Environmental and Social Systems Assessment (ESSA)

for

India Energy Efficiency Scale up Program (P162849)

FINAL REPORT
April 2018

Prepared by The World Bank

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List of Abbreviations

AC	Air Conditioner
ADB	Asian Development Bank
AgDSM	Agriculture Demand Side Management
BP	Bank Procedures
CCMS	Centralized Control and Monitoring System
CFL	compact fluorescent lamp
CM	Chief Minister
CO_2	Carbon di-oxide
CPGRAMS	Centralized Public Grievance Redress and Monitoring System
CSR	Corporate Social Responsibility
CRZ	Coastal Regulation Zone
DELP	Domestic Efficient Lighting Program
DF	Documentation Formats
Discom	Distribution Company (Electricity)
E&S	Environmental and Social
EE	Energy Efficiency
EESL	Energy Efficiency Services Limited
EHSS	Environmental, Occupational Health, Safety and Social
EIA	Environmental Impact Assessment
ESCO	Energy Services Company
ESI	Employees State Insurance
ESSA	Environmental and Social Systems Assessment
FAQ	Frequently Asked Questions
GCC	General Conditions of Contract
GHG	Greenhouse Gas
GoI	Government of India
HR	Human Resources
ICL	Incandescent Lamp
IEC	Information, Education, Communication
IFC	International Finance Corporation
INR	Indian National Rupee
IPF	Investment Project Financing
KfW	Kreditanstalt für Wiederaufbau, German Government Development Bank
kWh	Kilo Watt Hour
LED	Light Emitting Diode
M&E	Monitoring and Evaluation
MoEFCC	Ministry of Environment, Forests and Climate Change
MoP	Ministry of Power
NOC	No Objection Certificate
NTPC	National Thermal Power Corporation
O&M	Operations and Maintenance
OHS	Operational Health and Safety
OP	Operational Policy
PAP	Program Action Plan
PDO	Program Development Outcome
PFC	Power Finance Corporation
PforR	Program for Results
PGCIL	Power Grid Corporation of India Limited
PVTG	Particularly Vulnerable Tribal Group

List of Abbreviations

REC	Rural Electrification Corporation
RoHS	Restriction of Hazardous Substances
RTI	Right to Information
SLNP	Street Lighting National Program
SOP	Standard Operating Protocols
ToR	Terms of Reference
UJALA	Unnat Jeevan by Affordable LEDs and Appliances for All
ULB	Urban Local Bodies
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
WB	The World Bank

Executive Summary

Introduction

1. **India's power sector is going through sustained efforts to fuel economic growth and meet the needs of its population.** Energy efficiency (EE) is critical to helping India address the multiple challenges facing the power sector, moderate demand growth, and meet its climate change goals. India's EE potential remains largely untapped, in part due to limited availability and high cost of financing for these types of investments. Given the potential growth in use of electrical appliances, and electricity consumption, the Government shifted its focus to supporting the scale-up of EE appliances and equipment particularly in the residential sector.

2. **Energy Efficiency Services Limited (EESL) has emerged as a vital entity for EE in India by financing and delivering EE solutions, especially in the residential and public sectors.** EESL has been a key implementing agency in the implementation of the Government's EE vision. The Government of India has requested World Bank financing to support EESL in the implementation of its growing program, covering priority EE initiatives.

3. **The proposed operation by the World Bank would support the Government's program, for EE market transformation in residential and public sectors which would be implemented through EESL.** It comprises a US$ 220 million Program for Results (PforR) loan and US$80 million as Guarantee to support EESL in scaling up its energy efficiency programs. The proposed scope includes support for scaling up of EESL activities related to Light Emitting Diode (LED) lightbulbs, LED tube lights, and ceiling fans under the Government of India's (GoI) UJALA initiative and scaling up of GoI's Street Lighting National Program (SLNP). The program will extend technical support to EESL for incorporation of sustainability elements into EESL's newer business areas (targeting buildings, air conditioning and agricultural pumping). In addition, the program will enhance EESL's access to commercial financing; and institutional strengthening.

ESSA Scope and Methodology

4. The proposed Program is primarily focused on scaling up deployment of energy efficient appliances and equipment in the residential and public sectors, and institutional strengthening of EESL. The interventions planned are expected to result in environmental and social benefits. Adverse effects that are sensitive, diverse and unprecedented on the environment and people are not foreseen. However, planned efforts are essential to ensure that the Program interventions will result in sustainable social and environmental benefits. As required by the Bank Policy on Program-for-Results Financing (July 2015), an Environmental and Social Systems Assessment (ESSA) was conducted during Program preparation to assess the adequacy of the environmental and social systems of EESL and identify specific strengthening measures.

5. For preparing the ESSA; detailed discussions were held with the Corporate team of EESL to understand the activities under various programs and their perceptions about the intended benefits and perceived risks. Review of available secondary data including reports and studies on EESL's operations were undertaken. Site visits were conducted to several locations in India where UJALA, SLNP and the Agricultural Demand Side Management (AgDSM) programs are under various stages of implementation and operation. Structured discussions were also held with regional and site office (in varied topographic / climatic areas) teams of EESL, supporting agencies and beneficiaries to better understand the environmental risks experienced onsite and management mechanisms. Such discussions and studies helped the team understand the environmental and social risks, required adaptations, their effectiveness and management needs. The environmental benefit and risk analysis unlocked the possible opportunities for institutional improvement.

Summary of Environmental Systems Assessment

Key Findings: Environment

6. The proposed Program would result in significant benefits – including (i) energy savings from installation of EE equipment; (ii) avoided energy and capacity benefits; (iii) avoided environmental and health costs from reduction of thermal generation; and (iv) economic value of improved quality of life for consumers.

7. Environmental risks due to different programs of EESL are of varied nature. Those programs with lesser risks such as UJALA and SLNP are proposed for financing upfront, and are indeed supported under Results Area 1 and 2 of the proposed PforR. Risks associated with UJALA program mainly include (i) material and waste management specifically with respect to packaging, storage and disposal of bulbs and appliances which are broken / requiring replacements, (ii) poor product quality which impacts the environment, and (iii) risks during installation and maintenance including safety issues. In case of SLNP, in addition to the above, risks due to inappropriate planning of activities and placement decisions for installing street lights are also pertinent. However, these risks are manageable through appropriate institutional systems and monitoring if built into the program.

8. In case of EESL's newer initiatives that are currently under development, such as those for buildings, air conditioning, agricultural pumping, the main risk lies in managing the hazardous wastes, electrical/electronic parts, heavy equipment and refrigerants. In addition, critical aspects such as impacts on water table, cropping patterns and sensitive areas are to be understood prior to upscaling these activities. These programs will require further technical design, fine-tuning and pilot phases before they can be financed at scale. Therefore, for these programs, the proposed PforR operation will only focus on strengthening their design from a technical, environmental and social perspective, while no physical investments will be supported under the PforR. To this end, support provided under Results Area 3 of the PforR will be in the form of technical and analytical work, and no physical investments will be included in the Program boundary.

9. The existing environmental policies and procedures at the National, State and Local body level are found adequate to guide the current operations of EESL. The risk screening suggests that the overall contribution of the programs is likely to be positive, owing to benefits such as improved energy efficiency and large scale access to program benefits.

10. The potential risks that can emerge in case of improper planning, execution and management of various programs are: (i) inappropriate management of wastes polluting the environment and posing risks to health and safety, (ii) effects of inappropriate lighting quantities and placement decisions on flora fauna and cultural heritage, and (iii) occupational and public safety risks for workers and the communities. The challenge lies in proper conception of the projects and programs in line with applicable legislation, ensuring compliance to the country's environmental regulations and giving requisite attention to incorporate these comprehensively in technical design, program planning, implementation and operations.

11. EESL has prepared an Environmental, Occupational Health & Safety and Social (EHSS) manual covering mainly UJALA and SLNP, to guide their operations. It is important to note that EESL has recently designated an EHSS officer to align their programs with the provisions of the Manual. EESL has started incorporating environmental considerations in their program operations as evidenced by the newly amended contract conditions. EESL is also planning to organise training programs for the contractors and employees on EHSS. There is scope for improving the existing EHSS Manual including its Standard Operating Protocols (SOPs) and Documentation Formats (DFs) and ensuring full coverage of all programs and activities under EESL, through careful updating of the Manual and internalizing mechanisms for program planning, capacity building and monitoring.

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12. This assessment indicates the opportunity to incorporate a dedicated and full-fledged unit or department to ensure environmentally sustainable program operations. This unit shall be adequately staffed by full-time, dedicated personnel with the right skillset to focus on environmental considerations in program design and implementation, as EESL gears up its programs. Preparation of program planning guidelines, updating of the EHSS Manual, training programs for the staff on environment related aspects, Information Education and Communication to Stakeholders (including consumers) on disposal of products under CSR activities; and monitoring are essential as they scale up their existing operations and move ahead with newer areas of operations.

13. Project risks and opportunities indicated by the environmental systems assessment are presented in *Table A* below.

Table A: Environmental Assessment: Risks and Opportunities

Risks	Opportunities
Institutional Mechanism	
▪ **Environmental risks which may arise due to limited considerations on environmental aspects during the project lifecycle** ▪ **Operational and reputational risks and overheads due to limited awareness among staff, clients, vendors and beneficiaries regarding environmental risks associated with certain products, operational processes and management** ▪ **Inadequate institutional capacity to factor in and manage environmental risks including worker and community safety during the program life cycle**	▪ Establishment of an adequately staffed environment and social unit or Sustainable Development Unit in EESL ▪ Information, Education, Communication (IEC) and awareness generation activities among the staff, clients, vendors and beneficiaries regarding environmental risks and its management ▪ Dissemination of information regarding the products, specific procedures to manage the wastes ▪ Arrangements for Inventorying the materials and wastes and ensuring proper storage, handling, transport, treatment and disposal of wastes ▪ Incorporation of clauses regarding key provisions of EESL Manual including worker safety in all levels of contracts and arrange systematic monitoring
Program Planning	
▪ **Risks due to the absence of a professional roadmap for each program essential to anticipate and avoid environmental issues** ▪ **Possible reputational risks and overheads due to no attention on placement decisions and waste management** ▪ **Disaster vulnerability due to the absence of a contingency plan or emergency preparedness and mechanisms to address Climate Change Vulnerabilities and Disasters** ▪ **Health and safety risks due to inadequate amenities and facilities for the workers and communities** ▪ **Safety risks to communities and workers due to inadequate attention on work-close- out procedures and safety considerations during exit from each work site**	▪ Preparation of a systematic of a professional roadmap for each program, incorporating environmental and climate change considerations ▪ Systematic planning and provision of worker amenities and community amenities if applicable, arranging suitable waste management mechanism with emphasis on recycle, recover, reuse of possible material and effective treatment and disposal of rejects ▪ Preparation of suitable and effective Work Closeout Plan clearly spelling out the responsibilities for handholding safety and environmental considerations for each program even after EESLs exit from its management.

Risks	Opportunities
Guidance Manual and Directions for Sustainable operations	
▪ **Risks to health and safety due to the gaps in the EHSS / Guidance manual to guide the operations of EESL and the need for its systematic updation** ▪ **Reputational and environmental risks due to limited monitoring of the activities and regulatory compliance of the vendors, sub-contractors and other partners**	▪ Continuous updation of EESLs EHSS Guidelines; train program staff and contractor on these guidelines; and report to management on a periodic basis. ▪ Incorporation of procedures and protocols to assess, monitor and manage environmental aspects of EESL activities including performance of vendors, sub-contractors and other partners and their compliance with respect to program requirements and legislation

Summary of Social Systems Assessment

Key Findings: Social

14. Overall the expected social impact from the Program is positive, and benefits are high. The benefits include improved access to and affordability of energy efficient and cost saving technology; and access to improved public services like street lighting which improves safety, security and creates opportunities for municipalities to become efficient and responsive in terms of service delivery. The scale and pace of the program has created many employment opportunities for technical as well as non-technical personnel.

15. In terms of EESL social practices during the implementation of their programs, some weaknesses have been identified, such as lack of deliberate identification and targeting of vulnerable areas and people and ensuring their inclusion to goods like LED products and services like efficient street lighting. Secondly, lack of a gender strategy like hiring more women staff at all levels, training on gender issues etc. Similarly, it is required that appropriate systems for reporting, documenting and monitoring are developed to assess how the services and goods are reaching vulnerable groups like Below Poverty Line, Scheduled Castes, Scheduled Tribes, Other Backward Classes and women as well as improvement in gender indicators.

16. Over all the social risks of the program are low and can be addressed if the right safeguard and monitoring mechanisms are developed. ESSA brings out that one area of social risk is related to contracting and sub-contracting arrangements, where, unless proper monitoring systems are developed, there may be a possibility of labor rights violation like poor working conditions, untimely payments, risks of accidents etc. Secondly, there are risks of social exclusion if the program does not develop affirmative actions to reach out to the Below Poverty line families or women headed households or marginalized areas. Thirdly, there are risks related to operating in physically remote, politically volatile and predominantly tribal areas as these areas are sensitive, have issues related to mobility and access therefore, require additional safeguards[1] and preparation.

17. In terms of institutional capacities, so far EESL does not have a dedicated personnel or unit to handle social management aspects of its programs. In order to strengthen social management, there is a need to develop a comprehensive social policy, social risk assessment for its ongoing and upcoming programs, expand the purview of the existing manual on Environment Heath and Social Systems and finally, hire and develop experts on social development so that issues like outreach to vulnerable areas and people, protection of labor rights especially in cases of sub-contracting,

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[1] While the overall social management issues have been addressed in ESSA and both the DLIs and PAPs address the required gaps, to address the (possible) safeguard issues an Indigenous People's Policy Framework has been prepared by EESL during the project preparation.

improvement in gender indicators, and more responsive systems for citizen engagement for transparency and accountability.

Key Program Actions – Environmental and Social

18. ESSA recommends the following actions for inclusion in the Program Action Plan:
    (i) Establishment of a full-fledged Sustainable Development (Environment and Social) Unit
        a. Addressing comprehensive program planning and implementation management including awareness to stakeholders
        b. Addressing issues emerging from climate vulnerability and disasters
        c. Addressing issues emerging on social management
    (ii) Strengthening and Operationalizing the EHSS Manual

Establishment of a full-fledged Sustainable Development (Environment and Social) Unit

Addressing comprehensive program planning and implementation management

19. It is essential to incorporate a separate unit or department on Sustainable Development with the mandate and resources to ensure environmental and social considerations in practice, with suitable numbers of appropriately qualified staff to plan, design, manage and monitor the programs. The unit shall work with the National, Regional and Site-level project teams and report to the Managing Director.

20. For all programs of EESL, comprehensive program planning (systemic approach for multi-pronged programs) based on rapid Environmental and Social screening, phasing, contingency plan and emergency response mechanism to support activities in case of unforeseen circumstances are essential.

21. The unit shall oversee the activities of vendors and ensure provision of worker amenities and community amenities if applicable, arrangements to prepare and maintain inventory of all materials and wastes, suitable waste management mechanism with emphasis on recycle, recover, reuse of possible material and effective treatment and disposal of rejects. The unit shall propose minimum worker rights and working conditions in the kiosks for UJALA or for installation and maintenance in SLNP even in case of sub-contracting.

22. The unit shall be entrusted with the responsibility to train, and build capacity and awareness among the staff, contractors, site-level workers and communities regarding environmentally appropriate placement, implementation safety, dissemination of information on products, and safe handling and disposal of wastes. The unit shall be entrusted with the responsibility to sensitise and train teams at national, state and field level as well as vendors. Also, map the sub-contractors and design outreach on social management issues.

23. The unit shall, in co-ordination with program units prepare suitable and effective Work Close-out plan or procedures clearly spelling out the responsibilities for handholding safety and environmental considerations for each program even after EESLs exit from its management.

Addressing issues emerging from climate vulnerability and disasters

24. It is recommended that program design shall factor in uncertainties when planning infrastructure in vulnerable areas (coastal areas, mountains, regions prone to earthquakes, flood and droughts). EESL should develop guidance on selecting products and implementation processes, an effective contingency plan, emergency response and preparedness plan.

25. It is recommended that EESL develop a Terms of Reference for the proposed unit to take care of environmental and social aspects in its operations. The composition of the unit in terms of number and type of professionals and qualifications may be prepared. It is also recommended that EESL prepare clear work scopes for each role in the unit, and develop work scope for each function that would be performed and managed by the said unit. The unit may be mandated to oversee adherence to good environmental practices and existing environmental legislation. For this, suitable program plans, monitoring and supervision time charts and checklists are essential.

Addressing issues emerging on social management

26. It is important to design strategies and document how EESL is reaching out to vulnerable areas and communities to measure its social impact effectively. Reporting and monitoring systems, Case studies, Social Audits and other tools to be used to report on social impact of its programs. This can help strengthening its targeting, marketing and outreach.

27. In terms of improvement in gender indicators, there is a need for more data and information in terms of how EESL is making an impact on women, be it through its programs or within the institution (through direct and indirect employment opportunities).

28. EESL must ensure that all the staff (hired directly or contracted indirectly) is protected, labour rights are duly followed.

29. In case of any land impact, be it acquisition, transfer or use (temporary or permanent), there needs to be instruments to assess the possible effects and impacts and ensure that the affected people are informed, consulted, protected and compensated

30. EESL needs to expand and consolidate its efforts towards citizen engagement, accountability and transparency: prepare a charter of services and issues, designate personnel to respond on any queries on the same. Also, document and update the feedback and grievances received from stakeholders, how they are addressed or responded to, and how it has been used to improve or amend the program design, products, or services.

31. The scope of work provided for the recommended Sustainable Development Unit covers the above issues and the capacities required to address them.

Strengthening and Operationalizing the EHSS/Guidance Manual

32. It is pertinent to modify and upgrade the existing EHSS Manual to ensure full coverage of environmental impacts and measures to avoid and mitigate the issues. Mechanisms to disseminate its provisions among the staff, vendors and supporting agencies and procedures to operationalize the EHSS are expected to be in place at the earliest considering the fast roll out of EESLs operations. Arrangements for on-site monitoring shall be undertaken at the earliest. Systems and procedures for continuously updating the EHSS Manual during the initiation of each future program shall be prepared. Plan and schedule to train the program staff and contractor/vendors and associated agencies on these guidelines shall also be prepared on priority.

33. Protocols to report compliance of various operations with the provisions of the EHSS (to the management on a periodic basis), and incorporation of EHSS (updated) clauses / conditions in all contracts shall be ensured.

34. The following ***Table B*** compiles the proposed Program Action Plan which are considered as Disbursement Linked Indicators in the project.

Table B: Proposed Measures/ Action Plan

Sl No	Action	Timeline[2]	Responsibility	Completion Measurement
1	Strengthening and Operationalizing the Full-fledged EHSS Manual	Up to March 31, 2019	EESL	EHSS Manual updated to (i) cover all existing gaps including procedures for environmental and social screening; (ii) strengthened with provisions, SOPs and DFs to guide and manage all on-going programs of EESL; (iii) procedures / mechanisms to update it in the future; (iv) program to completely train and disseminate among the staff, vendors and support agencies; and (iv) procedures for compliance monitoring.
2	Incorporate a separate Sustainable Development Unit to provide overall program planning support in environmental and social aspects, Training, Capacity building and IEC to consumers and all stakeholders	Up to March 31, 2020	EESL	Separate Sustainable Development Unit for environment and social considerations incorporated with (i) adequate number of suitable qualified staff, (ii) well-defined scope of works, and (iii) reporting protocols. The Unit shall prepare (i) Program Plans; (ii) monitoring plan; (iii) training and capacity building plan; (iv) guidance material for staff, vendors and support agencies to select products and activities, plan and operate considering climate resilience; (v) prepare Contingency Plan, Emergency Preparedness and Response Plan, with guidance on how to adapt and use for each program.

Risk Management

35. Review and analysis of existing programs reveals that risk factors in ongoing programs such as UJALA and SLNP, with strong implementation track record, are limited.

36. Most of the risks and gaps identified by the ESSA can be mitigated by appropriate program strategies and are hence manageable. Proposed responsibilities towards management of environmental risks are presented in *Table C* below.

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[2] The timeline shown is the indicative deadline. However, as discussed and agreed during the pre-negotiations between the World Bank and EESL on April 9, 2018, attempts will be made to start, achieve and complete these measures and actions earlier.

Table C: Proposed Responsibilities for Managing Environmental Risks

Environmental Risks	Responsibilities for Managing Environmental Risks

Wastes (Solid, Hazardous wastes ad probable E-Wastes)	▪ EESL, through the proposed Sustainable Development Unit
	  - to develop appropriate guidance to help contractors and consumers (including local bodies) during project planning, implementation and 'end-of-life' management (including management protocol for wastes suggested by the prevalent legislation), arrange training, awareness and capacity building
	  - to ensure that the program activities are aligned with the Standard Operating Procedures in the updated EHSS Manual regarding waste collection, storage, treatment and disposal and roles of stakeholders
	  - to ensure that supervision and monitoring of the above during planning, implementation and operations are as per schedule

Quality Related	▪ EESL, through the proposed Sustainable Development Unit
	  - to coordinate with the proposed Quality Assurance Unit to develop program plans, (including product quality related considerations (specifically environmental) as per prevalent legislation including suggesting product quality innovations to vendors, certifications) training, awareness and capacity building
	  - to ensure that testing, supervision and monitoring of the above during planning, implementation and operations are as per schedule

Installation, Operation and Maintenance	▪ EESL, through the proposed Sustainable Development Unit
	  - to develop program plans, (including environmental considerations during Installation, Operation and Maintenance as per prevalent legislation) training, awareness and capacity building
	  - to ensure that the program activities related to installation, operation and maintenance are aligned with the Standard Operating Procedures in the updated EHSS Manual (Develop appropriate design options that address disaster and resource constrained areas, ensure kiosks and structures appropriate for area and ensure facilities)
	  - to ensure that supervision and monitoring during implementation, operations and maintenance stages are as per schedule

Placement Decisions	▪ EESL, through the proposed Sustainable Development Unit
	  - to develop program plans, (including placement decisions as guided by prevalent legislation) training, awareness and capacity building
	  - to ensure that program activities involving placement decisions are aligned with the Standard Operating Procedures in updated EHSS Manual
	  - to ensure that supervision and monitoring of the aspects related to placement decisions are as per schedule

Conclusion

37. The ESSA concludes that for better environmental and social risk management of the ongoing and proposed operations of EESL, it is imperative that the institutional capacity of EESL is improved. This includes the creation of a separate department on Sustainable development within EESL to plan, implement and oversee the actions for managing the environmental and social risks, continuous updating of EHSS Manual, capacity building of the staff, vendors, contractors, associated agencies, and regular monitoring and supervision.

Consultations and Disclosure of ESSA

38. The ESSA is a document that is subject to public disclosure and consultation.

39. The entire document has been written in consultation with the teams (national and state) of EESL. In the month of May and June, site visits and meetings with various teams were organised to conduct an environment and social assessment. Other stakeholders like clients (state government functionaries), vendors, distribution agencies, consumers were also consulted. During these consultations, the respondents shared how they are involved in the program, their role, the impact and the suggestions to address risks and gaps. During the June 2017 Pre-Appraisal Mission, the preliminary findings – benefits, risks, gaps and recommendations (environmental and social) were shared with EESL management. A draft ESSA was shared will EESL in November 2017 and based on the consultations and feedback received, the report was revised for draft disclosure. The details of persons consulted is available as Annex IV.

40. For the disclosure, the draft ESSA (full report in English) and Executive Summary translated in Hindi was disclosed on EESL website on 9th December 2017.[3] The document was available online for one month and the information was circulated to all stakeholders of EESL to invite comments. The World Bank website also disclosed the same documents with a link of IA website (after receiving No Objection Certificate (NOC) for its disclosure). There were no comments received. During the Appraisal in December 2017, discussions were held with EESL to finalise the ESSA. The revised ESSA was disclosed on the EESL and World Bank websites in the first week of January 2018. The final ESSA will be disclosed in the World Bank and EESL websites, along with the PAD and other project documents.

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[3] Draft ESSA was disclosed on the EESL website on 9 December 2017 (accessible at https://www.eeslindia.org/EN/MediaCorner/NewsDetails?q=UJGS6/BzQ8Y7P2Ev/gW2/g==) and on World Ban website on 12 December (accessible at http://documents.worldbank.org/curated/en/507231513089218502/Environmental-and-social-systems-assessment).

1.   Introduction to the Program

1. **India's power sector is going through sustained efforts to fuel economic growth and meet the needs of its population.** Energy demand will continue to grow rapidly, contributing about a quarter of the increase in global energy demand by 2040. Significant growth in demand is expected due to rising incomes and rapidly urbanizing populations purchasing more electrical appliances.

2. **Energy efficiency is critical to helping India address the multiple challenges facing the power sector, moderate demand growth, and meet its climate change goals.** Maintaining India's electricity supply-demand balance while curbing thermal generation and therefore Greenhouse Gas (GHG) emission, will require a combination of investments in networks, additional clean energy generation capacity and energy efficiency (EE). However, India's EE potential remains largely untapped, in part due to limited availability and high cost of financing for these types of investments. Going forward, electricity consumption by lighting, ceiling fans, air conditioners, refrigerators, agricultural pumps, and industrial motors is set to grow significantly.[4] Given the potential growth in use of such appliances, and electricity consumption, the Government shifted its focus to supporting the scale-up of EE appliances and equipment particularly in the residential sector.

3. **Energy Efficiency Services Limited (EESL) has emerged as a vital entity for EE in India by financing and delivering EE solutions, especially in the residential and public sectors.** EESL was established in 2009 as a state-owned ESCO under Ministry of Power (MoP), as a joint venture between four Public Sector Utilities – National Thermal Power Corporation (NTPC), Rural Electrification Corporation (REC), Power Finance Corporation (PFC), and Power Grid Corporation of India (PGCIL).

4. **EESL has been a key implementing agency in the implementation of the Government's EE vision.** EESL's approach involves aggregating demand for energy efficient appliances and equipment and using competitive bulk procurement to improve affordability while ensuring quality. **The Government of India has requested World Bank financing to support EESL in the implementation of its growing program, covering priority EE initiatives.**

5. **The proposed operation by the World Bank would support the Government's program, for EE market transformation in residential and public sectors which would be implemented through EESL.** It comprises a US$ 220 million *Program for Results* (PforR) loan and US$80 million as *Guarantee* (under the Investment Project Financing (IPF) component) to support EESL in scaling up its energy efficiency programs. The proposed scope includes support for scaling up of EESL activities related to Light Emitting Diode (LED) lightbulbs, LED tube lights, and ceiling fans under the Government of India's (GoI) UJALA initiative and scaling up of GoI's Street Lighting National Program (SLNP). The program will also include technical support to EESL for incorporation of sustainability elements into EESL's newer business areas. In addition, the program will enhance EESL's access to commercial financing; and institutional strengthening.

6. **Program Development Objective.** The program development objectives are to scale up energy savings in residential and public sectors, strengthen EESL's institutional capacity, and enhance its access to commercial financing. The PDO level outcome indicators would focus on market transformation of select energy efficient appliances and equipment, development of sustainable business models in new EE market segments, enhanced access to commercial financing and institutional strengthening.   For the IPF component, the key results on the amount of

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[4] From an estimated 235,757 GWh/year in 2016 to 508,485 GWh/year by 2031. Source: World Bank, *Residential consumption of electricity in India: Strategies for low carbon growth* (2008).

commercial financing leveraged by the IBRD guarantee will be quantified, measured and reported as a PDO outcome indicator.

7. **Key Program Results.** There will be four Results Areas under the PforR, whose achievement will be measured through six Disbursement Linked Indicators (DLIs). The Results Areas are:
    (i)   Results Area 1: Energy savings and EE market transformation in the residential sector
    (ii) Results Area 2: Energy savings and EE market transformation in public street lighting
    (iii) Results Area 3: Development of sustainable business models in new EE market segments
    (iv) Results Area 4: Institutional strengthening for sustainable EE scale-up.

2.   Purpose of ESSA

8.   The Program is primarily focused on scaling up deployment of energy efficient appliances and equipment in the residential and public sectors. The interventions planned are expected to result in substantial environmental and social benefits. Adverse effects that are sensitive, diverse and unprecedented on the environment and people are not foreseen. Planned efforts are essential to ensure that the Program interventions will result in sustainable social and environmental benefits. As required by the Bank Policy on Program-for-Results Financing (July 2015), an Environmental and Social Systems Assessment (ESSA) was conducted to assess the adequacy of Program environmental and social systems and identify specific measures[5].

9.   The ESSA provides a comprehensive review of relevant government systems and procedures that address environmental and social issues associated with the Program. The ESSA describes the extent to which the applicable government environmental and social policies, legislations, program procedures and institutional systems are consistent with the six 'core principles' of OP/BP 9.00. It recommends actions to address the gaps and to enhance performance during Program implementation.

Box A - Core principles of OP/BP 9.00
  a) *Promote environmental and social sustainability in the Program design; avoid, minimize, or mitigate adverse impacts, and promote informed decision-making relating to the Program's environmental and social impacts;*
  b) *Avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the Program;*
  c) *Protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the Program; (ii) exposure to toxic chemicals, hazardous wastes, and other dangerous materials under the Program; and, (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards;*
  d) *Manage land acquisition and loss of access to natural resources in a way that avoids or minimizes displacement, and assist the affected people in improving, or at the minimum restoring, their livelihoods and living standards;*
  e) *Give due consideration to the cultural appropriateness of, and equitable access to, Program benefits, giving special attention to the rights and interests of the Indigenous Peoples and to the needs or concerns of vulnerable groups;*
  f) *Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.*

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10.   Specific objectives of ESSA are as follows:
  a.   to identify the potential environmental and social impacts/risks applicable to the Program interventions,
  b.   to review the policy and legal framework related to management of environmental and social impacts of the Program interventions,
  c.   to assess the institutional capacity for environmental and social impact management within the Program system,
  d.   to assess the Program system performance with respect to the core principles of the PforR Policy and identify gaps in the Program's performance,
  e.   to include assessment of M&E systems for environment and social issues, to describe actions to fill the gaps that will input into the Program Action Plan (PAP) to strengthen the Program's performance with respect to the core principles of the PforR Policy

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[5]   https://spappscsec.worldbank.org/sites/OPSMANUALS/Pages/ViewPage.aspx?docid=e4bcd56b-68b8-4a3f-b178-c0020e31f61f&ver=current

2.1 Methodology and Framework

2.1.1 Overall Methodology

11. The objective is to assess the adequacy of the environment and social systems of EESL, identify measures to strengthen institutional capacity, and propose actions to generate the desired environmental and social effects [6].

12. The focus of this assessment has been on understanding the social and environmental risks, benefits, impacts and opportunities of the existing programs of EESL. The study looks at the social and environmental checks and balances that exist in the country and institutional level rules, policies and guidelines; map the risks and gaps; and suggest the possibilities for implementation strengthening. It reviews the appropriateness of existing and planned infrastructure, technologies and institutional mechanisms for planning and monitoring for human, cultural and natural environments. This helps in arriving at the environmental and social risks that affect the viability and sustainability of the programs. Community perceptions, social and environmental vulnerabilities, compliance to existing rules and regulations, challenges of accessibility, safety, operational and management issues linked to social stratification also form part of the study.

13. The proposed programs of EESL have been looked at in terms of the adequacy and appropriateness of institutional and technical capabilities to manage Environmental and Social risks. The assessment of the proposed programs and pilot activities help alert EESL regarding the unseen environmental and social risks and opportunities; and expand their understanding on the need for competent mechanisms to support their new programs and upscaling of existing activities. Detailed methodology and tools used to achieve each task and sub-task are presented in Annex I.

Literature Review

14. For a comprehensive understanding of the programs, review of all available literature and data was undertaken. Reports from EESL on the program implementation, past studies and newspaper reports on various initiatives were also reviewed.

Site Visits

15. The task team conducted on-ground reconnaissance of various program areas of EESL. Preliminary site visits were carried out at three locations, to understand (i) the activities involved, (ii) institutional mechanisms, and (iii) on-site risks related to implementation and operations of UJALA and SLNP. These locations include (a) Chandigarh (Punjab) in the north, where the project implementation was yet to be initiated; (b) Gandhinagar (Gujarat) in the west, where implementation is underway; and (c) Vishakhapatnam (Andhra Pradesh) in the south-east; where the implementation is complete. The locations were chosen to ensure diversity in the stage of project implementation, local culture, regional considerations and terrain. The task team further undertook a visit to the pilot project under Agricultural Demand Side Management Program (AgDSM) site at Malavalli, near Mysore to understand the activities and risks involved in this program.[7]

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[6] The preparatory mission discussed the preliminary findings of the ongoing ESSA, and sought additional clarifications from EESL to produce this draft report.

[7] The program will extend technical support to EESL for incorporation of sustainability elements into EESL's newer business areas including AgDSM, though no financial support is proposed.

Discussions and Consultations

16. The entire document has been written in consultation with the teams (national and state) of EESL. In the month of May and June, site visits and meetings with various teams were organised to conduct an environment and social assessment. Other stakeholders like clients (state government functionaries), vendors, distribution agencies, consumers were also consulted. During these consultations, the respondents shared how they are involved in the program, their role, the impact and the suggestions to address risks and gaps. During the June 2017 Pre-Appraisal Mission, the preliminary findings – benefits, risks, gaps and recommendations (environmental and social) were shared with EESL management. A draft ESSA was shared will EESL in November 2017 and based on the consultations and feedback received, the report was revised for draft disclosure.

17. The ESSA team held several meetings with EESL staff, including program departments in charge of each initiative; the contracts and procurement department (to understand the responsibilities for environmental and social considerations in the contracts with vendors) and Human Resources (HR) Department of the EESL. The task team met with the designated EHSS Official of EESL and consultants[8] who worked on the preparation of EESL's Environment, Health, Safety and Social (EHSS) Manual. The mission also held discussions with EESL vendors and Program Management Consultants during the regional office / site visits. During site visits, discussions were also held with communities and passers-by on UJALA program and SLNP. This was essentially to understand their perceptions about the benefits and risks of these programs. The details of persons consulted is available as Annex IV.

18. The task team had detailed semi-structured questionnaire based discussions with EESL officials who manage the programs in regions with different climatic conditions[9] and socio-economic conditions[10], like (i) the north east part of India where the terrain is difficult, less accessible and represent cases of political disturbance[11], (ii) coastal areas like Vishakhapatnam[12], (iii) Chhattisgarh with predominant tribal population as well as naxal infiltration; and (iv) Himachal Pradesh which faces extreme cold conditions[13] during most parts of the year, exposed to risks of landslides during rains and lacks accessibility due to difficult terrain. Such discussions helped in understanding the environmental and social risks under which teams in such areas operate and additional measures required to address some them.

19. To ensure that all issues are covered as exhaustively as possible, the team prepared detailed checklists or questionnaires which are available in Annex X

2.1.2 Components of Environmental Risk, Benefits and Opportunity Assessment

20. The following are the components of environmental benefit and risk analysis which helped in arriving at the possible opportunities for improvement.

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[8] PricewaterhouseCoopers Ltd. Prepared the EHSS Manual; under KfW funding

[9] Special 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 slips and tree falls.

[10] Special considerations are necessary in areas that are remote, inaccessible, prone to violent infiltration or have political unrest. In addition, the idea was to understand how considerations are made to reach out to different socio-economic backgrounds like poor households, Scheduled Castes and Scheduled Tribes, Other Backward Classes, women etc.

[11] In north eastern states where access to rural highlands is difficult people would have difficulty in accessing the Discoms. Also, outreach to such areas would be difficult to distribute bulbs or to install streetlights.

[12] In coastal areas, rusting of metal parts could be an issue.

[13] Yellow lights are preferable for cold climates and high fog /dust areas. In eastern states, since it gets dark early; installation hours are to be adjusted accordingly to ensure safety.

Assessment of Environmental Benefits

21. The task team undertook an assessment of the environmental benefits due to various programs of EESL. The following were the components of the analysis:
    (a) Environmental benefits (larger) of each program intervention (UJALA, Street lighting, Buildings Program, Air Conditioning (AC), AgDSM) in terms of energy savings, climate change, increased environmental awareness and other environmental performance (including less light pollution, lesser pollution due to avoided replacement needs),
    (b) Understanding certain considerations by EESL 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,
    (c) Extent of inclusion of areas of environmental and cultural importance under various programs, like tourist areas, heritage areas, rural and environmentally fragile areas; and
    (d) Existing institutional mechanism at EESL for factoring in the environmental benefits during project design, implementation and Monitoring and Evaluation (M&E) stages.

Assessment of Environmental Risks

22. Existing and probable environmental risks due to various activities of EESL were assessed. The following were the components of the analysis:
    (a) Types of environmental risks experienced during the project cycle as reported by various reports and studies, beneficiaries, EESL officials and as observed during site visits,
    (b) Risks anticipated during the project cycle (and during upscaling); including perceived issues during special occasions and disasters,
    (c) Appropriateness of the efforts and considerations by EESL to ensure environmental risk management during project design and implementation,
    (d) Guidelines and standards developed by EESL and vendors for environmental risk management and the extent of its coverage and suitability,
    (e) Environmental rules and regulations considered during project design, implementation and Operations, and
    (f) Existing institutional mechanism for factoring in the environmental risks adequately and for co-ordinated response during implementation and operation phases.

Assessment of Environmental opportunities

23. Based on the assessments of environmental benefits and risks, gaps in the existing mechanism were identified. This highlighted the possible opportunities for improving the environmental performance including the following:
    (a) Improvement of the Institutional capacity of EESL and the partnering agencies to effectively manage environmental risks.
    (b) Opportunities to upgrade existing guidelines to avoid, mitigate, and manage environmental risks, and
    (c) Design of training and capacity building activities to ensure risk avoidance and management.

2.1.3 Components of Social Risk, Benefits and Opportunity Assessment

24. The following are the components of Social benefit and risk analysis and for arriving at the possible opportunities envisaged under this study.

Assessment of Social Benefits

25. The task team undertook an assessment of the social benefits using the following components of the analysis:
    (a) Social benefits of each program intervention (UJALA, Street lighting, AC, Pumps) in terms of inclusion, improved participation, strengthened local systems and improved development indicators

(b) Under Social inclusion, the access and use by marginalized groups, inclusion of areas of importance like remote, conflict prone, poor and other benefits like access to new opportunities/employment

(c) Focus on gender in terms of how the programs are reaching out and benefitting women in terms of improved access, quality of life as well as new opportunities

(d) Benefits accruing to local governments or local institutions (groups) in terms of more capacities, opportunities and efficiency in service provisioning

(e) Social benefits due to accountability and transparency measures adopted

(f) Examples of user Feedback collection approaches and systems of Grievance Redressal

(g) Institutional mechanism for factoring and tracking social benefits

(h) Institutional policies and practices for improved gender indicators and labor protection

Assessment of Social Risks

26. The task team undertook an assessment of the social risks using the following components of the analysis:

(a) Types of social risks emerging during the implementation phase (Exclusion, conflict of expectations, cultural issues, reinforcing gender stereo-types)

(b) Risks anticipated during the project cycle; including in sensitive areas (remote, conflict prone, heritage/tourist)

(c) Institutional support mechanism for factoring in social risks and response during implementation and M&E

(d) Systems: How are safeguards integrated in the program operations, what are the available frameworks, how are social effects reported and monitored?

(e) Risks of not completing the feedback loop – how is consumer feedback and emerging grievances incorporated for course correction and improving program implementation

Assessment of Social opportunities

27. The task team undertook an assessment of the social opportunities using the following components of the analysis:

(a) Opportunities to develop adequate guidelines to avoid, mitigate, and manage social risks

(b) Opportunities for inclusion, transparency and participation

(c) Opportunities to build community ownership on the resources provided to ensure maintenance and sustainability

(d) Design Training and capacity building activities to ensure risk avoidance and management

(e) Opportunities for innovations (economic and social inclusion- opportunities for improved gender indicators, outreach to ethnic minorities and other opportunities for marginalised groups)

(f) Opportunities for the project to provide for overall improvement of the capacity of EESL and partnering agencies regarding EE and other intended project benefits and risks

(g) Opportunities created for organisational improvement in terms of gender indicators and labour rights and protection.

28. The following diagram explains the Social Assessment Framework used in this study.
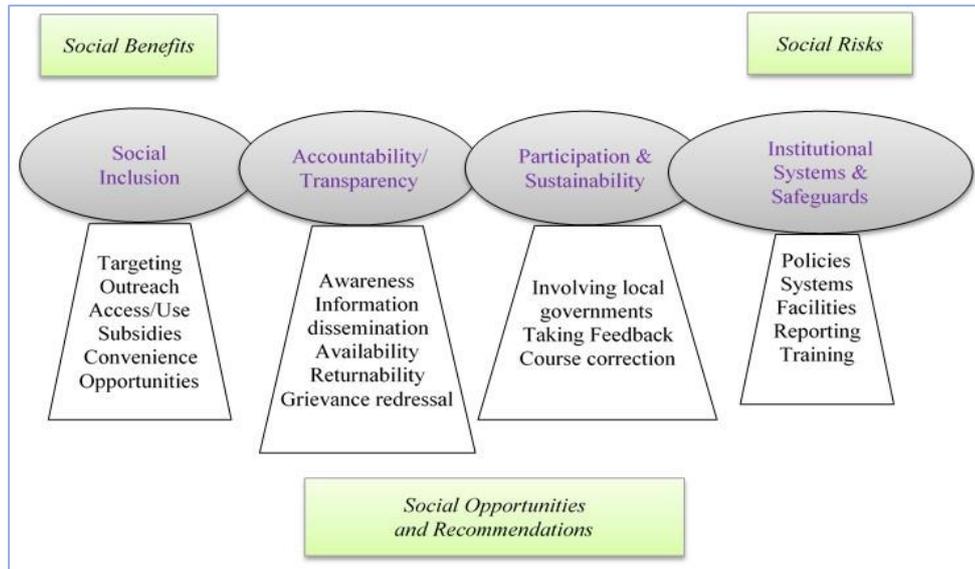
Figure 1: Social Assessment Framework

3. Review of Environmental and Social Policy, Rules and Regulations

29. The environmental and social governance system for developmental projects is well established in India. The regulatory system ensures that the environmental quality and social concerns are not compromised during any stage of development; from planning to post-completion stage.

3.1 Applicable Policy and Legal Framework

3.1.1 Environmental Policies and Legal Framework

30. The Government of India, through its Ministry of Environment, Forests and Climate Change (MoEFCC) is administering nationwide comprehensive environmental laws. The overall goal of environmental permitting is to protect human health and the environment by defining (in a transparent, accountable manner) legally binding requirements for sources of significant environmental impacts. Any project at its planning stage shall go through various clearances from central and state authorities. MoEFCC at the central level and Pollution Control Boards (PCBs) at the state level are approached for various consents. In case of projects which involve construction on forest lands and special areas / special features or specific type of buildings or construction activities, it may be required to get permission from other relevant departments like Forest Department and respective Local Bodies. Specific activities under EESL programs may need clearances specially (bot not limited to) in case of proximity to environmentally fragile areas, heritage areas, culturally sensitive areas or permissions from local authorities. Identification of activity-wise impact is not attempted in the ESSA. However, a review of regulatory requirements is attempted here to explain the operational and reputational risks.

31. Various environmental regulations at the National level and its applicability to activities carried out by EESL are compiled in *Annex II*. Applicable regulations include:
   - Environment (Protection) Act 1986 and Rules 1986
   - Environmental Impact Assessment (EIA) Notification, 2006 and latest amendments
   - Water (Prevention and Control of Pollution) Act 1974 and amendments thereof
   - Air (Prevention and Control of Pollution) Act 1981 and amendments thereof
   - The Batteries (Management & Handling) Rules, 2001
   - Fire Safety Rules and National Building Code
   - National Health and Safety Requirements

32. The following forms the regulatory regime for waste management in India:
   - Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
   - Solid Waste Management Rules, 2016
   - Plastic Waste Management Rules 2016
   - e-waste (Management) Rules, 2016
   - Construction and Demolition Waste Management Rules, 2016
   - Guidelines for Disposal of Thermoset Plastic Waste including Sheet molding compound/Fiber Reinforced Plastics

33. In addition to the above, if the project falls under specific locations line Coastal Zone or near Forests, respective clearance processes apply.
   - Coastal Regulation Zone (CRZ) clearance is aimed at regulating development in areas located along the coast of India. Coastal areas are considered sensitive zones and classified by the MoEFCC as Coastal Regulation Zone (CRZ) I, II, III and IV for regulating development activities in the coastal stretches within 500 meter of High Tide Line (HTL). Various activities are allowed in the different zones and rapid EIA is used as a tool for CRZ

clearance. Project proponent shall ensure that CRZ clearance has been obtained and the project is not located in environmentally sensitive zones as notified under the CRZ classification. This is especially applicable for proposed programs of EESL which would require site selection.
- The Forest (Conservation) Act, 1980, was enacted to check deforestation by restricting conversion of forested areas to non-forested areas.

34. The project proponents and the regulators also shall ensure that the projects do not violate any regional/ multilateral treaty India is signatory to. Hence the projects shall ensure that environmental conservation and biodiversity preservation are not compromised due to project activities. These treaties include United Nations' Convention on Biodiversity, Convention on International Trade of Endangered Species and Convention on Conservation of Migratory Species (Refer *Annex II* for further details on these treaties).
- Vienna Convention for the Protection of the Ozone Layer
- Montreal Protocol on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer)
- United Nations Framework Convention on Climate Change (UNFCCC [1992])
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)
- Stockholm Convention on Persistent Organic Pollutants (POPs)
- Rotterdam Convention on Prior Informed Consent for certain Hazardous Chemicals and Pesticides in International Trade
- Minamata Convention on Mercury, United Nations Environment Program
- Strategic Approach to International Chemicals Management (SAICM)

35. In addition, where bilateral and multilateral agencies are financial partners, projects are subject to additional safeguards, environmental and social performance standards and policies prescribed (as stipulated by various funding instruments) by the respective funding agency along with the existing national environmental clearance and permitting processes.

36. In addition to the above, at the institutional level, EESL has developed an EHSS Manual[14] to institutionalize their environmental, occupational health and safety, and social management system. EHSS manual outlines the vision, objectives, management system and governance controls to guide certain operations of EESL. As of October 2017, it covers only two programs of EESL; namely UJALA (only LEDs) and SLNP. It lists the hazardous wastes (mercury, lead), batteries and e-waste, noise and air pollution as the main risks associated with Street lighting and UJALA program. It also lists certain general considerations for new programs. This manual is supported by the following two document sets; (i) Standard Operating Procedures (SOP) applicable for different tasks, business processes or risk areas, and (ii) Documentation Formats (DF) for preparation and maintenance of important records.

The SOPs are as follows:
SOP 01   EHSS Risk Management
SOP 02   Waste Management
SOP 03   Fire and emergency procedures
SOP 04   Electrical safety
SOP 05   Work at height and fall prevention
SOP 06   Portable tools and equipment
SOP 07   Traffic safety
SOP 08   Personal protective equipment
SOP 09   Work permit system

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[14]Energy Efficiency Services Limited, 2017. Environmental, occupational health & safety and social (EHSS) Manual, EESL. *Available at:* https://eeslindia.org/writereaddata/EHSS%20Manual%20for%20EESL.pdf
Accessed on: 12 June 2017

SOP 10	Safe lifting operations
SOP 11	Safety audit procedure
SOP 12	Criteria for selection of warehouse

DFs are as follows:

DF 01	Legal checklist
DF 02	Accident/Incident Reporting
DF 03	EHSS Risk mitigation plan
DF 04	Sample project report

3.1.2 Social Policies and Legal Framework

37. In this assessment, there are few core social aspects that have been covered by looking at the available legal policies and framework and how it is related to the work of EESL.

38. To begin with, Land Management is crucial to ensure that if the program directly or indirectly causes impact on land and subsequent risks. In India, Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. The Act regulates the process of acquisition of land for any public purpose and lays down a humane, participatory, informed consultative and transparent process for such land acquisitions. The Act provides land for land subject to its available in the vicinity (or alternatively, fair compensation), housing unit in case a dwelling unit is lost in the acquisition and allocation of land along with compensation where land has been acquired for urbanization. The Act also recognizes and provides due compensation to all landless and people living in the area, whose livelihoods is negatively impacted (directly or indirectly) due to this acquisition. The Act also provides for a compulsory social impact assessment (with representation from Gram Panchayat[15] and Gram Sabha[16]) and its public hearing for ensuring due transparency.

39. For any development project to be sustainable, it is important to provide a role for local level institutions in planning, implementation and monitoring.

   - The 73rd Constitutional Amendment Act and 74th Constitutional Amendment Act, 1992: The amendment transfers powers and functions to local governments- Gram Panchayats for rural areas and municipalities for urban areas such that plans can be made at local level for economic development and social justice. These amendments respectively provided that the panchayats at village, block and district levels would have 29 subjects of rural importance as listed in the 11th schedule (Refer *Annex V*) and municipalities would have 18 subjects of urban importance as listed in the 12th schedule (Refer *Annex IV*). All states have corresponding State Acts for all the local level planning, inclusion, participation, transparency and accountability.

   - Panchayat Extension to Scheduled Areas (PESA) Act, 1996: The Act accords special powers to the PRIs, specifically the Gram Sabhas, in predominantly tribal areas notified under Schedule V of the Constitution. It empowers the people to decide for their development in terms of construction, diversion of land- the consent of local population should be sought. Gram Panchayat is the competent authority to safeguard the traditions and customs of people and their cultural identity; and Gram Sabha is to approve development plans/projects and scrutinize the activities of various agencies including

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[15] Under the 73rd Constitutional Amendment Act, there is a three-tier system of local governance where representatives are elected at three administrative levels namely district, block and village level every five years. Gram Panchayat refers to the lowest tier of elected body that is responsible for economic development and social justice at the Panchayat (village) level.

[16] Gram Sabha refers to a periodic village meeting in which all citizens of the village/Panchayat are eligible to participate. A Gram Sabha is organised to discuss the development issues, requirements, progress of the village. It is an institution of direct democracy where the service providers, office bearers, elected representatives and citizens come face to face.

panchayats, government departments and corporate bodies working in its jurisdiction through a system of social audit.

- Fifth and Sixth Schedule Areas: The Indian Constitution protects tribal interests through the Fifth and Sixth Schedules. Sixth Schedule is applicable in Assam, Meghalaya, Tripura and Mizoram. Fifth Schedule, applicable in all the other identified tribal regions, guarantees tribal autonomy and tribal rights over land through a Tribal Advisory Council in each State.

- Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006: This Act recognises the traditional rights of forest dwellers, scheduled tribes, and Particularly Vulnerable Tribal Groups (PVTGs) to access services and infrastructure.

40. As an expanding organization, the laws related to labour and employment which cover rights, benefits, gender justice, protection and inclusion are relevant for the given project.
    - Payment of Wages Act, 1936
    - The Minimum Wages Act, 1948
    - Workmen's Compensation Act, 1923
    - Personal Injuries (Compensation Insurance) Act, 1963
    - Employees' State Insurance (ESI) Act, 1948
    - Employees Provident Fund and Miscellaneous Provisions Act, 1952
    - Payment of Gratuity Act, 1972
    - The Factories Act, 1948
    - Employees liability Act, 1938
    - The Payment of Bonus Act, 1965
    - The Contract Labour (Regulation & Abolition) Act, 1970
    - The Bonded Labour System (Abolition) Act, 1976
    - Trade Union Amendment Act, 2001
    - Inter-state Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979
    - The Equal Remuneration Act, 1976
    - The Apprentices Act 1961 and Apprentices Amendment Act 2014
    - The Maternity Benefit Act, 1961 and Maternity Benefit Amendment Act, 2017
    - The sexual harassment of women at workplace (Prevention, Prohibition, and Redressal) Act 2013
    - The Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989
    - The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995.

41. In the past two decades, several attempts have been made by the Government of India to ensure accountability and transparency, guarantee access to information and provide opportunities for engagement in development projects as well as in service delivery. Keeping that in mind, the following laws become relevant for the given project:
    - Right to Information Act, 2005: To ensure transparency, any citizen of India has the right to request information from a "public authority" (a body of Government or "instrumentality of State") which is then required to reply expeditiously or within thirty days.
    - Right to Service Act 2011: As a logical progression to the Right to Information Act, the Right to Service Act aims at ensuring time bound service delivery mechanism addressing bottlenecks and corruption.
    - Citizens Charter: The main objective of the exercise to issue the Citizen's Charter of an organisation is to improve the quality of public services. This is done by letting people know the mandate of the concerned Ministry/ Department/ Organisation, how one can get in touch with its officials, what to expect by way of services and how to seek a remedy if something goes wrong. The Citizen's Charter does not by itself create new legal rights, but it surely helps in enforcing existing rights.

- Grievance Redressal: Department of Administrative Reforms & Public Grievances, Government of India has a Centralized Public Grievance Redress and Monitoring System (CPGRAMS) to address internal and external (public) grievances by the government. The grievances received in the Department of Administrative Reforms and Public Grievances are forwarded after scrutiny to the Ministries and Department concerned and other organizations of Government for appropriate action.

42. **Corporate Social Responsibility:** The Companies Act 2013 was notified in September 2013, Section 135 (I) and Companies (Corporate Social Responsibility) rules 2014 which deals with the CSR activities[17] were added which provide companies guidance for Corporate Social Responsibility. It is a Company's commitment to its stakeholders to conduct business in an economically, socially and environmentally sustainable manner that is transparent and ethical. Once a company is covered under the ambit of the CSR[18], it shall be required to comply with the provisions of the CSR like forming a committee, using at least two per cent of the average net profits of the company made during the three immediately preceding financial years, in pursuance of its CSR Policy and preparing a CSR Report.

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[17] Illustrative list of possible CSR activities is listed in section 3 and 4 of the CSR policy available at: http://finance.bih.nic.in/documents/csr-policy.pdf (accessed on 9.11.2017)

[18] The companies on whom the provisions of the CSR shall be applicable are contained in Sub Section 1 of Section 135 of the Companies Act, 2013. As per the said section, the companies having Net worth of INR 500 crore or more; or Turnover of INR 1000 crore or more; or Net Profit of INR 5 crore or more during any financial year shall be required to constitute a Corporate Social Responsibility Committee of the Board "hereinafter CSR Committee" with effect from 1st April, 2014.

4. Environmental and Social Systems Assessment

43. This chapter discusses the potential environmental and social benefits, risks and opportunities associated with various programs of EESL. The assessment primarily focuses on the UJALA and SLNP initiatives, which are supported under Results Area 1 and 2 of the program, for which the Program boundary include investments and physical targets based on which the proposed PforR loan would be disbursed. The ESSA also undertakes an assessment of the newer initiatives that would be supported under Results Area 3, for which the Program boundary does not include any physical investments, and there are no physical targets, but rather the PforR focuses on supporting EESL in strengthening these initiatives from a technical, social and environmental perspective. The assessment of the proposed programs and pilot activities help alert EESL regarding the unseen environmental and social risks and opportunities; and expand their understanding on the need for competent mechanisms to support their new programs and upscaling of existing activities.

4.1 Environmental Systems Assessment

4.1.1 Environmental Benefits

44. The proposed Program is primarily focused on scaling up deployment of energy efficient appliances and equipment in the residential and public sectors, and the interventions planned are expected to result in substantial environmental and social benefits. It would provide significant benefits – including (i) energy savings from installation of EE equipment; (ii) avoided energy and capacity benefits; (iii) avoided environmental and health costs from avoidance or reduction of thermal generation; and (iv) economic value of improved quality of life for consumers.

45. Program wise environmental benefits are discussed below.

Results Area 1 – UJALA

(a) **Environmental benefits due to product and program features** (in terms of energy savings, increased environmental awareness, environmental performance)

Energy Efficiency

46. LED bulbs have a distinct environmental benefit when compared to other types of lighting appliances due to its energy efficiency feature. An ordinary incandescent bulb is a highly energy inefficient form of lighting with just 5% of the electricity input converted to light. Efficient light bulbs, such as LEDs, consume about only one-tenth of energy used by ordinary bulb to provide the same or better light output. LED based household lights could reduce energy consumption by 88 percent as compared to incandescent bulb and 50 percent as compared to CFLs[19]. This will lead to savings in electricity and lower consumption of fossil fuels thus benefiting the environment.

Affordability and Accessibility

47. The high cost of LED (INR 300 to 500) has reportedly been a barrier to rapid uptake of LED bulbs. The bulk procurement under UJALA has made the LED bulbs more affordable, and along with the option of on-bill financing scheme; has helped overcome the first cost barrier. Due to the interventions by EESL, cost of LED lightbulbs have come down drastically. LEDs

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[19] https://eeslindia.org/delp-delhi/

have become more accessible to the all sections of the society, thereby improving overall availability and quality of illuminance for various household purposes. Currently, in Gujarat, under this scheme the consumer can purchase LED bulbs from Distribution kiosks at Discom offices for an upfront cost of INR 70. Alternately, the consumer is eligible to purchase up to 10 LED bulbs under Equated Monthly Instalment (EMI) scheme. Under this scheme, an amount of INR 75 will be recovered from the electricity bill at INR 10 per month for the next 6 months and INR 15 in the last month. The consumer will get a high-quality LED bulb at near around half the market price. The bulbs are made available at the Kiosks which are usually set up in Discoms or public buildings in each area, within easy reach of consumers. In the retail market, LED prices have dropped from approximately 800 INR per LED bulb in 2012 to 200 INR per LED bulb in 2016.[20]

Savings in Electricity Bill

48. Per EESL estimates, every household would save INR 648 per annum in the Electricity Bill (with 4 LED bulbs), which is more than the LED bulb cost. Matrix provided by EESL[21] to showcase the comparative advantages of LEDs over conventional bulbs is presented in ***Table1*** below.

Table 1: Comparative Advantages of LED Bulbs over Conventional Bulbs

Features	LED (Under UJALA Scheme)	CFL	ICL
Watt	9	20 – 25	60/100
Energy Efficiency	88%	50%	5 - 10%
Annual Cost Savings of Electricity Bill Per Bulb)	INR 162.00	INR 85.50	Base case
Life Expectancy (Hrs)	25,000	8,000	1,200
Free of cost Warranty	3 Years	1 Year	Nil
kWh Savings	145.3 kWh	72.56 kWh	Base case
CO$_2$ avoidance	0.25 Tons/Year	0.125 Tons/year	Base case

Longer Bulb Life and Replacement

49. The LEDs are guaranteed longer life (> 15 years if used of 4-5 hours every day) and are not likely to fuse. However, if the LED bulb stops working due to a technical defect, EESL will be providing warranty for all technical faults for three years.

Lighting Quality

50. The cool, white light of LEDs is mostly welcomed by the public and preferred over warm, yellow light of incandescent lamps.[22]

Improving Environmental Awareness

51. The UJALA program is well-publicized and some attempts at environmental awareness have been conducted especially in villages. Due to these, people are also today, more aware of the need to save energy.

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[20] EESL. 2016. India's UJALA story. EESL, New Delhi, Pg. 13. Accessed on June 12, 2017
https://eeslindia.org/writereaddata/Ujala%20Case%20study.pdf
[21] ibid
[22] Except for certain instances where residents preferred yellow light due to heritage and other considerations. E.g.: Queens necklace, Mumbai and Chandigarh

Stimulating Market Competition

52. EESL's requirements are stimulating the development of a high quality Indian LED lamp manufacturing industry. India is now the 2nd largest LED market in the world, worth 21.4 billion INR in revenues per year and likely to continue to grow further.

53. *In addition to the above explained direct benefits, EESL as the implementing agency is expected to spearhead efforts to avoid, minimize and mitigate the issues which may arise due to its activities and ensure overall positive benefits. These include:*

(b) Avoided Environmental Stress

54. LEDs are environmentally safer than CFLs which were widely used. EESL points out that UJALA LED bulb program is equivalent to the CO_2 emissions absorbed by 200,000 trees[23]. As LED bulbs, have longer life, disposal will be required only after longer intervals than Incandescent or CFL bulbs. Arrangements are in place with the suppliers to collect and replace defective LED bulbs during the warranty period. During the distribution phase, the distribution agency collects defective bulbs and stores it till it is collected by the supplier (or the lighting agency). After distribution phase is over, a separate Replacement agency is hired for the purpose. Currently in Rajasthan and Andhra Pradesh, replacement agency is mandated to collect defective LEDs for a period of *one* (1) year. This reduces the hazardous and e-waste content of the bulbs going into municipal solid waste stream. (As part of UJALA program, earlier, the supplier had to buy back and safely dispose old or replaced incandescent bulbs. These are found to be more hazardous to the environment than LED bulbs. However, this practice is discontinued.[24])

(c) Inclusion of special and sensitive areas

55. Many important cities, tourist and heritage areas of the country have benefitted from UJALA *program*. As part of the UJALA, LED bulbs are distributed in rural areas and markets (such as Araku Valley in Andhra Pradesh, Chhattisgarh); thus, improving the lighting scenario and thereby, lives. The program has been linked with housing schemes like Deen Dayal Upadhyay Affordable Housing Scheme in some States. Such efforts are expected to bring in overall energy savings, better quality and long lasting lighting solution in rural areas and in housing schemes for the socio-economically disadvantaged. This also would avoid the use and pollution due to CFLs which were widely used prior to the introduction of LEDs in such areas.

(d) Better Management Mechanisms

56. Though EESL has no dedicated unit or team to plan and ensure comprehensive environmental benefits, its attempts to incorporate certain considerations for better management of its *programs* is noteworthy. Efforts to understand and ensure best practices include (i) preliminary audit conducted during program initiation, and (ii) preparation of EHSS Manual, covering UJALA and SLNP.

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[23] EESL, 2016. Op Cit.
[24] EESL discontinued taking back ICLs as it was witnessed that rather giving back their old bulbs, many consumers were buying fresh ICL (worth Rs 10) and replacing them with LED. CFLs were never taken as replacement of LED bulbs by EESL.

Results Area 2 - SLNP

(a) **Environmental benefits due to product and program features (in terms of energy savings, increased environmental awareness, environmental performance)**

Energy and Cost Savings

57. Under the SLNP program, EESL aims at replacing conventional streetlights, mainly; high pressure sodium lamps, by LED street lights. The replacement is estimated to result in avoided generation capacity of 1500 MW and save 9 billion kWh per year. ULBs claim energy savings and associated cost savings due to SLNP program implemented by EESL. Udaipur and Vijayawada claims about 58 percent energy savings as achieved under this program. Total cost savings for municipalities is expected to be around INR 55 billion rupees every year.

Better Quality of Lighting

58. The LED street lights provided by EESL under SLNP follows the standards prescribed by *National* Lighting code for illuminance on various road categories. Mounting heights are decided based on BIS standards (1981). Such a scientific approach contrasts with the *adhoc* approach mostly followed by ULBs who usually installs streetlights per the demands of the councilors (people's representatives), as street lights are the most visible infrastructure in a city.

59. The LEDs are guaranteed longer life. The cool light of LEDs is mostly welcomed by the public. LEDs reduces glare, shows colors of objects more naturally and aid in identification of people and objects, improve the contrast between an object and its background and enhance peripheral vision at the low levels of illuminance.

Improved Environmental Awareness

60. The program is well-publicized and some environmental awareness activities have been *conducted* to promote the use of LEDs which are energy efficient and less polluting than other bulbs. Due to these, people are also today more aware of the need to save energy and are capacitated to make eco-friendly choices.

(b) **Avoided Environmental Stress** [25]

Improved Lighting

61. The main objective of SLNP is to promote efficient lighting, enhance awareness on using efficient equipment which reduce electricity bills and help conserve the environment. EESL undertakes special studies when required to respond to the complaints by ULBs regarding issues like dark spots and upgrade the systems to ensure better performance against issues of conventional systems including surges in the network, thus avoiding environmental stress.

Avoided Stress due to better Control and Monitoring

62. EESL has arranged complaint handling and remote monitoring through a Centralized Control and Monitoring System (CCMS). The CCMS; an electronic device installed at lighting switch points (here; for a group of lights) enables remote real-time operations and monitoring, automatic switching, configurable timings and fault detection. It can also *measure* energy savings if configured. Immediate grievance redressal by EESL in case of failures and automation through CCMS ensures better management of street lighting, which was not so while the ULBs were directly handling the streetlighting. It is also easier to increase or decrease the levels of illumination as suitable for sensitive areas. This provides opportunity to prevent

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[25] Considerations for better management of activities for the benefit of surrounding environment rather than stress

light trespass, uplight and light pollution masking the stars and to save energy when necessitated, as it is centrally managed through CCMS.

Avoided impacts due to Wastes and Scrapes

63. EESL incorporates agreement conditions to make the contractors and vendors responsible for storage, supply and installation and provide maintenance services (usually *seven* (7) year). Scrap and wastes are sent to the ULBs and auctioned through recyclers or Material and Scrap Trading Corporations (MSTC). Supplier has the responsibility to dispose unused bulbs and replacements.

Avoided CO2 Emissions

64. As of May 2017, over 2163681 street lights were upgraded by EESL in around 544 urban *local* bodies, leading to a reduction of 691.4 tons of CO_2 emissions.[26]

(c) Inclusion of special/sensitive areas and support to disaster affected areas

Better lighting in Cities, Tourist and Heritage Areas

65. The program ensures better street lighting in State Capitals and important cities which is important for the image of the cities. In SLNP program areas, beach areas are well lit such as in Vishakhapatnam, reducing environmental and safety risks during dark hours. Better visibility is ensured for solid waste collection operations on streets during night time. In many areas, peoples are seen using new streetlights for night time work and reading.

66. The program is in high demand among the people's representatives as it improves overall lighting, ambience of their respective areas and reduces risks during nights (including *clandestine* disposal of wastes near sensitive natural features). The program is being extended to rural areas (villages) as well, which will ensure wider benefits.

Support to Disaster Struck Areas

67. Following the cyclone Hudhud in Vishakhapatnam on October 12, 2014; EESL repaired and retrofitted streetlights within three months of request from Greater Vishakhapatnam Municipal Corporation (GVMC). Around 90,000 streetlights were retrofitted, resulting in estimated annual energy savings of 24 million KWh accounting to annual cost savings of USD 3 million to GVMC.

Special Lighting Considerations

68. Certain recent attempts to include specific criteria for special areas like usage of warm white lights in Parks are noteworthy. They also propose switching off these lights near around midnight to prevent any harm to fauna /flora. Examples of special considerations to *respond* to the environmental conditions include light dimming in Baroda, alternate poll shutdowns in Rajkot during late night hours when activities are less, special yellow LED lights installed in Mumbai's Heritage area; "the Queens Necklace" to retain the heritage ambience, and Moon-light project in Gandhi Nagar when lights are shut for people to enjoy moonlit sky.

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[26] EESL. 2017. Street lighting: Public private partnerships in India. In *Cities and Lighting. pp 24-27* Available at: https://eeslindia.org/writereaddata/SLNP%20Success%20Story.pdf
Accessed on: 15 July, 2017

(d) Better Planning and Management

EHSS Manual

69. Though EESL has no full-fledged unit to plan and adopt environmentally appropriate activities, they have prepared an EHSS Manual suggesting the guidelines to be followed mainly for UJALA and SLNP. Though most of the departments and officials including the field level team are yet to be made aware of the provisions of EHSS document; the attempt to prepare a guidance Manual recognising the environmental and safety aspects is notable.

Initial Site Verifications

70. During project initiation at each location, a joint team of EESL and or the Lighting Agency and the Municipal Officials undertake verification of the number of street lights *required* and their rated wattage. Though there is ample scope to adjust the number of lights required near sensitive areas or in type of lamps or pole height variation for specific land uses, on-site verification can be considered as a first step in efforts to ensure planned provision.

Project Implementation Support

71. In some areas, a Project Implementation Unit is in place on a long-term contract (7 years) to ensure that the maintenance activities are streamlined and to oversee complaint redressal. This is mainly a response to the lack of adequate staff at site for EESL to *carry* out its operations. Even then; EESLs attempt to entrust the responsibility to competent organisations to properly monitor and manage its operations well is noteworthy.

Results Area 3 – New initiatives

72. In the proposed Program for Results, "Development of sustainable business models in new EE market segments" Under Results Area 3 will focus on upstream program development support and incorporation of technical, environmental and social sustainability elements into design of new initiatives under development, such as Air Conditioning, Agricultural Demand Side Management (AgDSM), and Building Energy Efficiency Program, which require additional preparatory work to ensure sustainability scale-up. <u>The proposed Program does not finance any physical investments in these areas.</u> The purpose of the assessment undertaken here is to support and provide inputs to EESL on sustainability aspects of these initiatives. The analysis here, presents the benefits, risks and impacts that need to be considered for strengthening the sustainability of the initiatives under Results Area 3, as they gear up for future upscaling.

1) Buildings Program and Air Conditioning

(a) Environmental benefits due to product and program features

73. EESL initiated the building retrofitting project in 2014. As of now, more than 25 public buildings have been retrofitted with energy efficient appliances. The major interventions in these buildings are in area of lighting, ceiling fans and air-conditioning systems.

74. Environmental benefits attained under this program include (i) Replacement of existing lights, fans and ACs in public buildings with energy efficient models (ii) Provision of maintenance services in addition to arranging and providing funding for installation of energy efficiency technologies and equipment, (iii) Reduction in energy consumption by the beneficiaries and with resultant cost savings, and (iv) Provision of Energy Audits and New Generation Energy Management System in buildings.

(b) Avoided Environmental Stress

75. Disposal of existing equipment is made the responsibility of the respective building users / owners.

(c) Inclusion of Special / Sensitive Areas

76. This program is mainly intended for public buildings including railway stations. Thus, the project, on a whole would support many important areas.

(d) Improved Management Mechanisms

77. In-house team of EESL conducts walk through energy audits on Air conditioning systems, water pumps, compressors and billing analysis. This acts as a monitoring mechanism to ensure continuous energy efficient functioning of the appliances.

2) AgDSM

(a) Environmental benefits due to product and program features

78. Under the pilot AgDSM projects EESL carried out to date, the farmers were benefitted from (i) energy and cost *savings* due to installation of new energy efficient pumps, (ii) cost savings due to free maintenance, and (iii) increased awareness due to IEC programs on energy and environment. Discoms benefitted from (i) sharing of energy savings, (ii) lower demand for energy especially during the peak hours, and (iii) less subsidy requirement. The following ***Box B*** elucidates the experience from the AgDSM Pilot Project at Malavalli to understand the benefits.

79. *Proposed Scale-up.* As against the current attempt to replace old / existing pumps with new ones, EESL plans to have a stronger focus in the near term in the use of solar PV mini-grids twinned with energy efficient solar pumps. Under this program, EESL proposes to deploy energy efficient solar pumps along with solar PV panels connected to a mini-grid. This would benefit the farmers by providing continuous supply of power as required and assure additional benefit of transmitting unused energy through the grid and getting additional income from the same.

Box B: Pilot AgDSM Program at Malavalli

AgDSM project has been initially piloted in Malavalli in Mandya District of Karnataka, followed by Hubli and few locations in Andhra Pradesh. In Malavalli, energy consumption by new pump sets (1337 replaced) was much less than the existing ones which lead to savings to the tune of 3148.67 kW (37 percent energy saving). Transmission and distribution Losses reduced due to installation of Capacitor Banks with control panels. Peak load demand for electric power reduced and thus the need for upgrading existing transformers reduced following the reduction in load. Transformer burnouts and line tripping due to overloading has reduced. Earlier, the pumps used to burn out every 3 to 6 months due to these issues. Key benefit includes betterment of farmers due to provision of free energy efficient pumps, reduction in operational costs as free repair and maintenance is offered for 6 years under this scheme. The farmers claim a savings of INR 15000 on an average annually under this head. Benefits to Discoms include reduction in power purchase cost, monetary benefits because of sharing of energy saving, lower load shedding, reduction in peak demand and lower subsidy burden on the Discoms and the State Governments.

(b) Avoided Environmental Stress

Avoided Stress on Ground Water levels.

80. Under the pilot program, existing agricultural pumps are replaced by EESL and no new pumps are proposed for installation thus preventing additional stress to the ground water availability. Newly installed pumps are of lower capacity than the replaced ones as efficiency is more.

Avoided Impacts due to Reuse of old Pumps.

81. EESL collects back all existing pumps and punctures to make them defunct and arranges to sell it to the scrap dealer. This is to ensure that old, higher capacity but lesser energy efficient pumps are not left for later use by the farmers.

(c) Inclusion of Special and Sensitive Areas

82. The program is planned for rural areas where agriculture is the main stay. It is targeted at agriculturalists, for whom pump is the major asset. This is a clear benefit of the program considering its contribution to improving crop productivity and farmers' incomes and asset base.

(d) Better Management Procedures

83. The program is in pilot stage and hence suitable institutional mechanism is not in place. A project *report* on the expected benefits in terms of energy and cost savings was prepared at the project inception. Extensive awareness drive was conducted among the farmers to make them understand the project benefits. EESL also engaged a local agency to provide repair and maintenance services based on grievance reporting and to ensure dismantling and disposal of existing pumps. These management mechanisms were intended to enhance the program benefits.

4.1.2 Environmental risks

84. As part of the assessment, the task team undertook a detailed analysis of various existing and potential risks due to the programs or activities of EESL. Environmental risks are the actual or potential threat of adverse effects on living organisms and environment by effluents, emissions, wastes, resource depletion, and threats arising out of an organization's activities on ground. Key areas of risk are represented in the following diagram *(Figure 2)*.

Treatment and Disposal of Wastes (Solid, Hazardous and E-Waste)   **Quality Related**   **Installation and Operation - Maintenance**   **Placement Decisions**

Figure 2: Broad areas of Environmental Risks associated with the Programs of EESL

85. The main environmental risks identified in each of the key EESL Programs are summarized below.

Results Area 1:   UJALA

86. As discussed, under UJALA Program, energy efficient appliances such as LED bulbs, LED tube lights *and* fans are distributed. Though the program involves only distribution of appliances to beneficiaries, various activities involved in the process; such as (i) bulk procurement and storage of bulbs and appliances, (ii) distribution, (iii) replacement of defective bulbs and appliances, (iv) placement of the distribution kiosks and activities therein, (v) impacts of the product on the environment, and (vi) disposal of wastes arising out of its various stages of handling and end - of - life disposal of the products pose some environmental risks. These are summarized below.

(a) Environmental risks due to material and waste management

This includes storage, transport, recycling, disposal and associated breakage of used and unused bulbs and replacements (during normal days and emergencies) and solid wastes; including packaging materials.

Material Management

87. Bulbs are transported from the lighting supplier / vendor to the store of the distribution *agency*. From here, these are taken to the kiosks for distribution. Risks include breakage of bulbs due to unsafe handling and accidents during storage or transport of bulbs and appliances. This can cause health threats to handlers and possible dumping of broken pieces and waste into environmentally fragile areas. Location, proper housekeeping of stores and regulatory requirements/ permits are not given adequate attention to. Efficiency of the transporting agency to manage such risks and certification of materials during transport and storage is also overlooked.

Management of Wastes

88. During our site visits, it was observed that packaging materials were piled up or strewn around the distribution kiosks, with little efforts to officially channelize them to the recyclers. Some of the packaging wastes are reused for storing the defective bulbs or certificates / *proofs* (electricity bills) produced by the consumers. Possibilities of these packaging wastes consisting of plastics and cardboard, finding their way into environmentally sensitive areas could not be ruled out. This is pertinent in India where lakes and water bodies, parks and such reserves can be found in urban areas. This will also become important while upscaling EESLs operations in rural areas, many of them in proximity to wetlands lakes, forests and such sensitive areas.

89. Improper storage of bulbs by the beneficiaries at their homes or establishments, including incandescent bulbs and CFLs which gets replaced by LEDs may also result in health risks to all handlers due to breakage. Stored CFLs are possible sources of high energy consumption in the future. Most of the LEDs have replaced CFLs which contain mercury. The replaced CFLs would ultimately end up in open areas or municipal solid waste sites which would thus face the risk of contamination by mercury. Most important risk in this regard is that these may finally get improperly disposed in the open or in the municipal solid waste streams at the end- of - life[27].

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[27] *In case of UJALA, the lighting agencies take care of the management of broken / replaced bulbs as envisaged by Extended Producer Responsibility (EPR) in E-Waste (Management) Rules, 2016. CFLs are not brought back by EESL. The consumers dispose these as per their choice; anytime during the lifetime; though these are covered under EPR. Here, it is pertinent to*

Such issues are common during normal distribution and installation periods. However, the risks become manifold during emergencies or disasters when the demands are high over a short period.

(b) Placement of kiosks

90. Distribution kiosks are usually placed in Discom premises. In some cases, special kiosks are set up in other areas as well. Kiosks are today make-shift kutcha structures *made* of plastic sheet and poles. These, if placed near sensitive areas can pose as a health threat. Safety of the kiosks and the workers who man such kiosks is also at stake, especially when the demand is high.

(c) Design of Supporting Infrastructure

91. Poor standards for Kiosk design and provision of associated facilities such as toilets, storage, customer facilities, could add to the stress on the surrounding environmental features. Lack of facilities makes it inconvenient and unsafe especially for the workers who man the kiosks, the women and the old consumers; during harsh weather, disasters and days of peak demands.

(d) Risks related to product quality

92. Certain risks related to product quality are reported in some areas including (i) bulb breaking off its seat, and (ii) high flickering of the bulbs reported by some stakeholders.

Results Area 2: SLNP

93. Under the SLNP, EESL enters into agreement with municipalities to retrofit existing streetlights with LED lightbulbs and fixtures. EESL undertakes installation and maintenance for a seven-year period as part of the contract. Various sub-stages involved in the process, such as bulk procurement *and* storage, installation, maintenance, impacts of the product on the environment and disposal of wastes arising out of its various stages of handling and end-of-life disposal of the products pose some environmental risks. These are summarized below.

(a) Environmental risks due to material and waste Management
This includes:
- Storage, transport, recycling, disposal and associated breakage of led street lights & replacements, used street lights (during normal days & during emergencies)
- Storage, transport, recycling and disposal of shields, poles, wires, parts of CCMS, Scrap / Solid wastes including packaging materials and hazardous wastes generated during normal days, failures and emergencies.

Material Management

94. Risks include breakage of bulbs due to unsafe handling and accidents during storage or *transport* of bulbs and appliances. This can cause health threats to handlers and possible dumping of broken pieces and wastes into environmentally fragile areas. Location, proper housekeeping and permit requirements of stores are not adequately considered.

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note that purchase and use of CFLs which have shorter life as compared to LEDs and are environmentally more harmful than LEDs, will be drastically reduced when the deployment of LEDs are scaled up. ('which is a significant avoided impact')

Waste Management

95.　Improper handling and storage of replaced street lights may pose health risks to all handlers due to breakage of glass and electronic / electrical components including drivers, wires and parts of CCMS. It is important that any part of these will not get improperly disposed in the open or in the *municipal* solid waste streams. Location, proper housekeeping and permit requirements of stores are not adequately considered. Efficiency of the transporting agency to manage such risks and certification of materials during transport, waste storage, appropriate action plan for contingencies also seen overlooked. EHSS Manual provides minimal guidance on stacking. However, cordoning and containment of wastes, permit requirements, certification of materials and handling are not adequately addressed in EHSS Manual. (Refer *Annex IX*)

96.　Absence of inventory of waste quantities and types and ineffective channelization of packaging materials and other recyclables to authorized recyclers through unauthorized transporting agencies may result in future risks of pollution. Packaging material made mostly of plastics and cardboard, can find its way into sensitive areas, if not managed effectively. Such issues are common during normal distribution and installation periods. However, the risks become manifold during emergencies or disasters when the demands are high over a short period.

(b) Construction/Installation risks

97.　Risks pertaining to worker and site safety aspects, safety of poles during normal and special climatic conditions, noise and vibration related issues, traffic regulations during installation/maintenance periods, related civic inconveniences, and poor housekeeping around installations (for example, at crossover points from traditional junctions to CCMS), are important. These can even lead to operational, legal and reputational risks. These risks are exacerbated by the lack of formal training to site staff and vendors on Occupational Health and Safety (OHS) aspects especially considering that the street lighting activities involves 'work at height' and 'work during day time traffic hours'[28]. Integrating OHS provisions (partially covered in EHSS Manual) in installation and maintenance contracts, pre-drawn and well informed traffic management plans; and constant interactions with authorities and residents are important to avoid and manage these risks.

(c) Inadequate Labor Facilities

98.　Labor facilities including potable water, toilet facilities, rest areas and PPEs are usually not provided. Influx of workers from other areas for quick installation of *streetlights* may strain the public health if water supply and sanitation requirements are not addressed adequately. This includes risks posed to the nearby environment in case of temporary labor camps specifically if many workers are deployed for quick installation or when the contractors or subcontractors bring their experienced laborers from other areas. [29]

(d) Product quality and impacts

99.　Suitability of the appliance to the specific regions may pose risks especially in mountainous areas, areas with high wind speed, cold climatic *conditions*, coastal areas etc. One of the most common grievances recorded in case of street lights is the aluminum/copper bi-metal issues

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[28] Work is typically carried out during day time; as the community would object to switching off the power to the area around during night time

[29] EESL reports that it typically hires local labour to generate local employment and due to language barriers posed by hiring workers from elsewhere. However, this not possible to verify easily, since contracts allow for sub-contracting, and sub-contractors may employ workers from outside the area. Many of the Class A electrical contractors whom EESL employs for streetlighting will have their own pool of experienced workers both from the city and nearby rural areas.

calling for increased maintenance needs. Such risks shall be addressed adequately by constant interactions with vendors to encourage them to produce better products and techniques. In some cases, blue / white light of LEDs was not welcomed by the communities.

100. In addition, **light pollution and dark spots** also pose a risk directly related to type of bulbs and fixtures used. This is related to (i) type of bulbs and fixtures used, pole to pole distances adopted and resultant scenario of sky glow and impacts on aesthetics, (ii) proximity of lighting to sensitive areas, fragile areas and heritage structures or areas, and (iii) effectiveness of lighting in varying climatic conditions (e.g. during foggy months).

Results Area 3 – Newer Initiatives

101. As noted earlier, since the proposed Program does not finance any physical investments in these areas, the purpose of the assessment undertaken here is to support EESL in its program development efforts and provide recommendations on ways to improve sustainability aspects of these initiatives.

3) Buildings Program and ACs

102. As part of buildings programs, all appliances of the beneficiary building are replaced by energy efficient appliances. Possible risks are summarized here.

(a) Environmental risks due to Material and Waste Management

This include risks due to
- storage, transport, recycling and disposal of new and used equipment
- storage, transport, *recycling* and disposal of wires, electrical / electronic parts, refrigerants, other scrap / solid waste including packaging materials and hazardous wastes generated during normal days and during mass failures and emergencies.

Material Management

103. Here, the risks include unsafe handling and accidents during storage or transport of electrical appliances. This will cause health threats to handlers and possible dumping of hazardous, e-wastes and solid wastes into environmental components. Efficiency of the transporting agency to manage such risks and certification of materials during transport and storage are overlooked. Location and proper housekeeping of stores are not usually given adequate attention. Improper storage of replaced bulbs, refrigerants, pumps, wires and associated appliances may also result in risks to communities.

Waste Management

104. Replacement of old ACs under the program is identified as a major risk, especially *handling* of hardware and disposal of old refrigerants. Select manufacturers are exploring the option of offering buyback and disposal services, provided the customer is interested (as it is his property) and it makes commercial sense. Stakeholder's unawareness on safe refrigerant disposal and non-availability of consumer guidance material are also identified as key risks.

105. Absence of inventory of waste (type wise quantities) and ineffective channelization of packaging materials and other recyclables to authorized recyclers through *authorized* transporting agencies may result in future risks of pollution. Hazardous materials can easily find its way into sensitive areas, and lead to long term impacts if not managed effectively.

(b) Structural importance, safety and maintenance

106. Since the activity involves retrofitting of existing buildings with new appliances structural stability, safety of workers and impacts due to construction and associated activities on any nearby sensitive areas may pose reputational risks and time delays. Though the works involved are not substantial, the age and structural factors of most of the public buildings in the country pose a risk.

107. Cultural, aesthetic and heritage related aspects also need to be adequately factored in to *minimize* the risks. Risks may be also due to incompetent installations and maintenance, poor housekeeping issues (including creation of breeding habitats) around installations or noise and vibration related aspects.

(c) Product qualities

108. Product shall be adequately selected to reduce the risks of additional maintenance and frequent replacements, considering the climatic and usage related features.

(d) Inadequate labour facilities

109. Labor facilities including potable water, toilet facilities, rest areas and PPEs are usually not provided. Influx of workers from other areas for quick installation may strain public health if water supply and sanitation requirements are not addressed adequately. This includes risks posed to the nearby environment in case of temporary labor camps specifically if many workers are deployed for quick installation or when the contractors or subcontractors bring their laborers from other areas.

110. The environmental systems assessment concludes that the opportunities associated with the current and proposed operations include (i) improved efforts to manage materials and wastes, (ii) work safety and facilities, (iii) improved product qualities, (iv) better placement decisions (v) guidance and *institutional* capacities for better management of activities and (vi) compliance with existing laws, regulations and permit requirements.

4) AgDSM

111. Currently, AgDSM efforts focuses only on procurement of pumps and replacing existing ones. However, various sub-stages involved in the process, such as bulk procurement and storage, distribution, replacement of existing pumps, decisions on deployment of the pumps, considerations for placing solar panels, groundwater development stages, impacts of the product on the environment and disposal of wastes arising out of its various stages of maintenance and end - of - life disposal of the products pose some environmental risks. These are summarized below.

(a) Environmental risks due to material and waste management

This includes probable risks due to storage, transport, installation of used and new pumps, solar panels; their recycling and disposal

Material Management

112. Risks include unsafe handling and accidents during storage or transport of pumps, solar panels and associated appliances. This will cause health threats to handlers and possible dumping of hazardous, e-wastes and solid wastes into environmentally fragile areas.

Improper storage of replaced pumps and solar panels around the fields may also result in risks to communities and *farmers*. Location and proper housekeeping of stores is not given adequate attention to. Efficiency of the transporting agency to manage such risks and certification of materials during transport and storage also need to be considered.

Waste Management

113. Storage, transport, recycling and disposal of wires, scrap / solid wastes such as packaging materials and hazardous wastes generated such as replaced cables, transformers, switchgear, relays, insulators, capacitor banks and meters is equally important. Absence of inventory of waste (type wise quantities) and ineffective channelization of packaging materials and other recyclables to authorized recyclers through unauthorized transporting agencies may result in future risks of pollution. Such materials made of hazardous material and e-wastes can easily find its way into sensitive areas around the farms, if not managed effectively. Such issues are common during normal distribution and installation periods. However, the risks become manifold during emergencies or disasters when the demands are high over a short duration.

(b) Impacts due to highly efficient pumps

114. Efficiency of new pumps (and future availability of cheap *power* through solar mini-grid) may pose the risk of over-exploitation of ground water, particularly in critical ground water blocks. This might result in depletion of the water table and salinity intrusions, and encourage the use of pumps for purposes other than those intended by the program, (e.g. commercial activities such as drawing water for supply to tankers to nearby cities). Other risks include change in cropping patterns (or shifting to water intensive crops) due to increased water availability, use of common property resources for installation of solar panels, possible conflicting land uses in primarily agricultural land, and improper placement decisions in fragile areas.

(c) Construction / Installation related Risks

115. Construction safety is critical during installation, testing and routine *maintenance* activities. Various activities may pose risks to handlers, communities, fauna and flora as the program involves use of heavy pumps and power grid connections in usually wet and marshy agricultural fields. These risks are exacerbated by the lack of formal training to site staff and vendors on Occupational Health and Safety (OHS) aspects. Integrating OHS provisions in installation and maintenance contracts is important.

(d) Inadequate Labor Facilities

116. Labor facilities including potable water, toilet facilities, rest areas and PPEs are usually not provided. Influx of workers from other areas for quick installation may strain *public* health if water supply and sanitation requirements are not addressed adequately. This includes risks posed to the nearby environment in case of temporary labor camps specifically if many workers are deployed for quick installation or when the contractors or subcontractors bring their laborers from other areas.

(e) Product quality and impacts

117. related to the suitability of the pumps, solar panels and other components to the specific regions may pose environmental risks.

(f) Other risks due to future use of solar panels

118. This includes (i) connections with grid and resultant crisscrossing of farm areas with electric wires and poles, (ii) exposure to chemicals, land use, pollution of *land* and water bodies during cleaning and maintenance activities on the panels and associated installations, (iii) ecological impacts including glare, micro climatic issues, impact on sensitive flora/fauna, heritage issues, (iv) management of wastes and scraps including hazardous and e-wastes.

4.2 Social Systems Assessment

119. Improved access to energy services and efficient systems of consumption mark a paradigm shift where high dependence and poor supply of energy is being addressed by focusing towards the demand side management. EESL programs are strategically placed as they focus on efficient systems and savings in expenses thereby improving access and enhancing use of energy impacting common people and their lives. The nature of the project does not require any private or government land acquisition nor any kind of land related resettlement therefore the project is not expected to cause any involuntary resettlement impacts. There may be some minor land related issues in the AgDSM in terms of where the panels are installed and related effects on that patch of land. Overall, the assessment on the social front points to the project activities as beneficial and risks to be low, there are some gaps in implementation which can be addressed through improved systems and expertise at the organizational level.

4.2.1 Social benefits

120. Firstly, EESL projects are improving access to new technology by making it available and more affordable. It provides the benefit of energy efficiency pan India. Secondly, the program is designed in consultation with the state governments so while national level benchmarks are maintained, local level needs and demands are addressed to maximise outreach as well as benefits. Thirdly, there is considerable effort at setting up institutional mechanisms for monitoring and receiving complaints/feedback. This benefits the clients and users to get due response, redressal and helps make course correction and systemic changes for better impact and benefit. Fourth due to the rapid pace and expanse of the program the project creates benefits like employment opportunities at all levels as well as be it for the technical as well as non-technical workforce[30]. Fifth, the program reaches the geographically remote, politically volatile and socially marginalised areas and communities as seen in cases of J&K, North East and Chhattisgarh which shows that its benefit is spreading to even those locations and people who often get left out of mainstream projects and newer services.

121. The following are specific program related social benefits:

UJALA
(a) With intensive and customized outreach based on the context, there is awareness on the product and consumers from all socio-economic strata can buy/use the product
(b) With prices being much lower than the market rates of LED products, the lower income groups can also access a new technology, and save energy and on electricity bills
(c) Due to options of EMI, the income groups who do not want to take the risk of spending upfront also get a chance to buy and try the technology
(d) Some examples of subsidies provided by the States in J&K and Chhattisgarh like free of cost bulbs to families that come in the category of Below Poverty Line (and have BPL cards) are direct cases of benefits to the marginalized groups improving the social benefits of the program

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[30] the program has created employment opportunities be it within EESL as well as in agencies providing distribution services and Agencies providing installation, operation and maintenance services

(e)   UJALA products are also used by street vendors, small traders/shopkeepers, social events like parties, marriages, and public places like small restaurants, halls, motels etc. who receive the benefit of better lighting in lesser cost

(f)   finally, reduction in electricity bills of all the users is a direct social benefit across India.

(g)   In terms of indirect benefits, in the long run, with a positive experience of using LED products, a new window of demand and supply of energy efficiency products in general gets precedence impacting the overall consumption of electricity in the country. Secondly, it is perceived that increased and improved energy efficiency in domestic lightening has the potential to the quality of life of women like providing them more time for other activities be it studies, rest, recreation, skill enhancement etc. In addition, savings from electricity bills could be used to fulfil other priorities like higher education of children, courses for improved employability of women, home based industries etc. Finally, a clear indirect benefit of UJALA has been reduction of LED bulb prices in India and with increased awareness, led to more consumers purchasing LED bulbs from retail market.

(h)   As an expanding program across India, UJALA has created employment opportunities within EESL particularly in the state teams and amongst agencies providing distribution services.

SLNP

(a)   Improved service by the municipality to the citizens as the street lighting system becomes more effective, efficient, responsive and of good quality.

(b)   Better lighting in streets and public spaces improves safety for women, reduction in dark spots and threat perception among women gives them greater confidence to access public spaces post sunset

(c)   Improved lighting also improves visibility for motorists and reduces traffic accidents

(d)   It leads to flexibility of working hours for cleanliness staff and ease in working during evenings/nights

(e)   There is greater opportunity for better vigilance by the Police and reduction in crime

(f)   Overall improved public life in the evenings and night

(g)   Improved business opportunities for street vendors

(h)   Saved electricity, savings in costs of the municipal budgets which could be channelized for other developmental works

(i)   With computerised systems, there is reduction in corruption and overall improved transparency in street light services.

(j)   As an expanding program across India, SLNP has created employment opportunities within ESSL particularly in the state teams and amongst agencies providing installation, operation and maintenance services

122.   *Other programs***:** Under AgDSM, social benefits include reduced noise of pumps; improvement in cropping opportunities for farmers who have installed the pumps- either by planting more crops and or by planting crops at more times like even during non-rainy season or by simple increase in cropping days; stress as pump failures have reduced considerably.

4.2.2 Social risks and gaps

123.   As mentioned above the social risks in the given projects are limited and can be easily avoided if duly recognised and then addressed through institutional strengthening, additional practices and support from experts.

124.   One of the risks assessed is possibilities of exclusion[31] in outreach and benefits. The teams shared that they offer a very competent and subsidized price for goods and services which is likely to benefit all sections of the society and it is not in their mandate to put in additional subsidies, however, if the state government demands then they can customise their program

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[31] Going ahead, EESL should target low income households and small commercial establishments who are still buying incandescent bulbs (http://www.prayaspune.org/peg/publications/item/354)

accordingly. In implementation of the program there is no prior assessment of the those who are likely to get excluded from the benefits and how can strategies be made to ensure that does not happen. For instance, it is important to provide further subsidy or consideration for families in the Below Poverty Line category, Schedules Castes, Scheduled Tribes, Other Backward Classes, women etc. to ensure that they can also be beneficiaries to the products and services as they may not be as willing to adapt. So, documentation of states which have provided subsidy and how it has reached and impacted the poorest households could be useful for other states to create similar provisions. Similarly, the street lights are only targeted toward replacing the existing lights so in areas where there is no access to street lighting like slums are likely to get left out of the program thereby limiting the spreading of benefits to a broader group of people. In relation to this point, one of the social gaps identified include inadequate gender strategy which gets reflected both at the institutional and programmatic level. At the institutional level, there is scope for hiring more women and gender sensitisation of the staff. At the program level, there is limited outreach to women and lack of systems to track changes or assess gender based impact.

125. Secondly, there are no monitoring and reporting mechanisms for tracking the outreach, access and benefits to the vulnerable communities. This poses a risk of not being able to respond to the possible gaps in the programs which prevent from reaching to the most vulnerable. In UJALA, to ensure smooth and quick sales, any process of data collection on the consumers can be deterrent so it is avoided. In SLNP there are social surveys undertaken with street vendors, shop keepers, police, cleaners, public at large to understand the benefits (questions include satisfaction levels, improvement in visibility, reduction in dark spots, awareness on savings and efficiency) but these are sporadic with focus is on 'all' users and not targeted towards the marginalised and synthesized reports at the municipal level are not compiled.

126. Third, social risk observed is possibility of violation of labour rights and benefits as much of the outreach and implementation is undertaken through contracting and sub-contracting related safeguards and protections. This is particularly crucial as the sub-contracted staff often interacts with the public or operate in public spaces like personnel at the kiosks, people installing street lights, people hired for waste disposal, management etc. There may be a risk of loss of jobs[32] due to change of technology on two grounds: those trained in previous technology may be replaced or with new technology, demand for human labour may reduce.

127. Fourth risk observed is due to location in physically remote, politically volatile, tribal predominant and socially sensitive areas. In places like Himachal Pradesh, Uttarakhand and parts of North East which are hilly terrains, there are higher risks for personnel and labour working travelling and working in areas which have poor access, more prone to accidents etc. UJALA teams from Assam, Manipur and Nagaland shared that in many areas here is no road connectivity and places where there are roads, condition is very poor so they have started distribution at district headquarters only. In addition, areas like Jammu and Kashmir, Chhattisgarh, Jharkhand and parts of the North East, there are additional risks due to violence and political unrest. The SLNP team in Assam shared that chances of violent attacks is seldom seen Assam, however, should a riot of such violence occur, chances of the installed lights being damaged or taken away by the rioters are high and based on advice from ULB, areas with a history or likelihood of violence are avoided for installation of new street lights. UJALA team from Sikkim shared how Infiltration/violence had an adverse effect on the program such as recent strike (June 2107) in Darjeeling called demanding for a separate state. Due to this, Gangtok, capital of Sikkim which is in 4 hours' vicinity from Darjeeling was

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[32] However, for the existing staff and workers on the Municipal pay roll, there is training and upgradation. For the staff hired through agencies too it was not seen as a risk for two reasons - it is same agencies which are generally hired and they have same staff who is adapted to use new technology; CCMS in fact escalates the problems more frequently and requires a quick response time so need for staff is there. For instance, in areas with heavy rainfall or moisture like Vishakhapatnam, the Streel lights were giving problems so required a lot of field staff for replacement.

impacted in terms of reduction in sales, delay in supply for a month as most of the commercial vehicles were not allowed to enter beyond the Sikkim check post. EESL has prepared an Indigenous People's Policy Framework to address any possible safeguard issues that ma emerge in the course of the program implementation.

128. For AgDSM, the prospective social risks include opportunities for over extraction that could change the cropping pattern to a more water intensive one or use of freely available water for non-agricultural purposes which means greater extraction and such practices can lead to groundwater depletion, reduction in water table. In addition, minor issues of land management such as where solar panels will be installed, or the inconvenience and loss due that patch of land getting blocked or due to spilling of oil from the pumps or any other effects.

129. There are some gaps at Institutional and Implementational level to improve gender performance of the program. At present, there is limited understanding and rudimentary initiatives for gender inclusion both within EESL as an organization and in its implementation of programs. To address this, there is a need to strengthen policy and systems as well as add activities to improve gender outreach[33] and track results[34]. Similarly the gaps for citizen engagement include a consolidated strategy on engaging with stakeholders, regularly documenting the feedback, queries and grievances received, analysing them such that it helps the program design in the long run.

130. Finally, and this has been an articulated risk in former social assessments that EESL needs a strong social policy, unit and specialists to consider the social impact, benefits, risks, gaps and design/improve necessary safeguards in the form of policy, systems and practices to map, document, address and monitor them.

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[33] Creating more employment for women in project sites (kiosks for distribution, replacement desks, state offices etc); Improving the outreach to women consumers and strengthening women consumer base; Involving of women Self Help Groups in improving the distribution and marketing of LED products and in turn creating opportunities for SHGs to earn; Develop clear gender policy, guidelines, capacity building and monitoring systems for the institution

[34] Map increased safety for women through the street lighting program; Conducting impact studies for assessing the lifestyle changes and social benefits due to energy efficiency products - links between gender and energy efficiency; Track progress of increased gender balance in EESL workforce (especially hiring women in other technical positions and units as right now there are women in primarily HR and PR department)

5.   Institutional Capacity for Environmental and Social Impact Management

131. EESL has been established to facilitate the identification, design, implementation and financing of energy efficiency projects in partnership with private Energy Service Companies (ESCOs), state level institutions and other companies to achieve EE goals. EESL identifies and prioritizes the interventions required in the field of energy efficiency and implements these.

132. Institutional arrangements for the various operations of EESL are as below.

Table 2: Institutional Arrangement for various Operations of EESL

Program	Components	Institutional Aspects / Agencies involved
UJALA (bulbs, tube lights, fans)	Bulk purchase	EESL invites tenders and enters into contract with appliance suppliers for large-scale supply of energy efficient products on Pan-India Basis.
	Distribution	EESL enters into agreement with the States or DISCOMs for carrying out UJALA distribution in state/DISCOM area. In some states DISCOM provide space for establishing distribution kiosks
		EESL enters in to an agreement with Distribution Agency (Bidder/Govt agencies such as post offices, CSC centres) to establish distribution kiosks to distribute Bulbs, Tube lights, fans and ACs. Distribution Agency sets up kiosks/canopies of the UJALA appliances at the designated places and centres with their employees/hired human resources. Distribution process is monitored by EESL regional engineers.
		Distribution Agency may enter in to an agreement with a local man-power consultant to supply human resources to man the kiosks
	Replacement of defective bulbs or appliances	Usually replacements are handled by the Distribution Agency at the distribution kiosks.
		In places were distribution of bulbs and other fixtures has been complete, separate agreements are made with agencies for handling the replacements (one year contract for replacement agency; now working in Rajasthan and Andhra Pradesh).
		Defective fixtures are stored at the kiosks. It is collected by the supplier and stored in their godowns. All faulty appliances are sent back to the suppliers for their rectification & Reuse.
		The non-reusable part is sent to the Common Hazardous Waste Treatment Storage and Disposal Facility (CHWTSDF) of the agency with whom the supplier has entered into agreement for disposing these. In an alternate route, non-reusable part is taken by scrap dealers who looks after the disposal of electric and electronic parts.
	Storage and disposal appliances replaced under the warranty program	Old bulbs, tube lights and fans are stored by the consumers themselves and are reused when necessary
		Bulbs and tube lights get disposed in the municipal solid waste stream.

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Program	Components	Institutional Aspects / Agencies involved
		Old unusable fans usually are taken by the scrap dealers
	End of life disposal	Bulbs and tube lights gets disposed usually in the common municipal solid waste stream, though EPR applies. These recovered from common dumps, have good recycling value.
		Old unusable fans usually are taken by the scrap dealers and usually recycled.
Street Lighting	Bulk purchase	EESL invites tenders and enters in to contract with bulk suppliers, lighting agencies
	Installation	EESL enters in to an agreement with the local governing bodies (Municipal Corporations for urban areas and Panchayats for rural areas)
		EESL enters in to an agreement with lighting agencies for supply, installation and maintenance of street lights. Sometimes, EESL enters in to contract with separate implementation partner for installing and maintaining street lights
		Lighting agency may enter in to an agreement with a local vendor (usually an electrical service contractor or electric appliance supplier, who is a long-term associate or authorised dealer of the lighting agency) to change the existing streetlights with new LED/energy efficient ones and install Centralised Control and Monitoring System (CCMS).
		In some instances, they also install new poles and work on the wiring between the poles, mostly to adjust the lumen availability as in the baseline situation.
	Repairs, Operation and Maintenance	The lighting agency also carries out operations and maintenance of street lights for a period of 7 years and maintains a store with spares
		A Project Management Consultancy (PMC) supervises installation, operations and maintenance
	Storage and disposal of existing bulbs and fixtures/parts and those replaced under the warranty program	Old streetlights (mostly sodium vapour lamps), wires, appurtenances and switches replaced with new ones are transported to the storage area suggested by the local body. These become the responsibility of the local body then on. Later, it is auctioned by the local body through Material and Scrap Trading Corporation (MSTC); the government agency in charge of auctioning scrap and metals. The party who wins the auction, takes it to reuse and recycle all the scrap and metals. Currently, EESL has incorporated a buy back option by incorporating related contract conditions whereby, the lighting agency can buy these back from the local bodies.
	End - of - life disposal of the items supplied by EESL	After the contract period of 7 to 10 years for Operations and Maintenance, EESL and its agents would withdraw from the site. The assets and its operations and maintenance arrangements would be handed over to the Local Body. End - of - life disposal as of date, rests with the local body.
AgDSM (without Solar Component)	Bulk purchase of Pumps	EESL undertook a feasibility study (through a consultant) on pump replacement in the area covered by selected feeders of power supply agency
		In Mysore (Malavalli) EESL and Power Grid Corporation (Project management Consultant) carried out IEC programs regarding the benefits of replacing old pumps with energy efficient pumps

Program	Components	Institutional Aspects / Agencies involved
		In case of saving potential, EESL will proceed with the project. After convincing the farmers, EESL entered into an agreement with pump suppliers for bulk purchase through transparent competitive bidding.
	Installation, Repairs, Operation and Maintenance of Pumps	EESL enters in to an agreement with the vendor for Installation, Repairs, Operation and Maintenance of Pumps, free of cost to the beneficiary. EESL offers 5-year warranty period to the farmers. A dedicated service centre number is provided to farmers where personnel of pump suppliers (Usually local service provider) address their complaints, if any.
	Storage and disposal of pumps replaced under EESL program	Pumps and other wastes are transported back to pump suppliers who will store the pumps for a period of one year to prevent any concerns from the farmers. After completion of one year, old pumps, wastes and scrapes are auctioned to the scrap dealers, who cuts the pumps at the storage area and transports the scrap for their perusal.
	End of life Disposal of the items supplied by EESL	End of life disposal would be the responsibility of the beneficiary (farmer), though EPR applies to electrical/electronic parts. EESL provides their services for a period of 5 years.
Buildings Program	Bulk purchase of Fixtures and installations	After executing the agreement with the Building Owner/Organisation, EESL enters into an agreement with the supplier for bulk purchase of appliances. Energy efficient appliances may also be taken from supply of UJALA products
	Inventory Collection	EESL engineers collect the inventory detail of the buildings and estimate the extent of supply required. A summary report mentioning the amount of electricity saving is also prepared.
	Installation, Repairs, Operation and Maintenance of Fixtures and Installations	EESL enters in to an agreement with the vendor for installation of energy efficient appliances in the buildings.
	Storage and disposal of fixtures, appurtenances, installations replaced under EESL program	Replaced products are handed over to the owner and stored in their godown. Handling of replaced products is in the purview of the owners, though it is usual practice to sell the same to scrap dealers.
	End of life Disposal of the items supplied by EESL	After the life of the product, disposal would be the responsibility of the beneficiary though most equipment are covered under EPR

5.1 Institutional Responsibility and Management Procedures for Environmental Aspects

133. Program-wise institutional responsibility and management procedures for Environmental aspects is presented in *Table 3* below.

134. *Table 3* indicates that (i) EESL undertakes bulk procurement, incorporating certain conditions regarding product quality and worker safety during installations in its agreements with direct vendors, (ii) makes the disposal of replaced products the responsibility of the producer or vendor and (iii) arranges replacements and grievance redressal and (iv) arranges the services of a Project Management Unit at State level to coordinate and oversee the implementation and O&M.

Table 3: Program-wise Institutional Responsibility and Management Procedures for Environmental Aspects

Program	Responsibility	Present Role in Environment management
UJALA Program	EESL	Bulk procurement and distribution of energy efficient appliances Specific lighting quality related clauses for products and random checks Started incorporating general Bid/contract conditions on replacement of defective bulbs, waste disposal, work safety Grievance redressal Permits and regulatory compliance
	State, PCBs or DISCOM	Nil. (No permissions, licences taken)
	Bulk Supplier/ Selected bidder for supply of appliances	Replaces defective stock, Agreement with CPCB registered Common Hazardous Waste Disposal units for disposal of such waste
	Distribution Agency (who is usually an authorized dealer of the selected bidder) and (who in most cases acts through a Sub-contractor (Man Power Consultant))	Nil
	Replacement Agency (sometimes the distribution agency itself)	Stores packaging wastes and defective bulbs till further collection by Bulk supplier
	Consumers	Storage and (after the life of the product) disposal would be the responsibility of the beneficiary and producers. Most equipment are covered under Extended producers Responsibility under E-Waste Rules
SLNP	EESL	Bulk procurement and distribution of energy efficient appliances Specific lighting quality related clauses for products and random checks (including pole to pole distances) Started incorporating general Bid/contract conditions on waste disposal, work safety Grievance redressal. No permissions are taken from PCB or local bodies for any activity[35] as they are only in a facilitating role
	Local Body (Urban or Rural)	Stores and Disposes all metal and scrap wastes through auction organized through recyclers or Material and Scrap Trading Corporation (MSTC) of India or sells it to lighting agency as per buy back provisions in new contracts of EESL **
	State	Agreement on deemed savings
	Bulk Producer/ Selected bidder for supply of appliances	General Bid/contract conditions on replacement, waste disposal / EPR, work safety
	Vendor / Contractors for Installation, Maintenance and Repairs (who is usually an authorized dealer of the selected bidder) and Sub contractors if any	Arranges safety equipment and PPEs for workers, Transports wastes to the storage area suggested by the Local body
	Project implementation Support Unit	Oversees installation, maintenance, grievance redressal

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[35] As reported by EESL

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Program	Responsibility	Present Role in Environment management
AgDSM	EESL	Bulk procurement and distribution of energy efficient Pumps Grievance redressal No permission is taken by EESL or vendors
	State agencies / DISCOM	Agreement on deemed savings
	Bulk Producer/ Selected bidder for supply of appliances	Disposal of Pumps
	Vendor / Contractors for Installation, Maintenance and Repairs (who is usually an authorized dealer of the selected bidder)	Transports the wastes back to the storage space arranged No permission is taken by EESL or vendors from PCB or local bodies
	Consumer / farmer	Storage and (after the life of the product) disposal would be the responsibility of the beneficiary though most equipment are covered under EPR
Buildings Program and ACs	EESL	Bulk procurement and distribution of energy efficient appliances Grievance redressal
	Building Owner	Stores wastes and Arranges Disposal of Wastes to scrap dealers
	State	Nil
	Bulk Producer/ Selected bidder for supply of appliances	Supplies energy efficient products
	Vendor / Contractors for Installation, Maintenance and Repairs (who is usually an authorized dealer of the selected bidder) and sub – contractors if any	Transports the wastes to the storage space arranged
	Consumers	Storage and (after the life of the product) disposal is as per the discretion of the beneficiary. However, most equipment are covered under Extended producers Responsibility under E-Waste Rules and Hazardous Waste Rules.

** Under SLNP, wastes are managed by Local Bodies. As per Twelfth Schedule: Article 243 of Indian Constitution, Public Amenities including street lighting is the responsibility of Local Bodies. Street lights are installed by local bodies and are under their listed assets. Hence, after replacing the streetlights with LEDs, the original light is returned to the owner (local body). As per E-Waste rules, 2016; **Responsibilities of consumer or bulk consumer:** Consumers or bulk consumers of electrical and electronic equipment shall ensure that e-waste generated by them is channelized through collection centre or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorised dismantler or recycler (Refer Page 8 of E-Waste Rules 2016)

In addition, the E-Waste Rules also directs Urban Local Bodies (Municipal Committee or Council or Corporation) (i) To ensure that e-waste if found to be mixed with Municipal Solid Waste is properly segregated, collected and is channelized to authorised dismantler or recycler, (ii) To ensure that e-waste pertaining to orphan products is collected and channelized to authorised dismantler or recycler. However, this will not be applicable under the project as the project does not allow orphan products.

As per the latest arrangements, EESL mandates their vendors (through contract conditions) to buy back the replaced street lights (please refer Table 2, Page 34 on institutional arrangements for various operations of EESL). The vendors in turn recycle these as per EPR provisions under E-waste rules, 2016. This arrangement is found to be revenue generating for the vendors.

5.2 Institutional Responsibility and Management Procedures for Social Aspects

135. EESL since its inception had not factored in 'social' prospects in the program due to which a separate unit or expertise to consider mitigation of possible social risks as well as maximizing the foreseen social benefits has not been in the institutional design or organizational practices. Nevertheless, here are some of the management system and practices towards the core social outcomes around which the assessment was planned

136. Social Inclusion:
    a. In terms of targeting, clearly the projects like UJALA are reaching to the lower income groups, the kiosks, advertisements and outreach to such groups is ensured in the initial stages of promotional activities[36]. Be it households or small enterprises, the consumers are middle and lower class who would not have otherwise invested in LED products as the market rates are nearly three times.
    b. Due to the subsidies provided in Chhattisgarh and Jammu & Kashmir, the BPL families have also come into the ambit of EESL's consumer base.
        • About 14,28,095 BPL consumers in Chhattisgarh have been given 3 LED bulbs each for free i.e a total of 42,84,285 bulbs.
        • To increase outreach to lower strata of society, there has been an option for EMI payment mechanism for LED bulbs. More than 2.56 crore (25.6 Million) LED bulbs were distributed under EMI mode of payment to consumers till March 2017.
    c. The scale and pace of programs creates new employment opportunities at all levels within the organisation as well as to agencies providing HR services. EESL has hired over 300 Apprentices who are earning double the stipend rate as per GoI norms.
    d. 20 percent direct staff at all levels is female and the organisation has plans to recruit more to increase the gender balance in terms of numbers.

137. **Accountability and Transparency:** There are four categories of stakeholders with whom EESL has institutional mechanisms to ensure that information is shared effectively and feedback is sought regularly- Clients, Vendors, consumers/users and public at large.
    a. Firstly, at the initial stages of the program in any state, there are consultations with the government to ensure that they have complete clarity and agreement on the design. The program components- be it the product or service is customised[37] as per the demand of the state government. The discussion with state counterparts have also confirmed that EESL is a responsive agency that caters to its demands and customizes the program as per the local context. The team also shared that for increasing UJALA purview to rural and semi-urban areas, it is a common practice to reach out to various stakeholders i.e Local MLAs, *Sarpanchs*, Collectors or Municipal Commissioners
    b. Secondly, for the prospective and existing vendors there is a well-established online bidding system and clear terms of contract managed by an exclusive contracts unit in EESL. This is strictly as per the Procurement Policy of GoI.
    c. Thirdly, EESL has a Public Relations Department which plans and oversees information dissemination and media engagement for outreach and awareness. Through a network of PR agencies and personnel, this unit organises regular launch events, press releases, give out information on the national and local dailies, hoardings, local advertisements through pamphlets, poster in Distributions company premises and on the monthly bills etc.
    d. To reach to the consumers, there are kiosks at premises or at strategic locations, mobile distribution vans for rural and remote areas, use of local cultural mediums to spread the message and create a demand. The personnel engaged for public engagement are provided orientation to give out information to consumers and maintain transparency in all dealings.

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[36] In Haryana, the team shared how they reached out to poultry farms, cow farms, local *dhabhas,* prisons, tent houses etc.
[37] In Chandigarh, on demand of the Municipal Corporation, yellow lights were installed. Also, lighting is agreed to be provided for public parks as poorly lit parks were becoming a hub for drug abuse and violence. Similarly, many cities have demanded a dimming feature which has been integrated in the management system.

e. For formal citizen engagement:
   - Project related: Each program of EESL has an independent complaint registration and feedback mechanism.
   - For each state, the projects have been awarded on a turnkey basis to vendors who have the prime responsibility to maintain an active and effective system. There is a Complaint Handling System (CHS) at each state level with specific TOR for achieving the end target of early resolution of complaints. There is a Toll free telephonic customer complaint service with a backend call centre whose executives are regularly provided orientation for achieving customer satisfaction. The presence of this service is advertised through government websites. The stipulated time of responding is 48 hours.
   - The complaints/grievances are related to non-glowing of lights, non-functionality of CCMS etc. In CHS, the complaints have been bifurcated on the basis of what is to be monitored by ULB/EESL/Vendor at sites and at what level, accordingly access has been provided to the officials.
   - EESL has an informative and user-friendly portal which has FAQs[38] and a tab available to register complaints or send in written feedback[39]
   - In addition, EESL regularly organises face to face meetings with clients and vendors in all programs[40]
   - For SLNP CCMS where short-term as well as persistent problems in the system can be tracked and addressed
   - For UJALA, there are physical replacement kiosks
   - Other ways of tracking feedback are through the state level social surveys filled by independent consumers/users to get their feedback;
   - General grievances or queries that get forwarded from the PM portal, CM portal, Centralized Public Grievance Redress and Monitoring System under Department of Administrative Reforms & Public Grievances[41]. It also includes queries under the Citizen Charter for Ministry of Power[42] though the list of Department or Agencies[43] listed does not include EESL.

(f) Right to Information: RTIs are being resolved through a defined code of conduct/channel with the involvement of PIO. RTIs are generally related to project related queries- Total number of Lights, Vendors associated, Estimated Investments etc.(https://www.eeslindia.org/User_Panel/RTI.aspx?Value=4Npmvx2EdTD9NEl0FhQXdL8qGx%2by1B%2fIg1ha9hCheJGyHLcEmhIPeuUvy79VVNYx)

138. Strengthening local systems: As mentioned before, EESL programs are based on a top down approach where interaction and role of local elected representatives is limited. However, under UJALA, there have been examples where local self-help groups have been involved in the distribution and formal roles have been envisaged for them due to the success of its implementation. In case of SLNP, the Municipal Corporations and Council Executive

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[38] As an example, see: http://www.ujala.gov.in/FAQ
[39] See: http://www.ujala.gov.in/forms/consumer-feedback.aspx
[40] The Greater Vishakhapatnam Municipal Corporation experienced that the street lights were getting faulty due to high moisture content. This was brought to the notice of EESL and the design of the lights was amended to address this gap at
[41] See: http://pgportal.gov.in/
[42] Citizen Charter for Ministry of Power is available online for 13 services at http://powermin.nic.in/sites/default/files/uploads/Citizen_Charter_of_MoP_Aug_2014_0.pdf which includes the designated staff, contact details, process and documents required are enlisted. This includes designated officials to oversee applications filed online and offline which are to be forwarded to the concerned Department or Agencies.
[43] The Damodar Valley Corporation; b. The Bhakra Beas Management Board (except matters relating to irrigation; c. National Thermal Power Corporation Limited; e. National Hydro-electric Power Corporation Limited; f. Rural Electrification Corporation Limited; g. North Eastern Electric Power Corporation Limited; h. Power Grid Corporation of India Limited; i. Power Finance Corporation Limited; j. Tehri Hydro Development Corporation; k. Satluj Jal Vidyut Nigam Ltd.; l. Central Power Research Institute; m. National Power Training Institute; n. Bureau of Energy Efficiency.

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Engineers and office staff are involved during the design and implementation. With the upgraded technology, the municipalities become more efficient as service providers, and the staff also get oriented to the new systems of street light management so that the program can be sustained locally.

139. Social policies and safeguards: Overall, EESL has developed an Environment, Health Safety and Social Manual which includes 12 Standard Operating Procedures covering risk management, waste management, safety and emergency (fire, traffic, workers at height, safe lifting, electrical safety and personal protective equipment), warehouse, tools, equipment, work permits and safety audits. Aspects like minimum wages, insurance, accidental coverage are covered. However, the Policy is still rudimentary and not backed by appropriate guidelines, practical checklists, reporting systems, orientation and training of staff and systems for tracking progress or violation. As of now there is no unit or personnel responsible for safeguard compliance and ensure safeguard compliance of sub projects implemented by project counterparties

140. Internal capacities to address social issues includes an HR team that considers internal compliance of labor rights and gender justice. There is a Cell to address cases of Sexual Harassment in accordance to directions of Government of India. Regarding Corporate Social Responsibility, EESL has a policy and initiated some activities like construction of school in rural parts of Uttar Pradesh but these is no designated Unit/Personnel which looks into this matter, senior staff have been given additional charge to ensure CSR activities are undertaken.

5.3 Performance of EESL in compliance with Legal and Regulatory Framework

5.3.1 Performance on Environmental Aspects

141. As discussed in Section 3.2, nationwide Regulations and Rules exist for environmental aspects associated with the such projects and activities. There is scope for better compliance with existing rules and regulations, in EESLs operations. The following *Table 4* presents the performance of the Implementing Agency on Environmental aspects.

Table 4: Performance of the Implementing Agency on Environmental Aspects

Sl No	Program Activities	Environmental Aspects for Consideration	Performance of Implementing Agency on Environmental Aspects
1	Bulk Purchase of Appliances	Quality Standards of appliances (which would have an impact on people, fauna, flora, safety)	For UJALA and SLNP, EESL has made agreement conditions on Tests certificates by accredited Labs, Photometric measurements, safety standards, assessment of blue light hazards, photo biological safety, lumen maintenance at the end of 10 years of operations. Bid document suggests the vendors conduct a Walk-through survey to understand field conditions incorporated in bid doc, also that EESL would do periodic site testing and random, pre-dispatch inspection Has standards on energy efficiency and performance of other appliances for other Programs as well
		Hazardous Wastes in appliances	Producers provide no clarity on classification of waste types in appliances No guidance issued on RoHS
2	Storage and Distribution of Appliances	Warehouses for storage	No guidance followed on placement decisions (forests, environmentally sensitive areas) and safety standards

Sl No	Program Activities	Environmental Aspects for Consideration	Performance of Implementing Agency on Environmental Aspects
			No guidance followed on required environmental infrastructure such as sanitation facilities, storage of wastes
		Distribution kiosks	No guidance followed on placement decisions and safety standards
		Transport of appliances	No guidance followed on inventory maintenance and safety standards
		Safety of workers during transport	No guidance followed on inventory maintenance and safety standards
3	Installation of appliances	Placement decisions	No guidance followed on placement decisions (forests, environmentally sensitive areas) and safety standards Lacks in preparation of implementation report that systematically assesses the different models tested for AgDSM, and to record key indicators, including groundwater data
		Capacity building / Awareness of staff, data collection and management	No efforts to build capacities of municipal streetlighting staff, or for mechanisms for systematic data collection and monitoring
		Safety of workers	EHSS provisions incorporated in Bid Documents (November 2017) EESL's new agreement format (2017 June) asks for Compliance with all Statutory Regulations under Contract Labor Act (1970), safety of the workmen deployed – relating to working hours, rest intervals, weekly offs, holidays, overtime as mentioned in wages act, applicable including the ESI Act, The payment of Wages Act 1936, Employees Provident Fund Act 1952. The minimum Wages Act 1940, Factories Act 1949, Workmen's compensation Act 1923 or any other applicable legislation and municipal bye-laws or other statutory rules and regulations whatsoever in force, in so far as these are applicable These are made the responsibility of the successful bidder including all the expenditure incurred for the same. This includes all the requirements w.r.t the workmen under Sub-contractor(s) also. The successful bidder is asked to submit the documentation to EESL, on monthly basis, as required under the applicable statutory requirements. As per agreement conditions, successful bidder is to indemnify EESL for any accident injury met by its labor, employee or any other person working for him. Any compensation sought by its labor, employee or any other person working for him shall be paid by successful bidder as per settlement solely and EESL has no role to play in this matter. EHSS has some SOPs on work safety. However, it is not disseminated or operationalized yet. No emergency / contingency plans
		Safety of Communities	As per Bidding Documents of SLNP, Street Light Poles shall withstand 150kmph wind speed. No other considerations in programs
		Wastes arising during Installation	It is the responsibility of the bidder to store and transport it to the location proposed by the local body.

Sl No	Program Activities	Environmental Aspects for Consideration	Performance of Implementing Agency on Environmental Aspects
			No periodic checks. EHSS Manual recognises waste types and has an SOP for management of wastes
4	Repairs, Operation and Maintenance	Safety of workers Safety of Communities	Contract conditions mentions that storage of all material for installation and maintenance for 7 years shall be the responsibility of the successful bidder. He shall arrange hydraulic ladders, suitable safe devices, maintain safety and will be responsible for safety, hospitalisation etc. and shall provide PPEs as required and ensure its use in case of SLNP. No other considerations or periodic checks Usually, work safety provisions are not adhered to. No clear reporting on this
		Wastes arising during Installation	Responsibility of the bidder to store and transport it to the location proposed by the local body. No monitoring
		Grievance redressal	Contract talks about complaint rectification within 24 hrs of complaints
5	Storage and disposal of appliances replaced under the warranty program	Replacement kiosks	The successful bidder, at their own cost, shall arrange disposal of failed LED Lamps /various part of the Luminaires and appliances as per the relevant provisions of various acts/regulation in force from time to time
		Warehouses for storage	No guidance followed on placement decisions or permits for kiosks, godowns and safety standards No guidance followed on required environmental infrastructure such as sanitation facilities, storage of wastes
		Transport of appliances	No guidance followed on inventory maintenance of appliances transported, and safety standards
		Safety of workers during transport	No guidance followed on inventory maintenance of appliances transported and safety standards
		Disposal of appliances replaced	Bid document suggests that the successful bidder, at their own cost, shall arrange disposal of failed LED Lamps /various part of the Luminaires and appliances as per the relevant provisions of various acts/regulation in force from time to time. No further monitoring or capacity buildings
6	End of life disposal	Storage of appliances	Most Consumers / beneficiaries are not today aware of safe storage Existing EHSS Manual recognises waste types in UJALA and SLNP, and office operations though not comprehensively
		Disposal of appliances	Consumers / beneficiaries are not today aware of safe disposal. Bulbs and tube lights gets disposed usually in the common municipal solid waste stream, though EPR applies. These recovered from common dumps, have good recycling value. Old unusable fans usually are taken by the scrap dealers and usually recycled.
		Disposal of CFL bulbs which are being replaced by LEDs (more going into municipal waste stream) & Refrigerants of ACs replaced	Under UJALA, used Incandescent bulbs were being collected and disposed during the initial stages of the program. Currently, there is no collection of bulbs. It ends up in the municipal waste or are crudely dumped whenever the consumer chooses to abandon it (anytime during the life time; which is dependent purely on the choice of the consumer). After the life of the product, disposal would be the responsibility of

Sl No	Program Activities	Environmental Aspects for Consideration	Performance of Implementing Agency on Environmental Aspects
			the consumer though CFLs are covered under EPR under E-Waste rules.
			Consumers lacks awareness on refrigerant and electronic part disposal, though covered under E-Waste and Hazardous Waste Rules
			No guidance on future solar panel disposal in case of upscaling of AgDSM activities including solar mini-grid

142. The above *Table 4* indicates that (i) EESL undertakes bulk procurement, incorporating certain conditions regarding product quality and worker safety during installations in its agreements with direct vendors, (ii) makes the disposal of replaced products the responsibility of the producer or vendor and (iii) arranges replacements and grievance redressal and (iv) arranges the services of a Project Management Unit at State level to coordinate and oversee the implementation and O&M. Respective ULB or owner is responsible for disposal of scrap and wastes after installation. Consumers (including farmers, building owners or local bodies) are responsible for maintenance after warranty or contract period and end-of-life disposal of products. **The consumers are not well aware of the nature or contents of the appliances, best practices or available facilities for disposal.[44] There is no clear guidance regarding incorporating comprehensive environmental considerations for various stages of its operations; except for the EHSS Manual which is yet to cover all programs and risks.**

143. The above analysis infers that there is sufficient scope for better compliance with existing rules and regulations, applicable to implementation, operation and maintenance stages and of EESL operations.

144. Periodic oversight and monitoring to ensure compliance, and strict actions against non-compliance are not in place.

145. Rules and regulations with respect to placement decisions are vital while deciding the placement of key and supporting infrastructure including stores/godowns, kiosks, and installation of Pumps and other installations on land. Various regulations on pollution of water, air and land shall be considered during project implementation, operation and maintenance. Use of hazardous materials including sharps and batteries during installation and maintenance activities also need to follow guidelines and safety regulations. Special attention is essential for disposal of wastes (general solid waste, construction and demolition wastes, hazardous and e-wastes) arising out of its various activities. Compliance with regulations regarding facilities and safety of laborers shall also be improved.

146. Capacity building activities include limited training to the staff on safety aspects (not by authorized or capacitated trainers) and for explaining the program benefits to the consumers. There is significant scope for improving the capacity building activities to ensure safety and best performance with respect to environmental aspects. Existing EHSS Manual shall be updated to include activity screening mechanisms, compliance requirements and to cover all programs and risks.

5.3.2 Performance on Social Aspects

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[44] *This is true about most electrical and electronic appliances*

147. Land Management: In case of the given program boundaries there is no existing or foreseen land acquisition and transfer, so the safeguards related to land management are not applicable. In case of AgDSM, there is use of land in terms of installation of solar panels and related effect or impact. There is a need to assess this in detail in terms of ow the location is identified and document the use, effect, impact or any loss faced by the owners/existing users.

148. Local level planning and governance: So far in discussion with the project teams, it has been shared that the project is clearly based on a centralized top down approach- EESL deals with the state government and concerned Departments. Once the programs are finalized, there are interactions and engagement with local elected representatives and local groups for better outreach and improving service.

149. Labor and employment related laws:
    a. **Overall labour related compliance:** In all direct employment of EESL the employment related laws in the country covering rights, benefits and growth of its employees are duly followed. EESL offers a competitive pay scale for staff, consultants and apprentices; offers gratuity as well as opportunities for investment for staff to get high returns on savings; provides equal pay for equal work; has online and offline forums for employees to report grievances and complaints; has insurance and health benefits for staff. Human Resource Department in EESL aspires for an OCTAPACE culture i.e. Openness, Confrontation, Trust, Authenticity, Pro action, Autonomy, Collaboration and Experimentation. There are many HR practices to motivate staff, encourage learning, improve their growth chart.
    b. EESL has developed an Environment, Health Safety and Social Manual which includes 12 Standard Operating Procedures in which aspects like minimum wages, insurance, accidental coverage is there[45]. However, the Policy is still rudimentary and not backed by appropriate guidelines, practical checklists, reporting systems, orientation and training of staff and systems for tracking progress or violation. As of now there is no unit or personnel responsible for safeguard compliance and ensure safeguard compliance of sub projects implemented by project counterparties.
    c. **Gender**: EESL is an equal opportunity employer and believes in equal rights for both male and female employees at work place. Both male and female employees are paid equal monetary benefits at each grade/post. Maternity benefits and work from home are added benefits for women employees. EESL has extended its maternity policy as per the revised Act of 2017. Appropriate security and safety measures are in place for women employees both while working at workplace and while on outdoor duties. EESL's recruitment process is open and fair to both gender and selections are capability driven and are not gender biased. Recruitment Selection Committees comprise of male and female employees. So far only 20% of staff is female including Regular/FT/Outsourced.
    d. EESL has a functioning Cell to address cases of Sexual Harassment in accordance to directions of Government of India.
    e. In case of sub-contracting, there is no formal mechanism to monitor regulations and practices and ESSL through the contracting process is exempted from any violations[46]. Some of the employee protection measures are covered in the General Contract Conditions include:
        ▪ Use of local labour wherever possible

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[45] https://eeslindia.org/User_Panel/UserView.aspx?TypeID=1189

[46] Subject to GCC Sub - Clause 33.3, the Implementing Partner shall indemnify and hold harmless the EESL and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property (other than the Facilities whether accepted or not), arising in connection with the supply and installation of the Facilities and by reason of the negligence of the Implementing Partner or its Sub Implementing Partners, or their employees, officers or agents, except any injury, death or property damage caused by the negligence of the EESL, its Implementing Partners, employees, officers or agents.

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- Workers' Compensation is in accordance with the statutory requirements applicable in any country where the Contract or any part thereof is executed
- Site selection based on security, safety of the facilities, gate control, sanitation, medical care, and fire prevention.
- Unless provided in the Contract, work is not to be carried out during the night and on public holidays of the country where the Site is located without prior written consent of the EESL, except where work is necessary or required to ensure safety of the Facilities or for the protection of life, or to prevent loss or damage to property

150. **Accountability and Transparency:** As per the RTI requirements, EESL has a designated a Public Information Officer to respond to information requests. It also has a Public Relation Unit that manages launch events, advertising, information dissemination and media management. There is a grievance redressal system for all programs which is accessible and responsive. There are also avenues and practices to conduct audits, consumer surveys and invite feedback from all stakeholders through online and face to face interactions. However, to improve accountability and transparency a recent report by an Prayas[47] has suggested that *EESL needs to ensure that a programme design document delineating all the features and processes along with their rationale is available as a reference for all the stakeholders. Similarly, program, reports on testing, evaluation, and warranty claims should be made public on a regular basis to identify major issues during the implementation and also increase the public credibility of the program.*

151. **Corporate Social Responsibility:** Based on the GoI guidelines, EESL has drafted a CSR policy[48] which states that the focus is to undertake that CSR activities that help to save & conserve energy to create impact on the environment and ecology. As of now some activities have taken place but setting up of a unit and preparation of reports as per the CSR policy has not been systematized.

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[47] http://www.prayaspune.org/peg/publications/item/354
[48] https://eeslindia.org/writereaddata/EESL%20CSR%20Policy.pdf

6. Assessment of Program System Consistency with Core Principles of OP 9.00

152. This section assesses the arrangements for managing environmental and social risks and benefits associated with the program in a manner consistent with the Operational Policy/Bank Procedure (OP/BP) 9.00, Program for Results Financing. These principles are intended to guide comprehensive assessment of existing borrower Program systems as well as their capacity to plan and implement effective measures for environmental and social risk management. The section assesses the Strengths, Gaps, Opportunities and Risks with respect to the policy and legal framework, the institutional context, and existing environment and social management procedures against these core principles.

153. **Core Principle # 1:** *Environmental and social management procedures and processes are designed to (a) promote environmental and social sustainability in the program design; (b) avoid, minimize, or mitigate against adverse impacts; and (c) promote informed decision-making relating to a program's environmental and social effects*

Strengths:
- At the State and National levels, environmental legislations for the conservation and management of the environment and pollution management are well in place. Procedures and clearances required for environmental protection are well defined. Adherence to the regulations would make the programs more specific and acceptable to each geographic and environmental condition.
- All the State and National level social legislations to ensure inclusion, information disclosure, accountability, consumer rights, municipal services, labor and gender justice are in place.

Gaps:	Opportunities:
- There exists a gap in EESL's understanding of the applicability of environmental regulations and associated guidelines.	- Institutional strengthening is necessary to review and internalize the requirements as per existing legislations
- There is minimal attention to location specific planning of tasks and activities across programs. Bulk purchase of appliances and installation without adequate attention on associated infrastructure and service levels is a lacuna[49]. Same design and placement decisions are not suitable to each area, as exemplified by certain field level changes to design which EESL had to undertake in places like Mumbai and Chandigarh.	- (ii) Comprehensive Program Planning is necessary to ensure long term sustainability, considering the environmental sensitivities
	- It is necessary to update the EHSS Manual covering impacts of all existing and proposed programs of EESL. Appropriate SOPs, monitoring schedule, guidelines and checklists to ensure compliance with environmental and social legislation shall be developed.
- Though EHSS manual has been prepared, most of the EESL staff are unaware of its provisions and SOPs.	- Prepare Contingency Plan and Work-close out strategy and make it an integral part of SOPs
- Contingency Plan and Work Close-out strategy are overlooked	- Undertaking orientation and trainings to develop more sensitivity on social issues
- Program level experiences are seldom shared and streamlined	- Experiences from implementation in other parts shall be used to streamline the agreements, supervision and technical aspects in new areas.
- Major implementation work takes place through vendors and contractors whose compliance to social safeguards is not monitored	- Monitoring of vendors' compliance to safeguards shall be arranged

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[49] *This indicates inadequate attention on warehouse standards and regulatory compliances, waste management, toilets and other facilities for workers in SLNP and UJALA distribution kiosks*

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Risks:
- In its efforts to cope up with the high program targets, EESL may inadvertently overlook the environmental and social aspects.
- Ineffective implementation of the suggested guidelines would lead to risks of non-acceptability of programs.

154. **Core Principle # 2:** *Environmental and social management procedures and processes are designed to avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the Program*

Strengths:	
- Existing legislation at national level are focused to minimize or mitigate possible adverse impacts on forests, natural habitats, archaeological sites and cultural resources. - There exist national guidelines for activities in coastal areas, disaster prone areas, and areas of unsafe ground water levels as well. Institutional mechanisms for monitoring and management of pollution and related issues are also in place at the National and State Levels (Pollution Control Boards). Existing legislation also lays down guidelines for management of each stream of wastes and the responsibilities for the same.	
Gaps:	**Opportunities:**
- Although there are well defined environmental regulations and systems in place, EESL requires effective support and capacity building to incorporate the provisions of existing laws into their operational modalities. Awareness and capacity of the program staff on environment management shall be upgraded. - While undertaking operations at such massive scale, EESL shall work with its vendors and sub-contractors to ensure suitable environmental considerations in all aspects of program design, implementation and operations. Such insistence would direct contractors and sub-contractors to start practicing environmentally inclusive operations which are sustainable in the long run. This would intern set high operational standards for our common good.	- EESL to improve institutional capacities for environmental Management through recruitment of new specialists, training and capacity building - Full-fledged project planning and incorporating all placement decisions (related to natural habitats and physical cultural resources) and environmental considerations would ensure long term sustainability and acceptability. - Bulk orders encourage innovations in developing better quality appliances and placement mechanisms best suited for the specific condition of environmentally sensitive areas) and physical and cultural resources. - Contingency plan to take care of unforeseen situations and emergencies while working in/around environmentally sensitive areas - Incorporate environmental considerations in Bid documents - An institution that lays down strong social safeguards and can clearly demonstrate its impact on the vulnerable communities will yield greater credibility
Risks:	
- Program – based compartmentalized working often triggered by target focused activities is perceived as a risk to interact and assimilate necessary findings from experiences in other programs. - (ii) Inadequate capacity and awareness of vendors and beneficiaries regarding the possible long term issues may bring in reputational risk.	

155. **Core Principle # 3:** *Environmental and social management procedures and processes are designed to protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the Program; (ii) exposure to toxic chemicals, hazardous wastes, and other dangerous materials under the Program; and, (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards*

Strengths:
- UJALA program involves purchase and distribution of energy efficient bulbs, tube lights and fans. Here, the probable issues related to worker safety are expected to be less. However, other programs including SLNP, would involve substantial works and worker safety related issues.
- Adherence to safety guidelines would reduce accidents, irreversible issues and cost overruns in the long run and ensure wider acceptability and support to the EESL programs.
- Most of the urban local bodies and few rural local bodies have clear building guidelines on construction of warehouses, storage spaces or climate resilient installations. Fire safety regulations are incorporated into their building guidelines and National Building Code. EESL being the single point responsible organization for all program activities directly or indirectly, it is essential to introduce installation and monitoring procedures to ensure safety.

Gaps:	**Opportunities:**
- EHSS Manual has certain SOPs related to safe work practices and PPEs, though not covering specific operations pf EESL. - EESL has recently included certain contract conditions regarding site management, worker's safety and facilities and waste management. Now, it is fully the responsibility of the contractor / sub-contractor to effectively handle these issues. However, monitoring protocols are not in place - LEDs are also replacing CFLs, in addition to incandescent lamps, in most program areas. Though this is much valued, this has in turn exacerbated the movement of CFLs to common, mostly unregulated waste stream. - Unutilized potential to plan and develop robust climate resilient products and processes	- The program provides ample opportunities to create good procedures for (i) site management, (ii) worker safety, and (iii) management of various streams of waste. These shall be suitably incorporated while updating the EHSS Manual. Additional SOPs to cover all program activities of EESL shall be incorporated in the EHSS Manual. - It is required to have suitable standards and monitoring and supervision protocols with clear team composition, plan and schedule for oversight and reporting. - Certain activities under CSR could be planned to replicate good practices, providing PPEs for workers, providing e-toilets / portable near replacement kiosks, support to recyclers who would recycle solid waste (packaging materials) and processing recyclables. Even though beyond the project responsibility, adequate consumer guidance / IEC material regarding End of Life disposal [50] of bulbs, by the producer will be a good opportunity. - Innovations in product and program quality; through coordinated efforts of various departments/program units of EESL and vendors

Risks:
- Lack of monitoring and supervision protocols may lead to improper management of wastes and lack of attention to worker safety and site maintenance. These would have adverse impacts on overall program success.
- Lack of control on increased inflow of CFLs (which are replaced by LEDs) and other hazardous and e-waste such as harmful refrigerants, panel boards and electrical parts; to common waste stream would impact the lives and natural resources. These ends up in the municipal waste or are crudely dumped whenever the consumer chooses to abandon it (anytime during the life time; which is dependent purely on the choice of the consumer). After the life of the product, disposal would be the responsibility of the consumer though CFLs and such appliances are covered under EPR under E-Waste rules.[51]
- Probable increase in product costs while aligning with climate resilient and robust products and operations/reconstruction activities

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[50] *As per E-Waste (Management) Rules, 2016, management of broken / replaced electrical / electronic products and end – of – life disposal are covered under Extended Producers Responsibility.*

[51] *Here, it is pertinent to note that no: of CFLs (which have shorter life and are environmentally more harmful) being purchased by the consumers will be drastically reduced when the deployment of LEDs are scaled up. ('avoided impact')*

156. **Core Principle # 4:** *Land acquisition and loss of access to natural resources are managed in a way that avoids or minimizes displacement, and affected people are assisted in improving, or at least restoring, their livelihoods and living standards.*

The program (UJALA and SLNP) in the past or in the current design does not involve any land acquisition, transfer and related management issues of displacement or resettlement or compensation. Under AgDSM, there may be minor issues and related effects when land is used for installing solar panels. For AgDSM, there is a need for assessing the effect and impact on land used for installing solar panels and those dependent on it to understand any risks and negative impact so that necessary mitigation or compensation can be built into the program design.

157. **Core Principle # 5:** *Due consideration is given to cultural appropriateness of, and equitable access to, program benefits giving special attention to rights and interests of Indigenous Peoples and to the needs or concerns of vulnerable groups*

Strengths:	
- EESL usually undertakes corrective actions keeping in mind the local needs and context to ensure that the program is largely appropriate. - Based on the needs and of the state government, EESL provides subsidies or outreach plan for the vulnerable groups.	
Gaps:	**Opportunities:**
- EESL does not have an internal team of experts or outsourced consultants to undertake a social assessment which includes mapping the most vulnerable groups, gauging the possibilities of exclusion, designing strategies to maximize social benefits. - EESL does not have mechanisms and practices to document social benefits and impact in a systematic and periodic manner	- EESL can create systems to map and document its outreach and benefits to the vulnerable sections of the society and design strategies for greater inclusion in its programs - EESL can create more roles for women either by involving more and more local women groups in distribution or create non-conventional opportunities for women as technicians, kiosk operators.
Risks:	
Lack of affirmative provisions in outreach and distribution can lead to exclusion of say BPL families, slum dwellers, poor farmers, women headed households, people with disabilities.	

158. **Core Principle # 6:** *Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.*

Strengths:	
EESL is a pan India demand aggregator and service provider due to which it has managed to reach areas which may have otherwise been excluded due to remoteness or unrest.	
Gaps:	**Opportunities:**
EESL is working in vulnerable areas which have high risk related to safety, security, unrest, remoteness and sensitivity due to indigenous population. There is an implicit understanding of these vulnerabilities and risks but it is important to map and document them explicitly. This would help in developing additional provisions in program design, adapt the operating procedures to address risks, sensitize the staff and prepare the teams.	Documentation of how EESL has reached out to challenging areas, justification for avoiding certain areas, mapping of risks, mitigation measures, case studies and lessons learnt could be useful for other service providers in the sector
Risks:	
The risks include delays in project start, delays in supply of material, risks of road accidents due to landslides, risks of limited outreach due to poor connectivity, risks of damage to goods due to possible eruption of violence.	

7. Suggestions and Recommendations

159. 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 design principles under OP 9.00. 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.

7.1 Key Opportunities for Improvement: Environmental Aspects

160. During the assessment, existing environmental policies and procedures at the National, State and Local body level are found adequate to guide the current operations of EESL. The risk screening suggests that the overall contribution of the programs is likely to be positive, owing to benefits such as improved energy efficiency and large scale access to program benefits. Positive impacts expected of the program interventions include: (i) availability of energy efficient appliances for consumers at less cost (ii) savings in electricity bill due to energy use savings (iii) overall lesser demand on energy produced in the country.

161. At EESL level; institutional guidelines and capacity to align their programs towards better environmentally sustainable operations need improvement. There is scope for improving the existing EHSS documents and ensuring full coverage of all programs and activities under EESL, through careful program planning, capacity building and monitoring.

162. The potential risks that can emerge due to improper planning, execution and management of various programs are: (i) While the proposed operations would not lead to significant risks, the specific action which need to be addressed to prevent any risks include (a) arrangements for safe disposal of packaging wastes as part of various operations (b) Contractual obligations [52] to ensure breakages and replacements are dealt in line with the waste disposal regulations (ii) effects of inappropriate lighting quantities and placement decisions on environmentally sensitive areas, flora fauna and cultural heritage, (iii) occupational and public safety risks for workers and the communities. The challenge lies in proper conception, incorporation and compliance to the country's environmental regulations and giving requisite attention to incorporate these comprehensively in technical design, program planning implementation, and operations.

163. EESL has started incorporating environmental considerations in their program operations as evidenced by the newly amended contract conditions. EHSS provisions are being incorporated into the contract conditions. EESL also in the process of appointing a short-term Consultant (for three months) to disseminate the EHSS manual among its staff and vendors. They plan to eventually appoint a long-term consultant to update and fully align their operations with the provisions of the Manual. However, there exist ample opportunities to suitably factor in environmental considerations in program planning, implementation, operation and maintenance stages. Prior program screening and planning to avoid and / or mitigate impacts arising out of its operations is essential. Detailed matrix on Program-wise opportunities for improvement are presented in *Annex III*. Key opportunities applicable to all programs and operations are summarized here.

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[52] *defined in the Request for Proposals (RfPs)*

164. EESL is a large organization which has expanded over the last three years in terms of number of staff and offices, marching ahead with massive programs to bring in positive changes through energy efficiency in India and many other countries. However, absence of an environmental sustainability units or department to focus on environmental; and social considerations in program design and implementation is noteworthy. EESL has not so far organized any training programs for the staff on environment or social related aspects. It is essential to incorporate a separate unit or department on Sustainable Development to bring environmental considerations in practice.

165. It is recommended that the modification and updating of the existing EHSS document to ensure full coverage of Environmental Impacts in EHSS – SOPs and Operationalizing the EHSS is undertaken by the proposed department at the earliest.

166. For all programs of EESL, comprehensive program planning (systemic approach for multi-pronged programs) based on rapid Environmental and Social screening, phasing, contingency plan and emergency response mechanism to support activities in case of unforeseen circumstances are essential.

167. It is recommended that the Sustainable Development department be entrusted with the responsibility to training, capacity and awareness building among the staff, contractors, site-level workers and communities regarding environmentally appropriate placement, implementation safety, and safe handling and disposal of wastes.

168. It is recommended that EESL undertakes a comprehensive review to ensure that appropriate conditions shall be incorporated in all levels of contracts to ensure compliance with existing laws and regulations with respect to environmental aspects and to get requisite permits.

169. It is recommended to introduce regular supervision and monitoring mechanisms.

170. It is recommended that EESL work with vendors to improvise the quality and appropriateness of appliances.

171. It is recommended that the contractors receive guidance to include certified haulers and recyclers into its programs.

172. Product information related queries, grievances, warnings shall be suitably addressed.

173. EESL shall also prepare a work-close out procedure for each program and location, covering all aspects for sustainability of activities related to the project.

Table 5: Environmental Assessment: Risks and Opportunities

Risks	Opportunities
Institutional Capacity	
▪ **Though EESL has a designated EHSS Official, and is planning to disseminate the EHSS SOPs among their vendors and employees, it is pertinent to have a dedicated and full-fledged unit to consider Environmental aspects of Programs** ▪ **Lack of awareness among staff, clients, vendors and beneficiaries regarding environmental risks associated with certain products and its management** ▪ **Inadequate institutional capacity to factor in and manage environmental risks including worker and community safety during the program life cycle**	▪ Establishment of an adequately staffed environment and social unit or Sustainable Development Unit in EESL ▪ IEC and Awareness generation activities among the staff, clients, vendors and beneficiaries regarding environmental risks and management preferably as part of CSR ▪ Dissemination of information regarding the products, specific procedures to manage hazardous and e-wastes in products ▪ Inventorying of materials and wastes and ensuring proper storage, handling, transport, treatment and disposal of wastes ▪ Ensure incorporating clauses regarding key provisions of EESL Manual including worker safety in all levels of contracts and indirect vendors and arrange in-house systematic monitoring
Program Planning	
▪ **Absence of a professional roadmap for each program** ▪ **Inadequate amenities and facilities for the workers and communities, as applicable** ▪ **Lack of contingency plan or emergency preparedness and Mechanisms to address Climate Change Vulnerabilities and Disasters** ▪ **Absence of a well-defined Work Closeout Plan including safety considerations during exit from each work site and mechanisms for effective environmental management till end of project life** ▪ **Less attention on placement decisions and waste management which can become a high reputational risk**	▪ Preparation of a systematic of a professional roadmap for each program, incorporating environmental considerations ▪ Systematic planning and provision of worker and community amenities as applicable, arrangements for safe disposal of packaging wastes as part of various operations, Contractual obligations to ensure breakages and replacements are dealt in line with the waste disposal regulations, Preparation of suitable and effective Work Closeout Plan clearly spelling out the responsibilities for handholding safety and environmental / social considerations for each program even after EESLs exit from its management.
Guidance Manual and Directions for Sustainable operations	
▪ **Absence of full-fledged guidance manual to guide the operations of EESL and its systematic updation** ▪ **Absence of a Monitoring Plan and protocols to monitor performance of vendors, sub-contractors and other partners and their compliance with respect to program requirements and legislation**	▪ Ensure continuous update of EESL Environment, Health, Social and Safety Guidelines; train program staff and contractors on these guidelines; and report to management on a periodic basis. ▪ Incorporate procedures and protocols to assess, monitor and manage environmental aspects of EESL activities

7.2   Key Opportunities for Improvement: Social Aspects

174.   The pace at which EESL has grown and continues to expand, there is an equally growing need to develop the right checks and balances for managing social concerns, risks and impacts as it will make its programs more sustainable, investments more viable and EESL a more credible organization.

175.   Knowledge, information, aggregation and analysis on social aspects are the key to strengthening EESL's work. During this assessment, it was a challenge to get information on social aspects of EESL's programs which needs to be addressed by prioritizing this gap, get the necessary expertise and establish systems to institutionalize social management.

176.   EESL is innovating in the arena of energy consumption and showing success on the ground, it is time to innovate on social aspects too- design innovative strategies to reach out, create more opportunities for the vulnerable groups, explore how affirmative action can be incorporated in program implementation as well as institutional expansion.

177.   Social opportunities are maximum in areas where social risks are high- since most of EESL's work on the ground is through vendors and their network of contractors and sub-contractors, it is important that they come in the ambit of monitoring of social aspects for EESL to minimise social risks of its programs.

178.   Developing a strong gender perspective within the organization and designing strategies to implement it. This could include having more women in positions of seniority, hiring more women as Apprentices, reaching out to more women consumers, involving more women's groups in implementation of programs on the ground, understanding how kiosks can have female operators and creating those conveniences.

179.   Building capacities and sensitizing its staff, partners and vendors on social issues through orientation, learning material and enforcement of social policies.

180.   Strengthening the Corporate Social Responsibility strategy and profile and systematizing reporting and documentation on the work conducted in this domain.

181.   In India, there is a plethora of NGOs and social development specialists who can be partnered with or engaged to get advice and support in making EESL more sensitive and committed to social issues that directly or indirectly impact its work and stakeholders.

7.3   Recommendations and Inputs to Program Action Plan

182.   There are opportunities for improving and strengthening the way in which EESL handles environmental and social impacts and risks associated with its activities, particularly in relation to waste management, hazards and issues during installation and maintenance, product quality related issues and placement decisions. Discussed below are actions required for appropriate management of identified environmental and social concerns.

183.   ESSA recommends the following actions for inclusion in the Program Action Plan (a) Establishment of a full-fledged Sustainable Development (Environment and Social) Unit (providing full-fledged program planning and management with due considerations on Environmental and Social Aspects), and (b) Strengthening and Operationalizing the EHSS Manual.

(i) *Establishment of a full-fledged Sustainable Development (Environment and Social) Unit*

184.   In view of the various needs, risks and opportunities identified, it is recommended that the establishment of a dedicated unit focusing on environmental and social aspects is essential, particularly given the increasing complexity of EESL's newer programs, and will help manage institutional, programmatic challenges and potential commercial and reputational risks. This unit shall be mandated to incorporate Environmental and Social Considerations during planning, implementation and maintenance. The unit shall prepare suitable and effective work close-out procedures clearly spelling out the responsibilities for handholding each program even after EESLs exit from its management. The unit will be assigned with the responsibility to assess, monitor and manage environment and social aspects of EESL activities; ensure continuous update of EESL Environment, Health, Social and Safety Guidelines; train program staff and contractor on these guidelines; and report to management on a periodic basis. Various tasks or activities which shall fall under its purview are presented in *Annex VII*.

185.   The proposed Sustainable Development department shall have the mandate and resources to ensure environmental and social considerations in practice with suitable numbers of appropriately qualified staff to plan, design, manage and monitor the programs. The unit shall work with the National, Regional and Site-level project teams and report to the Managing Director.

186.   **Program Planning:** For all programs of EESL, comprehensive program planning (systemic approach for multi-pronged programs) based on rapid Environmental and Social screening, phasing, contingency plan and emergency response mechanism to support activities in case of unforeseen circumstances are essential. This shall be prepared while initiating the program operations at each locale. The plan shall be comprehensive and cover environmental and social aspects (including validating the placement decisions, product selection, considerations during installation and operational stages and waste management). For Ujala and SLNP, environmental screening shall be conducted and mitigation plan shall be planned and implemented as per the approved Environmental Management Framework (EMF). Preparation of maintenance charter and incorporation of product information also shall be made part of program planning. The unit shall propose minimum worker rights and working conditions in the kiosks for UJALA or for installation and maintenance in SLNP even in case of sub-contracting.

187.   **Evaluation Plans**: The unit shall also conduct independent evaluation of all the various models EESL is exploring under the AgDSM, AC and Buildings Program. The preparation of such an implementation report that systematically assesses the different models tested, and records key indicators, including groundwater data, would be to focus on enhancing the sustainability of new EESL initiatives. The unit shall, in co-ordination with program units prepare suitable and effective Work Closeout Plan clearly spelling out the responsibilities for handholding safety and environmental considerations for each program even after EESLs exit from its management.

188.   **Monitoring Plan:** As part of the operations plan of the proposed unit for Environmental and Social management, it is proposed to develop timetable, checklists and management protocols for supervision and monitoring. Implementation of Environmental Mitigation Plan as per approved EMF shall be monitored. The unit shall oversee the activities of vendors and ensure provision of worker amenities and community amenities if applicable, arrangements to prepare and maintain inventory of all materials and wastes, suitable waste management mechanism with emphasis on recycle, recover, reuse of possible material and effective treatment and disposal of rejects.

189.   **Training, Capacity Building and IEC:** The unit shall be entrusted with the responsibility to train, and build capacity and awareness among the staff, contractors, site-level workers and

communities regarding environmentally appropriate placement, implementation safety, dissemination of information on products, and safe handling and disposal of wastes. The unit shall be entrusted with the responsibility to sensitize and train teams at national, state and field level as well as vendors. Also, map the sub-contractors and design outreach on social management issues.

190. To ensure required capacity is built at the various levels, a suggested list of capacity building actions is given in *Table 6* here. However, a detailed capacity assessment exercise may be required to tailor suitable capacity building activities at national and state, and as required and a course curriculum developed.

Table 6: Suggestive Topics for Capacity Building on Environmental Aspects

Broad areas	Topics	Stakeholders
Awareness on guidelines and legislation including development of required guidance material	Government of India and state environmental guidelines, legislation, and project guidelines, clauses to be incorporated in bid documents for all stages including safe disposal of wastes, refrigerants	▪ EESL staff of the: - proposed Sustainable Development Unit - Managing Program Operations at Main, Regional, and site offices - Contract and procurement Departments ▪ Project Management Units of EESLs ▪ Registered Vendors of EESL ▪ Managerial and Engineering staff of Local bodies and project implementing agencies (for various programs)
Energy efficiency specific training and capacity building.	Mechanisms to monitor energy efficiency, groundwater data collection and systematic reporting	▪ Managerial and Engineering staff of Local bodies and project implementing agencies
Environmental impacts and mitigation	Identification of environmental impacts from construction, placement decisions and waste management	▪ EESL staff of the: - proposed Sustainable Development Unit - Program units at Main, Regional, and site offices ▪ Project Management Units of EESL
Construction and overall program safety	Safety concerns, guidelines, operationalization of safety procedures, PPEs and their use, safe equipment and implementation methodology	▪ EESL staff of the: - proposed Sustainable Development Unit - Managing Program Operations at Main, Regional, and site offices ▪ Project Management Units of EESLs ▪ Registered Vendors of EESL ▪ Managerial and Engineering staff of Local bodies and project implementing agencies (for various programs)
Monitoring and supervision	Environment issues during construction and material sourcing, site management, public and worker safety concerns, disposal of waste	▪ EESL staff of the: - proposed Sustainable Development Unit - Managing Program Units at Main, Regional, and site offices ▪ Project Management Units of EESLs
Benefits and Environmental Management Opportunities (including End of life disposal)	Awareness on environmental and other benefits, savings, maintenance of appliances, provisions under EPR and End of Life disposal of appliances	▪ Beneficiaries ▪ Producers / Vendors
Management Information System	Training on inputs into the Management Systems (environmental aspects)	▪ EESL staff of the: - proposed Sustainable Development Unit

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Broad areas	Topics	Stakeholders
	which would be created including for emergencies, disasters; and operations	- Managing Program Units at Main, Regional, and site offices ▪ Project Management Units of EESL ▪ Representatives of Local body / departments involved ▪ Beneficiaries
Contingency Plan, Emergency Plan	Provisions of contingency Plans and Emergency response and preparedness plans	▪ EESL staff of the: - proposed Sustainable Development Unit - Managing Program Units at Main, Regional, and site offices ▪ Project Management Units of EESL ▪ Representatives of Local body / departments involved ▪ Beneficiaries
Work Close out Strategy	Mechanisms to run the operations while EESL exits from each program area	▪ Representatives of Local body / departments involved ▪ Beneficiaries

Addressing issues emerging from climate vulnerability and disasters

191.   It is recommended that program design shall factor in uncertainties when planning infrastructure in vulnerable areas (coastal areas, mountains, regions prone to earthquakes, flood and droughts). EESL should develop guidance on selecting products and implementation processes, an effective contingency plan, emergency response and preparedness plan.

192.   It is recommended that EESL develop a Terms of Reference for the proposed unit to take care of environmental and social aspects in its operations. The composition of the unit in terms of number and type of professionals and qualifications may be prepared. It is also recommended that EESL prepare clear work scopes for each role in the unit, and develop work scope for each function that would be performed and managed by the said unit. The unit may be mandated to oversee adherence to good environmental practices and existing environmental legislation. For this suitable program plans, monitoring and supervision time charts and checklists are essential. To support EESL in this regard, the Bank team provided a draft work scope for EESL to consider in the establishment of the Sustainable Development unit. (refer *Annex VII*)

Addressing issues emerging on Social Management

193.   It is important to document how EESL is reaching out to vulnerable areas and communities to measure its social impact effectively. Case studies, Social Audits and other tools to be used to report on social impact of its programs. This can help strengthening its targeting, marketing and outreach.

194.   ESSA recommends the following actions to address gender gaps: Hire/Engage experts and develop a gender strategy, policy, guidelines, capacity building and monitoring systems for the institution and Strengthen the existing Committee Against Sexual harassment. In addition, some recommendations include: (a) Creating more employment for women in project sites like kiosks for distribution, replacement desks, state offices. Increase gender balance in EESL workforce especially hiring women in senior position and technical positions. (b) Gender sensitivity through orientation and trainings (c) Involvement of women Self Help Groups in improving the distribution and marketing of LED products and in turn creating opportunities for SHGs to earn (d) Improving the outreach to women consumers and enhancing the benefits of the program to women- strengthening women consumer base; increased safety for women through the street lighting program. (e) Conducting impact studies for assessing the lifestyle changes and social benefits due to energy efficiency products - links between gender and energy efficiency

195.   EESL must ensure that all the staff (hired directly or contracted indirectly) is protected, labour rights are duly followed.

196.   In case of any land impact be is acquisition, transfer or use (temporary or permanent), there needs to be instruments to assess the possible effects and impacts and ensure that the affected people are informed, consulted, protected and compensated

197.   The ESSA recommends that EESL further strengthen citizen engagement by organizing more consumer surveys, citizen feedback, and stakeholder consultations to document the benefits and gaps regularly. The sustainable development unit to be established by EESL with the necessary expertise (covered in DLI6 as described in the previous paragraph) would enable EESL to diversify its citizen engagement profile and further strengthen grievance redressal systems by assessing the feedback and complaints received and completing the feedback loop through course/design corrections. EESL needs to consolidate its efforts towards accountability and transparency: document and update the feedback and grievances received from stakeholders, how they are addressed/responded and how it has been used to improve/amend the program design/products/services.

(ii) Strengthening and Operationalizing the EHSS/Guidance Manual

198.   The recently completed EHSS Manual have not been fully operationalized. It is necessary to improve staff and vendor's awareness of these guidelines, mainstreaming them into day-to-day operations and incorporating them into the contractual framework. There is ample opportunity to systematically build in the main provisions of the EHSS Manual into the design of all existing and proposed programs is critical for EESL's operations, commercial results, and regulatory compliance. Incorporating Environmental and Social considerations would minimize probable delays in implementation and accelerate achieving the results.

199.   The EHSS Manual should be a "live" document that is updated constantly by a competent team as EESL's programs grow and change. This becomes even more important as EESL is moving ahead with programs involving more complex appliances, with more sophisticated technology, different environmental risks, and to be deployed in multiple parts of the country with divergent conditions. Therefore, it is important that environmental and social considerations are incorporated into program planning and management, interventions of highest risk are excluded, the EHSS Systems Manual is regularly updated, and its implementation is monitored.

200.   Hence, is pertinent to modify and upgrade the existing EHSS Manual to ensure full coverage of environmental impacts and measures to avoid and mitigate the issues. Mechanisms to disseminate its provisions among the staff, vendors and supporting agencies and procedures to operationalize the EHSS are expected to be in place at the earliest considering the fast roll out of EESLs operations. Arrangements for on-site monitoring shall be undertaken at the earliest. Systems and procedures for continuously updating the EHSS Manual during the initiation of each future program shall be prepared. Plan and schedule to train the program staff and contractor/vendors and associated agencies on these guidelines shall also be prepared on priority.

201.   Protocols to report compliance of various operations with the provisions of the EHSS (to the management on a periodic basis), and incorporation of EHSS (updated) clauses / conditions in all contracts shall be ensured.

202.   The following *Table 7* compiles the proposed Program Action Plan which are considered as Disbursement Linked Indicators in the program.

Table 7: Proposed Measures/ Action Plan

Sl No	Action	Timeline[53]	Responsibility	Completion Measurement
1	Strengthening and Operationalizing the Full-fledged EHSS Manual	Up to March 31, 2019	EESL	EHSS Manual updated to (i) cover all existing gaps including procedures for environmental and social screening; (ii) strengthened with provisions, SOPs and DFs to guide and manage all on-going programs of EESL; (iii) procedures / mechanisms to update it in the future; (iv) program to completely train and disseminate among the staff, vendors and support agencies; and (iv) procedures for compliance monitoring.
2	Incorporate a separate Sustainable Development Unit to provide overall program planning support in environmental and social aspects, Training, Capacity building and IEC to consumers and all stakeholders	Up to March 31, 2020	EESL	Separate Sustainable Development Unit for environment and social considerations incorporated with (i) adequate number of suitable qualified staff, (ii) well-defined scope of works, and (iii) reporting protocols. The Unit shall prepare (i) Program Plans; (ii) monitoring plan; (iii) training and capacity building plan; (iv) guidance material for staff, vendors and support agencies to select products and activities, plan and operate considering climate resilience; (v) prepare Contingency Plan, Emergency Preparedness and Response Plan, with guidance on how to adapt and use for each program.

203.   Proposed actions and broad time frame for implementing Environmental actions is presented in *Table 8* below.

Table 8: Implementation Plan for Environmental Actions

Main and Sub-actions	Time Frame (by)	Indicators
1) Incorporate a Separate Environmental and Social Unit or Department for Sustainable Development to provide overall program planning support in environmental and social aspects, Training, Capacity building and IEC to consumers and all stakeholders	2020	Separate unit for Environment and Social considerations incorporated with (i) adequate number of suitable qualified staff, (ii) well-defined Scope of works and (iii) reporting protocols

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[53] The timeline shown is the indicative deadline. However, as discussed and agreed during the pre-negotiations between the World Bank and EESL on April 9, 2018, attempts will be made to start, achieve and complete these measures and actions earlier.

Main and Sub-actions	Time Frame (by)	Indicators
a) Capacity Building of (existing) Designated EHSS Officials of EESL for Environmental and Social aspects	2019	Capacity Building on EHSS and other environmental and Social Aspects required for the program (*EESL is arranging the same through the support of a Short-Term Consultant)
b) Preparation of Final Terms of Reference for Proposed Sustainable Development Unit	2019	Terms of Reference comprising of the objectives of the proposed unit, expertise required, program level and overall involvement
c) Induction of Suitably Qualified and trained Staff	2019	Separate staff for environmental, Social aspects with clear mandate and protocols for co-ordination with other departments / units for sustainable 'start– to – close-out' operations
d) Preparation of maintenance charter, RoHS clauses, certification of haulers, recyclers, Monitoring and Supervision Timetable, Checklists and indicators	2019	Supervision and Monitoring checklists, maintenance charter, RoHS clauses, certification of haulers, recyclers, indicators, calendars for existing programs New calendars for new programs as and when required
e) Preparation of Capacity building plan for environmental management	2019	Detailed training calendar, modules and material developed. Training undertaken as per calendar
f) Awareness and Capacity Building workshops / training	2019	No: of Trainings / workshops conducted for each topic, program wise
g) Preparation of Full-fledged Program Plan (including placement decisions based on screening and categorization of projects, waste management, provision of infrastructure, facilities, maintenance charter and dissemination of product information/warning) Contingency /Emergency Response Plans and Work Close-Out Strategy	2019 Continuous	No: of Plans prepared and implemented – Program wise
h) Provisions to address issues which might arise from Climate vulnerability and disasters	2019	Preparation of guidance material for staff, vendors and support agencies to select products and activities, plan and operate considering climate resilience

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Main and Sub-actions	Time Frame (by)	Indicators
2) Updation of EHSS	2019	Updated EHSS inclusive of all programs (existing and proposed)
a) Updation of EHSS SOPs for UJALA and SLNP	2019	Updated SOPs for UJALA (Bulbs, Tubelights and Ceiling Fans) and SLNP (RA 1 and RA 2) (*included in Environmental Management Framework prepared for this Program)
b) Selection of agency for Updating EHSS to cover other programs	2018	Agency selected through Competitive Bidding
c) Updation of EHSS for other programs	2019	Updated draft EHSS
d) Review and Finalization	2019	Final EHSS
e) Mechanisms for Dissemination of EHSS and Continuous Updation of EHSS incorporating newer programs	2020	EHSS disseminated among staff and vendors of EESL EHSS as a living document

130. **Recommendations and Input to Program Action Plan for Social Aspects**

   a. Setting up the Sustainable Development Unit: At initial stage a Social Specialist can be hired to work out a clear action plan for six months
   b. Provisions to address social issues, risks and concerns articulated as risks in ESSA
   c. Update the EHSS policy and develop more policies (systematize or strengthen exiting practices) on gender, inclusion and accountability
   d. Develop guidelines, checklists, manuals for training on revised and new policies as well as other issues relevant for social management
   e. Organize Sensitization programs and Trainings on Inclusion, Gender, Accountability and citizen engagement tools
   f. Develop monitoring mechanisms on social outcomes- reporting systems and formats based on which EESL to produce and make available periodic reports on social impact of the programs

7.4 Environmental Risks and Management

204. Review and analysis of existing programs reveals that risk factor in existing programs such as UJALA and SLNP limited. Most of the risks and gaps identified by the ESSA can be mitigated by appropriate program strategies and are hence manageable. Proposed responsibilities towards management of environmental risks are presented in ***Table 9*** below.

Table 9: Proposed Responsibilities for Managing Environmental Risks

Environmental Risks	Responsibilities for Managing Environmental Risks
Wastes (Solid, Hazardous wastes ad probable E-Wastes)	▪ EESL, through the proposed Sustainable Development Unit - to develop appropriate guidance to help contractors and consumers (including local bodies) during project planning, implementation and 'end-of-life' management (including management protocol for wastes suggested by the prevalent legislation), arrange training, awareness and capacity building - to ensure that the program activities are aligned with the Standard Operating Procedures in the updated EHSS Manual

Environmental Risks	Responsibilities for Managing Environmental Risks
	regarding waste collection, storage, treatment and disposal and roles of stakeholders - to ensure that supervision and monitoring of the above during planning, implementation and operations are as per schedule
Quality Related	▪ EESL, through the proposed Sustainable Development Unit - to coordinate with the proposed Quality Assurance Unit to develop program plans, (including product quality related considerations (specifically environmental) as per prevalent legislation including suggesting product quality innovations to vendors, certifications) training, awareness and capacity building - to ensure that testing, supervision and monitoring of the above during planning, implementation and operations are as per schedule
Installation, Operation and Maintenance	▪ EESL, through the proposed Sustainable Development Unit - to develop program plans, (including environmental considerations during Installation, Operation and Maintenance as per prevalent legislation) training, awareness and capacity building - to ensure that the program activities related to installation, operation and maintenance are aligned with the Standard Operating Procedures in the updated EHSS Manual (Develop appropriate design options that address disaster and resource constrained areas, ensure kiosks and structures appropriate for area and ensure facilities) - to ensure that supervision and monitoring during implementation, operations and maintenance stages are as per schedule
Placement Decisions	▪ EESL, through the proposed Sustainable Development Unit - to develop program plans, (including placement decisions as guided by prevalent legislation) training, awareness and capacity building - to ensure that program activities involving placement decisions are aligned with the Standard Operating Procedures in updated EHSS Manual - to ensure that supervision and monitoring of the aspects related to placement decisions are as per schedule

7.5   Disclosure of ESSA

205. For the disclosure, the draft ESSA (full report in English) and Executive Summary translated in Hindi was disclosed on EESL website on 9th December 2017.[54] The document was available online for one month and the information was circulated to all stakeholders of EESL to invite comments. The World Bank website also disclosed the same documents with a link of IA website (after receiving No Objection Certificate (NOC) for its disclosure). There were no comments received. During the Appraisal in December 2017, discussions were held with EESL to finalise the ESSA.

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[54] Draft ESSA was disclosed on the EESL website on 9 December 2017 (accessible at https://www.eeslindia.org/EN/MediaCorner/NewsDetails?q=UJGS6/BzQ8Y7P2Ev/gW2/g==) and on World Ban website on 12 December (accessible at http://documents.worldbank.org/curated/en/507231513089218502/Environmental-and-social-systems-assessment).

This final revised ESSA has been disclosed on the EESL website and World Bank website in the first week of January 2018.

ANNEXURES

Annex I: Framework and Methodology for Preparation of ESSA

The following *Table 10* presents the methodology adopted for preparation of ESSA.

Table 10: Framework and Methodology for Preparation of ESSA

Sl No:	Tasks and Sub-tasks in preparing ESSA	Tools
1	Identify the potential environmental and social impacts/risks applicable to the Program interventions	
	a) Understanding the Program interventions and its environmental and social benefits & risks	Review of Available project documents, communication material developed for the program secondary data, media reports
		Discussions on the Project contours with National Level Program coordinators, State Level Units
		Discussions with Suppliers
	b) Understanding the procedural mechanisms to deal with environmental risks and impacts of each intervention	Critical review of available project documents, media reports and product details / reports / studies (on specific products like LED bulb)
	(i) Preparatory Stage - Considerations and mechanisms to factor in : selection and quality of bulbs and other appliances - suitability for special situations, impacts and risks of handling and transport, emergencies, storage, safety risks for handlers, communities, testing the safety of bulbs/installation mechanisms, (even any direction on environmental issues due to bulk production at manufacturers / suppliers side including resource usage, storage (land), water (production), waste handling/disposal)	
	(ii) During Supply stage - Considerations and mechanisms to factor in: impacts of distribution - off site / onsite - at distribution kiosks or on streets (for streetlights), during special situations or emergencies, safety risks for handlers, labour force)	Study of program details including mechanisms for selection of program regions (esp. special areas for coverage (like tourist areas, LIG housing areas, tribal areas, special mechanisms in fragile areas if any), special considerations on impacts, decision mechanisms
		Expert Field reconnaissance / Transect walks and observations
	(iii) Post implementation stage - Considerations and mechanisms to factor in : impacts of incompetent installations, usage impacts on environment - land, fauna/flora, visual / human health (views on visual quality, heat generation, any specific adverse impact), safety risk for handlers, labour force, types of wastes arising out of the project and disposal related aspects (after product life / of damaged products), mechanisms for warranty, replacements, usage other than initially intended, bulk purchases constraining the availability for the poor	Discussions with Experts
		Review of implementation processes and experiences - Discussions with officials at various levels, Semi structured discussions with beneficiaries, Local Bodies

Sl No:	Tasks and Sub-tasks in preparing ESSA	Tools
2	Review the policy and legal framework related to management of environmental and social impacts of the Program interventions	
	Collation and review of National and regional policies related to Environment, Labour and Working Conditions and Safety, Disposal of wastes (Solid waste & Hazardous), consumer rights, local governance, right to information as applicable to the program	Tabulating compliance against provisions through discussions with officials and expert observations on field
3	Assess the institutional capacity for environmental and social impact management within the Program system	
	Assessment of institutional capacity for Environmental and Social Impact and Risk Management (i) Official Organogram for Environmental and Social Impact Management during various stages of EESL and partnering agencies / contractors/ local bodies (ii) Guidelines and safety standards developed (EHSS / others) (iii) Training for implementation of Environmental Risk Management mechanism on site, (iv) gender policies and practices	Review of institutional details in available literature/documents
		Discussions with officials at National and regional Levels, staff on site
		Semi-structured interviews / Discussions with beneficiaries, Discoms, support agencies, ULBs
		SWOT
4	Assess the Program system performance with respect to the core principles of the PforR instrument and identify gaps in the Program's performance	
4(a)	Promote environmental and social sustainability in the Program design; avoid, minimize, or mitigate adverse impacts, and promote informed decision-making relating to the Program's environmental and social impacts	
	Understanding current mechanisms for sustainable program design and decision making on environmental impacts Awareness levels of intermediary organizations and beneficiaries regarding E&S aspects	Discussions on site with Regional and Local Level Officials including Discoms, ULB level officers in-charge, Supply agencies regarding program sustainability and sustainable upscaling, awareness levels
		Expert Site Reconnaissance - Selected Sites
		Semi-structured interviews / Discussions with project beneficiaries in selected geographies/ socio-economic strata regarding possible sustainability considerations which should have improved the program
		Discussions on site with Regional and Local Level Officials including Discoms, ULB level officers in-charge, Supply agencies
		Applicability of existing mechanisms or guidelines at ULB/ Discom level for mitigating impacts and its variance across sites
	Discussion on global good practices on decision making related to environmental impacts	Case studies
	Gap assessment	Analysis of gaps between desirable and baseline performance and actions for gap-filling

Sl No:	Tasks and Sub-tasks in preparing ESSA	Tools
4(b)	Avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the Program	
	Understanding possible adverse impacts on natural habitats and physical cultural resources and considerations for avoiding, minimising, mitigating impacts	Expert Field reconnaissance and observations
		Discussions on site with Regional and Local Level Officials including Discoms, ULB level officers in-charge, Supply agencies and their awareness levels
	Awareness levels of intermediary organizations and beneficiaries regarding E&S aspects	Semi-structured interviews / Discussions with project beneficiaries in selected geographies/ socio-economic strata regarding possible impacts and considerations to be built into
		Critical review of media reports
		Discussions with experts, NGOs
	Best practices to avoid / minimize impacts	Case studies, Suggestions
	Gap assessment	Analysis of gaps between desirable and baseline performance and actions for gap-filling
4(c)	Protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the Program; (ii) exposure to toxic chemicals, hazardous wastes, and other dangerous, materials under the Program; and, (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards	
	Understanding the need for public and labour safety during Pre/during / post implementation or operation of facilities (impacts of lights, electricity, heat issues, short circuits, power shortage issues), material safety (exposure to toxic / Hazardous materials during, before and post implementation, products, by-products, disposal/wastage), reconstruction/rehabilitation during special events	Discussions on site with Regional and Local Level Officials including Discoms, ULB level officers in-charge, Supply agencies
		Semi-structured interviews / Discussions with project beneficiaries in selected geographies/ socio-economic strata- on safety issues, awareness levels and suggestions
		Expert reconnaissance and on-site observations of equipment and facilities provided at site viz a viz standards for each interventions and brief discussions with workers/labourers and their agencies/ associations on risks, awareness levels, need for better support, work timings and equipment (including social / safety)
		Applicability of existing mechanisms or guidelines at ULB/ Discom level and its variance across states
		Critical review of media reports

Sl No:	Tasks and Sub-tasks in preparing ESSA	Tools
	Best practices to avoid /minimize safety issues	Case studies
	Gap assessment	Analysis of gaps between desirable and baseline performance and actions for gap-filling
4(d)	Manage land acquisition and loss of access to natural resources in a way that avoids or minimizes displacement, and assist the affected people in improving, or at the minimum restoring, their livelihoods and living standards	
	Review of land related issues and disturbance to natural resources during production (this is the responsibility of the manufacturer (however manufacturers linkage with the project if well known; any issue may adversely affect the project outcomes)/storage, parking of vehicles, land for kiosks; disposal of old street lights – what are the sites where waste is disposed, who gets impacted.	Discussions on site with Regional and Local Level Officials including Discoms, ULB level officers in-charge, Manufacturer/Supply agencies
	Loss of natural resources due to land requirement for kiosks, storage, congregation of people during various project stages	Semi-structured interviews / Discussions with project beneficiaries in selected geographies/ socio-economic strata regarding possible impacts and considerations to be built into
	Gap assessment	Analysis of gaps between desirable and baseline performance and actions for gap-filling
4(e)	Give due consideration to the cultural appropriateness of, and equitable access to, Program benefits, giving special attention to the rights and interests of the Indigenous Peoples and to the needs or concerns of vulnerable groups	
	Social Inclusion: to understand targeting, outreach, access and usage by people belonging to vulnerable groups and the opportunities created fort them	Semi-structured interviews / Discussions with project implementers, Discoms, municipalities/panchayats, beneficiaries in selected geographies/ socio-economic strata
	Accountability / Transparency: to understand how the project informs, discloses, responds to consumer/public needs, addresses grievances and creates new systems which are efficient, accountable and transparent.	Semi-structured interviews / Discussions with project implementers, Discoms, municipalities/panchayats, beneficiaries in selected geographies/ socio-economic strata
	Strengthening participation and local Governance: how the project takes ULBs and GPs in board to ensure greater ownership and sustainability of resources and services.	Semi-structured interviews / Discussions with project implementers, Discoms, municipalities/panchayats, beneficiaries in selected geographies/ socio-economic strata
	Understand the baseline environment vs program contours related to indigenous people/vulnerable groups	Semi-structured interviews / Discussions with project beneficiaries in selected geographies/ socio-economic strata
		Discussion with specialised NGOs and experts

Sl No:	Tasks and Sub-tasks in preparing ESSA	Tools
		Discussions with representatives of vulnerable groups on their acceptability levels, issues, risks, interests-environmental aspects (products and their interaction with environmental parameters)
	Gap assessment	Analysis of gaps between desirable and baseline performance and actions for gap-filling
4(f)	Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.	
	Understand the strategy to reach out in conflict prone areas	Discussion with Regional teams located in conflict prone areas
5	Assessment of M&E systems for environment and social issues	
	Review of existing M&E systems	Discussions with National, Regional and Local Level Officials including Discoms, ULB level officers in-charge, Supply agencies
	(i) General M&E	
	(ii) Response to Special situations	Semi-structured interviews / Discussions with project beneficiaries in selected geographies/ socio-economic strata
	(iii) Grievance redressal - type of grievances for which response is sought	Critical review of media reports
	(iv) environmental and social grievance redressal	Review and adoption from Best practices
	(How are existing E&S rules and legislation integrated in the program operations, what are the available frameworks, how are social effects reported and monitored?)	Inputs in SWOT
	Gap assessment	Analysis of gaps between desirable and baseline performance and actions for gap-filling
6	Describe actions to fill the gaps that will input into the Operation Action Plan to strengthen the Program's performance with respect to the core principles of the PforR instrument	
	Inputs on how management system could mitigate adverse impacts, provide transparency and accountability, and perform effectively in identifying and addressing environmental and social risks	Actions for inclusion in the Operations Plans for remaining interventions in current program and its future scale up
	Key measures to strengthen institutional capacity and to generate the desired E/S effects	
	Preparation of standards, guidelines and monitoring	

Annex II: Applicable Environmental Rules and Regulations

The following *Table 11* discusses the Environmental Rules and Regulations applicable for Program Operations

Table 11: Environmental Rules and Regulations Applicable for Operations

Sector	Acts	Purpose	Applicability to EESLs operations	
Water Pollution	No.36 of 1977, [7/12/1977] - The Water (Prevention and Control of Pollution) Cess Act, 1977, amended 1992 No. 19 of 2003, [17/3/2003] - The Water (Prevention and Control of Pollution) Cess (Amendment) Act, 2003 No.6 of 1974, [23/3/1974] - The Water (Prevention and Control of Pollution) Act, 1974, amended 1988	To provide for the prevention and control of water pollution, and for the maintaining or restoring of wholesomeness of water in the country. The Act was amended in 1988. The 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.	UJALA	• Siting of Kiosks or Storage areas near Water bodies • Inadequate waste management resulting in wastes (all types) getting deposited in water bodies
			SLNP	• Inadequate waste management resulting in wastes (all types) getting deposited in water bodies
			AgDSM	• Inadequate waste management resulting in wastes (all types) getting deposited in water bodies • Cleaning of solar panels during O&M releasing pollutants into water bodies • Oil and other depositions from battery O&M affecting water bodies
			Buildings Program & AC	• Inadequate waste management resulting in wastes (all types) getting deposited in water bodies
Air Pollution	No.14 of 1981, [29/3/1981] - The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and rules thereof	To provide for the prevention, control and abatement of air pollution in India.	UJALA	• Transport of materials through unpaved roads
			SLNP	• Transport of materials through unpaved roads • Vehicles used for installation
			AgDSM	• Pollution due to DG sets • Transport of materials and equipment through unpaved roads
			Buildings Program & AC	• Transport of materials through unpaved roads

Sector	Acts	Purpose	Applicability to EESLs operations		
Environmental Protection	No.29 of 1986, [23/5/1986] - The Environment (Protection) Act, 1986, amended 1991 and rules	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.	Impact assessment for land based projects like AgDSM		
Public Liability Insurance	No.6 of 1991, [22/1/1991] - The Public Liability Insurance Act, 1991, amended 1992	To provide for damages to victims of an accident which occurs due to handling of any hazardous substance. The Act applies to all owners associated with the production or handling of any hazardous chemicals.	All programs		
National Environment Tribunal	No.27 of 1995, [17/6/1995] - The National Environment Tribunal Act, 1995	To provide for strict liability for damage arising out of accidents caused from the handling of hazardous substances.	All programs		
Forest Conservation	Forest (Conservation) Act, 1980, amended 1988. The Indian Forest Act, 1927 State/Union Territory Minor Forest Produce (Ownership of Forest Dependent Community) Act, 2005 - Draft	The Forest Conservation Act 1980 was enacted to help conserve the country's forests. It strictly restricts and regulates the de-reservation of forests or use of forest land for non-forest purposes without the prior approval of Central Government. To this end the Act lays down the pre-requisites for the diversion of forest land for non-forest purposes. The Indian Forest Act, 1927 consolidates the law relating to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce.	UJALA	• Siting of Kiosks or Storage areas near Forested areas • Inadequate waste management resulting in wastes (all types) getting deposited in Forest areas	
			SLNP	• Siting of Kiosks, Storage areas or Lighting poles or CCMS in Forested areas • Inadequate waste management resulting in wastes (all types) getting deposited in Forest areas • Lighting intensities or placement disturbing the Flora	
			AgDSM	• Inadequate waste management resulting in wastes (all types) getting deposited in forest areas • Clearing of forest patches for installations or grid	
			Buildings Program and AC	• Inadequate waste management resulting in wastes (all types) getting deposited in forest areas	

Sector	Acts	Purpose	Applicability to EESLs operations
Forest dwellers / Tribal support	The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	Recognizes the rights of forest-dwelling Scheduled Tribes and other traditional forest dwellers over the forest areas inhabited by them and provides a framework for according the same. To ensure that tribes and communities (scheduled Tribal (ST) and Other Traditional Forest Dwelling Communities (OTFD)) who lives in or near forest areas and are dependent on these for gathering, forest produce, grazing shifting, etc are not deprived of their livelihoods. It is applicable to whole country except J&K. Ensures right for conservation of pattas or lease or grants issued by any local authority or any state government on forest lands to titles. The clearance of such development projects shall be subject to the condition that same is recommended by Gram Sabha.	For projects like AgDSM on or near Forest areas or Tribal areas
Biological Diversity	No. 18 of 2003, [5/2/2003] - The Biological Diversity Act, 2002 and related	To realize the objectives enshrined in the United Nations Convention on Biological Diversity (CBD) 1992 which recognizes the sovereign rights of states to use their own Biological Resources. The Act aims at the conservation of biological resources and associated knowledge as well as facilitating access to them in a sustainable manner and through a just process for purposes of implementing the objects of the Act it establishes the National Biodiversity Authority in Chennai.	All Programs

Sector	Acts	Purpose	Applicability to EESLs operations	
Wetland Protection	Wetland (Conservation and Management) Rules 2010	Protection and management of wetlands	Waste dumping, material sourcing and construction in and near wetlands – For all Programs except UJALA	
Heritage Preservation	Ancient Monuments and Archaeological Sites and Remains Act 1958	Excavation of and protection of ancient monuments. Permit for activity near ancient/protected monuments, chance findings	For all Programs except UJALA	
Disaster Related	Disaster Management Act, 2005	Codes for construction under in disaster prone areas Disaster prone areas codes of construction, disaster relief codes, relief and rehabilitation	For all Programs except UJALA	
Wildlife Protection	The Wildlife (Protection) Act, 1972, as amended in 1993. The Wild Life (Protection) Amendment Act, 2006 (No. 39 of 2006) The Wild Life (Protection) Amendment Act, 2002 (No. 16 of 2003, [17/01/2003])	With the objective of effectively protecting the wild life of this country and to control poaching, smuggling and illegal trade in wildlife and its derivatives. The Act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent. The Ministry has proposed further amendments in the law by introducing more rigid measures to strengthen the Act. The objective is to provide protection to the listed endangered flora and fauna and ecologically important protected areas.	UJALA	• Siting of Kiosks or Storage areas near Wildlife areas, Parks, Sanctuaries • Inadequate waste management resulting in wastes (all types) getting deposited in Park, Sanctuaries, forested areas
			SLNP	• Siting of Kiosks, Storage areas or Lighting poles or CCMS in Wildlife areas • Inadequate waste management resulting in wastes (all types) getting deposited in Forest areas • Lighting intensities or placement or even uprooting plants during activities disturbing the Flora and wildlife
			AgDSM	• Inadequate waste management resulting in wastes (all types) getting deposited in in wildlife areas, parks, sanctuaries • Clearing of forest patches for installations or grid • Disturbance to fauna during construction, installations
			Buildings Program and AC	• Inadequate waste management resulting in wastes (all types) getting deposited in in wildlife areas, parks, sanctuaries
Green Tribunal	National Green Tribunal Act, 2010 (No. 19 of 2010)	For effective and expeditious disposal of cases relating to environmental	Any program can fall under the purview, in case it disturbs forests and wildlife and eco-sensitive regions	

Sector	Acts	Purpose	Applicability to EESLs operations	
		protection and conservation of forests and other natural resources		
Noise Pollution	The Noise Pollution (Regulation and Control) Rules, 2000	To regulate and control of noise producing and generating sources (industrial activity, construction activity, generator sets, loud speakers and Public address system, horns, mechanical devices) with the objective of maintaining ambient air quality standards in respect of noise.	UJALA	• Operations in Kiosks or Storage areas creating noise pollution • Noise created by transport vehicles • Public address system used for announcements of scheme
			SLNP	• Operations in Kiosks or Storage areas creating noise pollution (especially during nights in storage areas) • Installation of street lights causing noise pollution esp. due to vehicles, men and material; aggravated during nights • Public address system used for announcements of scheme
			AgDSM	• Transport and storage of materials and equipment causing high noise levels • Installation of pumps and solar lighting with grid connections causing noise pollution esp. due to vehicles, men and material; aggravated during nights
			Buildings Program and AC	• Transport and storage of materials and equipment causing high noise levels • Installation of equipment and other activities causing noise pollution esp. due to vehicles, men and material; aggravated during nights
Siting Industries	The Environment (Siting for Industrial Projects) Rules, 1999	Detailed provisions relating to areas to be avoided for siting of industries, precautionary measures to be taken for site selecting as also the aspects of environmental protection which should have been incorporated during the implementation of the industrial development projects	For projects like AgDSM on or near Forest areas or National Parks, Wildlife Sanctuaries	

Sector	Acts	Purpose	Applicability to EESLs operations
Handling of Batteries	The Batteries (Management & Handling) Rules, 2001	Shall apply to every manufacturer, importer, re-conditioner, assembler, dealer, auctioneer, consumer, and bulk consumer involved in the manufacture, processing, sale, purchase, and use of batteries or components so as to regulate and ensure the environmentally safe disposal of used batteries.	<table><tr><td>SLNP</td><td>• Storage of new or used Batteries • Inadequate management of battery wastes</td></tr><tr><td>AgDSM</td><td>• Storage of new or used Batteries • Inadequate management of battery wastes</td></tr><tr><td>Buildings Program and AC</td><td>• Storage of new or used Batteries • Inadequate management of battery wastes</td></tr></table>
Hazardous Wastes	Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	To control the generation, collection, treatment, import, storage, and handling of hazardous waste	Some components of appliances used under various programs, Halogenated Hydro carbons and non-halogenated hydrocarbons used as Refrigerants, Pumps etc. are classified as Hazardous Wastes. It fall under the provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, under which the occupier and vendors are responsible for maintaining records, transport, storage and disposal.
Solid Wastes	Solid Waste Management Rules, 2016	Apply to every municipal authority responsible for the collection, segregation, storage, transportation, processing, and disposal of municipal solid wastes.	<table><tr><td>UJALA</td><td>• Storage, transport, handling, recycling/reuse, disposal of solid wastes including packaging materials</td></tr><tr><td>SLNP</td><td>• Storage, transport, handling, recycling/reuse, disposal of solid wastes including packaging materials</td></tr><tr><td>AgDSM</td><td>• Storage, transport, handling, recycling/reuse, disposal of solid wastes including packaging materials</td></tr><tr><td>Buildings Program and AC</td><td>• Storage, transport, handling, recycling/reuse, disposal of solid wastes including packaging materials</td></tr></table>
Plastic Waste	Plastic Waste Management Rules 2016	Regulatory frame work for management of plastic waste generated in the country; and to implement these rules more effectively and to give thrust on plastic waste minimization, source segregation, recycling, involving waste pickers, recyclers and waste processors	<table><tr><td>UJALA</td><td>• Storage, transport, handling, recycling / reuse disposal of plastic wastes including packaging materials</td></tr><tr><td>SLNP</td><td>• Storage, transport, handling, recycling / reuse disposal of plastic wastes including packaging materials</td></tr></table>

Sector	Acts	Purpose	Applicability to EESLs operations	
		in collection of plastic waste fraction either from households or any other source of its generation or intermediate material recovery facility and adopt polluter's pay principle for the sustainability of the waste management system	AgDSM	• Storage, transport, handling, recycling / reuse disposal of plastic wastes including packaging materials
			Buildings Program and AC	• Storage, transport, handling, recycling / reuse disposal of plastic wastes including packaging materials
E-Waste	e-waste (Management) Rules, 2016	Shall apply to every manufacturer producer, consumer, bulk consumer, collection centres, dealers, e-retailer, refurbisher, dismantler and recycler involved in manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment listed in Schedule I, including their components, consumables, parts and spares which make the product operational but shall not apply to - (a) used lead acid batteries as covered under the Batteries (Management and Handling) Rules, 2001 made under the Act; (b) micro enterprises as defined in the Micro, Small and Medium Enterprises Development Act, 2006 (27 of 2006); and (c) radio-active wastes as covered under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and rules made there under.	All programs, where E-Waste is generated As per rules, manufacturer (like Philips, Syska) has to collect back E-Waste and channellise for collection / disposal; Producer (seller of assembled product under own brand) shall arrange end-of-life disposal under Extended Producers Responsibility and create awareness on this; and collection centres established by producer /dealer (lighting agencies/dealers) can also collect e-waste on behalf of dismantler, refurbisher and recycler including those arising from orphaned products. EESL has made this a tender condition. The vendors are mandated to maintain records, collect, transport, and channelize to authorized disposal arrangements.	

Sector	Acts	Purpose	Applicability to EESLs operations	
Construction and Demolition waste	Construction and Demolition Waste Management Rules, 2016	Emphasizes the roles and accountability of waste generators and various stakeholders, give thrust to segregation, recovery, reuse, recycle at source, address in detail the management of construction and demolition waste	UJALA	• Only incase storage / kiosk spaces and constructed or demolished
			SLNP	• Storage, transport, handling, recycling / reuse disposal of C&D wastes during streetlighting activities
			AgDSM	• Storage, transport, handling, recycling / reuse disposal of C&D wastes during installation, grid connection
			Buildings Program and AC	• Storage, transport, handling, recycling / reuse disposal of C&D wastes during associated activities; especially if building alterations becomes essential
Thermoset Plastic waste	Guidelines for Disposal of Thermoset Plastic Waste including Sheet molding compound (SMC)/Fiber Reinforced Plastic (FRP)	Applies to disposal of thermoset plastics as in Electrical & electronics: housing, fuses, switchgear, etc. and Power utilities like MCB boxes.	All programs of EESL if they involve thermoset plastics	
Electric Safety	Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Amendment Regulations,2016	Safety requirements for Operations, Construction and maintenance of electric plants and electricity lines	SLNP, AgDSM, Buildings Program and ACs	
Electric Safety	Electricity Act 2003, relevant para- electricity Laws, section 67, 68 & 69.	Para 67 & 68 give provision for granting license to project proponent to break-up any utility area like roads, railway line, sewage lines, drain or tunnel to lay the transmission lines. This is required to install poles and lattice structures and laying of transmission lines. The Act says that '…the consent in writing of the appropriate government, local authority, owner or occupier as the case may be shall be required for carrying out the work.' This applies to agricultural land as well.	SLNP, AgDSM, Buildings Program and ACs	

Sector	Acts	Purpose	Applicability to EESLs operations
Worker Health and Safety at work place	February 2009, the National Policy on Safety, Health and Environment at Work Place	Declared by the Ministry of Labor and Employment, Government of India in February 2009 after consultations with partners. The Action Program to implement the Policy is part of the document. Sets out a set of goals with the view to building and maintaining a national preventative safety and health culture and improving the safety, health and environment at workplace. The Policy also expresses a set of the national objectives.	SLNP, AgDSM, Buildings Program and ACs

The following *Table 12* presents the International Treaties of Importance for the Program Operations, from the Environmental Perspective.

Table 12: International Treaties of Importance from the Environmental Perspective

International Treaties	Details
Vienna Convention for the Protection of the Ozone Layer	Adopted in 1985, convention sets the framework for efforts to protect the globe's ozone layer by means of systematic observations, research and information exchange on the effects of human activities on the ozone layer and to adopt legislative or administrative measures against activities likely to have adverse effects on the ozone layer.
Montreal Protocol on Substances that Deplete the Ozone Layer (a protocol to the Vienna Convention for the Protection of the Ozone Layer)	The original Montreal Protocol was agreed on 16 September 1987 and entered into force on 1 January 1989. It is designed to protect the ozone layer by phasing out the production of numerous substances that are responsible for ozone depletion. This treaty also requires controlling emissions of substances that deplete ozone.
United Nations Framework Convention on Climate Change (UNFCCC (1992))	This framework came into force on 21 March 1994 and aims to achieve stabilization of greenhouse gas (GHG) concentrations in the atmosphere at a level low enough to prevent dangerous anthropogenic interference with the climate system.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)	This convention came into force in 1992 and aims to reduce the amount of waste produced by signatories and regulates the international traffic in hazardous wastes.
Stockholm Convention on Persistent Organic Pollutants (POPs)	Treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have harmful impacts on human health or on the environment. Signed in 2001 and effective from May 2004
Rotterdam Convention on Prior Informed Consent (PIC) for certain Hazardous Chemicals and Pesticides in International Trade	To promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals to protect human health and the environment from potential harm; covers pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons.
UNEP Minamata Convention on Mercury	Adopted on 10 October 2013, this global treaty aims to protect human health and the environment from the adverse effects of mercury.
Strategic Approach to International Chemicals Management (SAICM)	SAICM overall objective is the achievement of the sound management of chemicals throughout their life cycle so that by the year 2020, chemicals are produced and used in ways that minimize significant adverse impacts on the environment and human health.

International Treaties	Details
Convention on Biological Diversity (CBD), commonly Biodiversity	International legally binding treaty opened for signature at the United Nations Conference on Environment and Development (UNCED) in 1993. The objectives of this Convention, to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources.
Convention on the Conservation of Migratory Species (CMS or Bonn Convention)	Intergovernmental treaty, concluded under the aegis of the UNEP, concerned with the conservation of wildlife and habitats on a global scale. It is the only global convention specializing in the conservation of migratory species, their habitats and migration routes. The treaty aims to conserve terrestrial, aquatic and avian migratory species throughout their range. India entered the force of CMS on 1.11.1983.
Agreement on the Conservation of African-Eurasian Migratory Water birds (AEWA)	An independent international treaty developed under the auspices of the UNEP's Convention on Migratory Species. India is a party to this agreement. Aims to establish coordinated conservation and management of migratory water birds throughout their entire migratory range. It covers 255 species of birds ecologically dependent on wetlands for at least part of their annual cycle.

Annex III: Environmental Opportunities

The following *Table* discusses the Program-wise identified environmental opportunities.

Table 13: Program – wise Identified Environmental Opportunities

Environmental Risks		Opportunities for Improvement
Results Area 1 - UJALA		
Storage, Transport, recycling and associated breakage of used and unused bulbs & replacements (normal days & during emergencies)	Institutions & Support	Separate Unit on Sustainable Development / Environmental Aspects to bring environmental considerations in practice Support from Producers Associations Introduce Monitoring and Rating Mechanisms
Storage, Transport, recycling and Disposal of Solid Wastes (packaging materials etc.)	Training & Awareness	IEC and Training to levels of staff, contractors on Safe Handling / Disposal Practices
	Policies & Guidelines	Prepare Program Implementation Plan Include Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits and Tender Conditions on safe handling and disposal to recyclers / Disposal agencies Strict Permit conditions to set up Storage areas / Godowns (for all products/wastes/replacements) Modify / Upgrade to ensure full coverage of Environmental Impacts in EHSS – SOPs and Operationalize EHSS
Environmental Risks due to improper placement and management of Kiosks	Institutions & Support	Careful Program Planning with Rapid E&SS Screening, ensuring facility provision / Pre-implementation Discussions with DISCOMs Minimize multiple levels of sub-contracting Introduce supervision / monitoring mechanisms on housekeeping, management of kiosks
	Training & Awareness	Training to EESL, DISCOM and Kiosk Staff, Preparation of Kiosk Management Charter
	Policies & Guidelines	Include Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits Modify / Upgrade to ensure full coverage of Environmental Impacts and Operationalize EHSS
Product Quality related Risks (Grievances, dangers)	Institutions & Support	Building in Hazards and Environmental issues due to the products (including RoHS), wastes, placement decisions into the grievance mechanism
	Training & Awareness	IEC to agencies, communities
	Policies & Guidelines	Product information, warnings and Supply Chain Provenance
	Institutions & Support	Hand holding to create a separate department for attending E&S during exit

Environmental Risks		Opportunities for Improvement
Project Handing Over after Implementation	Training & Awareness	IEC to consumers / Training to service agencies / others
	Policies & Guidelines	Preparation of clear Work Close-Out Strategy covering all aspects for sustainability of activities related to the project
Results Area 2 - Street Lighting		
Storage, Transport, recycling and associated breakage of (streetlight) bulbs & replacements, used bulbs during (normal days & during emergencies)	Institutions & Support	Separate Unit on Sustainable Development / Environmental Aspects Support from Producers Associations Ensure Engaging certified haulers, recyclers Strict Permit conditions to set up Storage areas (for all products/wastes/ replacements) Introduce Monitoring and Rating Mechanisms
Storage, Transport, recycling and Disposal of shields, poles, wires, parts of CCMS, Scrap / Solid (packaging materials etc.) and Hazardous wastes generated (normal days & during mass failures and emergencies)	Training & Awareness	IEC and Training to levels of staff, contractors and Local Bodies on Safe Handling / Disposal Practices
	Policies & Guidelines	Prepare Program Implementation Plan in co-ordination with Local Bodies with mechanism to take care of E&S aspects, Contingency Plan & Emergency Response mechanism prior to initiating the works Include Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits and Tender Conditions on safe handling and disposal to recyclers / Disposal agencies Modify / Upgrade to ensure full coverage of Environmental Impacts in EHSS – SOPs and Operationalize EHSS
Risks due to installation (incompetent installations, lack of work safety) and maintenance, traffic regulations, poor housekeeping issues (breeding habitats) around installations; specifically, crossover points from traditional junctions to CCMS, Noise and Vibration related issues	Institutions & Support	Careful Program Planning with Rapid E&SS Screening and ensuring facility provision / Pre-implementation Discussions with LBs / Contractors Minimize multiple levels of sub-contracting Introduce Supervision / Monitoring Mechanisms on housekeeping, safety aspects, noise & vibration Energy Audits
	Training & Awareness	Training to EESL, Local Bodies/Contractors, Preparation of Maintenance Charter
	Policies & Guidelines	Include Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits Modify / Upgrade to ensure full coverage of Environmental Risks and Operationalize EHSS
Influx of workers stressing water, land environment	Institutions & Support	Discussions with LBs / Contractors regarding worker housing if applicable Introduce Supervision / Monitoring Mechanisms
	Training & Awareness	Training to contractors / staff, Service / Maintenance Charter
	Policies & Guidelines	Include Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits Modify / Upgrade to ensure full coverage of Environmental Risks and Operationalize EHSS

Environmental Risks		Opportunities for Improvement
Product Quality and appropriateness related Risks (Grievances, dangers, weather issues), Maintenance issues	Institutions & Support	Incorporating Environmental Issues due to the Products (incl. RoHS), Wastes and placement decisions into the Grievance Redressal Mechanism
	Training & Awareness	IEC to Agencies, Communities
	Policies & Guidelines	Product information, warnings and Supply Chain Provenance
Light Pollution and dark spots related aspects: • fixtures, pole to pole distances, sky glow, aesthetics • proximity to sensitive areas (or placement decisions)- fragile areas, heritage areas	Institutions & Support	Careful Program Planning & Screening sensitivities
	Training & Awareness	Training to Staff / PMU / Contractor/s of EESL
	Policies & Guidelines	Include Contract conditions to Vendors/Suppliers on appropriate fixtures and Contractors to ensure compliance with sensitivities on site Modify / Upgrade to ensure full coverage of Environmental / Social, Heritage Sensitivities during planning and implementation
Project Handing Over after Implementation	Institutions & Support	Hand holding to create wing / department for attending E&S during exit
	Training & Awareness	Training to Client / Service agencies
	Policies & Guidelines	Preparation of clear Work Close-Out Strategy covering all aspects for sustainability of activities related to the project
Results Area 3 - AgDSM		
Storage, Transport, recycling and installation of used and new Pumps, solar panels Storage, Transport, recycling and Disposal of wires, scrap / Solid wastes (packaging materials etc.) and Hazardous wastes generated (Collection, transport and disposal of replaced cables, transformers, switchgear, relays, insulators, capacitor banks and meters)	Institutions & Support	Separate Unit on Sustainable Development / Environmental Aspects (to work with Specific Farmer association or Local Bodies as applicable) Strict Permit conditions to set up Storage areas / Collection Centers (products/wastes/ replacements) Engage certified haulers, recyclers Introduce Monitoring and Rating Mechanisms
	Training & Awareness	IEC and Training to levels of staff, contractors on Safe Handling / Disposal Practices
	Policies & Guidelines	Prepare Program Implementation Plan with mechanism to take care of E&S aspects, Contingency Plan & Emergency Response mechanism prior to initiating the works Include Contract conditions to Vendors / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits and Tender Conditions on safe storage, transport, handling and disposal to recyclers / service agencies Modify / Upgrade to ensure full coverage of Environmental Risks in EHSS – SOPs and Operationalize EHSS
Conflicts in Over- exploited / critical ground water blocks, salinity intrusions,	Institutions & Support	Prepare Program Implementation Plan (systemic approach – including information on Ground Water Development-stage- based categorization, cropping pattern, aquifer details, so-economic condition of farmers, cropping area, overall network changes), with Rapid E&SS Screening,

Environmental Risks		Opportunities for Improvement
other than intended uses, cropping patterns, CPR and Conflicting Landuses		mechanism to take care of E&S aspects, Contingency Plan & Emergency Response mechanism prior to initiating the works
	Training & Awareness	Training to EESL, Local Bodies/Contractors/Service providers
	Policies & Guidelines	Modify / Upgrade to ensure full coverage of Program Planning needs and Operationalize EHSS
Risks during Installations, testing Risks to handlers, nearby other environmental components, waste water Solar panels: Emissions during Production, Implementation (including connections with Grid), Exposure to chemicals, Landuse, Air/Water/Land pollution, Disposal Ecological Risks (esp. on sensitive species, glare, micro climatic issues, heritage / cultural issues, implications on certain sensitive operations/activities etc.	Institutions & Support	Careful Program Planning and ensuring proper facility provision at Collection centers Pre-implementation Discussions with LB, concerned authorities (including GW Department, PCB, agriculturalists / Suppliers & Service Providers Introduce Supervision / Monitoring Mechanisms on housekeeping, safety aspects, noise & vibration
	Training & Awareness	Training to EESL, Local Bodies/Contractors/Service providers, Service / Maintenance Charter
	Policies & Guidelines	Include Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits Modify / Upgrade to ensure full coverage of Environmental Impacts and Operationalize EHSS
Product Quality related Risks (Grievances, dangers, weather issues), Maintenance and Operational issues	Institutions & Support	Incorporating Environmental Issues due to the Products (incl. RoHS), Wastes and placement decisions into the Grievance Redressal Mechanism
	Training & Awareness	IEC to Agencies, Communities
	Policies & Guidelines	Product information, warnings
Project Handing Over after Implementation	Institutions & Support	Hand holding to create wing / department for attending E&S during exit
	Training & Awareness	Training to Client / Service agencies
	Policies & Guidelines	Preparation of clear Work Close-Out Strategy covering all aspects for sustainability of activities related to the project

Environmental Risks		Opportunities for Improvement
RA3 - Building EE Program and ACs		
Storage, Transport, recycling and Disposal of new and used equipment Storage, Transport, recycling and Disposal of wires, electrical / electronic parts, refrigerants, other scrap / Solid (packaging materials etc.) and hazardous wastes generated (normal days & during mass failures and emergencies)	Institutions & Support	Separate Unit on Sustainable Development / Environmental Aspects Support from Producers Associations Strict Permit conditions to set up Storage areas (for all products/wastes/ replacements) Engage certified haulers, recyclers Introduce Monitoring and Rating Mechanisms
	Training & Awareness	IEC and Training to levels of staff, contractors and Local Bodies on Safe Handling / Disposal Practices especially of refrigerants
	Policies & Guidelines	Prepare Program Implementation Plan in co-ordination with Local Bodies with mechanism to take care of E&S aspects, Contingency Plan & Emergency Response mechanism prior to initiating the works Include Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits and Tender Conditions on safe handling and disposal to recyclers / Disposal agencies Modify / Upgrade to ensure full coverage of Environmental Risks in EHSS – SOPs and Operationalize EHSS
Structural Stability (during retrofit), Safety and Risks on sensitive areas Cultural / Aesthetics / Heritage related aspects	Institutions & Support	Careful Program Planning with Rapid E&SS Screening, Pre-implementation Discussions LB / Authorities/PCB, Suppliers & Service Providers Introduce Supervision / Monitoring Mechanisms on housekeeping, safety aspects, E&S, noise & vibration
	Training & Awareness	Training to EESL, Local Bodies/Contractors/Service providers
	Policies & Guidelines	Include Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules / Laws, get relevant Permits Modify / Upgrade to ensure full coverage of Environmental Risks and Operationalize EHSS
Risks due to installation (incompetent installations, dangers) and maintenance, regulations, poor housekeeping issues (breeding habitats) around installations; Noise and Vibration related issues	Institutions & Support	Careful Program Planning and ensuring facility provision / Pre-implementation Discussions with Agriculturalists / Groups / LBs / Contractors Minimize multiple levels of sub-contracting Introduce Supervision / Monitoring Mechanisms on housekeeping, safety aspects, noise & vibration
	Training & Awareness	Training to EESL, Local Bodies/Contractors, Service Charter
	Policies & Guidelines	Include Contract conditions (Vendors/Suppliers / Contractors) to ensure compliance with all applicable Rules / Laws, get relevant Permits Modify / Upgrade to ensure full coverage of Environmental Risks and Operationalize EHSS
	Institutions & Support	Discussions with Suppliers/ Contractors regarding worker housing if applicable

Environmental Risks		Opportunities for Improvement
Influx of workers stressing water, land environment		Introduce Supervision / Monitoring Mechanisms
	Training & Awareness	Training to contractors / staff
	Policies & Guidelines	Include Contract conditions (Vendors/Suppliers / Contractors / Service providers) to ensure compliance with all applicable Rules / Laws, get relevant Permits Modify / Upgrade to ensure full coverage of Environmental Risks and Operationalize EHSS
Product Quality and appropriateness related Risks (Grievances, dangers, weather issues), Maintenance and Operational issues	Institutions & Support	Incorporating environmental Issues due to the Products (incl. RoHS), Wastes and placement decisions, Operational issues into the Grievance Redressal Mechanism
	Training & Awareness	IEC to Agencies, Communities
	Policies & Guidelines	Product information, warnings
Project Handing Over after Implementation	Institutions & Support	Hand holding to create wing / department for attending E&S during exit
	Training & Awareness	Training to Client / Service agencies
	Policies & Guidelines	Preparation of clear Work Close-Out Strategy covering all aspects for sustainability of activities related to the project

Annex IV: List of Stakeholders Consulted

Table 14: Location-wise Stakeholders Consulted by the World Bank Team

	Location	Designation/Department	Name
Agency: EESL, Corporate Office			
1	EESL, Noida	Managing Director	Saurabh Kumar
1	EESL, Noida	National Program Manager, SLNP	Jaspal Aujla
2	EESL, Noida	National Program Manager, UJALA	Raj Kumar Rakhra
3	EESL, Noida	National Program Manager	Mohit Khatri
4	EESL, Noida	Human Resources	Sudeep Bhar
5	EESL, Noida	Manager, Public Relations, UJALA	Neha Bhatnager
6	EESL, Noida	EHSS Designated Officer	Aanchal Kumar
7	EESL, Noida	EHSS Designated Officer	Deepak Kumar Sahani
8	EESL, Noida	Deputy Manager, SLNP	Rahul Sharma
9	EESL, Noida	Deputy Manager, SLNP	Anas Aftab
10	EESL, Noida	Assistant Manager, Technical, UJALA	Mayuri Chaukhande
11	EESL, Noida	AGM, Contracts	Rajneesh Rana
12	EESL, Noida	Procurement/Contracts	Kumar Saurabh
13	EESL, Noida	Procurement/Contracts	Hemanth
14	EESL, Noida	Procurement/Contracts	Nitin Gupta
15	EESL, Noida		Venkatesh Dwivedi
16	EESL, Noida		Anil Agarwal
17	EESL, Noida	Deputy Manager (Technical)	Karan Arora
Agency: EESL, Regional Staff			
18	EESL, Chandigarh	Deputy General Manager, SLNP	Ajay Raj
19	EESL, Chandigarh	Regional Manager Haryana, UJALA	Nitin Bhat
20	EESL, Gujarat	Regional Manager Gujarat, SLNP	Gopal Dayalani
21	EESL, Gujarat	Regional Manager Gujarat, UJALA	Polash Das
22	EESL, Andhra Pradesh	Regional Manager, ESSL	K Pydi Reddy
23	EESL, Andhra Pradesh	Deputy Manager, UJALA	M Venu Gopal
24	EESL, Andhra Pradesh	Project Engineer, UJALA	P Haritha
25	EESL, Andhra Pradesh	Project Engineer, UJALA	L Srinivas
26	EESL, Andhra Pradesh	Junior Executive, UJALA	M.J.Brahmaji
27	EESL, Andhra Pradesh	Junior Executive, UJALA	T.Srinivas Rao
28	EESL, Andhra Pradesh	Assistant Manager, Technical, SLNP	P. Madhu
29	EESL, Andhra Pradesh	Engineer, SLNP	S. Swami Naidu
30	EESL, Andhra Pradesh	Engineer, SLNP	K. Chinni Babu
31	EESL, Andhra Pradesh	Engineer, SLNP	L. Shiva Chaitanya Kumar
32	EESL, Karnataka	AgDSM Consultant	B.N. Shekhar
33	EESL, Karnataka	Sr. Manager (Technical)	N Mohan
34	EESL, Karnataka		B.V. Gopinath
36	EESL, Kolkata	Regional Manager, West Bengal & North East	Usha Menon Bose
37	EESL, Kolkata	Deputy Manager, West Bengal	Deepak Hansda
38	EESL, Hyderabad	Zonal Manager, South	Savitri Singh
39	EESL, Himachal Pradesh	AGM, Technical (SLNP)	Prabhat Kumar

	Location	Designation/Department	Name
40	EESL, Chattisgarh		Ved Prakash Dindore
Government Representatives/Clients of EESL			
41	Gandhinagar Municipality	Executive Engineer	
42	Energy and Petrochemical Department, Gandhinagar	Additional Chief Secretary	Surjit Gulati
43	APEPDCL (DISCOM)	Assistant Divisional Engineer	Hari Babu
44	APEPDCL (DISCOM)	Assistant Divisional Engineer	Satyanarayana
45	Greater Vizag Municipal Corporation	Superintendent Engineer	Pallav Raju
46	Greater Vizag Municipal Corporation	Executive Engineer	K. Ratnala Raju
47	Chandigarh Municipality	Chief Engineer	
Contractors / Vendors			
48	Alankit Pvt Limited	Distribution Agency – Lights	
49	Span communications	Distribution Agency – Lights	
50	M/s AQUASUB ENGINEERING, Bangalore	Vendor- Pumps	
51	M/s. SURYA ROSHNI Ltd	Vendor - Lights	
52	M/s. Philips Lighting India Limited	Vendor – Lights	
53	M/s IL&FS Energy Development Company Ltd	Project Management Consultant	
54	M/s. Crompton Greaves Consumer Electrical Ltd	Vendor – Lights	
55	Price Water House Coopers Pvt Ltd	Consultant – EHSS	
Consumers / Communities			
56	Vizag	Consumer, UJALA	Swami
57	Vizag	Consumer, UJALA	G H N Reddy
58	Vizag	Consumer, UJALA	Abbila
59	Vizag	Consumer, UJALA	Bharathi

Annex V: Subjects devolved to Local Governments under 11th Schedule

1. Agriculture, including agriculture extension
2. Land improvement, implementation of land reforms, land consolidation and soil conservation
3. Minor irrigation, water management watershed development
4. Animal husbandry, dairying and poultry
5. Fisheries
6. Social forestry and farm forestry
7. Minor forest produce
8. Small scale industries, including food processing industries
9. Khadi, village and collage industries
10. Rural Housing
11. Drinking water
12. Fuel and fodder
13. Roads, culverts, brides, ferries, waterways, and other means of communication
14. Rural electrification including distribution of electricity
15. Non-conventional energy sources
16. Poverty alleviation program
17. Education, including primary and secondary schools
18. Technical Training
19. Adult and non-formal education
20. Libraries
21. Cultural activities
22. Markets and fairs
23. Health and sanitation, including hospitals, primary health centres and dispensaries
24. Family welfare
25. Woman and child development
26. Social welfare including welfare of the handicapped and mentally retarded
27. Welfare of the weaker sections, and in particular, of the Scheduled castes and the Scheduled tribes
28. Public distribution system
29. Maintenance of community assets

Annex VI: Subjects devolved to Urban Local Governments under 12th Schedule

1. Urban Planning including town planning
2. Regulation of land use and construction of building
3. Planning for economic and social development
4. Roads and bridges
5. Water supply for domestic, industrial and commercial purposes
6. Public health, sanitation conservancy and solid waste management
7. Fire services
8. Urban forestry, protection of the environment and promotion of ecological aspects
9. Safeguarding the interests of weaker sections of society, including the handicapped and mentally retarded
10. Slum improvement and up gradation
11. Urban poverty alleviation
12. Promotion of cultural, educational and aesthetic aspects.

Annex VII: Work Scope of the Proposed Sustainable Development Unit at EESL

This *Annex* outlines the key tasks that are recommended for the proposed Environment and Social Department/ Sustainable Development Unit at EESL.

This unit would be primarily responsible for coordinating, streamlining and mainstreaming environment and social aspects in EESL's various operations, and regularly reporting to EESL management on key issues. It is essential that this department is adequately staffed by professionals of relevant academic and professional experience, such as environmental sciences, environmental law, social development and community outreach.

Tasks or activities which would fall under the purview of such a department would include:
1. Update EHSS Guidelines and manuals to ensure full coverage of all EESL various programs. EHSS, which is currently a static document covering some of the Environmental and Social (E&S) issues associated with UJALA and Street Lighting Program of EESL, shall be updated to cover all environmental and social risks and mitigation plans for each, and transforming it into a "living document."
2. Develop plans for operationalization of EHSS Guidelines. Prepare Program Implementation Plan for Streamlining E&S aspects for each Program in co-ordination with experts, Local Bodies, consumers, line departments and other stakeholders (as applicable) with Rapid E&S Screening, Contingency Plan & Emergency Response mechanism prior to initiating the works. This would also include the incorporation of key E&S provisions and implementation responsibility into the contractual framework with EESL contractors, vendors and implementation partners.
3. Development of staff and contractor capacity in relation to EHSS. The department would develop and deliver training EESL program, operational, technical and contractual staff. Provide or arrange Information, Education and Communication (IEC) and Training to all levels of staff, communities, Local Bodies and contractors on Safe Handling and Disposal Practices. Train officials at site for optimal operations minimizing multiple levels of sub-contracting and time delays. Monitor staff awareness of EHSS with periodic surveys.
4. Monitor the implementation of EHSS guidelines, and prepare bi-annual report on implementation performance, strengths, weaknesses and to be delivered directly to EESL.
5. Periodical reporting to EESL management on key EHSS implementation, compliance, training actions and any challenges related to specific programs or institutional capacity.
6. Co-ordinate various regulatory procedures (also for new greenfield projects involving land based activities) and ensure support from Producers Associations, Certified Recyclers even during emergencies
7. Include site specific Contract conditions to Vendors/Suppliers / Contractors to ensure compliance with all applicable Rules and Laws.
8. Check permits and ensure tender conditions on safe storage, handling, transporting, recycling and disposal to Suppliers, Recyclers and Disposal agencies
9. Incorporate considerations related to environmental Issues due to the Products (incl. RoHS), operations, Wastes and placement decisions into the Grievance Redressal Mechanism
10. Introduce Supervision and Monitoring Mechanisms and Ratings on E&S Aspects including, facilities & housekeeping, labor facilities and safety, noise & vibration
11. Prepare Maintenance and Service Charters and supervising its implementation
12. Improve outreach to socio-economically vulnerable groups and locations, coordinating with various regional and site offices of EESL.
13. Monitor the implementation of corporate diversity and inclusion targets, and track diversity and inclusion performance within the organization (opportunities, facilities).

This may also include monitoring, facilitating and encouraging employment of women by vendors and contractors where feasible- advertise more positions for women, give preference to women candidates, mobilisation and advertising campaigns to have gender balance.

14. Develop a Gender Strategy and Plan[55] which assesses the gaps, suggests changes at the level of policy and systems, provides indicators for tracking results.
15. Develop a robust Citizen Engagement profile to use tools like consumer surveys, citizen feedback, regular stakeholder consultations and Grievance Redressal Mechanism for all programs.

For the above recommended tasks, the following Professionals are required. Specific skillsets or functional areas required are also mentioned in the *Figure 3* below.
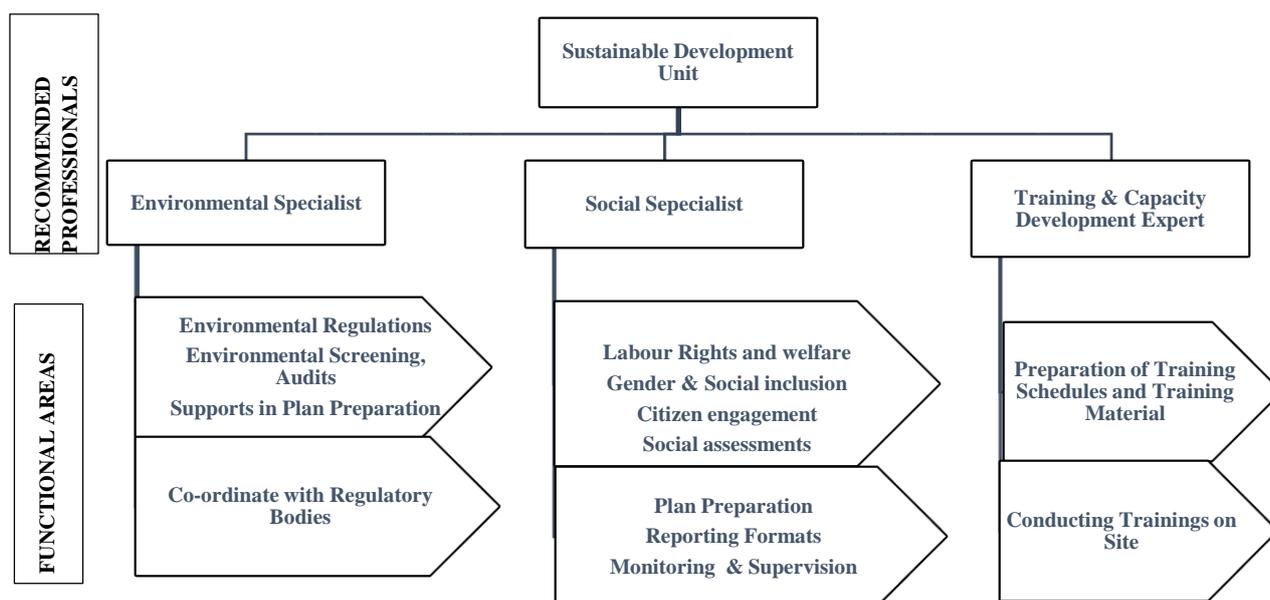
Figure 3: Outline of the Proposed Sustainable Development Unit

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[55] The Sustainable Development Unit to develop clear gender strategy, policy, guidelines, capacity building and monitoring systems for the institution and Strengthen the existing Committee Against Sexual harassment. In addition: (a) Creating more employment for women in project sites like kiosks for distribution, replacement desks, state offices. Increase gender balance in EESL workforce especially hiring women in senior position and technical positions. (b) Gender sensitivity through orientation and trainings (c) Involvement of women Self Help Groups in improving the distribution and marketing of LED products and in turn creating opportunities for SHGs to earn (d) Improving the outreach to women consumers and enhancing the benefits of the program to women- strengthening women consumer base; increased safety for women through the street lighting program. (e) Conducting impact studies for assessing the lifestyle changes and social benefits due to energy efficiency products - links between gender and energy efficiency

Annex VIII: Common Hazardous Waste Treatment, Storage and Disposal Facilities in India

Sl. No.	Namo and Location of TSDF	Socurod landfill (SLF) Capacity in MTA	Total SLF capacity in MTA **
I.	**Andhra Pradosh :**		
1	TSDF, Dundigal	1,50,000	3,50,000
2	TSDF, Visakhapatnam*	2,00,000	
II.	**Gujarat :**		
3	NEIL , Nandesari, Vadodara	21,667	10,47,401
4	GEPIL, Surat	1,00,000	
5	TSDF, Odhav, Ahmedabad	71,667	
6	TSDF at Vatva, Ahmedabad	63,067	
7	BEIL, Ankleshwar	1,20,000	
8	TSDF, Vapi	48 000	
9	TSDF, Alang	23,000	
10	TSDF, Bhachau	6,00,000	
III.	**Karnataka :**		
11	TSDF, Debaspet	40,000	40,000
IV.	**Korala :**		
12	TSDF, Ambalmughal, Earnakulam	50,000	50,000
V.	**Himachal Pradosh:**		
13	TSDF at Baddi	50,000	50,000
VI.	**Madhya Pradosh:**		
14	MPWM Limited, Pithampur	90,000	90,000
VII.	**Maharashtra:**		
15	TSDF, Taloja	1,20,000	
16	TSDF , Navi Mumbai	10,000	
17	TSDF , Butibori	60,000	
18	TSDF, Ranjangaon	60,000	2,50,000
VIII	**Punjab :**		
19	TSDF , Nimbua, Derabassi	13,000	13,000
IX.	**Rajasthan:**		
20	RWM Limited, Gudli, Udaipur	20,000	20,000
X.	**Tamilnadu:**		
21	TSDF, Gummadipoondi	1,00,000	1,00,000
XI.	**Uttar Pradosh:**		
22	TSDF, Kumbhi, Kanpur Dehat	17,500	60,167
23	TSDF, Banthar, Unnao	20,667	
24	TSDF, Rooma, Kanpur	22,000	
XII.	**Wost Bongal :**		
25	TSDF, Purba Shrikrishnapur, East Midnapur	1,20,000	1,20,000
XIII	**Daman, Diu, Dadra & NH:**		
26	TSDF, Motarandha, Silavasa, Dadra & Nagar Haveli	7,500	7,500

Note: *   Proposed to be relocated
       **   Total capacity is excluding captive landfill capacity

In addition, Uttarakhand also has 01 TSDF with Secured Landfill Facility and Common Incinerator Facility# at M/s Bharat Oil & Waste Management Ltd. Mauza Mukimpur, Roorkee-Laskar Road, Roorkee, Haridwar. Common Incinerator Facility is under construction here.
Source: Central Pollution Control Board, 2010-11. *Protocol for performance evaluation and monitoring of the common hazardous waste treatment storage and disposal facilities including common hazardous waste incinerators.*
Available at: http://www.cpcb.nic.in/upload/NewItems/NewItem_149_Protocol.pdf
Accessed on: 12 June, 2017

Annex IX: Proposed Updation of the EHSS Manual

Existing EHSS Manual is proposed to be updated to include risk categorization (based on project / location), improvising the existing Standard Operating Protocols (SOPs) and making them comprehensive to cover all safety and environmental concerns which need attention. Details on training and supervision to ensure the use of these SOPs shall also be prepared as a separate document.

Aspects applicable for all SOPs

SOP format shall be revised to cover updated scope including (a) note on type of activities covered under each SOP, (b) Hazard mapping/Assessment Form, (c) Incident Categorization, (d) Records and Storage of Tools, (e) Inspection Procedures, (f) Suitability and Intended use of the activity, tool or material, (g) details on competent users, (h) General Operating Procedures, (i) best work practices, (j) Safety Precautions, (k) Emergency Preparedness and Response (including PPE, First Aid requirements on site, storage and transport), (l) Usage monitoring procedures, protocol for replacement / refurbishment, (m) proper disposal of scraps and process wastes, (n) signage systems and symbols or coding, (o) updated list of applicable references in Indian and international context, (p) Info and Instructions to be passed on to communities, (q) Compliance to regulations/permits, their status and conditions, (r) Duties / Responsibilities (with contact details), (s) Training needs, (t) Construction site management and (u) any additional detailing deemed essential considering the activities under proposed / new programs. Simple and clear Documentation Formats to cover all the above requirements shall also be suggested.

SOP 01: Risk Management: This SOP shall be updated with a checklist on possible activity-wise risks (such as storage, transport, laying CCMS, Operations and maintenance procedures etc. to name a few). Risk Identification and Management Protocol and institutional responsibilities shall be established in EHSS Manual.

SOP 02: Waste Management: Update EHSS considerations for awareness on End of life disposal of scrap and wastes, replacement, storage and containment (of replacements, broken material) and transport. Roles of Local Body's roles, vendors and regulatory compliances (permits, guidelines) shall be adequately addressed. Consider Equipment Decontamination records and Pest Management in waste storage areas.

SOP 03: Fire and Emergency Procedures: Update with guidelines incl. National Building Code (mainly for Warehouses), Fire and Emergency Procedures etc.

SOP 04: Electrical Safety: Need considerable updation incorporating General Specifications for Electrical Works 2013 of CPWD/SPWDs, directives and codes of ULBs, emergency response procedures, worker training.

SOP 05: Work at Height and Fall Prevention: Need careful updation of suggestions in EHSS on work elimination / minimization. Shal include preparation of pre-planning, special cases of fall from height including fall on/near water bodies, fragile roofs, traffic/ roads and other activity or danger areas; use of appropriate PPEs such as safety nets, shock absorbent packs; inspection / maintenance procedures.

SOP 06: Portable Tools and Equipment: Need to include protocols for all portable equipment which shall be used specifically for UJALA, SLNP.

SOP 07: Traffic Safety: To be prepared specifically for installation and maintenance of street light on roads in Urban and Rural Local bodies.

SOP 08: PPEs: Shall also consider IS standards. Need to include use of Hazard Assessment Form, Type of PPEs available in the market and their suitability for each activity, type of training needed for users, supervisors and reviewers in case of both UJALA and SLNP, and a section on limitations of the PPEs and how to address these.

SOP 09: Work Permit system: Shall be updated to cover permit license requirements as per applicable Acts (National/State / ULB), General Work Permit categories (Hot & Cold), Special permits (for confined space entry, working at height, excavations, fragile roof, Electrical work Permit (HT/LT), Material lowering & lifting) all applicable to Street lighting both for installation and routine maintenance.

SOP 10: Safe Lifting Operations: Shall include procedures for temporary team lifting arrangements in case required, work space cordoning requirements on streets (exclusion zones), certifications, procedures for checking the adequacy of machines provided by ULBs, removal of equipment and materials from service (decommissioning) with due considerations on statutory requirements.

SOP 11: Safety Audit Procedure: Audit Time table (for night and day inspections, annual schedule) shall be prepared. Audit checklist to be prepared afresh incorporating specific details for SLNP and UJALA, Assets and Procedure Reporting Formats.

SOP 12: Criteria for selection of warehouses: Shall be updated with protocols for storage of hazardous material, broken bulb wastes, procedures for temporary and long term storage of replaced light poles, wires, transport from ware houses, permits/clearances from various agencies including pollution control boards/ local authorities, documentation requirements for transporting vehicles, containment of spills, insurance, and security.

Additional SOPs proposed

Additional SOPs for (i) Work Close-out Procedures, (ii) Special conditions of Use of New Generation Heavy Equipment, (iii) Emergency Responses against disasters, accidents, breakages and collapse on site/transport/storage, (iv) Cyclic / Preventive Maintenance requirements (either as part of each SOP or as a separate SOP) (v) Roles and responsibilities for monitoring SOPs (either as part of each SOP or as a separate SOP) shall be added.

Annex X: Questionnaires

Environmental Assessment Checklists

Questionnaire I: Institutional Partners/Implementing Agencies

1. Collate available brochures, documents, communication material, media reports, studies conducted - by EESL, outside agencies, documentations done
2. What are the environmental Benefits due to the project which you understand and advertise?
3. Any benefit advertised by suppliers?
4. Any risk you are aware of or anticipate?
5. What environmental / social / management risks are anticipated during the project cycle; during implementation or including during special occasions and disasters?
6. What are the considerations to ensure environmental risk management during project design?
7. What are the guidelines and standards developed for environmental risk management and the extent of its coverage on required safeguards?
8. How are the Policy / environmental rules considered during project design and its implementation / M&E?
9. What is the institutional support mechanism for factoring in environmental risks and response during implementation and M&E?
10. How is the Selection and Quality assurance of bulbs/appliances done?
11. Opinion on suitability of bulbs etc. to special situations
12. Impacts and risks of handling and transport - Any issues reported/noticed
13. Risks during storage of bulbs off and on site?
14. What are the safety risks for handlers, communities?
15. How is testing the safety of bulbs carried out?
16. Any need to act on emergencies during any stage? - quick action on installation and quick action due to disasters?
17. Any opinion on installation mechanisms?
18. Any direction on environmental issues due to bulk production at manufacturers / suppliers side including resource usage, storage (land), water (production), waste handling/disposal?
19. What are the impacts of distribution - off site / onsite - at distribution kiosks or on streets (for streetlights), during special situations or emergencies, safety risks for handlers, labor force?
20. Any impacts of incompetent installations noticed?
21. What are the impacts due to usage of these installations / installing these installations on environment - land, fauna/flora, visual / human health (views on visual quality, heat generation, any specific adverse impact)?
22. What are the safety risk for handlers, labor force, types of wastes arising out of the project and disposal related aspects (after product life / of damaged products)?
23. What are the mechanisms for warranty, replacements, usage other than initially intended?
24. Any bulk purchases constraining the availability for the poor. Any precautions to curb this?
25. How has the project supported inclusion of areas of importance like tourist areas, rural, eco-fragile areas?
26. Comments on mechanisms for selection of program regions (esp. special areas for coverage (like tourist areas, LIG housing areas, tribal areas etc., special mechanisms in fragile areas if any)
27. Any special considerations on impacts and decision mechanisms
28. Any special event / occurrence during implementation reminding the benefits, risks, opportunities
29. What are the policies, rules, acts, laws applicable to various parts of the project? - National, State, Municipal, Special codes (like electricity regulatory code, lighting guidelines), Environment, Labor and Working Conditions and Safety, Disposal of wastes (Solid waste & Hazardous), consumer rights, local governance, right to information as applicable to the program
30. Write up on institutional details? Organogram?

31. Specifics on responsibility for environmental & social impacts /aspects/management - EESL, DISCOMs / contractors, local bodies
32. What is the institutional mechanism to factor in Environmental benefits during project design, implementation and M&E? Who handles decisions regarding Environment
33. Any existing guideline at ULB / DISCOM level (for which an equivalent is not there at EESL) for mitigating impacts - variance of such a thing across municipalities in the same state
34. Any training for implementation of Environmental Risk Management mechanism
35. Any gender policies / practices, no: of women employed, indigenous people employed? considerations for the old who buys - like support in installation etc.?
36. Any other agency / activity which has additionally sprang up as a forward linkage - for installation, replacement, maintenance support?
37. Any instance when anyone has brought environmental impacts during any stage to your attention
38. Any change in program design - including introduction of additional services / amenities, support activities of introducing other equipment, products suggested to bring in sustainability?
39. Comments on Awareness levels of various agencies / officials / workers regarding Environmental impacts, risks?
40. Any impacts on natural resources like water bodies, forests, open land, plants, animals, birds reported?
41. Any impacts on physical / cultural resources reported - like heritage buildings, common areas/resources/common property, parks, activities?
42. Are they aware of possible impacts - various officials, workers, people - on natural/physical/cultural resources
43. Any media report any such Environmental, social issue regarding this program? How was the program affected due to this?
44. Any efforts from any party or suggestions to avoid, minimize, mitigate Environmental, social impacts
45. Observed gaps between desirable and existing performance regarding impact on natural/physical/cult resources
46. Actions required for gap filling (impacts on resources) - any suggestions?
47. Any Issues related to public and labor safety during Pre/during / post implementation or operation of facilities (impacts of lights, electricity, heat issues, short circuits, power shortage issues), material safety (exposure to toxic / Hazardous materials during, pre and post implementation, products, byproducts, disposal/wastage), reconstruction/rehabilitation during special events hazards
48. What are the perceived risks? How aware are they about risks?
49. Is there a need for better support, change in work timings and additional equipment?
50. Observed gaps between desirable and existing performance regarding safety
51. Actions required for gap filling on safety aspects - any suggestions?
52. Any instance of land related issues and disturbance to natural resources during production
53. What are the wastes, the sites where waste is disposed, who gets impacted?
54. Any instance of Loss of natural resources due to land requirement for kiosks, storage, congregation of people during various project stages
55. Observed gaps between desirable and existing performance regarding land issues
56. Actions required for gap filling on land related aspects - any suggestions?
57. What are the benchmarks and pre-requisites for targeting, selection and outreach – what are the ways to ensure that the marginalized communities benefit (marginalized due to their socio-economic background or geographical location)
58. How will the project reach and benefit marginalized groups (direct benefit like consumer goods and other benefits like access to new opportunities/employment)?
59. How can inclusion be tracked, monitored and documented (questionnaire, data collected on profile of beneficiaries, orientation of representatives at the EESL Kiosks, what is captured in site distribution surveys etc.)?

60. What are the role and opportunities for participation of SHGs in distribution, repair, management, maintenance and other avenues for involvement?
61. The assessment will explore EESL's outreach to the community, the channels of information dissemination, communication, and existing systems of disclosure.
62. How does the program involve people (initial interactions)?
63. Does it provide capacity to ULBs and/or GPs to manage assets? How is that done?
64. How does EESL build community ownership on the resources provided to ensure maintenance and sustainability?
65. What are the common grievance types and existing systems for grievance redressal and EESL/DISCOM/ ULBs responsiveness?
66. What are the efforts taken to gauge user experience, consumer feedback? How is this incorporated in program design to inform course correction? If not, can this be done?
67. How are safeguards integrated in the program operations, what are the available frameworks, how are social effects reported and monitored?
68. What are the opportunities for training and capacity building on social issues and safeguards?
69. Availability (numbers and skills) of staff to handle social components at all level
70. (number) Female staff including the departments and roles, growth opportunities, safe working environment, facilities, flex hours and other enabling HR policies
71. Innovations/Good practices in terms of social outcomes
72. Any special mechanisms to deal with social conflict already existing or due to interventions? Any suggestions / practices already undertaken for areas subject to territorial disputes?
73. What is the existing M&E system? Any M&E to deal with response to special situations
74. Any mechanism to discuss environmental / social issues / grievances related to the project? - at EESL / DISCOM or LB?
75. What are the felt gaps in grievance redressal?
76. Any suggestions to fill gaps on grievance redressal?
77. Any suggestion on how management system must change to mitigate adverse impacts
78. Any suggestion to provide transparency, accountability
79. Any suggestion on how to / what mechanism / arrangement shall identify and address Environmental and social risks?
80. Any suggestion on type of guidelines / standards required
81. What are the opportunities to develop adequate guidelines to avoid, mitigate, and manage environmental risks?
82. How shall the training and capacity building activities to be designed to ensure risk avoidance and management?
83. What opportunities does the project provide for overall improvement of the capacity of EESA and the partnering agencies regarding energy efficiency and other intended project benefits and risks?

Additional Notes / Comments

Questionnaire II: Beneficiaries / Communities

1. How did you know about program? How are you involved? Purchase / beneficiary of streetlighting
2. How well you like the program? What are the positives and negatives?
3. Any data / identification documents collected by officials?
4. What is your opinion on the amount collected / charge?
5. Any risk you are aware of, or anticipate? – transport, storage, quality, life, wastes
6. Opinion on suitability of bulbs etc. to special situations, quality, life, lighting effects, ease of installation etc?
7. Where would you dispose the old bulbs?
8. Have you observed wastes out of this program piling up in streets / municipal offices etc?
9. What are the issues of distribution - off site / onsite - at distribution kiosks or on streets (for streetlights), during special situations or emergencies, safety risks for handlers, labor force?
10. What are the impacts due to usage of these installations / installing these installations on environment - land, fauna/flora, visual / human health (views on visual quality, heat generation, any specific adverse impact)?
11. Opinion on warranty, replacements, usage other than initially intended – bulk purchases / resale?
12. How has the project supported inclusion of areas of importance like tourist areas, rural, eco-fragile areas? Or suggestion on areas to be included
13. Any existing or required considerations for the old who buys – like online purchase, supply at home, support in installation etc.?
14. Any opinion on installation arrangements -incompetent installation / mechanisms?
15. Any other agency / activity which has additionally sprang up in your area as a forward linkage - for installation, replacement, maintenance support?
16. Any info or media report any such Environmental, social issue regarding this program? How was the program affected due to this?
17. Any Issues related to public and labor safety during Pre/during / post implementation or operation of facilities (impacts of lights, electricity, heat issues, short circuits, power shortage issues), material safety (exposure to toxic / Hazardous materials during, pre and post implementation, products, byproducts, disposal/wastage), reconstruction/rehabilitation during special events hazards
18. Are you aware of the wastes, the sites where waste is disposed, who gets impacted?
19. How will the project reach and benefit marginalized groups (direct benefit like consumer goods and other benefits like access to new opportunities/employment)?
20. What are the role and opportunities for participation of SHGs in distribution, repair, management, maintenance and other avenues for involvement?
21. Is community ownership built on the resources provided to ensure maintenance and sustainability?
22. What are the efforts taken to gauge user experience, consumer feedback? Which type is effective – online, physical surveys, grievance in kiosks at office?
23. Has anyone enquired on any social / environmental issues due to program? If yes, responses / reported issues.
24. Actions required for gap filling (impacts on resources), grievance redressal or envl / social issues - any suggestions?
25. Any suggestion on how management system must change to mitigate adverse impacts, become transparent / accountable?

Additional Notes / Comments

Questionnaire III: Agriculture Demand Side Management

1. Project process
2. Installation Process
3. Block category with respect to ground water utilization?
4. Which Block, Village, taluka, panchayat
5. Cropping pattern traditional; what main crops – which required more water? Why need felt for project/
6. Area served by source – Average field area per family?
7. Depth of taping water – Aquifer? Capacity of pumps used
8. Type of studies done – Environmental, Social?
9. Where installed – wells? Type of wells? Other water bodies?
10. Institutions involved: roles: EESL, PG, Pump supplier, O&M, awareness, old pump mgmt., repair & maintenance, waste management - of all wastes
11. Community or individual installations? replacement or new?
12. Type of pumps used, vs old pump types
13. Source of fuel, how fuel transported-route?
14. Who were responsible for removing old pumps?
15. Can they use old pumps for some other purpose? What is it used for now?
16. How were old pumps dismantled? Or waste dumped?
17. Any issues noticed with the new pumps
18. What type of wastes: how each managed; during installation & O&M
19. Hazards during installation: any special issue or possible issuer – electric shocks, fall
20. Any safety devices or arrangements uses? PPE?
21. Any area cleared of vegetation for installation, any structure modifying?
22. Sound levels of old vs. new, when operated; what issues?
23. DG sets used? What type, noise issues, fuel used, where from purchased? Certifications?
24. Any hazardous or E-waste parts – Pump manufacturer gives conformation?
25. Installed near rivers, water bodies, forests, wetlands – any impact – oil, noise affecting biodiversity, wastes?
26. Where stored – new, replacements, wastes / old
27. Any possible hazard – during installation, O&M, removal
28. Any quality of wires, other supporting to be used?
29. pump quality issues faced?
30. Any issue perceived during any disasters? – examples?
31. Type of block, permits required?
32. Farm sizes, owner / group of owners, co-op? change in water withdrawal rates? More extractions? What are the current uses of the water withdrawn using these pumps? Only agriculture – or household, irrigating nearby farms? Or any new use? tankers?
33. Any part of process -women's services used? How much pay difference? Any new women's jobs created?
34. Any sub improvement – like better electricity for household use etc. (distance to home from farm) – which village owners stay; improvement in cropping pattern? Double cropping started? Crops changed? Patterns changed? Rain fed changed to irrigated?
35. Any CBOs / NGOs involved, how?
36. Who installs, local or hired labor from outside? influx? stay etc. Duration of work? Labor availability for O&M
37. Environmental and social benefits and risks?
38. How can this be improved?
39. Daily withdrawal rates – pre-AgDSM and post AgDSM at field level – in water quantity
40. How pumps transported? Who transports, which roads used? Any issues?
41. Where the pumps are manufactured/? Certifications? Any environmental aspect
42. Any safety risks – weight of pumps, where installed; any risks due to these?
43. Heat, visual issues? Any impact on environmental components, humans, children?

44. Who monitors operations – what all monitored? Water levels tested? Any type of tests for monitoring on monthly or interval basis?
45. Any training or capacity building?
46. Grievance mechanism? Any routine meetings?
47. Any special consideration on old farmers, women headed households, tribals, other gender specific?
48. Any artificial recharge or harvesting proposed?
49. Are the selected areas in semi critical blocks? Or over exploited – Nagamangala, Pandavpura, KR Pet, Malavalli?
50. Were ground water officials consulted? Any local opposition?
51. All permits taken for changing pumps?

Additional Notes / Comments

Social Assessment Checklists

A. General: Social Benefits

1. What are the social environmental benefits of each program intervention (DELP, Street lighting, AC, Pumps) in terms of inclusion (access and use by marginalised groups, gender), improved participation, strengthened local systems and development indicators?
2. How has the project supported inclusion of areas of importance like remote, conflict prone, marginalised groups?
3. What are the benchmarks and pre-requisites for targeting, selection and outreach – what are the ways to ensure that the marginalised communities benefit (marginalised due to their socio-economic background or geographical location)?How will the project reach and benefit marginalised groups (direct benefit like consumer goods and other benefits like access to new opportunities/employment)?
4. What are the benefits accruing to local governments? Does it provide capacity to ULBs and/or GPs to manage assets? How is that done?
5. How is the project improving overall accountability and transparency[56]?
6. User Feedback and Grievance Redressal: What are the existing systems for grievance redressal and their responsiveness
7. What are the role and opportunities for participation of SHGs in distribution, repair, management, maintenance and other avenues for involvement?
8. What is the institutional mechanism for factoring in social benefits during project design, implementation and M&E? How can inclusion be tracked, monitored and documented (questionnaire, data collected on profile of beneficiaries, orientation of representatives at the EESL Kiosks, what is captured in site distribution surveys etc.)?
9. What are the institutional policies and practices for gender and labour rights and opportunities?

B. General: Social Risks

1. What types of social risks have emerged during the implementation phase (Exclusion, conflict of expectations, cultural issues, reinforcing gender stereo-types)?
2. What risks are anticipated during the project cycle; including in sensitive areas (remote, conflict prone, heritage/tourist)?
3. What is the institutional support mechanism for factoring in social risks and response during implementation and M&E?
   a. Systems: How are safeguards integrated in the program operations, what are the available frameworks, how are social effects reported and monitored?
   b. Opportunities: What are the opportunities for training and capacity building on social issues and safeguards?
   c. Skills: Availability (numbers and skills) of staff to handle social components at all level
   d. Gender: female beneficiaries, female staff at kiosks, (number) Female staff including the departments and roles, growth opportunities, safe working environment, facilities, flexible hours and other enabling HR policies
   e. What are the gaps within the institution to address concerns related to gender and labour rights?

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[56] The assessment will explore EESL's outreach to the community, the channels of information dissemination, communication, and existing systems of disclosure. It will also assess how efficient streetlighting improves accountability and transparency.

4. Have consumer feedback and emerging grievances incorporated for course correction and improving program implementation?

C. *General: Social Opportunities*
1. What are the opportunities to develop adequate guidelines to avoid, mitigate, and manage social risks? What are the opportunities for inclusion, transparency and participation?
2. What are the opportunities to build community ownership on the resources provided to ensure maintenance and sustainability?
3. How shall the training and capacity building activities to be designed to ensure risk avoidance and management?
4. What are the opportunities for innovations (economic and social inclusion- opportunities for improved gender indicators, outreach to ethnic minorities and other opportunities for marginalised groups)?
5. What opportunities does the project provide for overall improvement of the capacity of EESA and the partnering agencies regarding energy efficiency and other intended project benefits and risks?
6. What opportunities are created for organisational improvement in terms of gender justice and labour rights?

D. *Checklist for Social management issues for UJALA in tribal/conflict/sensitive areas:*
1. What are the institutional mechanisms for Implementation? (Offices, Staff: roles, Consultants: roles, Contractors: roles)
2. What are the risks that the program faces due to infiltration/violence?
3. Which locations/areas are avoided?
4. Have there been any incidence of loss of goods due to violence?
5. Have there been any accidents due to terrain? Are there any special safety mechanisms followed?
6. What is the overall grievance redressal system? What are the typical grievances?
7. Are there special climatic, geographical locations in your project area?
8. Are there any special conditions that you have to follow? If yes, what?
9. Regarding the kiosks, how is it ensured that the staff gets access to drinking water and toilets?
10. Are there any additional mechanisms to ensure safety of the staff?
11. How is the packaging or other waste managed in the kiosks?
12. What have been the examples of subsidies in states? Is there any information on the number of beneficiaries?
13. How is the outreach to remote area/rural areas ensured?
14. What are the Social Benefits of the program?
15. What challenges and constrains do the teams face?
16. Any or social risks of the program?

E. *Checklist for Social management issues for SLNP in tribal/conflict/sensitive areas:*
1. What are the institutional mechanisms for Implementation? (Offices, Staff: roles, Consultants: roles, Contractors: roles)
2. What is the role of local municipal bodies? (provide names of agencies and designations of focal points)
3. What are the risks that the program faces due to infiltration/violence?
4. Which locations/areas are avoided?
5. Have there been any accidents due to terrain? Are there any special safety mechanisms followed?
6. Have there been any incidence of loss of goods due to violence?
7. Have there been any grievances on suitability of lights?
8. What is the overall grievance redressal system? What are the typical grievances?
9. Are there special climatic, geographical locations in your project area?
10. Are there any special conditions that you have to follow? If yes, what?
11. What have been the CCMS benefits?

12. Have there been any incidents of tampering with CCMS?
13. How is the packaging or other waste managed?
14. What are the Social Benefits?
15. Any social risks?

F. *Checklist to understand the role of SHGs:*
1. In which projects and areas have SHGs been involved?
2. What has been their specific role?
3. How many SHGs and how many women have been involved?
4. Did they receive any training/orientation? What topics and duration?
5. What has been the benefit of involving SHGs?
6. How have SHGs benefitted?
7. What is being planned ahead- formalizing their role, expanding their role?

G. *Checklist for Agri DSM:*
1. How are the sites selected for distribution of pumps?
2. What criteria of cropping patters looked at before entering a site?
3. Is groundwater table looked at before entering a site?
4. How are the pump recipients identified?
5. If there is a greater demand, how are recipients prioritized?
6. Is there any role of the farmers/*kisan* clubs?
7. Is there any role or consultation with local governments like Panchayats?
8. What are the social benefits of the program?
9. Are there any social risks foreseen?