment at work place and for inquiring into the complaint in a time bound manner. The ICC needs to be setup by every organization and its branches with more than 10 employees. | Relevant and applicable to all government institutions and management agencies/firms under the program. |

| Sl. No. | Name of law/policy | Overview of key provisions | Applicability to P4R |
|---------|--|--|--|
| 19 | Tamil Nadu State Commission for Women Act, 2008 | The Act sets up the Tamil Nadu State Commission of Women and lays down functions of the Commission which includes investigation and examination of all matters related to women safety and compliances of policies/ laws pertaining to women welfare. | Women safety and inclusion is an important component of the program. |
| 20 | National Policy for the Empowerment of Women 2001 and Draft National Policy of Women 2016 | Adopted in 2001, Policy states that all forms of violence against women, physical and mental, whether at domestic or societal levels, including those arising from customs, traditions or accepted practices shall be dealt with effectively with a view to eliminate its incidence. The 2016 Policy to further the mission of equal rights and opportunities for women in family, community, workplace, and governance. Institutions and mechanisms/ schemes for assistance will be created and strengthened for prevention of such violence, including sexual harassment at work-place and customs like dowry; for the rehabilitation of the victims of violence and for taking effective action against the perpetrators of such violence. | Relevant |
| 21 | Maternity Benefit Act 1961 | To regulate employers to provide paid maternity leave and offer on-site day care services | Relevant and applicable to all government institutions and management agencies/ firms under the program. |
| 22 | Building and other Construction Workers (Regulation of Employment and Conditions of Service) Act19963. Building and Other Construction Workers' Welfare Cess Act,1996. Tamil Nadu Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Rules2006 | To regulate the employment and conditions of service of building and other construction workers and to provide for their safety, health, and welfare measure and for other matter connected therewith or incidental. To constitute Welfare Boards in every State to provide and monitor social security schemes and welfare measures for the benefit of building and other construction workers | Relevant and applicable |
| 23 | Child Labour (Prohibition and Regulation) Act, 1986 and Tamil Nadu Child Labour (Prohibition and Regulation) Rules (1994) | To protect the interest of children below the of 14 so they are not employed in certain occupations. And to regulate the conditions of work of children in certain other employments. | Relevant and applicable |

| Sl. No. | Name of law/policy | Overview of key provisions | Applicability to P4R |
|---------|---|---|-------------------------|
| 24 | Contract Labour (Regulation and Abolition) Act, 1970 Tamil Nadu Contract Labour (Regulation and Abolition) Rules, 1970 | To regulate the employment of contract labour in certain establishments and to provide for its abolition in certain circumstances. | Relevant and applicable |
| 25 | Equal Remuneration Act, 1976 and Equal Remuneration Rules 1976 | To provide for the payment of equal remuneration to men and women workers and for the prevention of discrimination, on the ground of sex, against women in the matter of employment. | Relevant and applicable |
| 26 | Payment of Wages Act 1936 and Payment of Wages (Tamil Nadu Amendment) Act, 1957 | Ensures payment of regular wages to certain classes of workers. | Relevant and applicable |
| 27 | Minimum Wages Act (1948) and Tamil Nadu Payment of Wages Rules, 1937 | Lays down the minimum wages that must be paid to skilled and unskilled labours. | Relevant and Applicable |
| 28 | Workmen's Compensation Act, 1923 | To compensate the spouse or the dependent son or daughter of a workman if he or she suffers any injury at workplace. | Relevant and Applicable |
| 29 | Maternity Benefit Act 1961 and Maternity Benefit Rules 1967 | To regulate employers to provide paid maternity leave and offer on-site day care services | Relevant and Applicable |
| 30 | Payment of Bonus Act 1965 Payment of Bonus Rules 1967 | To regulate employers to provide bonus | Relevant and Applicable |
| 31 | Personal Injuries (Compensation Insurance) Act, 1963 | Makes employers liable to pay compensation to workers sustaining personal injuries and to provide insurance for employers against such liability | Relevant and Applicable |
| 32 | Industrial Employment (Standing Orders) Act, 1946 Tamil Nadu Industrial Employment (Standing Orders) Rules, 1947 | To define the conditions of employment and to make the conditions known to workmen employed by them. | Relevant and Applicable |
| 33 | Inter-State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979 | To regulate the work of inter-state migrant workers and providing for their conditions of work- applies to establishment and labour contractors who employ five or more inter-state migrant workers | Relevant and Applicable |

| Sl. No. | Name of law/policy | Overview of key provisions | Applicability to P4R |
|---------|--|--|-------------------------|
| | Tamil Nadu Inter-State Migrant Workmen (Regulation of Employment & Conditions of Service) Rules, 1983 | | |
| 34 | Trade Unions Act, 1926 Tamil Nadu Trade Unions Regulations, 1927 | An Act to provide for the registration of Trade Unions and in certain respects to define the law relating to registered Trade Unions [Government has fixed the time-limit of 45 days for registration of Trade Union under the Trade Unions Act, 1926 , vide its Order dated 02.05.2017.] | Relevant and Applicable |
| 35 | Bonded Labour System (Abolition) Act, 1976 | To regulate forms of forced labour | Relevant and Applicable |
| 36 | The Tamil Nadu Industrial Establishments (National and Festival Holidays) Act, 1958 | The Act provides for grant of national and festival holidays to persons employed in industrial establishments. | Relevant and Applicable |
| 37 | The Tamil Nadu Payment of Subsistence Allowance Act, 1981 | The Act provides for the payment of subsistence allowance during the period of suspension. | Relevant and Applicable |
| | Tamil Nadu Labour Welfare Fund Act, 1972 | To provide for the constitution of a fund for promoting the welfare of labour and for certain other matters connected herewith in the State. | Relevant and Applicable |
| 38 | Tamil Nadu Manual Workers (Regulation of Employment and Conditions of Work) Act, 1982 Tamil Nadu Manual Workers (Regulation of Employment and Conditions of Work) Rules, 1986 Tamil Nadu Manual Workers (Construction Workers) Welfare Scheme, 1994 Tamil Nadu Manual Workers Social / Security and Welfare Scheme, 2006 Tamil Nadu Street Vending and Shops and Establishments Workers' Welfare Scheme, | It regulates the employment of manual workers employed in certain employments and the conditions of their work and security of their employments | Relevant and Applicable |

| Sl. No. | Name of law/policy | Overview of key provisions | Applicability to P4R |
|---------|--------------------|----------------------------|----------------------|
| | 2010 | | |

ANNEXURE II: Work Scope of the Proposed Units to Manage Environmental Aspects

This **Annexure** outlines the proposed Institutional setup for Environmental management at various levels under TNCRUDP. For effective environmental management, environmental management capacities must be strengthened at all program agencies. This includes:

- Constituting an Environmental Cell for TNCRUDP at TNUIFSL, with the current (1) Environmental Expert and additional (2) environmental consultants as required on Pollution Management and Natural Habitats: the cell will oversee the preparation and implementation of environmental aspects of all activities under the Components entrusted to TNUIFSL under the Program / TA
- Constituting a dedicated Environmental Unit at DMA with existing Environmental Expert at the State Level and environmental Engineer of the State level DMA PIU, who would coordinate with its regional units with (1) Environmental Engineer each, established at various regional offices where Program ULBs are located: the unit/lab will oversee preparation and implementation of environmental aspects of all activities under the Components entrusted to DMA under the Program / TA. The officials may be existing, designated from DMAs pool of Environmental (preferably) or Civil Engineers with experience in implementing interventions required for achieving their DLIs; who would be trained on various regulations, and other environmental aspects of implementing those
- Constituting an Environmental Engineering Cell at each Program ULB with two designated Engineers (preferably Environmental or Civil) – (1) nodal and (1) assistant/support engineer: the cell will oversee the preparation and implementation of environmental aspects of all activities of respective ULBs under the Program / TA. On Biodiversity aspects, the Cell shall be if required supported by the Biodiversity Management Committee (BMC) of the ULB, headed by the Commissioner of the respective ULB (Municipal Corporations, Municipalities only); or suitable experts of the respective Program Management Consultants in all aspects of Pollution, Biodiversity and Cultural Heritage.

These units/cells would be primarily responsible for coordinating, streamlining, and mainstreaming environmental aspects in program operations, and regularly reporting on key issues. The units/cells must be adequately staffed by professionals of relevant academic and professional experience, such as environmental and civil engineering, environmental sciences, environmental law, or environmental planning.

Tasks or activities which would fall under the purview of these units would include:

At Program / TA Level

- Prepare Environmental Guidance Manual as part of PIM/POM to guide environmental aspects of DPRs/EIAs; and ensure systems to screen, categorize, and guide the preparation of EIA/EMPs to assess, manage, implement, supervise, and monitor environmental aspects
- Prepare Terms of Reference for experts, and TA/studies incorporating environmental aspects as per ESSA and ESCP as applicable
- Oversee the designation of nodal officers at all levels to coordinate and monitor environmental aspects
- Ensure implementation, monitoring, and reporting on PAP actions and environmental aspects engrained in each Result Area and TA activity (under IPF)
- Support implementation, monitor, and report on ESCP
- Co-ordinate with various Program agencies, consultants, and State/National agencies/regulators to ensure all regulatory aspects and standards are met for all program activities
- Discuss and coordinate with Engineering wings of agencies at various levels (ULB, regional, State) as required to ensure that exclusions, environmental guidelines, and good practices are embedded in designs, bid documents (before bidding), and implementation
- Participate in the selection of contractors / other agencies to ensure that environmental criteria are met in the selection
- Undertake periodic site visits to ensure effective environmental management
- Facilitate training, and cross-learning between agencies
- Support Environmental Audit specifically environmental requirements pertaining to each DLI and PAP
- Development of staff and capacity of various support agencies to manage Environmental Aspects. The

cells/units would develop and deliver training programs, for operational, technical, and contractual staff as required for each result area and environmental actions, with the support of experts. Provide or arrange Information, Education, and Communication (IEC), and Training to all levels of staff, communities, and contractors/workers. Monitor staff awareness with periodic surveys

- Facilitate compiling good environmental practices to showcase
- Communicate and co-ordinate with the Bank and support during missions and all other times as required for following up and reporting on environmental aspects including incident reporting, follow-ups, and work closure
- Participate in consultations as required
- Prepare, use Environmental Management Information System (EMIS), and update activity-wise preparation details, highlights, implementation stage, pollution and biodiversity issues, environmental enhancement good practices, monitoring of results, etc.
- Co-ordination meetings monthly between all environmental officers to review and update on progress and issues on environmental management
- Any other technical activity and guidance for successful implementation of environmental aspects as in PAP actions, Result areas, and TA

At Activity level: During the Preparation phase of Program activities/TA

- Support in preparation and/or Review of ToRs for DPRs and EIAs to include good environmental considerations in the design and all required regulatory, safety, pollution and waste/wastewater management, natural habitats, environmental management, climate responsiveness, emergency management-related aspects into Program activities and TA
- Support in the selection of consultants by reviewing their capacities to prepare environmental assessments, monitoring, and audit or as required for each activity
- Review of DPRs, EIA/EMPs to ensure incorporation of environmental aspects including national/state regulatory requirements, standards, guidelines, and Environmental Guidance Manual, ESSA, and ESCP
- Undertake site visits and discussions with stakeholders as required
- As required, guide and train all agencies, officials, and consultants on environmental aspects related to the preparation of subprojects/activities
- Monitor preparation activities and suggest corrective actions if required

At Activity Level: During Implementation and O&M phases of Program activities/TA

- Implementation of PAP actions on Environmental aspects at the activity level
- Introduce Supervision and Monitoring Mechanisms and Ratings across Program ULBs to encourage environmental Aspects including, Sewage and sludge disposal (from STP, WTP), disposal of all other wastes and wastewater, housekeeping, Labour facilities to ensure no environmental deterioration, and safety, noise & vibration
- Monitor the implementation of EMP, collect and maintain a log of environmental actions with photographs, permits, minutes of meetings, etc.; and prepare a quarterly report on implementation performance, strengths, and weaknesses to be shared with Auditors. These shall be used to also report on environmental aspects in the Quarterly Progress Reports of PMU to the World Bank.
- Periodical reporting to management on key EHS implementation, compliance, training actions, and any challenges related to specific programs or institutional capacity and co-ordinate with PMU to solve any environmental issues
- Co-ordinate various regulatory procedures at State Level in co-ordination with district officials
- Check permits and ensure tender conditions on safe storage, handling, transporting, recycling, and disposal to Suppliers, Recyclers, and Disposal agencies
- Ensure inclusion of relevant conditions in contract documents of Vendors/Suppliers/Contractors as applicable to ensure compliance with all applicable Rules and Laws
- Incorporate considerations related to environmental Issues due to the Products, operations, Wastes, and placement decisions
- Integrate EMP implementation into EMIS
- Monitoring outcome/outputs of infrastructure and environmental improvements through site visits,

stakeholders' opinions, EMIS

- Participate and showcase program achievements during real/virtual missions
- Incident reporting and follow-up on Corrective actions

An outline of the Proposed Environmental management capacities is presented in the following **Figure 2**.

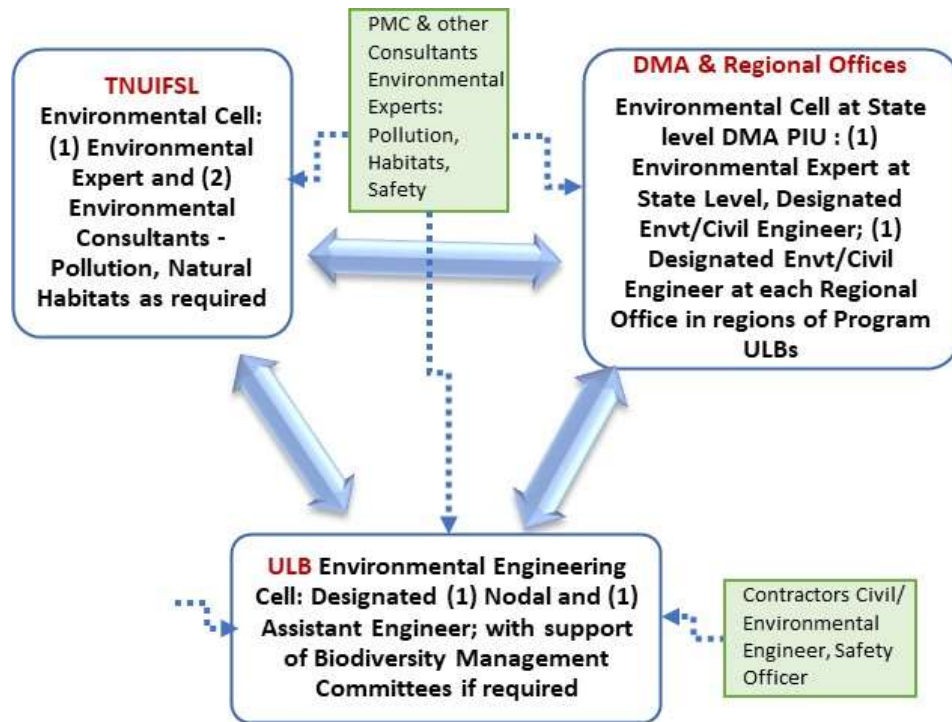


Figure 2: Outline of the Proposed Environmental Management Capacities for TNCRUDP

ANNEXURE III: Outline of the Environmental Guidance Section of the Program Operations Manual

1. Purpose of the Environmental Guidance Section
2. Adoption of Environmental Guidance
3. Program Action Plan: Time Schedules of sub-actions to achieve PAPs
4. Mechanism for Environmental Management under TNCRUDP
 - i. Exclusion List to avoid High Risk activities from P for R,
 - ii. Screening Checklist with Climate Screening for locations & typology
 - iii. Plan, Formats, Schedule, Responsibilities & Budget for Assessing, Managing, Mitigating, Monitoring, Reporting Impacts and Risks
5. Environmental Management During Preparation, Implementation
 - a) Preparation of Program activities (based on National, State Regulations, Guidance)
 - i. Applicable Regulations, Standards, Guidelines, Procedures for Preparation of each Program Activity (in discussion with PCB): with special emphasis on a) on treated sewage reuse in nearby industrial areas, treated sludge reuse in fertilizer industries, low energy & water use, use of renewable energy, (b) treated sewage disposal standards to be followed (c) Treated sludge (WTP, STP) disposal standards in line with end use (while Indian National standards take care of heavy metal contents in sludge, Faecal Coliforms, Helminth Ova, Salmonella sp. and others need more drying, addition of lime, and other treatment mechanisms, to reach the standards prescribed by World Health Organisation, US Environmental Protection Agency to do no harm to the environment and people or IIT consortium for GANGA, MOEFCC), (d) water quality standards and treatment, (e) monitoring and reporting requirements for sewage, sludge, and their disposal and end use, (f) H&S guidelines for construction and operations including for Water extraction structures, STP/WTP upgradations & network / infrastructure laying in rural areas/water bodies, multiple networks laying along roads, avoiding manual scavenging, (g) planning the laying of networks through same lengths of roads, (h) Procedures for drawal of water from Cauvery Basin & its EIA requirements, (i) Type of species used for plantation, Compensatory Plantation requirements (j) guidance on asbestos, lead, exotic species, pesticides
 - ii. Checklist on Environmental Aspects to be included in EIA ToRs: (a) Need for EA for National / State Environmental Clearances, (a) Source vulnerability & Source Water Protection Plan guidelines for WTP EIAs, (b) guidance on climate risks for interventions, (c) any other as required based on Program design, (d) EMP & EMoP, formats for budgets.
 - iii. Aspects to be included in Bid Documents & Contracts (EHS, EMP, undertakings, Capacity of Contractors on Environmental Aspects etc.)
 - iv. Generic EMPs for each Program Activity
 - b) Implementation of Program activities
 - i. Preparation of C-EMP
 - ii. Environmental/EHS inclusion in Model Bid Documents
 - iii. Monitoring and Reporting (Contractors weekly reporting, PIU monthly reporting, PMU Quarterly reporting, Accident reporting – ESIRT formats, procedures, Corrective Actions for Incidents etc.)
 - iv. ToR for External Audit on Environmental Aspects
6. Guidance on Applicability of ESF to IPF TA
7. Details of Institutional Responsibilities for Environmental Management under TNCRUDP
 - a) Institutional Responsibilities: Reporting Requirements
 - b) ToR for Environmental Experts at Various Levels
8. Training and Capacity Building Details & Schedule

Annexure A: Monitoring & Reporting Formats

ANNEXURE IV: Details of Stakeholder Consultations

Compilation of Stakeholders' Inputs / Suggestions on Ongoing & Proposed Activities – Environment (to be edited after workshop on Draft ESSA)

Institutional Arrangement:

Capacity of various agencies on design and implementation is good, however they need much support in Environmental aspects. Regional offices of DMA, DTPs can help coordinate and supervise. However, they need training/capacity building.

Overall Program:

Overall, the existing program and the Proposed one are very beneficial to the environment and the health of communities. ULBs lacks resources and capacity to plan these. Communities & ULBs welcome the efforts to ensure STP, WTP, greening projects in smaller ULBs.

Guidance, Trainings

All agencies and contractors need required training for environmental management. Though there are regulations, engineers are not fully aware of their contents or requirements.

Water Availability and Quality

Water availability is the most crucial aspect in TN especially, during summers / non monsoon period. Drought conditions prevails and people look up to facilities that can assure water supply at least to few hours a day. Recycling and reuse of treated water, desalination etc. are the options under exploration.

Wastes

Water Treatment plants and Sewage Treatment Plants produces different types of wastes and Sludge. However usually these are seen piled up in the facility or nearby roads. This needs proper management; else this creates a menace during floods. Sludge and slurry are given off to farmers informally.

COVID-19 Safety

Covid 19 is no more a pandemic in TN. However, it will be good to prevent such pandemics through adopting precautionary measures, especially in worker camps.

OHS

OHS is very important especially in traffic networks where works are proposed to lay water and sewer lines. Mostly the contractors subcontract works to small contractors. They do not have systems to manage or train workers and OHS. This is important for the works of the nature proposed here.

Monitoring

Monitoring of water quality is very important, and it should be regular and results accessible to all. TN Urban tree is a great initiative in this regard, and the Program shall ensure monitoring dashboard in that.

Design

Due diligence in design is very important. Currently the works happens without much alignment with the proposed designs. This is important for pollution management, long term sustainability and OHS as well.

Greening

Green belts are very essential especially for Lift stations, pumping stations etc. This help prevent visual blight, helps in shade, pollutant seeing, and absorption.

Disaster management

Designs shall consider the impacts of Floods, winds, Drought, Cyclones, Monsoons, Winds, and others and manmade disasters such as Fire.

Compilation of Feedback Received from Stakeholder Consultations – Social

| Stakeholder | Key Takeaways from Consultation |
|--|--|
| Executive Director TNUIFSL | <ul style="list-style-type: none"> • The Project envisages that no land will be acquired for the new investments under the Project. The ULBs have sufficient land and any new construction that might take place like Over Head Tanks, Pumping Stations etc. would be in government land. • TNUIFSL is committed to provide infrastructure services to the ULBs which will be beneficial to all sections of the population. No land is required to acquired under the current Project and all constructions will be on government land which is under the ULB. However, it is possible that there could be non title holders occupying those land. But since the present Project is a PforR and hence the state laws will prevail in terms of providing compensation (state laws does not allow compensation to illegal occupants on government land). <p><u>Capacity Building</u></p> <ul style="list-style-type: none"> • TNUIFSL is engaged in regular capacity building of the engineers and other workers in the ULBs especially on social safeguard issues. This capacity building activities will continue. <p><u>IEC and Citizens' Engagement</u></p> <ul style="list-style-type: none"> • An IEC campaign to engage citizens and to raise their awareness about the project is planned. This IEC campaign will sensitize the population about cleanliness, sustainable use of water and explain any rise in water tariff. |
| Senior Social Specialist Tamil Nadu Urban Infrastructure Finance Services Limited (TNUIFSL) | <p><u>Capacity</u></p> <ul style="list-style-type: none"> • TNUIFSL has been implementing several externally aided Projects for a number of years. • For all externally aided projects Social Impact Analysis is a mandatory requirement. • TNUIFSL is the only agency where there is an inhouse full time Social Specialist and therefore, he is responsible for all vetting all DPRs and ESIA's that are prepared for sub projects by the ULBs. |

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| | <ul style="list-style-type: none"> • He is also responsible for providing guidance to the ULBs and Consulting firms who prepare the DPRs and ESIA's for the ULBs. <p><u>Existing System</u></p> <ul style="list-style-type: none"> • Each external agency have their own framework for managing adverse social impact. • Projects which are not funded by external agencies (AMRUT), TN government laws prevail. • For the previous World Bank Project, TNUDP, an ESMF was prepared which followed the Bank's OPs. • No land acquisition has been envisaged in the present Project though in some sub-projects there could be negative economic impact in terms of temporary loss of livelihoods like hawkers, shopkeepers etc. • In the previous World Bank Projects, the people whose livelihoods were temporarily negatively impacted, were paid a compensation at the rate of MNREGA wages for the number of days that they will not be able to earn. • In order to minimize negative impact of construction of UGSS or laying of water treatment plants, digging work is usually done at night and if the need be, alignment of the lines are adjusted so that there is minimum impact of mobility of people or traffic. |
| <p>Engineering and Environment Specialist</p> <p>Procurement and Finance Manager of TNUDP</p> <p>Hygiene Advisor</p> <p>Directorate of Municipal Administration</p> | <ul style="list-style-type: none"> • The participating ULBs have identified the sub-Projects in their respective areas. Based on the experience of previous World Bank Projects, some of them have already started preparing DPRs and ESIA's. The format of the ESIA's have been provided by TNFUSIL and they are also responsible for maintenance of their quality. • Since none of the ULBs have a Social Specialist, the Social Specialist of TNUIFSL provides support in terms of supervision, monitoring and capacity building of the ULBs on social aspects. • The officials in DMA were open to the idea of recruiting Social Specialists for the Project to support TNUIFSL • Citizens interaction with the Municipalities in Tamil Nadu is mostly through digital platform. This not only includes payment of bills like water or house tax etc., but also raising and issues or grievances to the municipality. Any complaint raise on the platform is duly acknowledged and is resolved in the stipulated time. • Each year the Chief Minister gives awards to the best performing ULB, hence there is a competition between the ULBs for the top spot. One of the criteria for judgement is |

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| | <p>how responsive the ULB is in terms of addressing citizens' complaints.</p> <ul style="list-style-type: none"> • Apart from the digitized platform there is one walk in booth in every ULB in which any citizen can walk in to register a complaint. |
| <p>Urban Local Bodies contacted through virtual meetings.</p> <p>Municipal Commissioner, Salem</p> <p>Municipal Commissioner, Krishnagiri (virtual)</p> <p>Municipal Commissioner, Avadi</p> <p>Municipal Commissioner, Kanchipuram (virtual)</p> <p>Municipal Commissioner, Thoochikuddi (virtual)</p> <p>Municipal Commissioner, Chidambaram (virtual)</p> <p>Mayor, Salem</p> <p>Elected member, Salem</p> | <p><u>Environment and Social Capacity:</u></p> <ul style="list-style-type: none"> • At present there are only 2 people at TNUIFSL to look into environment and social aspects of the Project. • They are responsible of review, appraise and provide implementation support to all projects on environment and social aspects. • Other members of the technical team have had training on earlier TNSUDP ESMF but are not directly responsible for its implementation. • There is no person at TNMAWSD or TWAD Boards or at ULBs who have responsibility for environment and social aspects of the Project. However, the engineers in these departments have received orientation on the earlier TNSUDP ESMF. <p><u>Preparation of DPRs and BIDS</u></p> <ul style="list-style-type: none"> • DPRs and BID Documents are prepared at ULB level or by the TWAD Board. • They follow the environment and social guidelines as laid down by each donor agency. • TNUIFSL reviews the environment and social aspects of the DPRs but not the Bid documents. • An external monitoring agency is hired to monitor environment and social monitoring. They share regular monitoring reports. <p><u>Disaster Preparedness Plans</u></p> <ul style="list-style-type: none"> • At present there are no specific disaster preparedness plans that are in place or any specific guidelines exist on kind of designs that needs to be incorporated for flood prone areas. <p><u>GRM</u></p> <ul style="list-style-type: none"> • GRM is technology driven |
| <p>Municipality of Avadi:</p> <p>Commissioner</p> <p>Superintendent Engineer</p> <p>Executive Engineer</p> | <p><u>Avadi</u></p> <p>In Avadi, most of the areas in the city do not have piped water supply. Even in the areas where there is piped water supply, water is supplied only 1-2 days a week. There is a large portion of the cities which are under served by through piped water supply. Most of these areas are inhabited by people from the weaker sections.</p> |

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| <p>DPR Consultant</p> <p>Municipality of Salem:</p> <p>Mayor</p> <p>Commissioner</p> <p>Superintendent Engineer</p> <p>Executive Engineer</p> <p>DPR Consultant</p> <p>Elected Representative</p> | <p>Water is supplied in these areas through bore wells and tankers operated by the local bodies This increases drudgery for women as they have to collect and store water for a week in some areas. In the slums water tanker usually comes to a point from where water has to be collected by each household. Only 40% of the area is covered by UGSS. Most of the households have domestic septic tanks.</p> <p><u>Salem</u></p> <p>In Salem Management of solid waste was pointed out as the most important concern. Solid waste is collected from door to door and segregated manually. The wet waste goes to Micro Composting Centres where they are shredded and turned to compost. The compost is given to the farmers. Some ULBs include SHG members in the MCCs to shred wet waste and prepare compost. The plastic waste is sold to the cement factories.</p> <p>The DPRs of the investments that are made for the sub-projects are prepared by the ULBs. The ULBs either hire a firm to prepare the DPR or in some cases the TWAD Board is outsourced to prepare the DPR. The RFP for preparing the DPR is floated by the ULBs.</p> <p>An ESIA is prepared for every sub project which identifies the potential social impact of the Project. An external consultant is engaged for the purpose.</p> |
| <p>CSO – Indian Institute of Human Settlement and Community</p> | <p><u>IIHS</u></p> <ul style="list-style-type: none"> • Last mile connectivity with sewerage system in urban poor households especially the slums is a challenge in TN. • Space for construction of toilets is limited which leads to creating non standard containment. This pollutes the ground water. • Laying of UGSS is not easy in slums due to land issues - some land belong to slum clearance board, some temple or other department. • Human Resource is a constraint in the ULBs and this is an issue in smaller ULBs. • Enforcement of laws and regulation suffers as the ULBs do not have people to go on the ground. • As a result O&M of sewerage facilities suffer especially public toilets. • In some ULBs the public toilets are directly connected to the storm water drains creating flooding on the roads. • Though some ULBs have declared themselves ODF but that is not always the practice. • Clogging of sewerage lines is a frequent problem in the ULBs. |

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| | <ul style="list-style-type: none"> • Sometimes these clogs have to be cleared by sanitation workers creating health risks for them as they are not well equipped. • Re-use of post treatment wastewater is an area which is not explored by the ULBs. • Cost of transportation of wastewater is thought to be costly and hence not explored by the ULBs. • No coordination agency at the state to look into the use of re-cycled water. • Downstream water from the STPS are being used by farmers for Duckery and agriculture without knowing whether it is safe for use. • STPs are not designed to handle wastewater from hospitals and small household industries. • Some checks and balances exist in the larger ULBs to monitor the quality of wastewater. • GRM is tech heavy and thus not accessible to all sections of the community. • A number of cities have Citizens' Forum but they are not always effective and depends on the interest of the officials. • All ULBs have Movement for Clean Cities a body created for water and sanitation issues. They meet every alternate Saturdays but its effectiveness depends on the officials <p><u>Community</u></p> <ul style="list-style-type: none"> • The community members generally welcomed the Project. • The temporary problems that might rise due to digging up of roads to lay water pipes, was not considered as a major problem by the community. • They pointed out that the ULB members had discussed with them and they had also mentioned the same. • The permanent solution that the Project will achieve is very important. |
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Discussions during the SHC on Draft ESSA, September 22, 2023

Table 12: Stakeholders Consulted on Draft ESSA

| <i>Designation</i> | <i>Address</i> |
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| Assistant Executive Engineer | Thambaram Corporation |
| Shaktinagar Residents Association | Chromepet, Thambaram |
| Ganapathipuram Association | Chromepet, Thambaram |
| Uravugai Sustainable Development Trust | Vellore Corporation |
| Joint Chief Environmental Engineer, TNPCB Corporate Office | TNPCB |
| Environmental Engineer, TNPCB Corporate Office | TNPCB |
| Executive Engineer | Water Resources Department |
| Trustee, Green Services Trust | Thambaram |
| Community Representative, Karaikudi | Karaikudi Municipality |
| Soodamanipuram Association | Karaikudi Municipality |
| Jexa Nagar, Karaikudi Association | Karaikudi Municipality |
| Co-ordinator, Praxis | NGO |
| Director, Vaigai Trust | Vaigai Trust, Dindigul |
| Director, GRAMIUM | GRAMIUM, Karur |
| Director, Resilience ORG | Resilience Org, Viridhunagar |
| Lead Programmer | Dialectics, Chennai |
| Program Officer | People Development Initiative, Trichy |
| Assistant Mission Director, Tamil Nadu Climate Change Mission | Department of Environment and Climate Change, Tamil Nadu |
| Project Associate | Department of Environment and Climate Change, Tamil Nadu |
| Executive Engineer | Namakkal Municipality |
| Executive Engineer | Karaikudi Municipality |
| Superintending Engineer | Avadi Corporation |
| Director | Non-conventional Energy and Rural Development Society, Coimbatore |
| Lead, Practice | Indian Institute of Human Settlements |
| Senior Lead, Practice | Indian Institute of Human Settlements |
| Secretary | Tendral Nagar West and North Welfare Association |
| Executive Engineer | Cuddalore Corporation |
| Co-ordinator | SCOPE NGO Trichy |
| Director | SCOPE NGO Trichy |
| Municipal Commissioner | Rajapalayam ULB |
| Commissioner | Cuddalore Corporation |
| Executive Engineer | Dindigul Corporation |
| Executive Engineer | Kanchipuram Corporation |
| Executive Engineer | Nagercoil Corporation |
| Superintending Engineer | Salem Municipal Corporation |
| Chief Engineer | Erode Municipal Corporation |
| Superintending Engineer | Thoothukudi Corporation |
| Members, NGO | Thoothukudi |
| Commissioner | Thiruvannamalai Municipality |
| Municipal Engineer | Thiruvannamalai Municipality |

| <i>Designation</i> | <i>Address</i> |
|---------------------------|---|
| <i>Secretary</i> | <i>Ilam Thaliyu Organisation</i> |
| <i>Trustees</i> | <i>Ilam Thaliyu Organisation</i> |
| <i>Representatives</i> | <i>Kanchipuram Municipality</i> |
| <i>Members</i> | <i>Senthamanai Nagar Welfare Association, Cuddalore</i> |
| <i>Executive Engineer</i> | <i>Theni</i> |
| <i>Representatives</i> | <i>TWAD contractor Association</i> |
| <i>AEE</i> | <i>Thambaram Corporation</i> |

SHC was attended by around 65 stakeholders from CBOs, community representatives, ULBs, and various agencies. In addition, representatives of DMA, TNUIFSL, The World Bank and Consultants also attended. The WB Task team, DMA and TNUIFSL welcomed and responded to the comments and suggestions of the stakeholders.

| <i>Sl No</i> | <i>Points discussed</i> | <i>Reply/Remarks</i> |
|--------------|--|---|
| 1 | Citizen Engagement: NGOs pointed out that they are invited for suggestions only during disclosure and initial consultation during preparation stage and not during implementation. It is important to have continuous stakeholder engagement | The Program will include comprehensive action plan for continual citizen engagement |
| 2 | TNPCB: Need to install Online Monitoring System for treated Effluent Quality of STPs, CCTV Cameras for overall monitoring and monitoring of Faecal Sludge decanting. | OCEMS is being installed. DMA has prepared SOPs for FSM where lorries can be tracked using GPS. Around 350 FSTPs are being planned for whole of the state |
| 3 | TNGCC: Updated that various studies are being conducted by TNGCC on climate resilience, water security etc. They would be happy to share the details and support in the Program | Noted. Government is sensitive to E&S and sustainability issues across all its interventions |
| 4 | TNPCB: Currently they follow only MoEFCC standards for Disposal of treated sewage in their Consent Conditions. Not sure when NGT standard would be made mandatory. Though there are existing STP capacities in many Towns, these are not utilized; and households discharge the sewage directly into the environment without connecting to treatment plants | The Program would follow TNPCB Consent Conditions or better. When consent conditions are updated by TNPB, the Program would improve the treatment to match the consent conditions. DMA updated that the Program will include full network and plumbing upto inside of the compound/premises; to ensure no bypassing of untreated sewage |
| 5 | NGO: Plan for reuse of treated sewage | It was explained that a study is being taken up to understand the requirements for reuse of treated sewage. In Chennai 60MLD of tertiary treated sewage is being reused by industries |
| 6 | NGO: Water used is more in households as the ground water is also extracted and used. So calculations as part of DPR of STPs shall take this into consideration for correct estimation | Noted. This is considered under DPRs |
| 7 | NGO: Currently Greywater and Black water are getting mixed in rural areas | These will be separated, FSTPs are under preparation to treat sewage |
| 8 | Community Representative: Design Period of Sewerage and Water Supply subprojects: Usually by the time proposals are approved and implemented, population is doubled due to delays and capacities gets insufficient. Temple towns see much of Tourist influx during festivities/pilgrim seasons. Roads, sanitation requirements shall be suitably considered | Population is projected for 30 years, and design is accordingly prepared. There may be delays in implementation in dense urban areas, men and material supply, delays in contracting procedures etc. However, the Program would aim to minimize these delays. The Program DPRs would assess special requirements for Tourist / Pilgrim towns |
| 9 | NGO: Need to ensure EIA suggestions are adopted in designs | The Program would prepare EIA/EMP for all activities and ensure ESMP and EMoP in bid & |

| <i>Sl No</i> | <i>Points discussed</i> | <i>Reply/Remarks</i> |
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| | | contract documents. Cost for implementing this also are part of bid and contract documents so that implementation is assured; and monitored |
| 10 | Community Representative: Avoid using Plastic cups for Meetings, Programs | Noted. No plastic / paper cups coated with plastics will be used |

ANNEXURE V: Questionnaires used for FGDs and Stakeholder Interviews

| SI No | Stakeholder to be consulted | Points of discussion: Core Principles 1, 2, 3 Environmental Aspects | Mode of Meeting/ Suggested Date/ Venue |
|-------|---|---|---|
| | <i>Activities - WTP, STPs, networks, Greening of Public Spaces and Roof top solar: Similar meetings with each agency as under – for Rest of the interventions will be discussed when each additional activity is known & pre-draft ESSA will be updated each time</i> | | |
| 1 | TNUIFSL, CMA, & any other State level agency expected to be involved in the Program | <p>Environmental Management</p> <p>TNUIFSL (we mostly know) & CMA</p> <ol style="list-style-type: none"> 1. Structure – central, regional: focus on Water, Sanitation; & Green interventions: Greening of Public spaces & Rooftop solar on Municipal Buildings 2. Systems, due diligence & role: (i) Project Preparation for WTP, STP & networks: planning & design, Environmental Due diligence & Monitoring (ii) Implementation, (iii) O&M (during program period), and (iv) monitoring throughout the above phases: <ol style="list-style-type: none"> a. Existing Capacities – no: of qualified environmental professionals, reporting structure, understanding of Environmental regulations and standards, plan for upgrading capacities, trainings etc. provided, & proposed systems for Environmental management under TNCRUDP b. experience in Solar roof tops, & Greening public spaces, design standards followed & Env't due diligence expected/planned c. Approval / decision making procedures on Environmental aspects d. Experience in Amrut / 'p' – focus on Environmental Management: Opportunities, Challenges e. Coordination mechanism with various project agencies: between TNUIFSL & DMA, ULBs, Any other f. Expected challenges, opportunities and threats in Environmental management under the Program – focus on Pollution: Land & water (due to products, byproducts), air; Natural Habitats & Biodiversity, Heritage, OHS, CHS – how managed during works, incident management, Climate Change/Disasters – Emergency response & how they plan to manage these viz a viz experience in TNSUDP g. Attention to enhancing the Benefits, good practices: Resource Efficiency, Biodiversity Mgmt h. Financial resources allocated for Environmental Mgmt i. Suggestions for improving Environmental Management Capacities & systems j. Contract clauses in Bid docs on OHS, CHS | Week of Feb 15, 20 – 2023; Virtual |

| <i>Sl No</i> | <i>Stakeholder to be consulted</i> | <i>Points of discussion: Core Principles 1, 2, 3 Environmental Aspects</i> | <i>Mode of Meeting/ Suggested Date/ Venue</i> |
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| 2 | <p>Discussions with ULBs: select 2 among: those in distinct geographic areas, such as ULBs in (i) coastal plains like Cuddalore, Thoothukkudi, and inland plains such as Avadi, Kanchipuram, Chidambaram, Thiruvavur, Karaikudi, Nagercoil; (ii) ULBs near Western Ghats and High hills such as Rajapalayam, Theni Allinagaram, Dindigul; and (iii) Plateau and moderately Hilly areas of Vellore, Krishnagiri, Dharmapuri, Trichinapalli, Salem, Erode.</p> <p>Also, separate discussion with sample (one each or more – upstream, mid & downstream coastal) program ULBs falling in Cauvery River basin, to understand the special issues related to water allocation, availability, and quality.</p> | <ol style="list-style-type: none"> 1. Systems, due diligence & role: (i) Project Preparation for WTP, STP & networks: planning & design, Environmental Due diligence & Monitoring (ii) Implementation, (iii) O&M (during program period), and (iv) monitoring throughout the above phases: <ol style="list-style-type: none"> a. Any other agency (such as TWAD, CMWSSB – for Chennai area) expected to be involved in Program delivery at ULB level b. Interaction mechanism with other ULBs, TNUIFSL, CMA c. Existing Capacities – Hierarchy of Engineers involved in project execution, no: of qualified environmental professionals, reporting structure, understanding of Environmental regulations and standards, plan for upgrading capacities, trainings etc. provided, & proposed systems for Environmental management under TNCRUDP d. Approval / decision making procedures on Environmental aspects e. Experience in Amrut / 'p' – focus on Environmental Management: Opportunities, Challenges f. Coordination mechanism with various project agencies: between TNUIFSL & DMA, Any other g. Considerations in Building regulations, any other ULB level permits (samples) h. Expected challenges, opportunities and threats in Environmental management under the Program – focus on Pollution: Land & water (due to products, byproducts, repairs), air (including roof top solar), pesticides (greening), chlorine/other chemicals; Waste management facilities in the ULB, Natural Habitats & Biodiversity (incl. Tree cutting), Heritage, OHS, CHS – incident management, Climate Change/Disasters – Emergency response, permits/clearances (for Example- CRZ, Forest, Heritage etc.) & how they plan to manage these viz a viz experience in other projects, TNSUDP, any other project they were involved i. measures to restore damages caused by laying of pipelines j. Attention to enhancing the Benefits, good practices: Resource Efficiency, Biodiversity Mgmt Examples, Plans k. Special considerations, past / existing issues / concerns, any policy/guidance, Cumulative Risks or WTPs across STPs & – esp. in case of Cauvery ULBs l. Suggestions for improving Environmental Management Capacities & systems | Feb 20 – March 10, Virtual |
| 3 | <p>Site visit: select one each sample ULBs from the above (4 in total) who is in advanced stages of DPR preparation & Discussion with communities</p> | <ol style="list-style-type: none"> 1. Site (for main & other associated infra) & source selection mechanism & risks, examples of WTP, networks, STP, green public space, solar roof top 2. River Basin / subbasin & Ground water block – devt status; Water Quality issues if any 3. Environmental Risks & impacts – including disposal of wastes during construction, O&M; disposal of treated sewage, sludge, any back wash, 4. Systems & capacities: Planning, Design, O&M, Monitoring (incl. existing mechanisms – MIS etc.) 5. Level of understanding on the existing Regulatory environment | Two days between March 6 – 10 preferred, or March 28 – 31 – On site |

| <i>Sl No</i> | <i>Stakeholder to be consulted</i> | <i>Points of discussion: Core Principles 1, 2, 3 Environmental Aspects</i> | <i>Mode of Meeting/ Suggested Date/ Venue</i> |
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| | | <ol style="list-style-type: none"> 6. Modifications expected at Municipal buildings (type of structures, age& importance, wiring needs, space addition requirements, storage of materials, wastes, space available, fire safety) & open spaces for greening (brownfield?) 7. Mitigation mechanisms for risks & impacts 8. Past issues, cases related to WTPs, STPs, networks <p>Communities & Industries:</p> <ol style="list-style-type: none"> 1. Need for WTP, STPs 2. Discussion with domestic and non-domestic users/institutional / Industrial users o source of water, esp during scarce times, emergencies 3. Possibility & Considerations on treated water reuse (industries, & ULB itself) 4. Quantity & Quality of Water Available in ULB / region, or supplied, issues/concerns & need for new WTP, water scarcity, water level, water quality 5. Views and perception on the quality (in terms of supply duration, taste, odor and color) 6. Sources of supply to meet the service delivery requirement, Supply hours 7. Type of sewage collection treatment mechanism & concerns, issues esp during special seasons if any 8. Level of satisfaction with existing WTP, or supply by ULB. If any treatment process adopted 9. Alternate source of water when piped water is not available 10. Key issues noted with such infrastructure 11. Waste management from such infrastructure | |
| 4 | TNPCCB, Department of Environment & CC, any other regulatory body deemed important – including GW & Water Resources Department | <ol style="list-style-type: none"> 1. Copy latest of CTE, CTO, for WTPs, STPs - samples 2. CRZ clearance for facilities in CRZ zones, disposal of treated sewage 3. Current <u>standards, policies, regulations</u> applicable for Water Supply & Sewerage Projects: NGT, CPCB, MoEFCC, Special State level – including for industry classification of STP, WTP, siting criteria & distance from sensitive receptors, buffers, Quality Stds, quality affected areas – GW – Salinity, Fluoride, Arsenic, Heavy metals, Iron, Arsenic, River categorization based on Quality/BOD, Disposal of Treated sewerage, sludge disposal, soil / legacy pollution (in case of greening brownfield sites), screening/other wastes, any backwash, Applicability of Environmental Clearances in case of Tertiary Treatment, Possibility & Management of any Haz waste which might be expected, disposal of treated sewage in Lakes/<i>Eris</i>, reuse in industries – guidance, policy, policy on bypass of untreated sewage, NGT observations relevant or ULBs. Specific standards & guidelines expected permitting (esp near forests, CRZ, lakes etc.) for solar, greening e.g.: disposal of solar panels, batteries etc.; and any soil/ C&D | <p>Feb 15 to Feb 24 – Virtual</p> <p>Or on site: between March 6 – 10 (1 hr)</p> |

| <i>Sl No</i> | <i>Stakeholder to be consulted</i> | <i>Points of discussion: Core Principles 1, 2, 3 Environmental Aspects</i> | <i>Mode of Meeting/ Suggested Date/ Venue</i> |
|--------------|------------------------------------|---|---|
| | | wastes, green wastes – overview on disposal of inerts, rejects, e-haz wastes, siting considerations & guidelines for green interventions? 4. Monitoring & Reporting requirements on WTPs, STPs, Rivers, GW, solar installations, greening activities, etc. & responsibilities 5. Availability of data online 6. Examples of interactions with communities on disposal of sludge, treated sewage; special considerations, consultations need with communities 7. Online Permit mechanism, MIS accessible to ULBs 8. Environmental Compensation | |
| 5 | GW, Water Resource, Health | 1. Risks of water supply on public health? Especially on untreated sources of listed ULBS. 2. Advisories issued by health department related to water usage – mechanisms, interaction with ULBs, Public 3. Data on water borne diseases & expenses / ailments: during monsoons, drought, loss of wages and loss of school, etc. Which areas affected most 4. Current <u>standards, policies, regulations</u> / considerations with respect to Water Supply & Sewerage Projects: including source siting & distance from Dams, other facilities (such as existing STP, WTPs, disposal points – of SWD etc.); receptors, buffers, Quality Stds, quality affected areas – GW – Salinity, Fluoride, Arsenic, Heavy metals, Iron, Arsenic, River categorization based on Quality/BOD, any observations on Disposal of Treated sewerage, sludge; Lake/Eri & disposal of treated sewage / effluents 5. Any comments/suggestions for consideration in WSS | Feb 15 to Feb 24 – Virtual Or on site: between March 6 – 10 (1 hr) |

ANNEXURE VI: Assessment of Program System Consistency with Core Principles Outlined in the World Bank's Guidance on ESSA for PforR Operations (Social)

The ESSA analyzed the consistency of the program systems with **core principles** as outlined in the Bank's Guidance on Environmental and Social Systems Assessment for PforR Operations. In so far as consistency of the **social systems** of the program are concerned, the ESSA concludes that the program systems are by and large consistent with the applicable core principles. The detailed findings from this assessment are outlined in the following sub-sections.

Core Principle # 1: Adequacy and Appropriateness of Program E&S Management Systems (Social)

| Core Principle #1: Program E&S management systems are designed to (a) promote E&S sustainability in the Program design; (b) avoid, minimize, or mitigate adverse impacts; and (c) promote informed decision-making relating to a Program's E&S effects. | |
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| Key Planning Elements | Bank's Assessment |
| Operate within an adequate legal and regulatory framework to guide E&S impact assessments, mitigation, management and monitoring at the PforR Program level. | <p><i>What relevant E&S laws, regulations, procedures, decrees, or other mandatory legal instruments are applicable to the Program activities and associated impacts and risks?</i></p> <p>Details of all the National and State Laws, Policies and Regulations that were assessed for this ESSA are provided in Annexure I.</p> <p>The ESSA reviewed relevant national and state level laws related to labour welfare, safety, rights and entitlements. While the national laws related to management of social risks of this program are adequate, <i>there are no adequate provisions in the state laws to address impacts on non-title holders occupying government land on which program assets will / are likely to be created or to compensate people suffering temporary adverse economic or livelihood impacts on account of project activities.</i></p> <p>This is a significant gap and needs to be addressed through appropriate measures which could include an amendment to the state laws and rules related to land acquisition and involuntary resettlement (preferred) or through excluding any or all project activity(ies) that might necessitate involuntary resettlement of non-titleholders or provisioning for required compensation and other remedies to project affected people.</p> <p><i>Does/do the Program implementing agency/agencies have the legal and/or regulatory authority to commit resources and implement actions necessary for effective E&S assessment and management of impacts and risks?</i></p> <p>A Steering Committee has been established in GoTN to provide oversight, strategic guidance, and policy direction for major infrastructure projects in WSS and Urban sectors including the Program. The committee is chaired by the Chief Secretary of the GoTN, and its members comprise the Additional Chief Secretary MAWS, representatives from Finance Department, Water Resources Department, Energy Department, Environment, Climate Change and Forest Department, Revenue and Disaster Management Department, and representatives from the IAs. The committee is mandated to meet at least once every year or as required.</p> |

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| | <p>The Program's institutional framework will rely on the state's existing institutions that comprises a two-tier government system of state level and ULB level institutions. At the state level, the TNUIFSL and DMA will be the nodal implementing agencies. DMA will be responsible for coordinating and overseeing the achievement of Results Area 1 and will pass on the funds to ULBs as grants, upon achievement of the DLIs. TNUIFSL will be responsible for Results Area 2 and will pass on the funds to ULBs as a mix of sub-loans and sub-grants. TNUIFSL has its own Board of Directors that oversees and approves sub-loans / sub-grants to ULBs as per their lending policies.</p> <p>The assessment concludes that the program management arrangements at the highest level in GoTN and the implementing arrangements are adequate and the concerned entities at both the state level and the ULB level have the necessary legal and/or regulatory authority to commit resources and implement actions necessary for effective E&S assessment and management of impacts and risks</p> <p><i>If not, are critical changes to the legal or regulatory framework needed before the operation can proceed?</i></p> <p>No legal and / or regulatory changes are required for the program to proceed.</p> <p><i>If a new Program is being proposed, has legal and regulatory authority been clearly established?</i></p> <p>This is a part of AMRUT Scheme of Government of India. No new Program is being proposed.</p> <p><i>Do systems include mechanisms, where appropriate, to ensure objective, disinterested or independent assessments of E&S impacts?</i></p> <p>Currently, one of the nodal agencies - DMA, TNUIFSL and ULBs do not have the necessary capacities (qualified, experienced staff), financial resources or systems to manage any possible E&S risks or impacts of activities that are to be implemented. TNUIFSL has implemented and / or managed several externally aided urban development projects on behalf of GoTN and has a full time environmental specialist and a full time social safeguards specialist on its rolls that monitors, and helps implementing agencies manage E&S risks of such programs. Various ULBs participating in the program are in the process of getting DPRs prepared for the specific sub-projects. These DPRs are being prepared by external agencies and include either stand alone ESAs, or E&S assessments that are a part of the DPRs. As such, the ESSA concludes that where appropriate and required, program systems include mechanisms to ensure objective, disinterested or independent assessments of E&S impacts</p> |
| <p>Incorporate recognized elements of good practice in E&S assessment and management, including:</p> | |

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| (i) Early screening of potential impacts | <p>The Bank's E&S team conducted an early social risk and impact screening of the Bank's program (Section 4 of this document) as a part of the ESSA. The assessment concluded that the social risks and impacts of activities to be undertaken by various program implementing agencies ranged from low to moderate. At the sub-project level, ULBs are also in the process of preparing DPRs (through external agencies) and conducting preliminary E&S risks and impacts assessment. Basis these assessments, mitigation measures, if, as and where required, are being proposed for action during subsequent phases of the sub-projects.</p> <p>Tools to enable effective Social risk screening of activities and sub-projects under the Bank supported PforR Operation are suggested in Annexure VIII.</p> |
| (ii) Consideration of strategic, technical, and site alternatives (including the "no action" alternative). | <p>The Bank Program is built upon Government of India's AMRUT 2.0 and Swachh Bharat Mission (SBM) 2.0.</p> <p>The AMRUT 2.0 aims for: i) 100 percent household water tap connections to all households; ii) rejuvenation of water bodies and wells, recycle and reuse of treated used water; iii) rainwater harvesting; iv) 100 percent sewerage and septage management services in 500 AMRUT cities; and v) creation of green spaces. SBM 2.0 aims to achieve "Garbage Free" status for all cities and requires that all used water including faecal sludge be safely contained, transported, processed and disposed, in addition to 100 percent scientific management of waste. AMRUT 2.0 also emphasizes mandatory and incentive-based reforms to enhance service delivery and financial health of ULBs, behavior change on water conservation and enhancing water efficiency through Information, Education and Communication (IEC) activities, and community participation in management of water infrastructure and quality assessment. Under AMRUT 2.0, ULBs are required to prepare City Water Balance Plans (CWBP) to identify their water sources, the amount of available water, water demand and supply, and develop projects to fill the gaps, however, CWBPs were prepared with limited technical depth without proper assessment on water security.</p> <p>The proposed PforR Program ('P', the Program) will support a subset of the Government program in participating ULBs focusing on two results areas: (i) strengthening urban management, institutional framework and climate resilient planning and (ii) improving accessibility, climate resilience and efficiency of urban WSS services.</p> <p>As such, the ESSA concludes that the program mechanisms are factoring in strategic, technical and site alternatives. However, whether the "no action" alternative is also being actively analysed and factored in could not be determined.</p> |
| (iii) Explicit assessment of potential induced, cumulative, and transboundary impacts. | <p><i>Do Program procedures require the consideration of induced, cumulative, or transboundary impacts as part of screening, options assessments, and/or Environmental and Social Impact Assessment?</i></p> |

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| | <p>Neither the government program (the small 'p'), nor the Bank supported PforR Operation (the big 'P') currently consider the induced, cumulative or transboundary impacts of the program.</p> <p><i>Do the procedures allow for, or promote, the use of tools such as strategic E&S impact assessments to help identify and evaluate such impacts?</i></p> <p>Both TNUIFSL and DMA have the experience of implementing and / or managing the implementation of similar externally aided projects. If the terms and conditions of externally aided projects require the agencies to use tools such as strategic E&S impact assessments to identify and evaluate impacts of these projects, such exercises are conducted. Project specific E&S risk management frameworks, tools and plans are prepared and implemented. However, such good practices do not extend to other government funded schemes or projects.</p> <p><i>Do the systems require such issues to be managed if they are relevant to the Program?</i></p> <p>Yes, the systems require such issues to be managed under the purview of relevant national and state laws, policies and regulations if they are relevant to the program. However, as indicated earlier, most of the concerned agencies lack the technical, human and financial resources to manage these issues in a proactive manner.</p> <p><i>Are Program activities set within strategic management plans that provide an operational framework for understanding and managing such impacts?</i></p> <p>The larger government programs provide the strategic vision for urban development but they do not have any operational framework to address E&S impacts during implementation.</p> <p><i>Do the procedures include measures for evaluating critical global environmental issues such as transboundary pollution, biodiversity loss, international waterways, and climate change?</i></p> <p>Issues such as transboundary pollution and international waterways are not relevant to this program</p> <p><i>Does the assessment provide adequate opportunity to engage stakeholders on induced, cumulative, and transboundary impacts?</i></p> <p>The ESSA concludes that opportunities to engage stakeholders on various issues are provided within the program design. However, at the ULB level, systematic stakeholder engagement on issues relevant to the project appears to be weak ad hoc and often outsourced to external agencies preparing DPRs or undertaking</p> |
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| | <p>E&S assessments. Greater ownership and engagement of key project implementing agencies are required for stakeholder engagement.</p> <p><i>Do Program systems require assessing the risks from natural disasters or human induced emergencies?</i></p> <p>Currently the program systems do not explicitly require the assessment of risks from natural disasters and / or human induced emergencies.</p> |
| (iv) Identification of measures to mitigate adverse E&S risks and impacts that cannot be otherwise avoided or minimized. | <p><i>Do the applicable systems effectively promote the application of mitigation hierarchy (e.g., avoid, minimize, mitigate, compensate/offset)?</i></p> <p>The current systems do not explicitly promote the application of the avoid-minimize-mitigate-compensate / offset mitigation hierarchy. However, in practice, this risk mitigation hierarchy is being implicitly followed. Basis this, program implementing agencies are also screening out or excluding any activity that might have substantial or high social risks and would require compensation or other ways of offsetting the impacts.</p> <p><i>Do E&S management plans provide sufficient operational detail to guide effective implementation?</i></p> <p>DPRs and ESIAAs are being prepared for sub-projects at the ULB level. The ESIAAs also contains E&S management plans to manage the identified E&S risks and impacts. These E&S management plans contain some operational details that could guide implementation. These plans need to be reviewed by TNUIFSL and DMA, strengthened wherever necessary and the two agencies need to ensure that these plans are actually implemented.</p> <p><i>Are mitigation/management measures called for under the system relevant and realistic (e.g., not requiring disposal of hazardous wastes in a licensed facility if there aren't any in the country)?</i></p> <p>With respect to the mitigation of identified social risks, the E&S management measures appear to be relevant and realistic.</p> <p><i>Do management plans require time-bound actions? Do they have clear targets and clear assignment of responsibilities for implementation and for monitoring/oversight?</i></p> <p>Yes, the management plans require time bound actions and have assignment of responsibilities for implementation and for monitoring / oversight.</p> <p><i>Do applicable systems include clear and appropriate repercussions and remedies in case E&S mitigation measures are not applied?</i></p> |

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| | <p>No, the applicable systems are not explicit about appropriate repercussions and remedies in case E&S mitigation measures are not applied.</p> |
| <p>(v) Clear articulation of institutional responsibilities and resources to support implementation of plans</p> | <p><i>Are institutional/organizational responsibilities supported by adequate human and financial resources to implement environmental and/or social management procedures or plans?</i></p> <p>While institutional / organizational responsibilities are indicated in the E&S management plans these are not supported by adequate human and financial resources to implement and / or monitor the implementation of the E&S management procedures or plans.</p> <p><i>Are Program entities responsible for E&S aspects adequately staffed—in terms of skills, qualifications, and number of personnel—to ensure effective administration, planning, design, implementation, and monitoring functions?</i></p> <p>In the present form there are no E&S experts at the ULB level who can effectively plan, design and monitor social aspects of the program.</p> <p>At TNUIFSL there is only one Senior Social Specialist with substantial experience in implementation of social safeguards for externally funded projects. The DMA and the ULBs on the other hand do not have the capacity or systems to effectively plan, design and monitor social aspects of the program</p> <p><i>If the Program does not build sufficient in-house capacity, what reliable alternative arrangements (e.g., coordination with other agencies, use of qualified consulting services) are available to promote effectiveness? If none, what needs have been identified for supplementary support and/or capacity strengthening?</i></p> <p>During preparation of ESSA, it pointed out that the ULBs which are the PIUs for the sub-projects, will be strengthened by taking in consultants to implement, monitor and manage social risks and impacts of the programs. Similarly a small team of experts will be hired at the state level to provide inputs on social aspects of managing risks and impacts during planning and implementation. Apart from that, the consultants hired to prepare the DPRs and ESIAs of the sub projects at the ULB level, have technical specialists who are able to identify social risks and adverse social impacts and plan mitigation measures.</p> <p><i>If the Program depends on interagency collaboration for delivery of services or for managing E&S effects, or if the multi-jurisdictional reach or scope of the Program creates divided responsibilities for implementation, what structural arrangements are in place to ensure effective and timely coordination?</i></p> |

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| | <p>The program steering committee will guide the interagency collaboration for delivery of services and address multi-jurisdictional issues. The steering committee comprises the senior most officials of GoTN and heads of various departments which could ensure that these contentious issues are smoothly addressed.</p> <p><i>Is there a coordinating body that is empowered to resolve coordination issues or delays in required actions?</i></p> <p><Same as above></p> <p><i>Are the Program entities effective at applying their E&S frameworks in practice?</i></p> <p>There are no defined E&S frameworks that would guide the management of the programs E&S risks. Consequently, different program entities have differing levels of skills and capacities in managing E&S risks, with most PIUs not having any in house E&S risk management human resources whatsoever.</p> <p><i>Are “adaptive management” processes in place to respond to unanticipated E&S management issues that may arise?</i></p> <p>Given that there are no defined frameworks, systems, processes or tools to manage E&S risks of the program, in practice the management of all E&S risks can be categorised as "adaptive management".</p> <p><i>Do Program entities have access to contingency funds for unexpected impacts or budget shortfalls?</i></p> <p>At this stage, there is no information available on whether program entities have access to contingency funds for unexpected impacts or to meet budget shortfalls. However, the highest decision making authority for the project – the Program Steering Committee – has the highest level of decision makers from GoTN and related departments and it is likely that this body would, if and as required, ensure availability of contingency funds.</p> <p><i>Are processes and procedures relating to E&S protection routinely, effectively, and equitably implemented?</i></p> <p>Given the lack of qualified, competent and experienced human resources to manage E&S risks of programs in all but one (i.e. TNUIFSL) agency responsible for implementing the program; and the fact that none of the agencies have any defined E&S risk and impact management frameworks, systems, procedures or tools, the ESSA could not definitively conclude whether processes and procedures relating to E&S protection are or could be routinely, effectively, and equitably implemented.</p> |
| (vi) Responsiveness and accountability through stakeholder consultation, timely dissemination of the PforR information, and responsive GRMs. | <p><i>What mechanisms do program entities use to ensure that stakeholders are identified and that their views, concerns, and suggestions are systematically considered?</i></p> |

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| | <p>There is no structured system to engage with citizens on a regular basis. The local councillors have monthly meetings with their constituency where only a small percentage of the population attend. The system of engaging citizens primarily rests with the interest and initiative of the Councillors and the Commissioners at the ULB level.</p> <p>A common App based GRM has been developed by DMA and is accessible to citizens who have / have access to smartphones. This system registers grievances related to any services of the DMA and passes it on to the relevant divisions / ULBs for redressal. This system however is not readily accessible to a significant proportion of citizens who do not have / do not have access to smartphones or those who do not know how to use smartphones. This primarily comprises the most vulnerable sections of the population – the elderly, women, differently abled people, etc. Every ULB also has a walk in booth at the ULB headquarters which can be accessed by citizens to register their complaints, make applications, demand services, etc. These booths are often manned by a single ULB official who also has multiple competing responsibilities.</p> <p><i>Does the borrower consult with stakeholders on various aspects of Program design and operation?</i></p> <p>There is no systematic plan to engage with the citizens. However, the ULBs do consult the communities during preparation of DPRs and implementation of the sub projects through meetings held at the community level. These interactions are held more with the view to disseminate information about projects to citizens rather than to seek their views or opinions on project design or operations. Very often such interactions are undertaken by mostly by DPR consultants and the involvement of ULB officials is limited.</p> <p><i>Do those who may be affected have prior access to information about the topics for consultation?</i></p> <p>As a normal practice a notice is given to the affected community about a week before the consultation giving them information about the topics of the consultations.</p> <p><i>Are consultations conducted early enough that stakeholder feedback can be considered in the design of new or changing Program activities? Are consultations conducted in a manner that encourages an open exchange of views?</i></p> <p>Consultations are held at the time of preparation of DPRs and ESIA's. Sometimes, though not always, outcomes of such consultations do lead to changes in program design and / or program activities. Apart from that the consultations that are carried out in the initial stages of program planning and design, consultations are also carried out as and when necessary during implementation. However, in the absence of any structured stakeholder engagement framework or plan or even well-defined project communications strategy, stakeholder</p> |
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| | <p>consultations are often held in an ad hoc manner depending on the interest and initiative of ULB officials or on specific contextual needs.</p> <p><i>Do consultations include a representative cross-section of groups affected by the Program (including women, Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, ethnic minorities the poor, or other groups that might be underrepresented)?</i></p> <p>Yes, from the information made available during the assessment, it appears that consultations include representative cross sections of groups that might impact or might be impacted by projects. <i>Does the sampling capture jurisdictional or geographic diversity?</i> <Not applicable></p> |
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Core Principle #3: Program E&S management systems are designed to protect public and worker safety against the potential risks associated with (a) the construction and/or operation of facilities or other operational practices under the Program; (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials under the Program; and (c) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards.

| Key planning elements | Bank's Assessment |
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| <p>Promote adequate community, individual, and worker health, safety, and security through the safe design, construction, operation, and maintenance of Program activities; or, in carrying out activities that may be dependent on existing infrastructure, incorporate safety measures, inspections, or remedial works as appropriate.</p> <p>Promote measures to address child and forced labour.</p> | <p><i>Does the Program have a legal framework that addresses and promotes workplace safety? Are there mandatory measures that compel contractors and facility operators to operate equipment and facilities in a manner that protects individuals and communities?</i></p> <p>The ESSA concluded that the existing national and state laws, regulations and policies covering workers and workplace safety, child and forced labour, community health and safety are quite adequate. The implementing agencies and their contractors need comply with these regulations. The implementing agencies do not currently have the required skilled human resources to monitor compliance with these regulations. The DPRs and bid documents also do not often include or highlight mandatory E&S laws and regulations that contractors need to comply with. In such a situation, contractors also do not include the full potential cost of compliances leading to these aspects getting overlooked during implementation and O&M phases.</p> |

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| | <p><i>Does the borrower require measures to help protect individuals and/or communities from violence, intimidation, harassment, criminal activity, or other negative interactions with contractors, labourers, operators, or other workers associated with a project activity?</i></p> <p>The implementing agencies' contract documents include the need for contractors to enforce a Code of Conduct for all workers. This Code of Conduct requires workers to refrain from indulging in violence, harassment, intimidation, etc. amongst themselves and also with outside communities. Breach of this Code of Conduct can attract immediate retrenchment followed by penalties as applicable under law. Additional measures – such as codified procedures on Occupational Health and Community Safety, which do not currently exist, will strengthen the borrowers' ability to ensure better management of these critical issues.</p> <p><i>Does the borrower have specific laws or regulations to avoid the use of child and forced labour in the implementation of Program activities?</i></p> <p>The national and state legislations on child and forced labour are quite comprehensive and prohibit the use of child or forced labour. It is mandatory for the implementing agencies and contractors of the program to comply with these regulations. By and large, borrowers ensure that contractors comply with these regulations.</p> |
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Core Principle # 4: Management of Land Acquisition, Loss of Access to Natural Resources, Involuntary Resettlement

| Key planning elements | Bank's Assessment |
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| Avoid or minimize land acquisition and related adverse impacts. | <p><i>Does the Program screen all planned activities to determine whether they may require involuntary taking of land, relocation of residences or businesses, or restrictions on access to natural resources?</i></p> <p>During DPR preparation and ESIA studies, all planned activities are screened to determine whether these may involve involuntary taking of land, relocation of residences or businesses or restriction on access to natural resources. GoTN has further committed to avoiding any land acquisition or involuntary resettlement of PAPs from the Bank funded PforR. The state laws on land acquisition and resettlement and rehabilitation do not provide adequate relief or remedies to non-titleholders occupying government land as required by the Bank's E&S standards for IPF projects. Consequently, this is a risk to the program and has been highlighted in the risk assessment section of this report.</p> |

| Key planning elements | Bank's Assessment |
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| | <p><i>Do Program processes require identification and mitigation of all significant impacts?</i></p> <p>Yes, program processes (viz. through DPRs, ESIA's, etc.) identify E&S risks and impacts and provide for their mitigation through relevant plans and instruments.</p> <p><i>Do systems adequately protect individuals and communities against "forced evictions?"</i></p> <p>Land might be required for some program activities and interventions (across one or many sub-projects at the ULB level). The Borrower will make every attempt to ensure that the land required for the project is taken from government lands available with various departments of the government or with the ULBs. In the event that private land is required, the relevant national and state laws governing land acquisition will be followed. However, the state laws do not recognise the rights of non-titleholders informally occupying government lands. Consequently, if such land is required, the Borrower makes every attempt to request the informal settlers from vacating such lands. If such attempts fail, then instances of the Borrower resorting to "forced evictions" is not uncommon, though rare. Therefore, the ESSA concludes that the systems in Tamil Nadu do not adequately protect communities or individuals from forced evictions.</p> |
| <p>Identify and address economic or social impacts caused by land acquisition or loss of access to natural resources, including those affecting people who may lack full legal rights to resources they use or occupy.</p> | <p><i>As relevant, does screening consider impacts on various property regimes, including common property resources, customary or traditional rights to land or resource use, those who lack title or any recognizable claim, and Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities, rights?</i></p> <p>Currently, screening procedures only establish land ownership (i.e. whether land required for project activities and / or interventions are privately owned land, or government land). The screening does not consider the whole range of possible impacts on various property regimes, especially covering people with customary or traditional rights to land or resource use and those who lack titles or recognizable claims.</p> <p><i>Do Program processes require identification and mitigation of all significant impacts affecting informal users or occupiers of land (or other resources)?</i></p> |

| Key planning elements | Bank's Assessment |
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| | <p>While the screening of sub-project activities and / or interventions do identify informal users or occupiers of land, mitigation of any adverse impacts (viz. compensation for assets and structures in case of involuntary resettlement, provision of relocation assistance, provision of compensation for temporary economic / livelihood impacts (if any)) suffered by such informal users or occupiers are not mandatory as per the prevailing state laws and regulations on land acquisition and involuntary resettlement.</p> |
| Provide compensation sufficient to purchase replacement assets of equivalent value and to meet any necessary transitional expenses, paid before taking land or restricting access. | <p><i>Does the borrower's system recognize the principle of replacement cost when land acquisition or physical relocation is required? If not, can the Program provide supplemental payments to meet this requirement?</i></p> <p>Yes, the borrower's system (vide the relevant national and state laws pertaining to land acquisition and involuntary resettlement) recognizes the principle of replacement cost when land acquisition or physical relocation is required. Under this PforR program, GoTN has also committed to avoid any activity or intervention that might necessitate any land acquisition or involuntary resettlement under the Bank funded components.</p> <p><i>Are transitional expenses allowed under the borrower's systems? If not, are there mechanisms to mobilize additional resources to support this requirement?</i></p> <p>Yes, transitional expenses are allowed under the borrower's systems.</p> |
| Provide supplemental livelihood improvement or restoration measures if taking of land causes loss of income-generating opportunity (e.g., loss of crop production or employment). | <p><i>Do the Program systems support livelihood restoration and support measures?</i></p> <p>Presently the borrower's system does not provide for supplemental livelihoods restoration or other measures, when taking of land causes loss of income generating opportunity. However, in the past, if and as such instances have been encountered, the ULBs have provided remedies to compensate for temporary economic and / or livelihood losses based on prevailing daily wage rates or wage rates determined by the national rural employment guarantee scheme, whichever is lower.</p> <p><i>Do the Program systems include the necessary institutional provisions to ensure the effective implementation of such measures?</i></p> |

| Key planning elements | Bank's Assessment |
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| | <p>Currently the institutional provisions to ensure effective implementation of such measures are weak. The concerned project entities at the state and ULB level lack qualified, experienced human resources and defined policies, procedures, tools and mechanisms to ensure effective implementation.</p> <p><i>If not, can the Program provide supplemental payments to meet this requirement?</i></p> <p>The ESSA could not reach a definitive conclusion on whether the Program can provide supplemental payments to meet this requirement or is even willing to provide such supplemental payments. Discussions with senior TNUIFSL officials indicate that the program will make every attempt to avoid land acquisition and / or involuntary resettlement. However, if such instances are absolutely unavoidable, then the program management entities and the program implementing entities committed to following the relevant state laws governing such issues. Since the prevailing state laws and regulations do not recognize the rights of informal users and / or occupiers of government land, it is likely that such impacted parties might be requested to relocate at their own cost and risk. Failing which, these informal users and / or occupiers may be forced to relocate without being adequately compensated.</p> |
| <p>Restore or replace public infrastructure and community services that may be adversely affected by the Program.</p> <p>Include measures in order for land acquisition and related activities to be planned and implemented with appropriate disclosure of information, consultation, and informed participation of those affected.</p> | <p><i>Does the borrower's system recognize the need to restore or replace public infrastructure lost or damaged because of Program activities? If not, what mechanisms are in place to address such concerns under the Program?</i></p> <p>As per the existing system, the contractor engaged in civil construction will be responsible for restoration of any damage caused because of the activities under the sub projects. This is clearly mentioned in the contact document made by the ULBs with the contractors.</p> <p><i>Do land acquisition procedures include appropriate requirements for the informed participation of affected people?</i></p> <p>While no land acquisition is envisaged under the project, procedures related to land acquisition and resettlement and rehabilitation as required under the relevant national and state laws include requirements for the informed participation of affected people.</p> |

Core Principle # 5: Cultural Appropriateness, Equitable Access to Program Benefits, Special Attention to Rights and Interests of Indigenous Peoples & Historically Underserved Communities

| Key planning elements | Bank's Assessment |
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| Undertake meaningful consultations if the Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities are potentially affected (positively or negatively), to determine whether there is broad community support for the PforR Program activities. | <p><i>Do consultations include a representative cross-section of groups affected by the Program (including women, Indigenous People/Sub-Saharan African Historically Underserved Traditional Local Communities, or other ethnic minorities, the poor, or other groups that might be underrepresented)?</i></p> <p>During the preparation of ESIA, the DPR consultant engages with a cross section of all stakeholder groups who would be affected by the sub project. At the project level however, the program would benefit immensely with a well defined communications strategy and a stakeholder engagement framework to help address the various issues related to the project in general and specific sub-project investments and activities.</p> <p><i>As relevant, does screening identify different property regimes, including common property resources, customary or traditional rights to land or resource use, and the rights of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities?</i></p> <p>The program will be implemented in 13 ULBs across the state of Tamil Nadu. The population across all these ULBs is fairly heterogeneous and, while individuals and / or families belonging to different tribes might be a part of the population, these individuals or families are unlikely to suffer any impacts that are different from what other sections of the population would face. Tribal sub-sections of the populations in these ULBs do not identify themselves any differently from other sections of the population and also do not have any specific cultural, religious or traditional practices that might be adversely impacted by project activities.</p> |
| Ensure that Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities can participate in devising opportunities to benefit from exploitation of customary resources and indigenous knowledge, the latter (indigenous knowledge) to include the consent of Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities. | <p><i>Does the sampling capture jurisdictional or geographic diversity?</i></p> <p>Not applicable</p> <p><i>Do Program entities regularly review and consider consultation results to obtain or broaden community support?</i></p> <p>Currently there is no defined system or procedure for engaging with stakeholders across all phases of the project. Stakeholder are primarily engaged with during the initial stages of the project (i.e. during DPR</p> |

| Key planning elements | Bank's Assessment |
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| | <p>preparation and during ESIA studies) and their views sought. Thereafter, project related stakeholder engagement to discuss and / or obtain community support are mostly ad hoc and based on the interests and initiatives of the ULB officials and elected officials and are often event based rather than strategic.</p> <p><i>Does the Program exclude activities involving: adverse impact on natural resources to which Indigenous People/ Sub-Saharan African Historically Underserved Traditional Local Communities, have traditional ownership or customary use rights; resettlement from or restriction to such communities' access to such lands; or the commercial exploitation of Indigenous People/Sub-Saharan African Historically Underserved Traditional Local Communities, cultural heritage?</i></p> <p>The Program did not propose any activities that will have adverse impacts on natural resources to which tribals have rights, resettlement from or restriction to tribals access to such lands or commercial exploitation of tribals cultural heritage.</p> |
| <p>Give attention to groups vulnerable to hardship or discrimination, including, as relevant, the poor, the disabled, the elderly, women and children, ethnic minorities or other marginalized groups; and, if necessary, take special measures to promote equitable access to PforR Program benefits.</p> | <p><i>Is there consideration of distributional equity, affordability, and cultural or gender constraints to access or participation?</i></p> <p>Currently, the program does not have a communications strategy or a stakeholder engagement framework guiding engagements with different cross sections of the populations in the ULBs. Consequently, consideration of distributional equity, affordability, and cultural or gender constraints to access or participation is more by default rather than design.</p> <p><i>Does the incentive structure within Program agencies promote outreach measures to encourage equitable and affordable access to Program benefits?</i></p> <p>Currently there are no incentive structures within program agencies that promote proactive outreach measures.</p> <p><i>Does it consider how to alleviate cultural, financial, or physical barriers that hamper the participation of socially marginalized or disadvantaged groups?</i></p> |

| Key planning elements | Bank's Assessment |
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| | The ESSA could not reach a definitive conclusion whether measures to alleviate cultural, financial, or physical barriers that hamper the participation of socially marginalized or disadvantaged groups have been considered or not. |

Principle # 6: Avoidance of Social Conflict

| Key planning elements | Bank's Assessment |
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| Consider conflict risks, including distributional equity and cultural sensitivities. | <p><i>Is the Program being implemented in areas of recognized fragility or in post-conflict zones? If so, what special risks does this context present regarding the achievement of E&S objectives and outcomes?</i></p> <p>The Program is not being implemented in areas of recognized fragility or in post-conflict zones.</p> <p><i>Could the Program contribute in any way to underlying tensions or civil strife by reinforcing inequities or grievances?</i></p> <p>It is unlikely that the program will contribute to underlying tensions or social strife. However, the program will need to ensure transparency in disclosure of program information, inclusion of all sections of communities in program benefits (as and where applicable) and timely, responsive redressal of grievances. In some other areas of Tamil Nadu, mostly in rural areas, there have been caste based conflicts and disturbances related to water supply and sewerage projects. The program management entities will need to understand the underlying causes of such conflicts, determine whether these might be applicable in the ULBs where the sub-projects will be implemented, and take appropriate proactive measures to avoid any such possibilities.⁴²</p> <p><i>Would support for the Program in any way prejudice one party's claims in land or territorial disputes?</i></p> <p>Not Applicable.</p> <p><i>Do the screening and design of Program activities consider the risks of creating or exacerbating social conflict, especially in fragile states, post conflict areas, or areas subject to territorial or jurisdictional dispute?</i></p> |

⁴² <https://timesofindia.indiatimes.com/articleshowprint/101146856.cms>

| Key planning elements | Bank's Assessment |
|-----------------------|--|
| | <p>Currently, the screening and design of program activities do not consider the risks of creating or exacerbating social conflict potentially arising out of project activities and / or interventions.</p> <p><i>Are Program agencies open to discussion with the Bank and consultation with stakeholders on potentially sensitive issues?</i></p> <p>Yes, the Program agencies are open to discussion with the Bank and consultation with stakeholders on all issues, including potentially sensitive ones.</p> |

ANNEXURE VII: Assessment of Environmental Systems against ESSA Core Principles

Table 13: Core Principle 1 – Environmental and Social Management

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|--|--|---|--|
| <p><i>Core Principle 1: Environmental and social management procedures and processes are designed to (a) avoid, minimize, or mitigate adverse impacts; (b) promote environmental and social sustainability in program design, and (c) promote informed decision-making relating to a program's environmental and social effects.</i></p> <p><i>Key Planning Elements</i></p> <p><i>1.1 Bank program procedures are backed by an adequate legal framework and regulatory authority to guide environmental and social impact assessments at the programmatic level, 1.2. Incorporate recognized elements of environmental and social assessment good practice, including the following: 1.2 (a) Early screening of potential effects 1.2 (b) Consideration of strategic, technical, and site alternatives (including the 'no-action alternative) 1.2 (c) Explicit assessment of potentially induced cumulative, and transboundary impacts, 1.2 (d) Identification of measures to mitigate environmental or social impacts that cannot be otherwise avoided or minimized, 1.2 (e) Clear articulation of institutional responsibilities and resources to support the implementation of plans</i></p> | | | |
| <ul style="list-style-type: none"> EIA Notification 2006 and its amendments do suggest EIAs to be carried out for Water Supply, Sewage Treatment, Greening of Open spaces (development of municipal parks) or Energy Efficiency in Municipal Assets (unless any of this also include building construction ≥20000 sqm and <1,50,000 sqm. of built-up area or Area development Covering an area ≥ 50 ha and or built-up area ≥1,50,000 sqm which is not the case in the Program). EIA is however required for all subproject components located in CRZ areas as per CRZ Notification 2016. Hence, except in case of activities prohibited in CRZ zones, there exist no mechanism to screen, identify alternatives, identify cumulative transboundary impacts, mitigate, manage or allot institutional | <ul style="list-style-type: none"> Though there is no national review/clearance of EIAs for the type of activities supported under the Program (except for those in CRZ areas), TNUIFSL, is well experienced in managing the adverse risks and impacts by use of EIAs/EMPs based on ESMF to minimize the risks and impacts of Sewerage Projects as part of WB funded TNUDP III and Water Supply, energy efficiency, lake redevelopment and other activities as part TNSUDP, and other externally aided projects. DMA used ESMF, EIA/EMP for TA activities supported by them under WB aided projects with the support of TNUIFSL Some of the ULBs under TNCRUDP have experience in preparing and using EIA/EMP for such projects when they were part of TNUDP III, TNSUDP or other externally aided projects; and/or while implementing projects in CRZ areas. | <p>Systems:</p> <ol style="list-style-type: none"> Systems to screen, avoid, assess the Environmental risks and impacts (including transboundary and cumulative), identify alternatives, mitigation measures, management measures, monitoring mechanism, institutional responsibilities for Program activities Exclusion of High-Risk activities: Existing ESMF considers also High-Risk interventions as it is for Safeguards category A, and hence need exclusion criteria to exclude High Risk interventions Regulatory ambiguity / gap on Planning & Design of Sewerage systems to prevent Environmental risks: <ul style="list-style-type: none"> Monitoring of disposal (including prevention of dumping of sludge, testing and disposal of hazardous matter & disposal in TSDF) or reuse | <ul style="list-style-type: none"> Follow Systems (Environment Guidelines in the Program Operations Manual) to screen, avoid, assess the Environmental risks and impacts, include these in Bid Documents, implement, mitigate, manage, monitor Program activities Develop and use Environmental Design Manual to guide Design & EIAs including (i) Exclusion criteria to exclude high risk activities, (ii) screening format, guidance to identify alternatives, mitigation, management measures and institutional responsibilities, (ii) Design criteria to make up the Guidance Gaps at State level; (iii) Tools for Regional and ULB level Environmental Management Cells to monitor and report on Environmental aspects (including usage of electric power & energy efficiency), quantity and quality of materials, products/byproducts daily to and from facilities for long-term pollution management, climate resilience, worker |

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|---|--|--|--|
| <p><i>Core Principle 1: Environmental and social management procedures and processes are designed to (a) avoid, minimize, or mitigate adverse impacts; (b) promote environmental and social sustainability in program design, and (c) promote informed decision-making relating to a program's environmental and social effects.</i></p> | | | |
| <p>responsibilities for environmental considerations</p> <ul style="list-style-type: none"> TNUIFSL has internalized the usage of ESMF for TNSUDP (Safeguards Category A). They have updated it as a ECSMF following WB ESF with guidance for climate resilience and follows this for their externally aided projects. It lays down the mechanism to prepare EIA/EMP for subprojects based on impacts and risks, integrating the requirements in Bid Documents and implementing the same. It has screening mechanism, mechanism, impact assessment methodology including for transboundary impacts, identify alternatives, mitigate and allot institutional responsibilities While there is adequate regulatory backup for most environmental aspects, and the system requires getting Consent to Establish and Operate for large infrastructure such as Sewage Treatment Plants, standards of disposal of treated sewage are differently prescribed by MoEFCC/CPCB and NGT. There is no standard for disposal of sludge from STPs and WTPs. In addition, NGT has directions on pollution of waterbodies, discharge/reuse of treated sewage, need to avoid bypasses for untreated sewage even during rains etc. These are | <ul style="list-style-type: none"> ULBs (project proponents) through consultants/other support agencies are mandated to get the required permissions to implement activities/subprojects and have lesser capacity and time to understand, review, ensure the requirements and procedures. | <p>of sludge from STPs, with stakeholder participation.</p> <ul style="list-style-type: none"> Direction to prevent bypass of untreated sewage Standards and guidelines for the reuse of treated sewage for groundwater recharge, industrial reuse, or irrigation with stakeholder participation. Guidance to prevent mixing of industrial wastes in sewer systems and guidance not to connect open sewers (carrying mixed wastewater, storm runoff, industrial effluents etc.) to STPs (which will eventually result in STP breakdown & treatment inefficiency) <p>d. <i>Guidance gaps at the state level on water Supply systems:</i></p> <ul style="list-style-type: none"> Disposal of Wastes and sludge (minimal) from WTPs and treatment systems Pollution impacts on water sources due to UGSS disposal systems nearby/upstream <p>e. <i>For all activities:</i></p> <ul style="list-style-type: none"> Considerations to enhance environmental performance, sustainability and climate impacts <p>f. <i>System (tools, formats) gaps at regional level and at ULBs</i></p> | <p>records, and OHS, CHS during Construction & O&M), (iv) exclusive OHS / CHS guidance (including Incident Reporting) for all activities</p> <ul style="list-style-type: none"> Constituting and Environmental Management Cell for TNCRUDP at TNUIFSL, augmenting the existing environmental capacities. Constituting dedicated Environmental Unit at DMA – Sustainable Development Unit (or Urban Sustainability Lab) at State Level, and at regional levels Constituting an Environmental Engineering Cell at each Program ULB. On Biodiversity aspects, the Cell shall be supported by the Biodiversity Management Committee of the ULB Training & Capacity building of Technical experts/Design teams, ULB engineers, all Environmental Management Units/Cells at ULB, Regional & State levels on environmental management using systems to screen, assess, mitigate, manage environmental impacts, enhancing environmental effects through best practices, and risk management Sharing of learnings between ULBs |

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|---|---------------------|--|-----------------|
| <i>Core Principle 1: Environmental and social management procedures and processes are designed to (a) avoid, minimize, or mitigate adverse impacts; (b) promote environmental and social sustainability in program design, and (c) promote informed decision-making relating to a program's environmental and social effects.</i> | | | |
| important for assessment and management of environmental impacts | | <ul style="list-style-type: none"> Absence of tools / records to daily review, monitor, and enforce Pollution management, O&M of assets, OHS/CHS Incident Reporting <p>Capacities</p> <ul style="list-style-type: none"> Absence of capacities to promote environmental sustainability and best practices through planning & design Institutional capacity and training at various levels, especially at Regional and ULB levels to manage and enhance Environmental effects | |

Table 14: Core Principle 2 – Natural Habitats and Physical Cultural Resources

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|--|---|---|--|
| <i>Core Principle 2: Environmental and social management procedures and processes are designed to avoid, minimize, and mitigate adverse effects on natural habitats and physical cultural resources resulting from the program.</i> | | | |
| <i>Key Planning Elements</i> | | | |
| <i>2 (a) Includes appropriate measures for early identification and screening of potentially important biodiversity and cultural resource areas</i> | | | |
| <ul style="list-style-type: none"> At the National /State or program level there is no guidance to screen, exclude sensitive areas. TNUIFSL ESMF for TNSUDP has a screening sheet including parameters on biodiversity and cultural resource areas, which may guide the preparation of an updated screening sheet. However, the ESMF screening sheet had no explicit | <ul style="list-style-type: none"> Designated E&S experts at TNUIFSL have capacities to prepare, use, review screening carried out by various IAs. However, DMA State and Regional units or ULBs lacks capacity or experience on screening or capacity to monitor its use. | <p>Systems</p> <ul style="list-style-type: none"> Develop and use Exclusion criteria to screen / exclude high risk activities <p>Capacity</p> <ul style="list-style-type: none"> Absence of experts at ULB & regional levels to ensure proper screening | <ul style="list-style-type: none"> Exclusion criteria, and design guidance to avoid high impacts and risks on Natural Habitats and Physical Cultural resources shall be prepared as part of Environmental Design Manual for the Program and used Ensure designated engineers for supervising environmental aspects and screening at subproject level at Regional & ULB level |

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|---|--|--|--|
| exclusion criteria to avoid high risk activities / sensitive areas. | | | <ul style="list-style-type: none"> Build capacities by providing hands on training and sharing of learnings between ULBs on proper screening using screening tool |
| <p><i>2 (b) Supports and promotes the conservation, maintenance, and rehabilitation of natural habitats; avoids the significant conversion or degradation of critical natural habitats and if avoiding the significant conversion of natural habitats is not technically feasible, includes measures to mitigate or offset impacts or program activities.</i></p> | | | |
| <ul style="list-style-type: none"> Regulatory requirements ensure avoidance of significant adverse impacts on natural habitats. Permits are required for locating activities near critical Natural habitats. National/State level EIA clearance is required for activities in CRZ Past Project's ESMF has guidance on avoiding mitigating minimizing impacts on biodiversity and cultural resource areas, using EIA Government Program requires all permits, clearances to be in place before initiating the works | <ul style="list-style-type: none"> TNUIFSL has capacities to screen and assess impacts using subproject level EIAs through consultants and guide, review these to ensure better effects on natural habitats and forests. Designated E&S experts at TNUIFSL will review and agree on mitigation hierarchy to be followed. DMA at State and Regional levels, and ULBs need capacity to conduct EIAs for activities in natural habitats, to get timely clearances, permits or implement EIA/EMPs with enhancement measures. Overall, there is opportunity to improve awareness on applicable regulations | <p>Systems</p> <ul style="list-style-type: none"> Absence of guidance to avoid mitigate manage impacts and risks on natural habitats and cultural resources in line with TNSUDP ESMF <p>Capacity</p> <ul style="list-style-type: none"> Lack of awareness on all applicable regulations Absence of capacitated experts at DMA State, ULB & regional levels to get clearances on time, implement and monitor | <ul style="list-style-type: none"> Need to develop guidance to avoid mitigate manage impacts and risks on natural habitats in line with Environment Guidelines in the Program Operations Manual ToR for EIA to include focus on supporting and promoting the conservation, maintenance, and rehabilitation of natural habitats; especially in case of any works in / near rivers, lakes, ponds, or any other sensitive areas, including cumulative and transboundary impacts (WTP proposals to include Source Vulnerability Assessment, Water Protection Plan and Water Security Plan for droughts, Release from upstream in case of Cauvery basin), guidance on design adopting appropriate technology and good practices to minimize impacts Ensure designated engineers for EIA implementation and to get required clearances / permits on time at DMA State, Regional & ULB level for respective components Build capacities by creating awareness on all required clearances, permits etc.; and providing hands on training and sharing of learnings on EIAs/EMPs |

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|---|--|--|---|
| <i>2 (c) Takes into account potential adverse impacts on physical cultural property and as warranted, provides adequate measures to avoid, minimize, or mitigate such effects</i> | | | |
| <ul style="list-style-type: none"> There are National and State level laws and regulations for the regulation of activities in the proximity of protected monuments and management of chance finds of archeological, historical value. However, there are no existing regulations for unprotected cultural properties. Past Project's ESMF (of TNUIFSL) recognize all physical cultural resources | <ul style="list-style-type: none"> Designated E&S experts at TNUIFSL have capacity to review, ensure measures to avoid, minimize, mitigate impacts on cultural resources However, at Regional or ULBs there is no capacity to get timely clearances, permits, ensure design or implementation of EIA/EMPs with enhancement measures. Overall, there is opportunity to improve awareness on applicable regulations | <p>Systems</p> <ul style="list-style-type: none"> Experts at Regional and ULB levels to ensure timely permits and its renewals; ensure and implement enhancement measures for all recognized, or unrecognized resources in EIAs <p>Capacity</p> <ul style="list-style-type: none"> Absence of capacitated experts at ULB & regional levels to monitor Lack of awareness on all applicable regulations | <ul style="list-style-type: none"> Need to develop guidance to avoid mitigate manage impacts and risks on cultural resources and chance finds in line with Environment Guidelines in the Program Operations Manual ToR for EIA to include focus on potential adverse impacts on physical cultural property and provide adequate measures to avoid, minimize, or mitigate such effects on cultural resources Ensure designated engineers for EIA implementation at Regional & ULB level Build capacities by providing hands on training and sharing of learnings on management of works with effects on cultural resources |

Table 15: Core Principle 3 – Public and Worker Safety

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|--|---|---|--|
| <i>Core Principle 3: Program procedures ensure adequate measures to protect public and worker safety against the potential risks associated with (a) construction and/or operations of facilities or other operational practices developed or promoted under the program and (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials.</i> | | | |
| Key Planning Elements: | | | |
| <i>3 (a) Promotes community, individual, and worker safety through the safe design, construction, and O&M of physical, or in carrying out activities that may be dependent on such safety measures, inspections, or remedial works incorporated as needed.</i> | | | |
| Building and other Construction workers Act and other health and safety regulations are applicable to all works. Currently, the government is in the process of adopting Health and Safety Codes throughout the country, though not yet finalized. Nevertheless, Occupational Safety, Health, | <p>There is no dedicated OHS, CHS expert at any of the implementation agencies. There is little awareness among the implementing agencies on good practices.</p> <p>Agencies shall be capacitated to provide training on OHS, CHS, Incident management,</p> | <p>System</p> <p>EIA ToRs presents broad OHS, CHS issue assessment & preparation of mitigation measures</p> <p>Bid Documents need updation for all type of works and activities under the program with</p> | <ul style="list-style-type: none"> Ensure dedicated OHS, CHS expert at State, Regional levels to oversee and report on all program activities EIA ToRs to be specific on OHS, CHS aspects of project |

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|--|---|--|---|
| <p><i>Core Principle 3: Program procedures ensure adequate measures to protect public and worker safety against the potential risks associated with (a) construction and/or operations of facilities or other operational practices developed or promoted under the program and (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials.</i></p> | | | |
| <p>and Working Conditions Code, 2020 of the Gol apply to all civil works in the country.</p> <p>An important legislation in this regard is Prohibition of Manual Scavenging Act 2013, and Policy National Policy for mechanized Sanitation Eco-system, in addition to specific ruling from the Madras High Court regarding prohibition on Manual Scavenging.</p> <p>TNUISL ESMF guides to incorporate the OHS, CHS considerations in EIA, and Contract Documents. OHS considerations & EMPs are incorporated in Bid documents, and applicable for works.</p> | <p>and reporting; and guiding EIA consultants, contractors, sub-contractors, on incorporation of project specific OHS, CHS considerations in Bid documents and Design, and to supervise its implementation</p> <p>Most contractors do not have trained OHS/CHS personnel.</p> | <p>details on how to ensure work specific OHS CHS considerations. High OHS risk activities such as works in dilapidated buildings/structures, works in water bodies, sewers, STPs etc. need to be screened, assessed for hazards and mitigation measures including work permit systems made part of C-EMP OHS Plan</p> <p>Capacity</p> <p>Dedicated OHS, CHS expert is important at State, Regional levels to oversee and report on all program activities. ULB Engineers capacities to guide, monitor and report on work safety need improvement</p> | <ul style="list-style-type: none"> • OHS, CHS (covering safety and pollution) guidelines (specific to work type) and institutional, insurance, regulatory requirements should be included in all bid documents for all works before the start of works • Awareness on OHS, CHS to all stakeholders as part of Program Training / Capacity Building activities • The following activities shall be considered in C-EMP as of higher OHS and CHS risks, and avoidance, mitigation and management measures built in as part of Design, OHS, CHS Plan. (i) Prohibition of manual scavenging, and use of machines for sewer cleaning and constructions and adhering to safety protocols, O&M inbuilt in the Contract would ensure Contractors use machines instead of humans for sewer cleaning (ii) Construction of water abstraction structures in rivers during monsoons, works on parts of existing STPs, WTPs, and networks where water or sewage is present, unless it is a separate work which do not interact with sewage/water, (iii) Works involving hazardous materials, Lead based paints, Asbestos, or purchase and Use of banned pesticides/Insecticides • Learning exchange between other ongoing and completed |

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|--|---|--|--|
| <i>Core Principle 3: Program procedures ensure adequate measures to protect public and worker safety against the potential risks associated with (a) construction and/or operations of facilities or other operational practices developed or promoted under the program and (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials.</i> | | | |
| | | | Projects/Programs and TNCRUDP on OHS, CHS aspects of water supply, sewerage networks laying and associated infrastructure provisions |
| <i>3 (b) Promotes the use of the recognized good practice in the production, management, storage, transport, and disposal of hazardous materials generated through program construction or operations; promotes the use of IPM practices to manage or reduce pests or disease vectors; and provides training for workers involved in the production, procurement, storage, transport, use, and disposal of hazardous chemicals in accordance with international guidelines and conventions.</i> | | | |
| <p>There are National regulations on Solid Waste, Hazardous Wastes, Biomedical Wastes, Construction and demolition wastes, Plastics, Chemicals, Batteries, etc. Certain pesticides, insecticides, are also banned for use in India. SWM micro composing / other technology-based units, Hazardous wastes, E-waste and C&D waste management facilities exist in some Program cities</p> <p>Program EIAs shall assess any hazardous / other wastes, chemicals or materials generated from the project. Any hazardous material must be disposed as per Hazardous Waste management Rules 2016. This is also applicable to sludge if found hazardous due to any contaminant</p> | <p>Currently in most ULBs, solid wastes are not managed well. Sludge from existing STPs and wastes are disposed in the open in dumping yards or low-lying areas without monitoring. Some sludge is given off / sold to farmers in nearby villages.</p> <p>Awareness of regulatory requirements and best practices are minimal. Awareness that Hazardous waste management from construction and demolition (asbestos, sharps (glass, tools)), sludge, as also wastewater or back wash from plants, water filtration, etc., need proper management is minimal, and institutional capacities at all levels are required to be upgraded to guide, co-ordinate with local bodies/other agencies.</p> | <p>System</p> <p>No exclusion criteria to exclude hazardous materials, including asbestos and pesticides</p> <p>Provisions in the bid documents for sludge testing and safe sludge disposal if found hazardous or otherwise, and standards for reuse is absent</p> <p>Capacities</p> <p>Lack of awareness and capacity on regulatory requirements on waste management (all wastes including sludge, solar panels, hazardous wastes etc.) and reuse</p> <p>Absence of institutional capacity to guide and monitor waste management during construction and O&M at the State level</p> | <ul style="list-style-type: none"> • Develop and use exclusion criteria to exclude hazardous materials and works, monitor products/byproducts for hazardous constituents and ensure disposal following HWM Rules 2016 • EIA ToR, Bid documents, Reporting Tools (all to be made part of Environmental Design Manual) to be updated with requirements on waste management, material management and safe storage (such as chemicals) and record keeping under the program. Works involving hazardous materials, Lead based paints, Asbestos, or purchase and Use of banned pesticides/Insecticides shall not be carried out • Capacity Building at the state and regional levels to guide and monitor waste management under the program • Training and awareness to officials on the regulatory environment for managing wastes and wastewater. |

| System Assessment | Capacity Assessment | List of Identified Gaps | Recommendations |
|---|---|--|---|
| <p><i>Core Principle 3: Program procedures ensure adequate measures to protect public and worker safety against the potential risks associated with (a) construction and/or operations of facilities or other operational practices developed or promoted under the program and (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials.</i></p> <p><i>3 (c) Includes measures to avoid, minimize, or mitigate community, individual, and worker risks when program activities are located within areas prone to natural hazards such as floods, hurricanes, earthquakes, or other severe weather or climate events.</i></p> | | | |
| <p>Guidelines are available for Design for cyclone/hazard-prone areas - suggested by NDMA, State Authorities including the following considerations: E.g.: Plinth above high flood level, erosion control measures, minimal use of glass & type of materials used, solar passive architecture/lighting in certain areas, ventilation specifics to ensure climate responsiveness, positioning of panels etc.).</p> <p>The National Building Code 2016 includes several codes concerning earthquake resistance, cyclone resistance, construction.</p> <p>No special screening for climate risks</p> | <p>There is no institutional responsibility to coordinate with various agencies/departments and ensure the sustainable, smart design and to avoid, minimize, mitigate, community, individual, or worker risks in hazard-prone areas or during climatic events.</p> <p>The awareness/capacities of institutions involved are limited at all levels. Also, there is no institutional arrangement to monitor safe work site closure and safety of workers, communities, or students during emergencies or climatic events.</p> | <p>System</p> <p>Climate screening mechanism absent</p> <p>Design & EIA ToRs lacks Climate mitigation, adaptation considerations; including warning and emergency response</p> <p>The works in hazard-prone areas shall follow National specifications to ensure structural safety.</p> <p>Site planning guidelines need strengthening with Climate Responsive Criteria.</p> <p>Absence of comprehensive Guidelines / SOPs for site planning and work practices (separate) including for hazard-prone areas</p> <p>Absence of protocols to ensure safe work closure or guidance on the safety of workers, communities, in case of emergencies/disaster events.</p> <p>Capacity</p> <p>Absence of institutional responsibility to coordinate with various agencies/department's, monitor and ensure sustainable, smart planning, and avoid, minimize, mitigate, community, individual, or worker risks in hazard-prone areas or during climatic events.</p> <p>Absence of awareness/training to all agencies and stakeholders on safe practices and emergency response.</p> | <ul style="list-style-type: none"> • Prepare climate screening and risk mitigation mechanism • Update Design & EIA ToRs with Climate mitigation, adaptation considerations; including warning and emergency response. • Design of infrastructure shall follow comprehensive Guidelines / SOPs for site planning and work practices (separate) including for hazard-prone areas. This should be made a Bid condition • Generic EMPs for all type of works (part of Environmental Design Manual) to include protocols to ensure safe work closure or guidance on the safety of workers, communities, in case of emergencies/disaster events. • Designate institutional responsibility to coordinate with various agencies/department's, monitor and ensure sustainable, smart planning, and avoid, minimize, mitigate, community, individual, or worker risks in hazard-prone areas or during climatic events. • Provide awareness/training to all agencies and stakeholders on safe practices and emergency response |

Table 16: Compilation of Identified Gaps and Recommendations for Core Principles 1, 2, 3 (Environmental Aspects)

| Summary of Assessment, List of Identified Gaps | Recommendations |
|--|--|
| <i>Core Principle 1: Environmental and social management procedures and processes are designed to (a) avoid, minimize, or mitigate adverse impacts; (b) promote environmental and social sustainability in program design, and (c) promote informed decision-making relating to a program's environmental and social effects.</i> | |
| <p>Applicable</p> <ul style="list-style-type: none"> Absence of procedures, and processes at the National / State level to screen & avoid, minimize, mitigate, adverse impacts, or promote informed decision-making. TNUIFSL uses the updated ESMF for TNSUDP for its Externally Aided Projects. ESMF has required procedures and processes for Environmental management including cumulative impacts; except screening/exclusion criteria for High-Risk activities not be supported by PforR TNPCB suggests treated sewage disposal standards prescribed by MOEFCC, as against the stringent NGT standards followed by most projects (including Bank funded projects) Absence of clear National/State guidelines or standards for Treatment and Disposal of STP/WTP sludge; while Other program activities are covered by laws/regulations/standards TN has a Policy on the reuse of treated sewage that promotes environmental sustainability in program design with respect to treated sewage Absence of mechanism to ensure quality and sustainability of water sources Absence of tools/formats and capacities at ULBs to review, monitor, and enforce Pollution management, O&M of assets for long-term Pollution management, OHS, CHS | <ul style="list-style-type: none"> Develop and follow a system to screen, assess, mitigate, manage, and monitor environmental risks and impacts; including impacts on associated facilities and cumulative impacts where applicable Program to prepare Environmental Guidance with standards, tools to be used strictly in Design and Environmental Assessment, and monitoring/supervision of all Program activities - including quality of water, sludge, treated sewage and their reuse, better effects of energy efficiency and greening activities. (Refer PAP completion requirement including Audit) |
| <ul style="list-style-type: none"> Absence of institutional capacity to manage environmental effects & disseminate program information among ULBs including communities Lack of guidance, training, and capacity building of implementing agencies to identify, mitigate and manage risks and impacts | <ul style="list-style-type: none"> Constitute a dedicated Environmental Cell - Sustainable Development Unit (SDU) or Sustainability Lab at DMA, which will be trained to collaborate with the strengthened environmental management unit of TNUIFSL and through them continuously guide the Regional offices of DMA at regional levels and Environmental Engineering Cell (EEC) at each ULB to coordinate and manage environmental aspects, develop tools, guidance, provide training, monitor/supervise and report |
| <i>Core Principle 2: Environmental and social management procedures and processes are designed to avoid, minimize, and mitigate adverse effects on natural habitats and physical cultural resources resulting from the program.</i> | |
| <ul style="list-style-type: none"> Absence of screening mechanism/tools to avoid risks to Natural Habitats and Physical and Cultural Resources. Though proposed activities are within available land, it is essential to screen the proposed activities for: <ul style="list-style-type: none"> a) locations near cultural heritage buildings/ premises, | <ul style="list-style-type: none"> Develop and use exclusion criteria to exclude high-risk activities near Natural Resource areas, Cultural Heritage areas (including for activities considered as prior results) EIA should assess the cumulative impacts of locating STPs, & WTPs in the same watershed, and the Disposal of sludge and treated sewage if (i) multiple STPs, and |

| Summary of Assessment, List of Identified Gaps | Recommendations |
|---|--|
| <ul style="list-style-type: none"> b) location of infrastructure and treated sewage and sludge discharge or disposal points viz a viz the climate impacts, c) location of critical habitats viz a viz disposal of treated sewage would lead to avoidance of environmental impacts and long-term sustainability, d) location of water supply sources treated sewage and sludge disposal areas (even during climate emergencies) | <p>stormwater drains would dispose of these into the same rivers/watershed, (ii) rivers/watersheds receiving the treated sewage and sludge are used downstream for water supply, or other sources as part of the program or other projects/programs, (iii) treated sewage & sludge that ultimately empties into the coasts of TN with sensitive Eco-sensitive areas such as Gulf of Mannar Marine National Park, and other critically vulnerable coastal areas of TN, and Heritage areas (such as underwater heritage areas or coastal/other), (iv) STPs are in towns with industries and household industries that dispose effluents into drainage/sewage system, and (v) any other condition requiring such assessment as identified during screening / EIA.</p> <ul style="list-style-type: none"> • Prepare and update the list of regulatory clearances required for various program activities • Prepare Guidelines to be included in Environmental Guidance |
| <ul style="list-style-type: none"> • Absence of responsibilities at various levels to ensure screening and avoidance of risks and impacts | <ul style="list-style-type: none"> • Develop dedicated capacities for screening, and exclusion, before initiating any Program implementation works (new/upgradation) • The Constitution of SDU, EEC, increased environmental capacities at TNUIFSL and training programs (continuous) on Pollution management, recycling/reuse of wastes and byproducts shall be allotted special funds under the program expenditure framework • Environment team, including EEC/ engineers overseeing the works to be provided thorough on-job and dedicated training on the regulatory requirements of works/activities in sensitive areas, cultural areas, mitigation, monitoring, reporting |
| <p><i>Core Principle 3: Program procedures ensure adequate measures to protect public and worker safety against the potential risks associated with (a) construction and/or operations of facilities or other operational practices developed or promoted under the program and (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials.</i></p> | |
| <ul style="list-style-type: none"> • Lack of tools to manage OHS / CHS during implementation from pollution effects of works & O&M (wastes, sewage, sludge), facilities, use of / encountering Hazardous Materials like Asbestos & banned insecticides, pesticides, Fire/Disaster Risks | <ul style="list-style-type: none"> • Prepare and follow Environmental Guidance Manual • Ensure that EMPs are prepared based on site-specific EIAs for WTPs, STPs, and their networks and associated facilities incl pollution, OHS, CHS, disaster risk management • Use standard EMP for other activities, updated as site-specific ones, by the contractors at the start of works |
| <ul style="list-style-type: none"> • Absence of an institutional mechanism to guide on OCHS, safety/hazards, chemicals used in STPs, WTPS, wastes/pollution, and to avoid, minimize, mitigate risks and monitor; and to incorporate good practices on EHS. • Lack of capacities at all stakeholder agencies (TNUIFSL, DMA, ULBs) on OHS, CHS, and the applicable Codes, regulations • Lack of training in emergency response and disaster management | <ul style="list-style-type: none"> • Ensure institutional mechanism (have dedicated personnel with suitable capacities – certified OHS professionals) at all levels – TNUIFSL, Regional offices of DMA, ULBs, Contractors - to guide on safety, and pollution (including from IPF TA such as packaging & other wastes) and ensure its implementation and monitoring. • Construction supervision including design review to ensure it follows environmental guidance, and OHS • Capacity building of all stakeholder agencies (TNUIFSL, DMA, ULBs) on OHS, CHS, regulations, Pollution management, and monitoring these |

| <i>Summary of Assessment, List of Identified Gaps</i> | <i>Recommendations</i> |
|---|---|
| | <ul style="list-style-type: none"> Stakeholders and workers training on OHS, CHS, orientation on Disaster Management, emergency response |

ANNEXURE VIII: Program for Results Exclusion List

The Bank supported PforR will not invest in, support or implement any activity that will involve:

- Air, water, or soil contamination due to project activities leading to significant adverse impacts on the health or safety of individuals, communities, or ecosystems
- Significant conversion or degradation of critical natural habitats or critical cultural heritage sites
- Projects/ Activities causing adverse impacts on cultural property resources
- Production or trade in any product or activity deemed illegal under Indian laws or regulations or international conventions and agreements.
- Production or trade in alcoholic beverages (excluding beer and wine).
- Production or trade in tobacco.
- Trade in wildlife or wildlife products regulated under CITES.
- Production or trade in radioactive materials.
- Production or trade in or use of unbounded asbestos fibres.
- Production or trade in products containing PCBs.
- Production or trade in pharmaceuticals subject to international phase outs or bans.
- Production or trade in ozone depleting substances (ODS) subject to international phase out.
- Production or trade in pesticides/herbicides subject to international phase outs or bans as agreed by GOI based on Stockholm convention.
- Acquisition (and subsequent usage) of land without paying full compensation and Resettlement and Rehabilitation assistance to Titleholders; and Resettlement and Rehabilitation assistance to Non-Title Holders and / or Informal Occupiers as per The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013.
- Forced eviction of individuals or communities formally or informally occupying lands that might be required for the project and / or any sub-projects under the project.
- Production or activities involving harmful or exploitative form of child labour or forced labour.