BANGALORE ELECTRICITY SUPPLY COMPANY LIMITED

Environmental and Social Management System (ESMS)

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Document Information

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Number	BESCOM ESMS
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Type	Management System

History of the Document amendments

The latest version of the ESMS including the Environment and Social Policy and Management Framework and its supporting Management Manuals/ Plans and Standard Operating Procedures must be used at all times. In order to ensure that the ESMS maintains a record of the amendments made, this page needs to be updated whenever there is a change in the version number of this document. This ESMS document needs to be updated whenever there is a change in the supporting Management Manuals/ Plans and Standard Operating Procedures to refer to the latest version.

Version	Date	Prepared By	Reviewed By	Description of Changes	Approved By
1.0	August 2021	DGM	CGM (P)	Final	DT
Signature					

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Abbreviations

ADB	-	Asian Development Bank
BBMP	-	Bruhat Bengaluru Mahanagara Palike
BESCOM	-	Bangalore Electricity Supply Company Limited
BMASZ	-	Bangalore Metropolitan Area Zone-South
BMANZ	-	Bangalore Metropolitan Area Zone-North
BOQ	-	Bill of Quantities
BPL	-	below poverty line
BWSSB	-	Bangalore Water Supply and Sewerage Board
CAP	-	corrective action plan
CE	-	chief engineer
CEA	-	Central Electricity Authority
CEMP	-	construction environment management plan
CIM	-	customer interaction meeting
CLO	-	Chief Liaison Officer
CLS	-	core labor standards
COP	-	codes of practice
CPCB	-	Central Pollution Control Board
CRO	-	Customer Relations Officer
CTAZ	-	Chitradurga Zone
CWMP	-	construction waste management plan
DAS	-	distribution automation system
DF	-	Document Format
DGM	-	deputy general manager
DMP	-	disaster management plan
DPR	-	detailed project report
DTC	-	distribution transformer centre
ECA	-	Employee Compensation Act 1923
EE	-	executive engineer
EESSA	-	External Environment and Social Safeguards Auditor
EHS	-	environmental, health and safety
EIA	-	environmental impact assessment
EMP	-	environment management plan
EMoP	-	environment monitoring plan
EMR	-	Environment Monitoring Report
E&S	-	Environmental and social

ESCT	-	environment and social corporate team
ESMS		environmental and social management system
E&S	-	environmental and social
GBV	-	Gender Based Violence
GHG	-	greenhouse gas
GM	-	general manager
GoI	-	Government of India
GoK	-	Government of Karnataka
GRC	-	Grievance Redress Committee
GRM	-	grievance redress mechanism
H&S	-	health and safety
HQ	-	Headquarters
HT	-	high tension
HVDS	-	high voltage distribution system
IEC	-	independent environment consultant
IEE	-	initial environment examination
IFC	-	International Finance Corporation
ILO	-	International Labor Organization
KPI	-	Key Performance Indicator
KPTCL	-	Karnataka Power Transmission Corporation Limited
KSPCB	-	Karnataka State Pollution Control Board
LT	-	low tension
MD	-	managing director
MDB	-	multilateral development bank
MM MP	-	management manual management plan
MoEFCC	-	Ministry of Environment, Forest, and Climate Change
ML&E	-	Ministry of Labor and Employment
MoP	-	Ministry of Power
NOC	-	no objection certificate
NGO	-	nongovernmental organization
O&M	-	operation and maintenance
OSHA	-	Occupational Safety and Health Administration
OFC	-	optical fiber cable
OHS	-	occupational health and safety
PAPs	-	project affected persons
PCB	-	polychlorinated biphenyls
PPE	-	personal protective equipment

PPP	-	pollution prevention plan
PUC	-	pollution under control
QS&S	-	Quality, Standards and Safety (division of BESCOM)
RMU	-	ring main unit
RP	-	resettlement plan
SDDR	-	safeguards due diligence report
SE	-	superintending engineer
SEAC	-	State Level Expert Appraisal Committee
SEAH	-	Sexual Exploitation Abuse and Harassment
SEIAA	-	State Level Environment Impact Assessment Authority
SEP	-	stakeholder engagement plan
SIA	-	social impact assessment
SOP	-	standard operating procedure
SPCB	-	state pollution control board
T&D	-	transmission and distribution
TMP	-	traffic management plan
UNFCCC	-	United Nations Framework Convention on Climate Change

I. Introduction

A. BESCOM Company Profile

1. Bangalore Electricity Supply Company Limited (BESCOM), incorporated in 2002, is one of the five state-owned distribution utilities in Karnataka licensed to supply electricity in the state. It is a fully state government-owned enterprise and the largest distribution utility of Karnataka. It is responsible for power distribution in eight districts, covering an area of 41,092 square kilometers (km^2) and a population of over 20.7 million. It has four operating zones in Bengaluru, covering, in aggregate, approximately 100,000 circuit kilometers (km) of 11 kilovolt (kV) high voltage lines and 165,000 circuit km of 1.1 kV low voltage lines, associated distribution transformers, about 400 substations, plus stores and workshops. In addition to operation and maintenance of its distribution network, and provision of customer connections BESCOM's power distribution services business involves various capital projects. Figure 1 shows the operational profile of BESCOM.

Figure 1: Operational Profile of BESCOM

Sl. No.	Particulars		Statistics
1	Area	Sq. km.	41092
2	Districts	Nos.	8
3	Taluks	Nos.	46
4	Population	lakhs	207
5	Zone	Nos.	4

Sl. No.	Particulars		FY-19-20
1	Consumers	Lakhs	118.72
2	Energy Sales	MUs	27736.03
3	DTCs	Nos.	347579
4	HT lines	Ckt . Kms	109635.90
5	LT lines	Ckt. Kms	171397.98
6	Total Employees strength:		
A	Sanctioned	Nos.	23043
B	Working	Nos.	15534
7	Revenue Demand	Rs. in Cr	1957.88
8	Revenue Collection	Rs. in Cr	1884.79

Ckt. Kms = circuit kilometers, DTC = distribution transformer, LT = low tension, MU = million units.

B. Environmental and Social Impacts and Risks from BESCOM Operations

2. It is identified that BESCOM operations, including the construction, operation and maintenance (O&M) of power distribution infrastructure, and its corporate and field (zonal, circle and division) office operations could have the following potential environmental and social impacts and risks:

(i) Increased noise, dust, erosion, solid waste, and wastewater generation, resulting in increased pollution risk during works, temporarily disrupting and disturbing sensitive receptors present including shops and markets, places of worship, hospitals and clinics, schools and libraries, private residences etc.

(ii) Increased traffic congestion and restrictions on vehicle and pedestrian movements during works, temporarily disrupting and increasing health and safety risks for road and sidewalk users.

(iii) Occupational health and safety risks for construction workers and BESCOM's O&M staff, especially risks due to working with live electricity, at height, and in the street with running traffic.

(iv) Accidental risk of damage to property and utilities above or below ground, and increased risk of public injury during works, mainly being undertaken in dense urban environment.

(v) Once operational, risks to community health and safety from presence of distribution infrastructure, particularly in relation to above ground electrical infrastructure resulting in the worst-case in fatalities.

(vi) Use of hazardous materials and generation of solid and hazardous waste for disposal during operation, particularly in relation to substations, stores and workshops but also from the operation of corporate and field offices, including batteries and e-waste.

(vii) Historic use of and leakage to the environment of PCB oils in distribution transformers, in operation or held in stores.

(viii) Use and risk of leakage of sulfur hexafluoride (SF6) a potent greenhouse gas with global warming potential of 22,800 kg carbon dioxide equivalent in gas insulated switchgear, ring main units etc.

(ix) Risk of economic displacement due to any temporary access restrictions during works.

(x) Energy and water consumption and the generation of sanitary wastewater for disposal from operating corporate and field offices, etc.

(xi) Employee welfare in relation to BESCOM staff and the staff of contractors and their subcontractors.

C. Objectives of the ESMS

3. In keeping with the requirements of national and state laws and regulations and the private-sector requirements of international development agencies (such as, ADB or IFC) on the assessment and management of environmental and social impacts and risks, BESCOM has established an Environmental and Social Management System (ESMS) for its business activities. The ESMS is maintained as part of BESCOM's overall management system in order that environmental and social management is mainstreamed into business decisions and activities.

4. The ESMS is embodied in this ESMS document including the Environment and Social Policy and Management Framework and supporting Management Manuals/ Plans (MM/ MP) and Standard Operating Procedures (SOP). This ESMS document defines the policy, procedures, roles, and responsibilities for managing the adverse environmental and social impacts and risks of BESCOM's operations. This ESMS document and the supporting MMs/ MPs and SOPs will be periodically updated as required to ensure that the ESMS remains responsive to national and state requirements and the changing environmental, health and safety, and social impacts and risks of BESCOM's business activities. The ESMS constitutes a flexible management approach that is based directly on ensuring BESCOM activities are compliant with national requirements but considering international best practices, and can readily accommodate the changing needs of BESCOM's operations. This ESMS document needs to be updated whenever there is a change in the supporting MMs/MPs and SOPs to ensure that it is always referring to the latest version.

5. The ESMS has the following elements: (i) environment and social regulatory framework, (ii) BESCOM environment and social policy, (iii) organizational arrangements addressing structure and staffing including the skills and competencies required in environmental and social areas; (iv) environment and social management framework of BESCOM, (v) monitoring and reporting requirements, and (vi) training and awareness requirements. The latest versions of supporting MMs/ MPs and SOPs are provided as annexes or alternatively linked documents to the ESMS, these are controlled documents in their own right.

D. Scope of the ESMS

6. The ESMS applies to all of BESCOM's operations; this includes the entire life cycle of power distribution infrastructure either implemented or financed by BESCOM, generally the life cycle can be defined under three sequential phases, and its corporate and field office operations:

- Planning and construction of new or upgraded power distribution infrastructure,[1]
- Distribution system O&M, including BESCOM managed stores and workshops, and
- Distribution system infrastructure decommissioning, site restoration and closure.

7. The ESMS applies to all BESCOM employees in terms of their health, safety and welfare. It also applies, as set out in this ESMS document, to its contractors, consultants, vendors, service providers and suppliers as well as lower tiers in their supply chain e.g., sub-contractors. Through their contracts those directly appointed by BESCOM will be required to cascade applicable requirements down the sub-tiers of their supply chain for their tenure of work with BESCOM.

[1] BESCOM distribution system includes overhead distribution lines, underground distribution cables, optical fiber cables, ring main units, substations, etc.

8. In case of contractors, consultants, vendors, service providers and suppliers wishing to follow different procedures, prior written permission must be sought from the head of the environmental and social corporate team of the BESCOM that the outcome will be equivalent to adopting those in the ESMS.

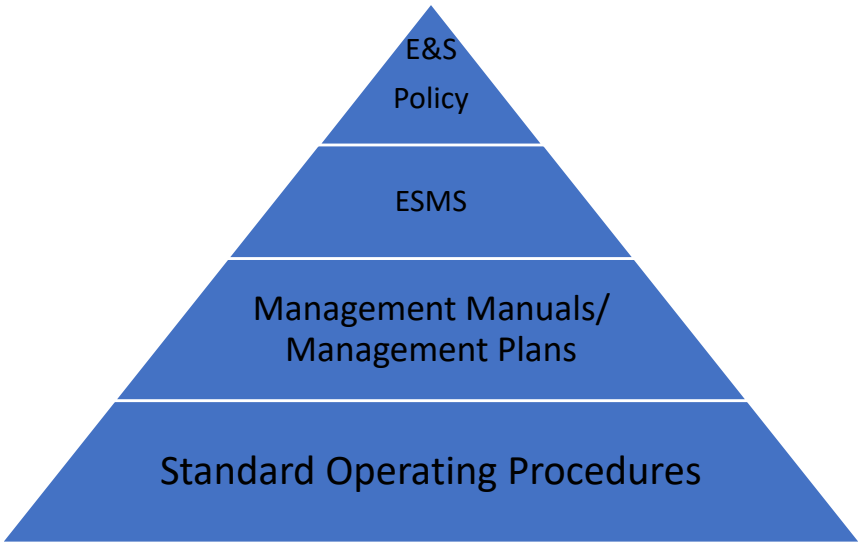
E. ESMS Structure and Documentation

The ESMS provides the structure for BESCOM to proactively implement environmentally sustainable and socially acceptable business practices in its operations. The ESMS helps to:

a) Ensure compliance with both internal and external environmental, health and safety, and social requirements;
b) Identify and manage environmental, health and safety, and social risks;
c) Drive continuous improvement towards environmentally sustainable and socially acceptable business practices; and
d) Support implementation and review of BESCOM's Environment and Social Policy.

9. The overall hierarchy of documents that comprises the ESMS is depicted in Figure 2.

Figure 2: ESMS Documentation Hierarchy



10. The functions fulfilled by each level of ESMS documentation are summarized as follows.

11. The highest-tier document is the Environment and Social (E&S) Policy through which BESCOM commits to follow the national and state environmental and social regulatory framework etc.

12. Second tier in the ESMS is represented by this ESMS document, which describes the management framework including procedure, roles and responsibilities and the specific functions fulfilled by other categories of system documentation. It is the primary reference

document for the overall design and contents of the ESMS (also including the E&S Policy, MMs/MPs and SOPs) and is meant to serve as a key communication tool in the presentation of the ESMS to employees, lenders, regulatory authorities, and other external parties including contractors, consultants, vendors, service providers and suppliers.
This ESMS document is supported by a suite of MM/MPs as the third tier, and SOPs as the fourth tier which are focused on the management or mitigation of specific environmental and social impacts or risks associated with one or more phases of BESCOM power distribution infrastructure operations. Further details on these are described in the environment and social management framework. This ESMS document should always be read in conjunction with the most updated versions of the MMs/MPs and SOPs.

F. ESMS Governance Structure

13. The environmental and social corporate team (ESCT) of BESCOM together with the Quality, Standards and Safety (QS&S) Division, Consumer Relations Division and Admin and HR Division, all at corporate level, are responsible for implementation of the ESMS in BESCOM, coordinating and mainstreaming environment and social aspects in BESCOM's various operations and regularly reporting to BESCOM management on its implementation.

14. Under the Director (Technical) ESC headed by the Chief General Manager (CGM)-Projects is primary responsible for environmental and social safeguard aspects of BESCOM, the ESC works with QS&S Division who also report to Director (Technical) and are responsible for corporate health and safety aspects.

15. General Manager (Consumer Relations) under Director (Technical) is responsible for customer satisfaction (in relation to stakeholder engagement) whilst the General Manager of the Admin and HR Division is responsible for BESCOM employment-related aspects and will work closely with the ESC and QS&S Division in relation to employee competencies and delivering of training activities.

16. At field level, the chief engineer (at zone level) is responsible for all environmental and social aspects of BESCOM operations and compliance with the regulatory framework and ESMS.

II. Environmental and Social Regulatory Framework

17. All BESCOM operations are implemented in accordance with Government of India and Government of Karnataka's environment, social, health and safety acts and rules, including relevant international agreements, as well as BESCOM's environmental and social policies and procedures.

A. National and State Environment, Health and Safety Framework

18. The Ministry of Environment, Forest, and Climate Change (MOEF&CC) is the apex body for environment and pollution control. Karnataka State Pollution Control Board (KSPCB) together with Central Pollution Control Board (CPCB) provide the regulatory function for pollution prevention and control applicable to the operations of BESCOM activities. The Ministry of Labor and Employment (ML&E) is the apex body for occupational health and safety (OHS) with the Labor Secretariat, Government of Karnataka at state level. The Ministry of Power (MoP), together with the Central Electricity Authority (CEA) are the apex bodies for community safety in relation to the electrical distribution networks.

a. Government of India Environment and Social Policies, Acts and Regulations

19. The major Indian policies, acts and rules relevant to all components of BESCOM operations are the National Environment Policy (2006) and the Environment Protection Act (1986) for environment and pollution control; the National Policy on Safety, Health and Environment at Work Place (2009) for OHS; the National Policy on HIV/AIDS and the World of Work, 2014; and, the Electricity Act (1910) and its Amendments (2004) and (2007), and the Indian Telegraphic Act (1885) and its Amendments (2003) for community safety in relation to the electricity distribution networks. Table 3 gives a list of all relevant environment, health and safety acts and regulations and their applicability to BESCOM activities and operations.

Table 1: National Acts and Regulations Applicable to BESCOM Activities and Operations

Sl. No	Name of Regulation	Applicability	Remark
Environmental Regulations			
1	The Environment (Protection) Act 1986 and Environment (Protection) Rules 1986 & its amendments	Yes	Umbrella Act to the Air, Water and Noise Acts.
2	Forest Conservation Act, 1980	Yes	If operations are in any forest area the requirements of this act will be followed by BESCOM and its contractors.
3	Wildlife (Protection) Act, 1972 (amended 2003)	Yes	If operations are in any protected area the requirements of this act

Sl. No	Name of Regulation	Applicability	Remark
			will be followed by BESCOM and its contractors, operations will also comply with provisions related to wild animals and specified plants in the event that any are encountered during works.
4	The Hazardous Waste (Management, Handling and Trans-boundary Movements) rules, 2016	Yes	Any hazardous waste created by company activities and operations (including by contractors) will be handled as per the provisions of the Act.
5	Regulation of Polychlorinated Biphenyls Order, 2016	Yes	Use of PCBs in company activities and operations (including by contractors) will be prohibited as per the provisions of the order, old transformers and capacitors will be handled as per the provisions of the Act with disposal by 2028, and all existing transformers and capacitors are to be PCB free by 2025.
6	Batteries (Management and Handling) Rules, 2001 and further amendments	Yes	Any batteries used by BESCOM and its contractors will be handled as per the provisions of the Act.
7	Ozone Depleting Substances (Regulation) Rules, 2000 as amended in 2005	Yes	Use of ozone depleting substances by company activities and operations (including by contractors) will be prohibited as per the provisions of the Act.
8	The Air (Prevention and Control of Pollution) Act, 1981 including Rules 1982 and 1983	Yes	BESCOM will follow and ensure that its contractors will follow this act and take measures to reduce emissions to air and set up monitoring stations during works to periodically measure the air quality where there is a risk of air pollution.
9	Noise Pollution (Regulation and Control) Rules, 2000 and the Noise Pollution (Regulation and Control)	Yes	BESCOM will and ensure that its contractors will take measures to reduce noise emissions and will set up monitoring stations to periodically measure the noise

Sl. No	Name of Regulation	Applicability	Remark
	(Amendment) Rules, 2010		levels during works where there is a risk of noise pollution.
10	The Water (Prevention and Control of Pollution), Act, 1974 including Rules, 1975 (as amended up to 1988)	Yes	BESCOM will and ensure that its contractors will take measures not to pollute surface and groundwater.
11	The Water (Prevention and Control of Pollution), Cess Act, 1977 including Rules 1978 and 1991	Yes	BESCOM will and ensure that its contractors will take measures not to pollute surface and groundwater.
12	Central Ground Water Authority Notification no.21-4/Guidelines/CGWA/2009-832 dated 14th October 2009	Yes	BESCOM will and ensure that its contractors will follow this notification for any extraction of water for company activities and operations.
13	The National Environmental Appellate Authority Act, 1997	No	Only in case of any appeals, BESCOM will reach out to this authority for any decisions related to environment.
14	Construction and Demolition Waste Management Rules, 2016	Yes	Any construction waste and debris generated by BESCOM or its contractors will be disposed of at designated sites as per the provisions of these rules.
Social Regulations			
1	Building and Other Construction Workers Act 1996	Yes	Key legislation providing guidelines for onsite labor and worker management and welfare
2	Interstate Migrant Workers Act 1979	Yes	In case workers and laborers working at BESCOM sites are migrants from other states this legislation is to be followed by BESCOM and their contractors.
3	The Indian Telegraph Act, 1885 and its Amendments (2003)	Yes	Community safety in relation to the electrical distribution networks. This act provides right of way to lay any overhead lines.
4	Indian Treasure Trove Act, 1878 (as modified up to September 1949)	Yes	All chance finds will be deposited with the government as per the provisions of this act.
5	The Antiquities and Art Treasures Act, 1972	Yes	All such finds will be deposited with the government as per the provisions of this act.

Sl. No	Name of Regulation	Applicability	Remark
6	The Child Labour (Prohibition and Regulation) Act, 1986	Yes	BESCOM will and ensure that its contractors will avoid child labor. No child will be employed. No adolescent (under 14 years) will be engaged in hazardous work.
7	The Bonded Labour (Abolition) Act 1976	Yes	BESCOM will and ensure that its contractors will avoid bonded labor.
8	The Trade Union Act, 1926	No	BESCOM will and ensure that its contractors will allow formation of labor unions as per the provisions of this act.
9	Minimum Wages Act, 1948	Yes	BESCOM will and ensure that its contractors will ensure that wages are paid as per the provisions of this act.
10	Workmen's Compensation Act, 1923	Yes	This act will be followed by BESCOM and its contractors for providing compensation in case of disability or loss of limb or sight or life.
11	The Contract Labour (Regulation & Abolition) Act, 1970 and Rules	Yes	BESCOM will ensure that the provisions of this act are complied with by its contractors.
12	The Employees' Provident Funds and Miscellaneous Provisions Act, 1952	Yes	BESCOM will ensure that its contractors will pay Employee Provident Fund as per the provisions of this act.
13	Indian Factories Act 1948 and State Rules	Yes	This act becomes operational in case there are more than ten full time employees during the operations phase of BESCOM activities and operations. BESCOM will and ensure that its contractors will follow the health and safety guidelines under this act.
14	Employees State Insurance Act, 1948 (ESI)	Yes	This act will be followed by BESCOM and its contractors for providing employee insurance
15	Payment of Gratuity Act, 1972	Yes	The provisions of this act are applicable to BESCOM and its contractors when paying gratuity.

Sl. No	Name of Regulation	Applicability	Remark
16	Provisions of the Panchayats (Extension to the Scheduled Area) Act, 1996	No	The provisions of this act are only applicable to works in Tribal Areas
17	The Right to Information Act, 2005	Yes	BESCOM will provide information to those who apply for the same as per the provisions of this act.
18	Employers' Liability Act no. 24 of 1938	Yes	The provisions of this act are applicable with regard to the liability of the employers; BESCOM and its contractors.
19	The Shops and Establishment Act and State Rules	Yes	BESCOM will follow the health and safety guidelines related to contractor's establishment under this act.
20	The Petroleum Act, 1934 and the Petroleum Rules	Yes	BESCOM will and ensure that its contractors will follow the health and safety guidelines related to use of petroleum under this act.
21	Gas Cylinder Rules and Static and Mobile Pressure Vessels (Unfired) Rules, 1981	Yes	BESCOM will and ensure that its contractors will follow the health and safety guidelines related to cylinders and pressure vessels under this act.
22	Labour Codes: The Code on Social Security, 2020 The Industrial Relations Code, 2020 The Code on Wages, 2019 The Occupational Safety, Health and Working Conditions Code, 2020 The Code on Wages, 2019	Yes	BESCOM will and ensure that its contractors will follow these labour codes.
23	Central Electricity Authority (Safety Requirements for Operation, Construction and Maintenance of Electric Plants and Electrical Lines) Regulations 2011	Yes	BESCOM will and ensure that its contractors will follow these requirements during detailed design, construction, operation and maintenance of power distribution infrastructure
24	Indian Electricity Act, 2003	Yes	BESCOM will and ensure that its contractors will follow the health and safety guidelines under this act.

Sl. No	Name of Regulation	Applicability	Remark
25	Electricity Act (1910) and its Amendments (2004) and (2007)	Yes	Community safety in relation to electrical distribution networks, BESCOM will and ensure that its contractors will follow the health and safety guidelines under this act.

b. Technical Standards and Regulations for the Indian Power Sector

20. CEA is the technical agency making regulations consistent with the Electricity Act, 2003 under section 177 and carrying out the provisions of the Act. The following relevant regulations, which deal with health and safety requirements, are notified and published in the official gazette of the Government of India and available on the website of CEA and will be followed by BESCOM:

(i) CEA (Installation and Operation of Meters) Regulations, 2006 – notified on 17 March 2006
(ii) CEA (Grid Standards for Operation & Maintenance of Distribution Lines) Regulations, 2010- notified on 26 June 2010
(iii) CEA (amendment to the regulations on "Installation & Operation of Meters") Regulations, 2010-notified on 26 June 2010
(iv) CEA (Measures Relating to Safety & Electric Supply) Regulations, 2010- notified on 24 September 2010
(v) CEA (Technical Standards for Construction of Electric Plants and Electric Lines) Regulations, 2010-notified on 20 August 2010
(vi) CEA (Safety Requirements for Construction, Operation and Maintenance of Electrical Plant and Electrical Lines) Regulations, 2011-notified on 14 February 2011
(vii) CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) – Regulations 2010
(viii) CEA (Technical Standards for Connectivity to the Grid) (Amendment) Regulations 2010.
(ix) National Electricity Code 2011
(x) The Indian Electricity Rules 1956

c. Karnataka Specific Framework

21. MoEFCC, Government of India, vide its Notification Nos. S.O. 1533 dated 14 September 2006, reengineered the EIA process in India, and also decentralized some powers, making provision to constitute the State Level Environment Impact Assessment Authority (SEIAA) and the State Level Expert Appraisal Committee (SEAC) for performing functions under the said notification. For Karnataka state, the SEIAA and SEAC was constituted vide the MoEFCC, Government of India, Notification Nos. S.O. 1735 (E) dated 11 October 2007; however, both SEAC and SEIAA of Karnataka were reconstituted/re-notified on 21 March 2011 vide Nos. S.O. 608 (E).

22. The KSPCB's guidelines with regard to monitoring of environmental parameters apply to BESCOM operations since they are all in Karnataka state.

23. Karnataka Government policies, acts and regulations that are applicable are listed in Table 4.

Table 2: Karnataka Policies, Acts and Regulations as Applicable for BESCOM Operations

Sl. No	Name of Regulation	Applicability	Remark
1	Karnataka Land Preservation Act (LPA) 1985	No	This act provides for the preservation and regulation of Parks, Play-fields and Open Spaces in the State of Karnataka.
2	The State Tree Preservation Act	Yes	BESCOM will and ensure that its contractors will follow this act in event any trees need to be cut. The act will be applicable to all BESCOM's operations.

d. National Environment Clearance

24. Under the Government of India's EIA Notification 2009, the environmental classification of environmentally sensitive projects or activities included in Schedule 1 is determined by MoEFCC, Government of India, and there are two possible outcomes:

- **Category A:** A project or activity is classified as Category A if it is likely to have significant negative impacts and is thus one of the types of project or activity listed in this category in the EIA Notification. Such projects or activities require EIA, plus environmental clearance (EC) from MoEFCC;
- **Category B:** A project or activity is classified as Category B if it is likely to have fewer negative impacts and is listed in this category in the EIA notification. These projects or activities require EC from the State Environment Impact Assessment Authority (SEIAA) who classify the project or activity as B1 (requiring EIA) or B2 (not requiring EIA) depending on the level of potential impacts. Projects or activities classified as B2 require no further assessment.

25. However, power distribution projects or activities in urban areas are not even included as an environmentally sensitive project or activity in Schedule 1 of the EIA Notification 2009. Therefore, no EC is required from the MoEFCC or SEIAA for BESCOM activities and operations.

B. International Agreements Applicable to BESCOM Activities/Operations

26. India is member of almost all major multilateral environmental agreements (MEAs) under four clusters:

a. Nature conservation:

- Convention Relative to the Preservation of Fauna and Flora in the Natural State (1933) – BESCOM will seek to avoid loss of natural flora and fauna as a result of its works through careful siting and design of power distribution infrastructure
- International Plant Protection Convention (1951) – BESCOM will seek to avoid loss of natural flora and fauna as a result of its works through careful siting and design of power distribution infrastructure
- Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar, 1971) – BESCOM will seek to avoid potential impacts on Ramsar designated sites through careful siting and design of power distribution infrastructure
- Convention concerning the Protection of World Cultural and Natural Heritage (Paris, 1972) – BESCOM will seek to avoid potential impacts on world cultural and natural heritage designated sites through careful siting and design of power distribution infrastructure
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (Washington, 1973) – no direct relevance, but BESCOM will prohibit engagement in illegal activities related to endangered species by workers and laborers
- Convention on Migratory Species of Wild Animals (Bonn, 1979) – BESCOM will seek to avoid potential impacts on any mitigatory species as a result of its works through careful siting and design of power distribution infrastructure
- Convention on Biological Diversity (Rio De Janeiro, 1992) - biodiversity conservation and sustainable usage, habitat preservation, and protection of indigenous people's rights, and intellectual property -- BESCOM will seek to avoid loss of natural flora and fauna as a result of its works through careful siting and design of power distribution infrastructure

b. **Hazardous materials**: This is relevant, particularly in view of the usage of SF6 in gas insulated substations, switchgear and RMUs and PCBs in existing transformers and capacitors of BESCOM. Usage of SF6 in BESCOM power distribution infrastructure will be minimized. Usage of PCBs in all equipment will be prohibited, the Regulation of Polychlorinated Biphenyls Order, 2016 requires BESCOM to ensure that all its existing transformers and capacitors are confirmed PCB free by 2025 for disposal by 2020.

- Cartagena Protocol on Biosafety
- Strategic Approach to International Chemicals Management (SAICM)
- Stockholm Convention on Persistent Organic Pollutants (POPs) - ensures the environmentally sound management and the disposal of POPs including PCBs. India has started using PCB free equipment, but existing equipment contaminated and cross contaminated with PCBs are also present. The convention gives BESCOM until 2025 to phase out "in–place equipment" such as electrical transformers containing PCBs, as long as the equipment is maintained in a way that prevents leaks. It grants them another three years to destroy the recovered PCBs. The recovered PCBs must be treated and eliminated by 2028.

- Basel Convention on the Control of Trans-boundary Movement of Hazardous Waste and their Disposal.
- Rotterdam Convention on prior informed consent (PIC) for certain Hazardous Chemicals and Pesticides in International Trade – BESCOM will avoid the use of hazardous chemicals and pesticides.

c. Atmospheric emissions:

- UNFCCC (United Nations Framework Convention on Climate Change) - stabilize GHG emissions in the atmosphere at a level low enough to prevent dangerous anthropogenic interference with the climate system, SF6 is a potent GHG used in BESCOM operations.
- Kyoto Protocol
- Montreal Protocol (on Ozone Depleting Substances)

d. Marine environment: n/a to BESCOM as its operations are in a land locked area of the state of Karnataka.

27. In addition, India is a signatory to the ILO Core Labour Standards with 47 conventions and 1 protocol ratified, this relates to ensuring core labor standards are upheld for construction workers.

28. The ILO Asbestos Convention, 1986 (Convention No. C162) on exposure of workers to asbestos in the course of work has yet to be ratified by India.

III. Environment and Social Policy

BESCOM has formulated and adopted an Environment and Social Policy[2] during 2020. While adopting this policy, BESCOM has reflected its commitment through disclosure of the same along with its Corporate Social Responsibility policy[3].

Environment and Social Policy

1.1 Context

The Bengaluru Electric Supply Company Limited (BESCOM) has a Vision of becoming Number One in Customer Satisfaction in South Asia in Power Distribution. The Mission of BESCOM is to ensure absolute consumer satisfaction and continuous profit in business; by ensuring total employee satisfaction, by developing infrastructure, commensurate with growth, thus ensuring reliable and quality power supply and by using best technology in communication and best practices in power sector.

The Government of Karnataka through the Department of Energy (DoE) has mandated the BESCOM to finance and develop energy infrastructure projects in Bengaluru. BESCOM, which has set out to implement several energy distribution projects, aims to promote environmentally sound and sustainable, socially acceptable and economically viable energy infrastructure projects. Each of these projects will improve the living standards and the environment of populations of Bengaluru and areas around Bengaluru.

In line with this policy, BESCOM is committed to identify, prepare and implement socially acceptable, environmentally sound and sustainable and financially feasible projects. Further, these projects would be implemented with the continuous technological improvement, financial prudence and managerial prowess that are inherent strengths of BESCOM.

BESCOM commits to environmental and social acts, policies, regulations and guidelines of Government of India and Government of Karnataka in this context.

1.2 Environmental Policy

BESCOM is committed to environmentally sustainable energy development and distribution. BESCOM would ensure effective management of environmental issues in its activities with a special focus on the following:

- Ensuring that its projects adhere to the national, state and local legal requirements during the design and implementation stages.
- Ensuring that best environmental practices are mainstreamed/ integrated with the project design and implementation wherever practicable.
- Striving to enhance environmental conditions in the energy context wherever feasible.
- Undertaking capacity building and training initiatives for its stakeholders such as the staff, contractors and consultants.
- Preparing and implementing project specific Environmental Management Plans as a means to ensure the effective implementation of this policy.

1.3 Social Policy

[2] Microsoft Word - BESCOM E&S Policy 2020 (karnataka.gov.in)

[3] Corporate responbilties policy Of bescom.pdf (karnataka.gov.in)

The Social policy aims at addressing the following social issues:

Land Appropriation: Often private Land Appropriation becomes unavoidable when implementing development projects. This deprives the people of the land to which they are attached to. BESCOM emphasis is to minimize this and to properly compensate people who lost their lands.

Displacement: Often people are displaced when their homestead land is acquired or land is acquired in bulk for the implementation of development projects. This development induced displacement causes hardship to people in relocating and resettling. BESCOM emphasis is to minimize this and to properly resettle people who are displaced.

Loss of Livelihoods: This is a result of Land Appropriation and/or displacement. People who lose their livelihoods have to face hardship in rehabilitating themselves. BESCOM emphasis is to minimize this hardship and properly rehabilitate people who lost their livelihoods.

Top-Down Approach: This approach results in people not owning the products of development interventions and maintaining them. BESCOM emphasis is on using a Bottom-Up Approach through a process of people participation.

Exclusion: Often the vulnerables viz. disadvantaged sections, Scheduled Castes (SCs)/ Scheduled Tribes (STs), women, differently abled, etc. are sidelined or taken for granted in the design and implementation of development projects. This alienates them from project interventions and denies access to them to the services. BESCOM emphasis is to provide them opportunities and access through a process of inclusion.

Hazards: Ill-conceived development projects pose health and safety hazards to people. BESCOM emphasis is to address and incorporate health and safety provisions in the project design and implementation.

This Social Policy is based on gaining Social Acceptability, Significance, Relevance and Adequacy for each of the projects. This is achieved by commitment to the following Pancha Sutras (Five Principles):

Resettlement: Avoiding or minimizing resettlement due to land appropriation through appropriate technical and management measures. Wherever resettlement is triggered by land appropriation, if possible, the agreement of the concerned stakeholders to give their land voluntarily on consent basis will be obtained and/or alternatives will be considered. The endeavour would be on avoiding land appropriation and resettlement.

Rehabilitation: Where resettlement is unavoidable, ensuring proper and responsible resettlement and rehabilitation of PAPs, according to the laws in force, through sustainable livelihood options that at least restore, if not improve, their standard of living. Ensuring resettlement and rehabilitation plans are prepared and implemented in a timely manner and that those to be resettled are aware of their entitlements and of the grievance mechanisms open to them should they seek redress. The endeavour would be to improve the living standards of the PAPs.

Participation: Addressing stakeholders' legitimate concerns while paying special attention to PAPs. Providing opportunities and avenues for informed stakeholder consultation, and, where appropriate, ensuring their participation in decision-making in project preparation, implementation and evaluation, in order to foster greater sense of ownership and sustainability. The endeavour would be to involve all stakeholders in the complete project life cycle. This endeavour is extended to all community development activities of the projects involving all categories of stakeholders. In fact, the process of participation for all community development activities starts from the planning stage itself.

Inclusion: Protecting the marginalized, socially and economically disadvantaged, SCs, STs, women, children, differently abled and other vulnerable groups. Promoting and providing, wherever possible, opportunities for such groups to take advantage of the investments. The endeavour would be to address equity, gender and inclusion issues in the project design itself. Gender issues will be addressed through women empowerment in all the project activities. This protection to the marginalised involve poverty alleviation programs to the BPL families.

Health and Safety: Minimizing health and safety hazards and providing opportunities for enhancing public and environmental health. The endeavour would be to improve the public and environmental health and safety of the populations in and around Bengaluru.

Grievance Redress: Continuously updated and improve the Grievance Redress mechanism to provide for speedy redressal of grievances. The endeavor is to provide multiple platforms for filing grievances and their redressal.

1.4 Other Enabling Factors

The above are achieved through Technological Perfection, Financial Prudence and Managerial Prowess of the BESCOM.

Technological Perfection by

- Using State of the art technology appropriate to the location
- Adopting well established standards and codes of practices
- Enhancing technical capabilities of BESCOM and its stakeholders
- Promoting best practices in Operation and Maintenance (O&M) and management of assets
- Making optimal use of Information Technology

Financial Prudence by

- Ensuring sustainability of investments
- Investing in commercially viable projects
- Working towards increasing creditworthiness of BESCOM
- Aiming at functional financial independence of BESCOM

Managerial Prowess by

- Standing out as a Centre of excellence
- Decentralizing decision-making process
- Introducing highest quality standards and best practices

BESCOM expects that the limited resources available for mitigating environmental and social issues arising within projects could affect their economic viability. Therefore, mitigation measures to deal with environmental and social issues such as best practices available would be encouraged. Further, BESCOM would endeavour to continually seek alternate mechanisms and routes to operationalize the environmental and social policy. While adopting this environmental and social policy, BESCOM has reflected it commitment through disclosure of the same along with its Safety Manual and Corporate Social Responsibility policy.

IV. Organizational Arrangements

A. Overall Organization Structure of BESCOM

29. The company has 4 operating zones – Bangalore Metropolitan Area Zone-South (BMASZ), Bangalore Metropolitan Area Zone-North (BMANZ), Bangalore Rural Area Zone (BRAZ) and Chitradurga Zone (CTAZ), 9 circles, 32 divisions, 147 subdivisions and 534 section offices/operation and maintenance units.

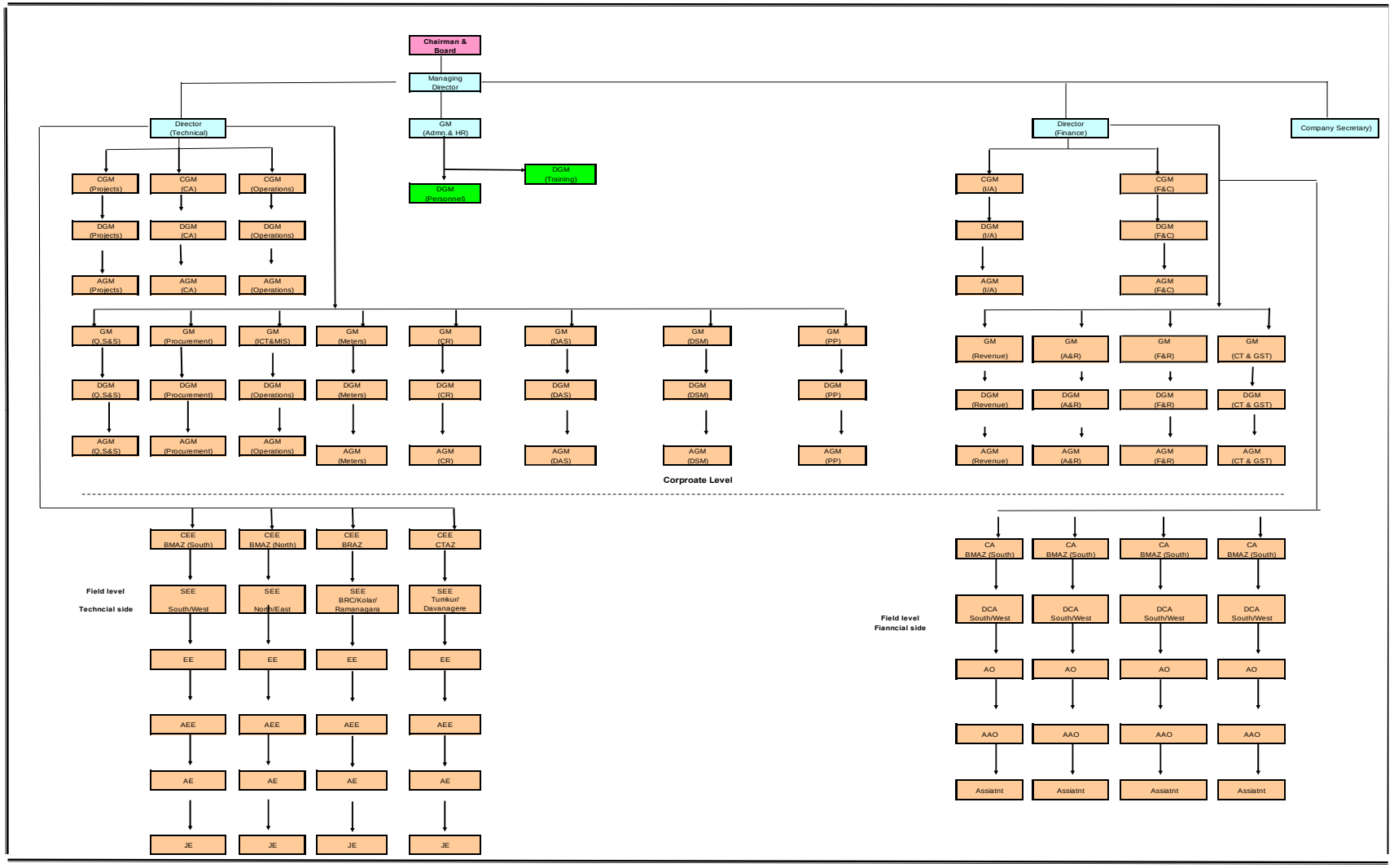
- zonal office is headed by an officer of the rank of a chief engineer (CE).
- circle office is headed by an officer of the rank of a superintending engineer (SE).
- division is headed by an officer of the rank of an executive engineer (EE).
- subdivision is headed by an officer of the rank of an assistant executive engineer (AEE).
- section offices/operation and maintenance units are headed by an assistant engineer/junior engineer (AE/JE).

30. Figure 3 shows the overall organization structure of BESCOM and Figure 4 shows the management structure of BESCOM at corporate and field level.

Figure 3. Organization Structure of BESCOM

	ZONES	CIRCLES	NO OF DIVISIONS	NO OF SUB-DVNS
B E S C O M	**BMASZ**	SOUTH	3	20
		WEST	3	15
	BMANZ	NORTH	4	13
		EAST	4	15
	BRAZ	BRC	2	9
		RMGC	4	18
		KLRC	4	17
	CTAZ	TMKC	4	19
		DVGC	4	21
TOTAL	**4**	**9**	**32**	**147**

Figure 4. BESCOM Management Structure, Corporate and Field Level[4]



[4] CGM-Chief General Manager, GM-General Manager, DGM-Deputy General Manager, AGM-Assistant General Manager

B. Corporate Office Structure of Environment, Social, Health and Safety Unit

31. BESCOM has established an environmental and Social Corporate Team (ESCT) within its existing organizational structure. The ESC is headed by the Chief General Manager (CGM)-Projects will be responsible for environmental and social safeguard aspects of BESCOM works. QS&S Division will be responsible for corporate health and safety aspects. Both report to Director (Technical) who will report to the Managing Director on ESMS implementation. Separately the General Manager (Consumer Relations) under Director (Technical) is responsible for customer satisfaction (in relation to stakeholder engagement) whilst the General Manager of the Admin and HR Division is responsible for BESCOM employment-related aspects and will work closely with the ESC and QS&S Division in relation to employee competencies and delivering of training activities. The Office Memorandum[5] issued by BESCOM shows the overall structure of BESCOM's ESMS implementation team and the structure of the ESCT and the QS&S in relation to health and safety management, including the formation and structure of the Field Working Committees.

32. For day to day environmental and social operations, the ESCT is staffed with following qualified officers, by nomination, under the management of DGM:

- 1 no. Assistant General Manager with 5-10 years' experience and holding a degree in environmental management or equivalent with substantial experience hazardous materials management/pollution prevention.
- 1 no. Environment Manager with 2-3 years' experience and holding a degree in environmental management or equivalent with experience of ESMS implementation and audit.
- 1 no. Social Manager with 2-3 years' experience and holding a degree in social science or equivalent with experience of ESMS implementation and audit.

33. The existing Safety and Accidents Team of QS&S Division is supplemented by 1 no. H&S Assistant General Manager with 5-10 years' experience and holding IOSH Managing and Working Safely or equivalent.

34. At the field level, at each Zone, an ESHS Working Committee is formed. The concerned Chief Engineer is the Chairperson of this Zonal ESHS Committee. All the Superintending Engineers and Executive Engineers will be the members of this committee. The senior most Superintending Engineer in the Zone is the convener of the committee. This committee meet once in a month to discuss ESHS matters pertaining to the works in the zone. For field level, each subdivision has nominated Assistant Engineers as one (i) Nodal E&S Officer for Stores Management, (ii) Nodal E&S Officer for Works, (iii) Nodal H&S Officer who form part of ESC with corporate office staff. The list of committee members will be disclosed on the BESCOM website. The Job Competency matrix is included in Annex 26.

35. The ESCT is responsible for environmental and social assessment, planning and management including safeguards planning and management, pollution control and waste

[5] CYS-50 dated 06 August 2021

management; whereas QS&S division is responsible for corporate management of the health and safety aspects associated with the BESCOM operations. The overall ESMS is implemented by ESCT.

V. Environmental and Social Management Framework

A. Environmental and Social Management Framework

36. Environmental and social impacts and risks due to BESCOM operations (refer Section 1-B) are likely to occur during the planning and construction stages of power distribution infrastructure as well as the operation and maintenance and decommissioning stages, whereas the impacts and risks related to the corporate and field office operations happen continuously.

37. BESCOM's activities do not generally affect protected areas or forest land or require any land acquisition as all work is done along the streets and on government land, although there may always be the odd exception to consider.

38. The procedures for environmental and social management for BESCOM operations are described here.

a. Procedures During Planning of Power Distribution Infrastructure

39. During the planning of new or upgraded power distribution infrastructure, significant maintenance activities i.e., those involving construction and installation works, or major decommissioning works, these BESCOM activities (referred to herein as projects) are to first be screened and categorized for environmental and social impacts and risks in accordance with the requirements of the ESMS and government requirements. Considering the nature of BESCOM operations, most of its business activities have medium to low environmental and social risks.

40. By their nature BESCOM's day-to-day O&M and decommissioning works and corporate and field office operations are considered low risk and do not need to be screened. However, the activity specific MMs/MPs and SOPs are still to be followed during related works to minimize impacts. Similarly, any project works that are screened and fall in the low-risk category do not require further assessment but should also follow the activity specific MMs/ MPs and SOPs.

41. During the planning stage further safeguards assessment is to be undertaken for those project works identified to have medium to high risks. This assessment will be in accordance with national requirements and approved by the MOEFCC/ Government of Karnataka if EIA legislation is triggered, otherwise the safeguards documentation will be internal and comprise a simplified initial environmental examination (IEE) and/ or social due diligence report (SDDR).

42. For any projects, the ESC of BESCOM will be responsible to undertake the screening and categorization. They will also coordinate the required environmental and social safeguards assessments and safeguards documentation before the issue of bidding documents, using consultants as required. Safeguard documents may then be further updated following detailed surveys and design by the contractors, if necessary. The stepwise process is described below.

43. **Screening and Categorization.** Once the scope of a project involving either new or upgraded power distribution infrastructure projects or significant maintenance activities involving construction and installation works, or major decommissioning works has been confirmed, the very first stage will be to screen the BESCOM projects against the prohibited investment list (Annex 1). Environmental and social screening is then conducted utilizing the screening checklists (environment, involuntary resettlement, and indigenous people) presented in Annex 2. The project's category (low, medium, or high risk) will be determined by its most environmentally or socially sensitive activity based on location.

44. **Environmental Due Diligence.** Based on the screening of the project, BESCOM will carry out further environmental due diligence for high and medium risk projects. Due diligence will confirm that the works will be in accordance with government requirements and identify means to avoid, minimize or mitigate impacts through the design and planning process. Simplified IEE report template is provided in Annex 2. The Standard/ Template Construction Environment and Social Management Plan (Annex 3) will be used, but site-specific measures added to address impacts identified. This site-specific version will then be included in the bid and contract documents, the contractor will comply with it and use it to further develop their CEMP following their detailed surveys and design. Simplified IEE are to be disclosed on the BESCOM website as well as made available at corporate headquarters and the nearest BESCOM field offices.

45. **Social Due Diligence.** BESCOM projects should be designed so that resettlement impact is generally avoided and/or minimized. Further, there are few tribal areas in BESCOM jurisdiction. However, if based on the screening result, there are any impacts on private assets such as erecting poles and/or cutting of trees on private land or works in tribal areas, social due diligence is to be undertaken by BESCOM and the contractor to seek consents to support. For losses which are unavoidable and unacceptable to the owners of the assets, compensation is to be given to them commensurate to the impacts in accordance with the national policy framework. The results of social due diligence and any compensation details are documented in a SDDR using the format given in Annex 2. SDDR are to be disclosed on the BESCOM website as well as made available at corporate headquarters and the nearest BESCOM field offices.

b. Procedures During Construction of Power Distribution Infrastructure

46. For all construction works, the Construction MP and related MMs/ MPs and SOPs are to be followed in full by the BESCOM field staff and contractors. ESC will confirm before the issue of bid documents and contract award that the requirement for contractors to comply and further develop their CEMP based on either the standard/template (for low-risk projects) or site-specific version (for high and medium risk projects) is reflected in bid and contract documents.

47. For projects, progress on the implementation of CEMPs as well as the results of any quantitative environmental monitoring and social monitoring (if any IR or IP impacts) required are included in monthly safeguard monitoring reports prepared by contractors for construction projects. Safeguard monitoring reports for high and medium risk projects are to

be disclosed on the BESCOM website as well as at corporate headquarters and the nearest BESCOM field office. If so required, monitoring reports are also submitted to regulatory authorities as required under national and state regulations and any funding agencies.

BESCOM field staff will be responsible for day-to-day supervision and monitoring of contractors to confirm compliance; the ESC and QS&S will be responsible for auditing construction works to confirm that they comply and if any areas for improvement or non-compliance are identified require a corrective action. In each case, BESCOM will nominate a dedicated, appropriately trained EHS supervisor on site overseeing all works undertaken.

c. Procedures During Operation and Maintenance of Power Distribution Infrastructure

48. For all day-to-day O&M works including the running of stores and workshops the responsible BESCOM field staff will follow the MMs/ MPs and SOPs related to activities being undertaken – most notably the safety manual and the maintenance manual.

49. For significant maintenance activities involving construction and installation works these will be treated as projects and follow the requirements for construction, having first been screened and categorized.

50. ESC and QS&S will be responsible for auditing operation and maintenance works to confirm that they comply and if any areas for improvement or non-compliance are identified require a corrective action.

d. Procedures During Decommissioning of Power Distribution Infrastructure

51. For all day-to-day decommissioning works the responsible BESCOM field staff will follow the MMs/ MPS and SOPs related to activities being undertaken – most notably the safety manual and the solid and hazardous waste management plan.

52. For any major decommissioning works e.g., decommissioning of a grid substation these will be treated as projects and follow the requirements for construction, having first been screened and categorized.

53. ESCT and QS&S will be responsible for auditing decommissioning works to confirm that they comply and if any areas for improvement or non-compliance are identified require a corrective action.

e. Procedures for Corporate and Field Offices Operation

54. For day to day running of corporate and field offices the designated BESCOM's General Manager (Admin and HR) will follow the MMs/ MPS and SOPs related to occupational and community health and safety, energy and water consumption, sanitary wastewater disposal, and solid and hazardous waste.

55. ESCT and QS&S will be responsible for auditing office activities to confirm that they comply and if any areas for improvement or non-compliance are identified require a corrective action.

f. Procedures for Labor Management

56. Compliance with labor management procedures in relation to BESCOM employees falls under the responsibility of the General Manager (HR and Admin) and will be implemented by them along with the worker grievance redress mechanism and ICC at corporate level. Contractor labor management will be dealt with through the environmental and social management procedures listed above.

B. Management Manuals and SOPs

57. A list of the MMs/ MPs and their general applicability over the life cycle of BESCOM power distribution infrastructure operations is presented in Table 1. The latest versions of supporting MMs/ MPs are provided as annexes or alternatively linked documents to the ESMS. These are controlled documents in their own right periodically updated as required to ensure that the ESMS remains responsive to national and state requirements and the changing environmental, health and safety, and social impacts and risks of BESCOM's business activities. Changes and modifications are also to be controlled within the context of this ESMS document. Additional MM/ MPs may also be developed and issued by BESCOM at any time in accordance with the procedures for document and record control. The general scope and purpose of each MM/MP is briefly summarized as follows:

58. **Management Manual 1 (MM-1): Safety**. BESCOM has previously developed an occupational health and safety plan as an integral part of its Safety Manual[6] and follows the Indian Electricity Rules 1956[7] for ensuring the safety of its distribution infrastructure within local communities. This plan addresses all aspects of occupational health and safety on construction and operation of BESCOM infrastructure, with emphasis on the identifying required safety behaviors, preventive/protective measures, and the routine implementation of SOPs to minimize the potential for accidents, injuries, and illness to the BESCOM and contractor workforce.

59. **Management Plan 2 (MP-2): Disaster Management.** BESCOM has developed its disaster management plan. This manual is designed to minimize the potential for accidents and emergency situations involving the construction and operation of BESCOM infrastructure and operational practices. The Emergency Preparedness and Response Plan addresses the minimum safety requirements, risk assessment, prevention and mitigation, institutional arrangement, preparedness, as well as monitoring and reporting requirement. It also has SOPs and Checklists on emergency and disaster management. The Karnataka State Disaster

[6] safety-manual.pdf (karnataka.gov.in)
[7] IE-rules.pdf (karnataka.gov.in)

Management Authority has also developed State Disaster Management Plans[8] (Volume 1 and Volume 2) which are to be followed by BESCOM in case of any disasters.

60. **Management Plan 3 (MP-3): Construction Management.** This is developed by BESCOM for its contractors, and it describes the overall organization and management of major construction activities, from initial earthworks through the construction and commissioning of the distribution infrastructure, related storage areas, workshops, worker-camps, waste management facilities, roadways, and other infrastructure.

61. **Management Plan 4 (MP-4): Hazardous Materials Management.** This contains requirements for periodic inspections of hazardous materials, with regard to storage, transport, handling, disposal, etc. including access control signage and other emergency related systems and pollution prevention measures.

62. **Management Plan 5 (MP-5): Pollution Prevention and Response.** This contains requirements for pollution prevention initiatives that can go a long way in reducing the risk of pollution. However, in spite of best efforts, sometimes pollution may occur, this plan contains the necessary effective preparedness measures to ensure a timely and coordinated response to limit pollution in the event of an incident.

63. **Management Plan 6 (MP-6): Solid and Hazardous Waste Management.** This contains requirements for periodic inspections of waste materials, collection, segregation, storage, and disposal, as well as pollution prevention measures related to waste.

64. **Management Plan 7 (MP-7): Stakeholder and Community Relation Engagement.** This describes the methods BESCOM will use to engage the workforce, beneficiaries, affected communities, and other potential stakeholders directly affected by its operations, and to ensure that relevant environmental and social information is disclosed and disseminated through appropriate outreach and communications procedures.

65. **Management Plan 8 (MP-8): Staff Training**. BESCOM's Training and Human Resources Development Policy[9] document deals with recruitment, training and capacity building of its staff. It contains the stipulated training plan for staff. It is supplemented with Job Competency Matrix covering ESCT and QS&S staff.

66. **Internal HR Regulations:** BESCOM also has several HR regulations related to recruitment, apprenticeship, trainee employees, training at CPRI, CESC and at their corporate office, transfers, promotions, insurance, etc. These are all disclosed on the BESCOM website (Home - Bangalore Electricity Supply Company Limited (karnataka.gov.in).

Table 3: Management Manuals – General Applicability Over Life Cycle

[8] Volume-II_30-08-2020_compressed.pdf (karnataka.gov.in) and CM_RM.cdr (karnataka.gov.in)
[9] Training-HR-Development-Policy.pdf (karnataka.gov.in)

MP	Plan Title	Link or Annex	Corporate	Planning	Construction	Operation	Decommissioning
1	Safety Manual	Link			√	√	√
2	Disaster Management Plan	Link	√		√	√	√
3	Construction Management including Standard/Template Construction Environment and Social Management Plan	Annex			√		
4	Hazardous Materials Management Plan	Annex	√		√	√	√
5	Pollution Prevention and Response Plan including Stores Management	Annex	√		√	√	√
6	Solid and Hazardous Waste Management Plan including wastewater management	Annex	√		√	√	√
7	Stakeholder and Community Relation Engagement Plan including External GRM	Annex	√		√	√	√
8	Training Plan and Supplementary Job Competency Matrix covering ESCT and QS&S staff recruitment	Link	√				

67. All Management Manuals/Plans, as appropriate for the subject matter, include:

- a clear statement of objectives or purpose;
- a brief discussion of the relationship to the overall structure and purpose of the ESMS;
- regulatory or international best practices references, as applicable;
- roles and responsibilities of key personnel;
- subject specific procedures or practices (with detail either included or invoked by references to SOPs or other documents) to avoid, minimize, or mitigate the environmental or social impacts and risks that are the primary focus of the given Management Manual/Plan;
- training requirements;
- inspection and/or monitoring requirements associated with management manual/plan implementation, including cross-references to non-conformance resolution processes; and
- any external or internal reporting requirements.

68. This ESMS document and the various MMs/MPs are also supported by a suite of Standard Operating Procedures (SOPs) forming the fourth tier. SOPs are written specifically to guide BESCOM staff and (when invoked by contract, all or in part) contractor personnel in the day-to-day performance of specific field or office activities required by the upper-tier plans. SOPs are developed with a level of detail commensurate with the activities covered, the complexity of the task, current staffing levels, and the capabilities and experience of the workforce. SOPs may support one or several MMs/MPs and one or several activities.

69. A list of the SOPs that are part of the ESMS is presented in Table 4. The latest versions of supporting SOPs are provided as annexes or alternatively linked documents to the ESMS. These are controlled documents in their own right periodically updated as required to ensure that the ESMS remains responsive to national and state requirements and the changing environmental, health and safety, and social impacts and risks of BESCOM's business activities. Changes and modifications are also to be controlled within the context of this ESMS document. Additional SOPs may also be developed and issued by BESCOM at any time in accordance with the procedures for document and record control.

Table 4: List of SOP's

SOPs	SOPs Name	Version
DF 01	Screening, Categorization and Due Diligence Procedure Including biodiversity, heritage, IR, and IP	ver 01
SOP 01	Air and Noise Pollution control	ver 01
SOP 02	Fire and emergency procedures	ver 01
SOP 03	Electrical safety procedures	ver 01
SOP 04	Work at height and fall prevention	ver 01
SOP 05	Portable tools and equipment	ver 01
SOP 06	Traffic safety procedures	ver 01
SOP 07	Personal protective equipment procedures	ver 01
SOP 08	Safety audit procedure	ver 01
SOP 90	Work close out procedures	ver 01
SOP 10	Emergency responses procedures	ver 01
SOP 11	Labour management procedures	ver 01
SOP 12	Chance Find Procedure	ver 01
SOP 13	Land Acquisition, Compensation, and Monitoring and Evaluation Procedures	ver 01
	Documentation Formats/ checklists	
DF 02	Safeguards (Environment and Social) Screening and Due Diligence Checklists	ver 01
	Supervision and Monitoring Checklists	
	Internal Audit Checklists	
DF 03	PCB Inventory	Ver 01
	SF6 Inventory	

70. Other social aspects such that are embedded in the various policies and plans of BESCOM include a) no child labour (persons under 18 years of age) to engaged, b) No forced labour, c) equal wages to workers of all genders, d) insurance as per Employees Compensation Act 1923

to all eligible workers, e) zero tolerance towards Sexual Exploitation Abuse and Harassment (SEAH), etc.

C. Environment and Social Monitoring and Reporting

71. Environmental and social safeguards supervision and monitoring consists of routine systematic checking on a day-to-day basis by BESCOM field staff and regular internal audits by the ESC and QS&S that the procedures and MMs/ MPs and SOPs outlined above have been implemented effectively by the BESCOM and its contractors. This includes regular monitoring activities to assess implementation progress of seeking approval for use of land from private landowners, disbursal of any compensation due in accordance with the SSDR, and grievances. BESCOM field staff, ESCT and QS&S will identify areas for improvement and any non-compliances, proposing actions and a timeline for implementation of corrective actions. They will then also follow up on the status of corrective actions until they have been completely closed out. The monitoring will include high level Environmental and Social Key Performance Indicators (KPI) such as e.g., zero H&S fatalities, year on year reduction non-fatalities, 100% projects screened, percentage of grievances resolved within a day, reduction in incidences of GBV and SEAH, labour ECA insurance by all contractors etc.

72. In addition, implementation of the ESMS will be audited half-yearly by an External Environment and Social Safeguards Auditor (EESSA) employed by BESCOM. The auditor will assess if the procedures and MMs/MPs and SOPs outlined above are being implemented effectively by the BESCOM and its contractors, identify areas for improvement and any non-compliances, and propose actions and a timeline for implementation of corrective actions. They will then also follow up on the status of corrective actions until they have been completely closed out. External auditing is crucial to enable BESCOM to understand if its ESMS is functioning and to drive continual improvement.

D. Training and Awareness

73. BESCOM's Training and Human Resources Development Policy[10] deals with training and capacity building of its staff. BESCOM has several programs for training and capacity building of its employees; through providing apprenticeship, appointing graduate engineer trainees, induction training, on the job training, training at CPRI, CESC and at corporate office, participation in seminars, exposure visits, etc.

74. BESCOM will ensure that all its employees and contractor's employees are competent to carry out their work activities effectively and manage the associated risks and impacts appropriately. Through training employees will be equipped with the necessary knowledge, skills, and behavior to provide a basis for continuous improvement, to protect the day-to-day health and safety of employees and contractors, enable individuals to become competent in their roles, to fulfil their responsibilities and required activities in their specific environment whilst remaining safe, healthy, and simultaneously contributing to the overall long-term

[10] Training-HR-Development-Policy.pdf (karnataka.gov.in)

sustainability of the company. In this way, training is a key risk mitigation method for BESCOM activities. Training is based on the following principles:

- Training is provided to both employees and contractors based on role, risk, and responsibilities;
- The training program
- seeks to ensure competency and quality outcomes rather than only training attendance;
- The training program focuses on the needs of the audience and uses different learning methods to cater for differing needs, and
- Training is an ongoing, iterative and cascading process.

Annex 1: Harmonized Prohibited Activities List

BESCOM will not invest in the following activities:

(i) Production or activities involving harmful or exploitative forms of forced labour[11] or child labour;[12]
(ii) Production of or trade in any product or activity deemed illegal under host country laws or regulations or international conventions and agreements or subject to international phase-outs or bans, such as (a) pharmaceuticals,[13] pesticides, and herbicides,[14] (b) ozone-depleting substances,[15] (c) polychlorinated biphenyls[16] and other hazardous chemicals,[17] (d) wildlife or wildlife products regulated under the Convention on International Trade in Endangered Species of Wild Fauna and Flora,[18] and I transboundary trade in waste or waste products;[19]
(iii) Production or use of or trade in hazardous materials such as radioactive materials, unbounded asbestos fibers, and products containing PCBs;[20]
(iv) Cross-border trade in waste and waste products unless compliant to the Basel Convention and the underlying regulations;
(v) Production of or trade in weapons and munitions, including paramilitary materials;
(vi) Production of or trade in alcoholic beverages, excluding beer and wine;[21]
(vii) Production of or trade in tobacco;
(viii) Gambling, casinos, and equivalent enterprises;
(ix) Production of or trade in radioactive materials,[22] including nuclear reactors and components thereof;

[11] Forced labor means all work or services not voluntarily performed, that is, extracted from individuals under threat of force or penalty.

[12] Child labor means the employment of children whose age is below India's statutory minimum age of employment or employment of children in contravention of International Labor Organization Convention No. 138 "Minimum Age Convention" (www.ilo.org).

[13] A list of pharmaceutical products subject to phaseouts or bans is available at http://www.who.int.

[14] A list of pesticides and herbicides subject to phaseouts or bans is available at http://www.pic.int.

[15] A list of the chemical compounds that react with and deplete stratospheric ozone resulting in the widely publicized ozone holes is listed in the Montreal Protocol, together with target reduction and phaseout dates. Information is available at http://www.unep.org/ozone/montreal.shtml.

[16] A group of highly toxic chemicals, polychlorinated biphenyls are likely to be found in oil-filled electrical transformers, capacitors, and switchgear dating from 1950 to 1985.

[17] A list of hazardous chemicals is available at http://www.pic.int.

[18] A list is available at http://www.cites.org.

[19] As defined by the Basel Convention; see http://www.basel.int.

[20] PCBs: Polychlorinated biphenyls, a group of highly toxic chemicals. PCBs are likely to be found in oil-filled electrical transformers, capacitors and switchgear dating from 1950-1985.

[21] This does not apply to activity ancillary to BESCOM's primary operations.

[22] This does not apply to the purchase of medical equipment, quality control (measurement) equipment, and any equipment for which BESCOM considers the radioactive source to be trivial and adequately shielded.

(x) Production of, trade in, or use of un-bonded asbestos fibers;[23]

(xi) Commercial logging operations or the purchase of logging equipment for use in primary tropical moist forests or old-growth forests; and

(xii) Marine and coastal fishing practices, such as large-scale pelagic drift net fishing and fine mesh net fishing, harmful to vulnerable and protected species in large numbers and damaging to marine biodiversity and habitats.

[23] This does not apply to the purchase and use of bonded asbestos cement sheeting where the asbestos content is less than 20%.

Annex 2: Screening, Categorization and Due Diligence Checklists

DF 01: Screening and Categorization Checklists

I. SAFEGAURDS SCREENING

A. GENERAL INFORMATION

Project/Activity Name:	
Zone Name	
Circle Name	
No. of Divisions/ Subdivisions	
No. of Consumers	
Line/UG Cable Length (km)	
Construction/Installation time	

B. SELECTION CRITERIA (FUNDAMENTAL):

Selection Criteria	Yes	No
All projects/activities included in the BESCOM Prohibited Investment Activities List (List provided in Appendix 1) are excluded;		
Projects/activities located within national parks, wildlife sanctuaries and nature reserves, or wetlands are not be selected; if selected these will be considered high risk[24]		
Clearing of any existing forest resources are avoided; if required these will be considered high risk		
All new equipment procured is free from polychlorinated biphenyl (PCBs);		
Monuments of cultural or historical importance are avoided; if not avoided these will be considered high risk		
An environmental management plan (EMP) with adequate budget will be developed and included in the bidding documents for the project/activity;		
Potential environmental impacts are minimized by routing and siting of distribution lines and underground cable alignments to avoid environmentally sensitive area;		
All IR sensitive projects/activities excluded; if not excluded these will be considered high risk		
All IP sensitive projects/activities excluded; if not excluded these will be considered high risk		
No compulsory land acquisition will be adopted for any projects/activities and the land shall be on government land free from informal settlers or shall be on private land to be purchased through negotiated settlement or shall be donated by the beneficiaries; if this cannot be achieved projects/activities will be considered high risk		

C. SCREENING CHECKLIST

[24] For all ecological high risks, a 3rd party ecologist will be appointed for assessment, similarly for works affecting heritage a heritage conservationist will be appointed.

C-1. Screening for Environment - Describe Concisely the Potential Impacts and Proposed Mitigation Measures by Referring to the measures listed in the EMP Matrix

POTENTIAL ENVIRONMENTAL IMPACTS - <u>WILL THE PROJECT/ACTIVITY CAUSE…</u>	**Yes**	**No**	If yes, what is the proposed mitigation measures and indicate which EMP will be implemented
▪ encroachment on historical/cultural areas, disfiguration of landscape and increased waste generation?			
▪ encroachment on precious ecosystem (e.g., sensitive or protected areas)?			
▪ alteration of surface water hydrology of waterways crossed by roads and resulting in increased sediment in streams affected by increased soil erosion at the construction site?			
▪ deterioration of surface water quality due to silt runoff, sanitary wastes from worker-based camps and chemicals used in construction?			
▪ increased local air pollution due to rock crushing, cutting and filling?			
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation?			
▪ chemical pollution resulting from chemical clearing of vegetation for construction site?			
▪ noise and vibration due to civil works?			
▪ dislocation or involuntary resettlement of people?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ social conflicts relating to inconveniences in living conditions where construction interferes with pre-existing roads?			

POTENTIAL ENVIRONMENTAL IMPACTS - WILL THE PROJECT/ACTIVITY CAUSE…	Yes	No	If yes, what is the proposed mitigation measures and indicate which EMP will be implemented
▪ hazardous driving conditions where construction interferes with pre-existing roads?			
▪ creation of temporary breeding habitats for vectors of disease such as mosquitoes and rodents?			
▪ dislocation and compulsory resettlement of people living in right-of-way of the connection/ feeder?			
▪ environmental disturbances associated with the maintenance of lines (e.g., routine control of vegetative height under the lines)?			
▪ facilitation of access to protected areas in case corridors traverse protected area?			
▪ disturbances (e.g., noise and chemical pollutants) if herbicides are used to control vegetative height?			
▪ large population influx during project construction and operation that cause increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
▪ social conflicts if workers from other regions or countries are hired?			
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases from workers to local populations?			
▪ risks to community safety associated with maintenance of lines and related facilities?			
▪ community health hazards due to electromagnetic fields, land subsidence, lowered groundwater table, and salinization?			

POTENTIAL ENVIRONMENTAL IMPACTS - WILL THE PROJECT/ACTIVITY CAUSE…	Yes	No	If yes, what is the proposed mitigation measures and indicate which EMP will be implemented
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?			
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project (e.g., high voltage wires, and transmission towers and lines) are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			
▪ evidence/report of existing or previous natural hazards such as floods, landslides, severe wind damage, storm surges, coastal erosion, earthquakes, other (specify)?			

C-2 Screening of Projects for IR

Probable IR Effects	Yes	No	Not Known	Remarks
Involuntary Acquisition of Land				
1. Will there be land acquisition?				
2. Is the site for land acquisition known?				
3. Is the ownership status and current usage of land to be acquired known?				
4. Will easement be utilized within an existing Right of Way (ROW)?				
5. Will there be loss of shelter and residential land due to land acquisition?				
6. Will there be loss of agricultural and other productive assets due to land acquisition?				
7. Will there be losses of crops, trees, and fixed assets due to land acquisition?				
8. Will there be loss of businesses or enterprises due to land acquisition?				

Probable IR Effects	Yes	No	Not Known	Remarks
9. Will there be loss of income sources and means of livelihoods due to land acquisition?				
Involuntary restrictions on land use or on access to legally designated parks and protected areas				
10. Will people lose access to natural resources, communal facilities and services?				
11. If land use is changed, will it have an adverse impact on social and economic activities?				
12. Will access to land and resources owned communally or by the state be restricted?				
Information on Displaced Persons:				
Any estimate of the likely number of persons that will be displaced by the Project? [ ] No [ ] Yes If yes, approximately how many?				
Are any of them poor, female-heads of households, or vulnerable to poverty risks? [ ] No [ ] Yes				
Are any displaced persons from indigenous or ethnic minority groups? No displacement [ ] No [ ] Yes				

C-3. Screening of Projects for IP

KEY CONCERNS (Please provide elaborations on the Remarks column)	YES	NO	NOT KNOWN	Remarks
A. Indigenous Peoples Identification				
1. Are there socio-cultural groups present in or use the project area who may be considered as “tribes” (hill tribes, schedules tribes, tribal peoples), “minorities” (ethnic or national minorities), or “indigenous communities” in the project/activity area?				
2. Are there national or local laws or policies as well as anthropological researches/studies that consider these groups present in or using the project area as belonging to "ethnic minorities", scheduled tribes, tribal peoples, national minorities, or cultural communities?				
3. Do such groups self-identify as being part of a distinct social and cultural group?				

KEY CONCERNS (Please provide elaborations on the Remarks column)	YES	NO	NOT KNOWN	Remarks
4. Do such groups maintain collective attachments to distinct habitats or ancestral territories and/or to the natural resources in these habitats and territories?				
5. Do such groups maintain cultural, economic, social, and political institutions distinct from the dominant society and culture?				
6. Do such groups speak a distinct language or dialect?				
7. Has such groups been historically, socially and economically marginalized, disempowered, excluded, and/or discriminated against?				
8. Are such groups represented as "Indigenous Peoples" or as "ethnic minorities" or "scheduled tribes" or "tribal populations" in any formal decision-making bodies at the national or local levels?				
B. Identification of Potential Impacts				
9. Will the project/activity directly or indirectly benefit or target Indigenous Peoples?				
10. Will the project/activity directly or indirectly affect Indigenous Peoples' traditional socio-cultural and belief practices? (e.g., child-rearing, health, education, arts, and governance)				
11. Will the project/activity affect the livelihood systems of Indigenous Peoples? (e.g., food production system, natural resource management, crafts and trade, employment status)				

KEY CONCERNS (Please provide elaborations on the Remarks column)	YES	NO	NOT KNOWN	Remarks
12. Will the project/activity be in an area (land or territory) occupied, owned, or used by Indigenous Peoples, and/or claimed as ancestral domain?				
C. Identification of Special Requirements *Will the project activities include:*				
13. Commercial development of the cultural resources and knowledge of Indigenous Peoples?				
14. Physical displacement from traditional or customary lands?				
15. Commercial development of natural resources (such as minerals, hydrocarbons, forests, water, hunting or fishing grounds) within customary lands under use that would impact the livelihoods or the cultural, ceremonial, spiritual uses that define the identity and community of Indigenous Peoples?				
16. Establishing legal recognition of rights to lands and territories that are traditionally owned or customarily used, occupied or claimed by indigenous peoples?				
17. Acquisition of lands that are traditionally owned or customarily used, occupied or claimed by indigenous peoples?				

Anticipated project impacts on IP

Project component/ activity/ output	Anticipated positive effect	Anticipated negative effect
Electric Power Distribution		

D. Categorization

Risk Type	Risk Category		
Environmental Risk	Low Risk	Medium Risk	High Risk
Social Risk	Low Risk	Medium Risk	High Risk
Overall Risk Category	Low Risk	Medium Risk	High Risk

Note: The project's category (low, medium, or high risk) will be determined by its most environmentally or socially sensitive activity based on location.

DF 02: SDDR - Due Diligence Checklists

A. DUE DILIGENCE FOR INITIAL ENVIRONMENTAL EXAMINATION (Only if medium-high risk, as result impacts and risks identified from environmental screening checklist)

Screening Questions	Yes	No	Remarks
A. PROJECT SITING IS THE PROJECT AREA ADJACENT TO OR WITHIN ANY OF THE FOLLOWING ENVIRONMENTALLY SENSITIVE AREAS?			
▪ CULTURAL HERITAGE SITE			
▪ PROTECTED AREA			
▪ WETLAND			
▪ MANGROVE			
▪ ESTUARINE			
▪ BUFFER ZONE OF PROTECTED AREA			
▪ SPECIAL AREA FOR PROTECTING BIODIVERSITY			
B. POTENTIAL ENVIRONMENTAL IMPACTS WILL THE PROJECT CAUSE…			
tree cutting outside forest areas			
impacts on park/ garden/ lake/ water bodies			
introducing or spreading invasive non-native species			
impacts on migration routes			
impacts on protected areas and forest areas			

B. List of the Permit/Clearance Required Prior to Commencing the Civil Work

Type of permits	Yes	No	Explanations on the recommended time to apply for the permits
SPCB–Non objection Certificate			
Forest Department			
MOEFCC			
For water extraction			
For Disposing Spoil Materials			
Other, please describe in the last columns			

C. DUE DILIGENCE for SOCIAL (Only if medium-high impacts and risks identified)

#	Particulars	Description/Details/Status
1	Location: From Km_____To Km_____	
2	Name of Villages	
3	Name of Circle/Block	

#	Particulars	Description/Details/Status
4	Name of District	
5	Is it a Tribal Area	
6	Approximate Distance of distribution line/UG cable alignment from nearby habitation (Left Side and Right Side of Line from the central line)	
7	Type of Area (Agricultural/Crop Area/ Plantation/Settlement or Residential Area/Along the Road/Commercial Area/Defense Area etc. in the corridor	
8	Ownership of land (private/ Government)	
9	General Land Use Pattern along the Corridor	
10	Is the line passing over houses or buildings	
11	If yes How many buildings approximately	
12	what type of building (Residential/Shops/Others)	
13	Is the line passing over Religious or Cultural Properties	
14	Approximate Number of Trees to be cut	
15	Types and Names of Trees along the Corridor	
16	Types of Crops along the corridor	
17	Remarks (Whether Compensation is to be paid or avoided or farmers/residents are willing to cooperate without any compensation	

D. PUBLIC CONSULTATIONS along with Due Diligence

Consultation Activities	**Yes**	**No**	**Issues Raised by the community**
Consultations with community was conducted before finalizing the alignment/route and project component			
Any suggestion received in finalizing the alignment/route			
If suggestions received, are they incorporated into design			
Are there any special consultations conducted in the tribal area and are there any informal consent received from the tribal people (in case subprojects passing through tribal area)			

Submitted by: **Reviewed by:**

(BESCOM Consultant)	(BESCOM HQ)
Name and signature:	Name and signature:
Position:	Position:
Date:	Date:

DF 03: Checklists For Inventory of PCBs and SF6

PCBs

S.No.	Type of equipment having PCBs	Total Number	Year of manufacture/ commissioning	Replacement Plan, Year	Replacement substitute	Remarks
1	Transformers					
2	Others					

SF6

S.No.	Type of equipment having SF6	Total Number	Provisions for Leakage Detection and Control	Any instances of leakage	Present Condition	Remarks
1	Switchgear					
2	RMUs					
3	Other					

Annex 3: MP 3 - Standard Construction Management Plan

This Plan applicable to all BESCOM Activities and Projects Involving Civil Works.
(Each Contractor will prepare project/activity specific construction environment management plan based on this EMP)

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
PRE-CONSTRUCTION PHASE							
A. General							
General	n/a	BESCOM and contractor to comply with the regulatory EHS framework including BESCOM Environment and Social Safeguards Policy and the EHS General Guidelines (April 2007) and EHS Guidelines for Electric Power Transmission and Distribution (April 2007) plus all other applicable national laws and regulations in force in addition to the mitigation set out in this plan	No breaches of compliance with specified requirements	Part of contract cost, include costs of implementing EMP as BOQ line	Comply with mitigating measures. EESSA to check and document compliance semi-annually in EMR.	Comply with mitigating measures	Through project implementation
Staffing	n/a	BESCOM allocate suitably qualified and experienced Junior Environment, Health and Safety Officers who will also act as Community Liaison/GRM Focals and nominate one suitably qualified and experienced Deputy General Manager as Environment and Social Safeguards Manager to	Specified staff on board	Part of contract cost, include costs of EHS staffing as BOQ line	Comply with mitigating measures. EESSA to check and document compliance semi-annually in EMR.	Ensure requite staff are appointed to the project	Through project implementation for BESCOM, contract award for contractor

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		help supervise and monitor the project. Contractor to appoint a suitably qualified and experienced dedicated Environment Officer, dedicated Health and Safety Officer, and a dedicated Community Liaison/Labor Officer/GRM Focal as well as an adequate number of EHS Site Supervisors. Contractor should not discriminate and should proactively encourage the employment of suitably skilled women on the project. Employment of locally hired workers is encouraged to the extent possible whilst ensuring suitably qualified and experienced workers. No child will be employed, and no under 18s will be engaged on construction site (hazardous work)					
Bidding and contract award	n/a	BESCOM to include draft EMP in bidding documents and final EMP in contract documentation	Draft EMP and final EMP included as specified	n/a	Comply with mitigating measures. EESSA to check and document compliance	n/a	Prior to issue of bidding documents and contract award

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
					semi-annually in EMR.		
GRM establishment	n/a	Establish effectively operating GRM and inform all affected persons of its existence and means of submitting project grievance to BESCOM by distributing verbally and through notices or pamphlets the contact details	GRM operationalized	n/a	Comply with mitigating measures.	n/a	Prior to contractor mobilization on-site
Capacity development	n/a	Conduct training on EMP and GRM implementation for those with responsibilities under them.	100% of trainings provided 100% of requisite staff have received training	Part of contract cost, include costs of EHS staffing as BOQ line	Provide training activities and ensure requisite staff attend.	Ensure requisite staff attend trainings provided check compliance.	Prior to contractor mobilization on-site
EHS management preparations	n/a	Contractor to develop a construction environmental management plan (CEMP) for the contract package to BESCOM for approval, to provide details on how contractor plans to implement the construction mitigation measures specified in this EMP and relevant parts of the EHS Guidelines on Construction and Demolition. CEMP will identify the temporary	CEMP approved 100% of contractors' management staff including subcontractors have received training on CEMP and sub-plans	Part of contract cost, include costs of implementing EMP as BOQ line	To review and approve CEMPEESSA to check and document compliance semi-annually in EMR.	Contractor to prepare and submit CEMP for approval, provide trainings, submit copies of training attendance sheets and photos to BESCOM	Prior to contractor mobilization on-site

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		construction facilities required for the construction package e.g., laydown area, stores, temporary workers facilities etc. CEMP will reflect the final alignments and construction methods as well as arrangements for material sourcing and transportation of equipment and materials to the site ready for their installation. Contractor to conduct training on CEMP and sub-plans implementation for contractors' management team including subcontractors.					
Ongoing consultations	n/a	BESCOM to undertake and document meaningful consultations in all subdivisions of the project with affected people and concerned agencies including but not limited to relevant local authorities and utilities prior to approving any works in that subdivision in order that any concerns raised can be reflected in the choice of alignment and construction method.	Consultations undertaken and documented Health and safety campaign for households and businesses undertaken No unresolved grievances from local community or relevant local	Part of contract cost, include costs of implementing EMP as BOQ line	Comply with mitigating measures.	Comply with mitigating measures; retain copies and photos of notices or pamphlets and records of consultation meetings on file	Prior to contractor mobilization on-site, ongoing consultation to continue throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		Provide at least one-month advance notice to local community through notices or pamphlets about the schedule of, location plan, and details of planned construction works, including anticipated traffic disruption (road closures, diversions etc.) Coordination with the concerned local government authority and media to disseminate knowledge about health and safety to households and businesses located near areas of work. Continue to undertake consultation with affected persons especially those with properties within 5 meters of works to keep them fully informed of the nature of works and latest schedule. Local communities to be consulted by contractor when selecting sites for temporary construction facilities prior to finalization of their location.	authorities or utilities				
Final planning of cable/distribution line alignments	n/a	Undertake safeguard check of the final alignments and construction methods	Final safeguards	n/a	Comply with mitigating measures.	n/a	Prior to commencement of construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		through walkover, underground utility scanning and ongoing consultation to confirm (i) no private land is needed, (ii) no park, garden, or lake areas are crossed, (iii) no heritage zones are affected, (iv) no regulated state monument zones are crossed and no impact on cultural resources as notified under the Ancient Monuments and Archaeological Sites and Remains Act, and (v) no trees or local physical cultural resources to be impacted Review the final alignments and construction methods to confirm no change from the alignments described and the impacts and risks assessed.	checks completed		EESSA to check and document compliance semi-annually in EMR.		works, then as required during project implementation
B. Physical Resources							
Procurement of ring main units (RMU)	Release of SF6 as greenhouse gas resulting in climate change impact	In accordance with Kyoto Protocol and Paris agreement to minimize SF6 use alternative insulation medium to be considered. If no alternative use of SF6 in transformers, switchgears, RMU must be minimized. Switchgears and RMU to be	CO2e of total volume of SF6 is minimized.	Part of contract cost	Comply with mitigating measures. EESSA to check and document compliance semi-	Comply with mitigating measures	Through project implementation

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		sealed pressure “sealed for life” units, contain less than 2 kg of SF6 and be tested and guaranteed by the supplier at less than 0.1% leakage rate. In addition to switchgears and RMUs being properly sealed to avoid leakages, the detailed design will ensure the switchgears and RMUs linked to alarms at the nearest concerned O&M Unit, these alarms will be triggered by any SF6 leak recorded.			annually in EMR.		
EHS management preparations	Pollution incident occurs during construction and construction waste inappropriately disposed of	Develop as part of the CEMP and in accordance with national laws and regulations and the EHS Guidelines: (i) pollution prevention plan (PPP) covering environmentally sound and safe storage and use of all fuels, chemicals and oils used on site and an emergency preparedness and response plan in the event of (a) any leaks or spills, or (b) damage during installation to water or sewerage pipes; and (ii) construction waste management plan (CWMP)	CEMP including PPP/CWMP approved	Part of contract cost, include costs of implementing EMP as BOQ line	BESCOM to review and approve CEMP with support of ESCT. EESSA to check and document compliance semi-annually in EMR.	Contractor to prepare and submit CEMP including PPP/CWMP for approval	Prior to contractor mobilization on-site

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		for dealing with all solid and hazardous waste generated in an environmentally sound and safe manner.					
Material sourcing	Use of natural resources and associated environmental impacts	Contractor will only procure construction materials from existing licensed sites/sources and authorized third parties; contractor will verify the legal status of the supplier's operation.	Records of materials sourced	Part of contract cost, include costs of implementing EMP as BOQ line	ESCT supported by field teams to check compliance. EESSA to check and document compliance semi-annually in EMR.	Contractor to comply with mitigating measures; keep records of materials purchased and sources	Through project implementation
C. Biological Resources							
Planning of works	Disturbance of trees and other vegetation (if any) during construction works	No works to be undertaken within the boundaries of forest, national parks, garden, or lakes. Excavation pits to be placed to avoid the area beneath tree crowns (zone for root protection) and other vegetation. Line and Cable alignment placed to the extent possible to avoid tree crowns, especially for mature trees. Demark on site the working area and mature trees to be avoided.	No trees cut, or any that are cut are replaced as specified	Part of contract cost, include costs of implementing EMP as BOQ line	Comply with mitigating measures. EESSA to check and document compliance semi-annually in EMR.	Comply with mitigating measures; record any tree cutting and replacement as per the EMoP	Before commencement of construction works

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		No tree to be cut unless at risk of causing a public safety hazard due to root damage. If any trees are to be cut, they are to be replaced 1:2 by native species in nearly the same location. The contractor will monitor the progress of any replacement planting to ensure the same number of trees remains established after two years so “no net loss of biodiversity” is achieved. Before any tree cutting ESCT to check for presence of nesting birds unless undertaken outside the bird breeding season or roosting bats.					
D. Human Environment							
Final planning of works	Damage to property and other public utilities’ underground assets during construction works	BESCOM to plan without disruption and disturbance to environment and public. BESCOM to coordinate with the Bruhat Bengaluru Mahanagara Palike (BBMP) during fixing the alignment and construction method to be used and obtain their no objection. Contractor to undertake photographic and/or	Survey records, consultations records, latest maps of underground assets, all required permits and/or clearances obtained and on file	Part of contract cost, include costs of implementing EMP as BOQ line	Comply with mitigating measures, obtain any permits and/or clearances. EESSA to check and document compliance semi-	Comply with mitigating measures; document all surveys and consultations undertaken and submit to BESCOM for record purposes	Before commencement of construction works

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		structural pre-condition surveys of existing above ground property condition including utilities, structures, footpaths, roads and/or drains as per the EMoP to form the baseline for any future claims. Contractor to consult with relevant local authorities (electric, water, gas, telecoms) and carry out scans using Cable Avoidance Tool (CAT) or equivalent to identify known and unknown underground utilities prior to excavation. BESCOM to obtain any permits and/or clearances consistent with the requirements of GoI and GoK from other public utilities that could be impacted and cover any compensation due to foreseen damages. In particular, given community concerns attention will be paid to ensuring that underground sewerage and surface water drainage channels are protected by appropriately setting back the trenches from them in	No unforeseen damage during construction works, or any damage that is caused compensated for by the contractor		annually in EMR.		

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		conjunction with BWSSB and BBMP. If any unforeseen damages do occur during construction any compensation due is to be paid by the contractor. Before the start of construction, the contractor will be required to inform any informal street vendors or other informal users along the alignment, if any, to shift their locations temporarily e.g., to the other side of the street for the day to avoid any loss of their livelihoods. In the event that access to an area will be impeded for more than 8 hours, the contractor will provide for alternative safe access for formal and informal users. Planning of works will be done in conjunction with other construction works in the city to minimize the cumulative impacts they may cause to the local community.					
Health and safety (H&S) risk assessment and	Occupational and community health and safety incident	For all construction works contractor to undertake risk assessment and develop a H&S plan in accordance	H&S Plan approved	Part of contract cost, include costs of	ESCT to review and approve H&S Plan EESSA	Contractor to undertake risk assessment	Prior to contractor mobilization on-site

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
management planning	during construction	with national laws and regulations, BESCOM Safety Manual and the EHS Guidelines, considering both occupational and community H&S risks during construction. H&S plan to include an emergency preparedness and response plan with communication systems and protocols for reporting and responding to any medical emergency or any other emergency circumstances such as traffic accident during construction. Specifically, this will include measures to prevent and respond to COVID-19 cases[25] plus natural hazards, earthquake, flood etc. Contractor to conduct trainings on health and		implementing EMP as BOQ line	to check and document compliance semi-annually in EMR.	and prepare and submit H&S Plan for approval	

[25] Particular attention to be paid to COVID-19 given construction is directly within the community and the transient nature of the construction workforce who could pass it to the community (especially those with existing medical conditions such as diabetes, heart and lung disease) and vice versa. Risk assessment to consider distribution and number of cases in India, Karnataka and Bangalore in relation to home base of construction workers, options for travel to work – public or private transport, and the location of works and overnight worker accommodation. Particular attention will need to be paid to the ability of communities to comply with protective measures such as regular handwashing and for the local health care facilities capacity to deal with any infections. Given the specialist nature of responding to COVID-19 public health officials/experts to be consulted regarding the risk. In developing the H&S plan Government of India (https://www.mygov.in/covid-19) and World Health Organization guidance (https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance) should be followed ensuring adequate sanitation and welfare facilities including for hand washing and personal protective equipment are provided to construction workers.

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		safety risk, management, emergency preparedness and response in case of an occupational or community health and safety incident to (i) all contractors' management team including subcontractors, and (ii) all on-site workers including from formal and informal subcontractors before the commencement of any on-site works. This is to include training on how to use first aid and firefighting equipment provided on-site. No new transformers are envisaged but if required they will need to be certified PCB free. In the absence of documentary evidence (e.g., contract specification or certification for supply of original transformer, maintenance records for oil replacement including material safety data sheet, or transformer oil test results etc.) for given transformers confirming they are PCB-free, all old transformers must be considered at risk of containing PCBs and					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		appropriate health and safety management measures taken. No asbestos containing materials must be used during the construction. Community awareness raising with concerned local government authorities and media dissemination about the community health and safety risks will be needed for all communities living and working near the project sites, so they know what to expect. Communication channels and protocols with local and regional emergency and health authorities will need to be established in case of an incident. To reduce the consequences of a cable break incident during operation, the design of underground cables to be armored by steel wires to protect the live cores. In case the armor is broken by a third party and the core is damaged, protection relays in the substation will be designed to detect this and stop sending electricity to					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		the feeder immediately by automatically opening switchgear in the substation to prevent a live shock to the person. So that when underground works need to be done by others, the location of the cables would be known and avoided, design of underground cables to include warning marks above ground or over the cable,					
EHS management preparations	Loss of unknown physical cultural resources found during construction works	If roads in heritage zones are involved obtain no objection from Bruhat Bengaluru Mahanagara Palike (BBMP) of the alignment and construction method before it is fixed. No works to be undertaken in 100m prohibited zone of state monument. If roads in 200m regulatory zone of state monument are involved obtain regulatory permissions and ensure requirements are followed in full during construction phase. Chance find procedure to be developed as part of CEMP for implementation in the event physical cultural	CEMP including chance find procedure approved	Part of contract cost, include costs of implementing EMP as BOQ line	ESCT to review and approve CEMP with support of Field teams. EESSA to check and document compliance semi-annually in EMR.	Contractor to prepare and submit CEMP including chance find procedure for approval	Prior to contractor mobilization on-site

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		resources are found, to include the following procedures: -If suspected physical cultural resources are encountered (including but not limited to fossils, coins, articles of value or antiquity, and remains of geologic or archeological interest), all works at the find site should be immediately halted. -The find should be assessed by a competent local District Office or Culture and Fine Arts official, and procedures to avoid, minimize or mitigate impacts to such physical cultural objects should be agreed in writing with them. -Work should not begin until the procedures to avoid, minimize or mitigate impacts to the physical cultural resources have been agreed and implemented in full. -If avoidance is not feasible, and no alternatives to removal exist, and the project benefits outweigh the anticipated cultural heritage loss from removal which is unlikely unless in					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		case of resource of local value, following clearance of District Office or Culture and Fine Arts office, the physical cultural resources should be removed and preserved using the best available technique in accordance with relevant provisions of national heritage protection laws and decrees. -Records should be maintained of all finds, including chain of custody instructions for movable finds. All construction workers to be made aware of the chance-find procedure and types of finds to be reported.					
EHS management preparations	Interference with pedestrian and vehicle traffic during construction	Develop as part of CEMP a Traffic Management Plan (TMP) in consultation with relevant local authorities to ensure proper execution of traffic controls including where temporary blockage of footpath or road during installation is required for health and safety purposes that highly visible guides, advance warning signs or flag persons are in place to	CEMP including TMP approved	Part of contract cost, include costs of implementing EMP as BOQ line	ESCT to review and approve CEMP with support of Field teams. EESSA to check and document compliance semi-annually in EMR.	Contractor to prepare and submit CEMP including TMP for approval	Prior to contractor mobilization on-site

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		direct pedestrian and vehicular traffic. Safe access to property (including schools, hospitals, clinics, places of worship (temples, mosques, churches, shrines) etc.) and footpaths and roads should be maintained wherever possible and diversions and alternative access provided and clearly signed where there are temporary blockages that are a health and safety risk Planning of works will be done in conjunction with other construction works in the city to minimize the cumulative impacts they may cause to the local community.					
Equipment transportation and site preparation	Traffic disturbance	Comply with agreed traffic management plan (TMP) Transport equipment and conduct site preparation only during non-rush hours i.e., avoid the hours of 6am to 8 am and 4pm to 6 pm and in conjunction with other construction works to minimize the cumulative impacts they may cause traffic congestion.	Transportation and site preparation in compliance with TMP and avoids rush hour No unresolved grievances from local community or relevant local authorities	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams day to day supervision of transportation and site preparation activities. EESSA to check and document compliance semi-	Comply with mitigating measures; record times of all deliveries and site preparation activities	Throughout on-site activities

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
					annually in EMR.		
CONSTRUCTION PHASE							
A. General							
EHS management	n/a	Implement agreed CEMP and H&S Plan Provide prominent signage detailing site and office contacts in case of grievance Provide daily toolbox talk to all construction workers including subcontractors in relation to CEMP and H&S Plan implementation Develop training plan to provide regular one-off training events throughout the construction period on key topics related to the CEMP and H&S Plan implementation Ensure good housekeeping throughout construction. Once construction works are completed, return construction area and its surroundings to at least pre-project conditions.	CEMP and H&S Plan complied with by the contractors Contacts for grievances prominently displayed at construction sites Daily toolbox talks provided to 100% of construction workers on-site Regular one-off trainings delivered in accordance with agreed training plan	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision. EESSA to check and document compliance semi-annually in EMR.	Comply with mitigating measures; submit training plan for approval, copies of toolbox talk and training attendance sheets and photos to be submitted to BESCOM	Throughout construction
B. Physical Resources							
Use of fuel, oil and chemicals/ excavation	Pollution incident risk	Implement the agreed PPP and avoid the occurrence of	PPP complied with	Part of contract cost, include costs	Field teams to do day to day	Comply with mitigating measures	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
resulting in sediment laden runoff		pollution incidents as far as practicable. Follow General EHS Guidelines for the use and storage of fuel, oil, and chemical including prevention and control of hazards associated with spill prevention, emergency response, clean up and contaminated soil remediation Fuel, oil and chemicals used to be kept under lock and key and stored in labelled, sealed containers on drip trays to provide secondary containment, ideally these will be located on an impermeable surface Mounting of plant containing oil and diesel on drip trays to catch leaks. Refueling operations, equipment servicing and washdown to take place on an impermeable surface at least 50m from watercourses, springs and wells, with drainage directed through oil and grease interceptors before being discharged into a settling pond prior to discharge offsite	Compliance with national laws and regulations No unresolved grievances from local community or relevant local authorities	of implementing EMP as BOQ line	supervision. EESSA to check and document compliance semi-annually in EMR.		

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		Provide enough absorbent materials (e.g., sorbents, dry sand, sandbags) on-site for soaking up fuel, oil or chemical leaks/spills Undertaking works particularly for installation of open trenches during monsoon season to be avoided to prevent the need to pump out and dispose of sediment laden water.					
Operation of construction vehicles, machinery and equipment (e.g., diesel generators)	Increased noise levels and exhaust emissions during works affecting air quality and adjacent communities and worker H&S	Schedule works to minimize disturbance to local communities e.g., undertake unloading and nighttime work in commercial areas and in the vicinity of schools, and daytime unloading and work (office hours, 8am- 6pm) in the vicinity of residential areas; undertake daytime unloading and works in the vicinity of schools only on weekends, and all unloading and works in residential areas only on weekdays. Noise generating construction-related activities will be avoided during exam periods, prayer times, religious or cultural	Compliance with national laws and regulations including CPCB ambient air quality standards and noise levels as well as WHO noise standards for residential properties where more stringent than GoI area-based approach No unresolved grievances from local community, relevant local	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported ESCT. EESSA to check and document compliance semi-annually in EMR.	Comply with mitigating measures; keep required maintenance records and undertake noise and ambient air quality monitoring in accordance with the EMoP	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		events near any sensitive receptors. If nighttime unloading or works in residential areas cannot be avoided consult with ESCT and obtain written permission from the concerned local authority before going ahead. Prohibit the use of horns in residential and other areas where sensitive receptors are located Limit engine idling to maximum 5 minutes Use of low noise generating machinery and equipment e.g., less than 55dBA sound pressure level at 1m wherever possible; even if permission is granted to work at night in residential areas no high noise generating machinery and equipment should be used at nighttime in residential areas Comply with the Noise Pollution (Control and Regulation) Rules, 2000 – in addition, in the vicinity of residential properties noise levels must be limited to 55dB(A) as 1hour LAeq during the daytime and if	authorities, or construction workers				

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		nighttime work is permitted it must be limited to 45dB(A) as 1hour LAeq to comply with the EHS Guidelines that are property not area based. If these rules or noise levels are exceeded the contractor will be required to implement additional noise mitigation measures such as adjusting his working methods or placing of temporary noise barriers to ensure the noise standards are met. Construction vehicles, machinery and equipment to meet applicable national air and noise emission requirements and have passed emissions test and received certification for noise and air emissions as applicable to them. Fit all vehicles, machinery and equipment used in construction with exhaust silencers where the manufacturer's design allows this Maintain in good working order in accordance with the manufacturer's instructions all vehicles, machinery and equipment					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		to minimize noise emissions and emissions to air Position any stationary emission sources (e.g., diesel generators) as far as practical from sensitive receptors (residences, shops, schools, clinics, temples, etc.) Ensure all construction workers exposed to the noise from the surrounding environment and the construction works exceeding >85dB(A) over 8 hours are provided with and wear acoustic ear plugs or earphones capable of reducing noise levels to 85dB(A) Ensure all construction workers exposed to exhaust emissions in surrounding environment and due to construction works are provided with and wear the N95 masks					
Use of dust generating materials	Generation of dust affecting air quality and adjacent communities	Stockpiles of sand, soil and other dust generating materials to be kept to a minimum necessary to undertake works for the day and will be covered with a canvas or tarpaulin to minimize the release of dust	Compliance with national laws and regulations including CPCB ambient air quality standards	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported by ESCT.EESSA to check and document	Comply with mitigating measures; air quality monitoring in accordance with the EMoP	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		Trucks transporting sand, soil and other dust generating materials will be covered with a canvas or tarpaulin to minimize the release of dust During the dry season or in windy conditions spray water at least twice a day at the construction sites and along transport routes where any sensitive receptors are located (residences, shops, schools, clinics, temples, etc.) but more often if needed during excavations, dry and windy conditions that enable dust to be easily mobilized and the dust to be visible using specialized water tankers of 4.5 cubic meters. Use rolling construction method and restore surface of pavement or road right after construction activities completed on that section. Repaving of the excavated area will be done manually immediately once the installation of the line poles and cable is complete. Stockpiles of sand, soil and other dust generating	No unresolved grievances from local community or relevant local authorities		compliance semi-annually in EMR.		

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		materials to be kept at least 10m away from drains and watercourses and as far as practical from sensitive receptors (residences, shops, schools, clinics, temples, etc.) Reduce the volume of excavation pit to the minimum feasible to reduce the amount of soil disturbed, fill with excavated soil as soon as possible to reduce dust emissions. Soil scattered on paved pavements and roads shall be immediately swept up to avoid windblown dust. Impose speed limits on construction vehicles to minimize the spread of dust from roads along areas where sensitive receptors are located (residences, shops, schools, clinics, temples, etc.) Provide construction workers with N95 dust masks to be worn when dust generating activities take place					
Generation of solid and	Inappropriate disposal of solid and	Construction material such as conductors, cables, sand etc., will be good quality	Disposal of waste in accordance	Part of contract cost, include costs	Field teams to do day to day	Comply with mitigating measures;	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
hazardous wastes	hazardous waste generated by construction works and the construction workers	materials and shall come from licensed factories and quarries Implement the agreed CWMP and avoid or minimize the generation of wastes by as far as is practicable. Comply with the (i) Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and Hazardous and Other Wastes (Management and Transboundary Movement). Amendment, Rules, 2019 (ii) Bio Medical Waste Management Rules, 2016, (iii) Construction and Demolition Waste Management Rules, 2016, (iv) E-Waste Management Rules, 2016, and (v) Plastic Waste Management Rules, 2016 for the collection, storage, and disposal of solid and hazardous wastes. Collect and segregate construction wastes including scrap metal, oils, and solid waste; arrange garbage bins to collect these wastes during the	with agreed CWMP Compliance with national laws and regulations including CPCB norms No unresolved grievances from local community or relevant local authorities	of implementing EMP as BOQ line	supervision supported ESCT. EESSA to check and document compliance semi-annually in EMR.	keep records in accordance with the EMoP	

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		construction wastes to they are not thrown on the floor Collect and segregate all domestic solid waste generated by construction workers; arrange garbage bins to collect these wastes during the construction wastes to they are not thrown on the floor Store all wastes in designated, labelled area in an environmentally sound manner e.g., oils to be stored in sealed drums on drip trays, solid wastes to be stored in an enclosed bin. It must be ensured that this inert waste is not contaminated with solid and hazardous waste by maintaining good housekeeping for collection/storage. Burning of wastes generated by project-related activities is strictly prohibited Dumping of solid and hazardous wastes on the side of the road, in drains etc. is strictly prohibited Recover recyclable wastes that could be reused or sold					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		to recyclers to the extent possible. Unused overhead distribution lines and poles which are dismantled to be immediately removed off site for reuse of disposal by a licensed waste disposal company in compliance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 with all waste transfer records retained, pay particular attention to wooden poles as they may contain preservatives and so need to be treated as hazardous waste Unless reused or sold, other wastes to be disposed of to a suitably licensed waste management facility (depending on if hazardous or non-hazardous) with all waste transfer records retained. Provision of adequate number of self- contained portable toilets with sinks for construction workers (generated wastewater to be disposed of to wastewater treatment plant)					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		or access to alternative sanitary facilities (e.g., existing public toilets) that do not allow the untreated disposal of sewage to adjacent water bodies; use of pit latrines is prohibited (applies to both temporary work sites and any construction camps) Strict prohibition on open defecation and urination and uncivil use of the road or private premises as a toilet by construction workers. Minimize use of and wastage of clean water during construction. Provide weekly toolbox talk to remind of the importance of waste disposal, prohibition of disposal on the road, in drains etc., prohibition on burning of wastes, and open defecation and urination. Develop a procedure/system to penalize through escalating fines or similar any construction workers who breach these requirements.					
Soil excavation	Inappropriate disposal of	Store and utilize salvaged excavated soil for filling the	Disposal of waste in	Part of contract cost,	Field teams to do day to	Comply with mitigating	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
	inert soil waste generated	excavated pit for poles and entry and exit pits used for the cable installation Collect and transport the excavated soil that cannot be reused to a disposal site agreed by the local authorities as suitable for accepting inert wastes ensuring no solid or hazardous wastes are comingled with the inert excavated soil Records of excavated soil, generated waste, and transfer records will be kept by the contractor. Dumping of excavated soils on the side of the road, in drains etc. is strictly prohibited Comply with the Construction and Demolition Waste Management Rules, 2016	accordance with agreed CWMP Compliance with national laws and regulations including CPCB norms No unresolved grievances from local community or relevant local authorities	include costs of implementing EMP as BOQ line	day supervision supported ESCT.	measures; keep records in accordance with the EMoP	
C. Human Environment							
Installation of distribution lines and underground cables	Damage to above ground property and other public utilities' underground assets	Demark on site the working area, follow design drawings, avoid encroachment outside the agreed corridor of impact, and implement careful construction practices to avoid damage to existing above ground property and	100% of property left in same condition as prior to construction Damage caused repaired or	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported ESCT.	Comply with mitigating measures	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		the identified underground utilities. Repair and/or compensate for any unforeseen damage to at least original condition in conjunction with relevant local authorities or property owner at cost to the contractor.	compensated for Compliance with national laws and regulations No unresolved grievances from local community or relevant local authorities				
Facilities for construction workers	Inappropriate working conditions and interaction with local communities	If workers are not local to the area ideally use should be made of existing accommodation facilities but if a construction camp is provided it must be adequately equipped with sufficient toilets, hand washing facilities, showers or baths, food preparation and clean eating area, etc., as per standards set by national and state regulations and international good practice. Check health condition of workers on daily basis, for example, through use of self- certification forms or temperature checks before being allowed on the construction site	Compliance with H&S Plan and agreed code of practice Compliance with national laws and regulations, including but not limited to, the Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996 No unresolved grievances from local community or	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported ESCT.	Comply with mitigating measures	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		Ensure construction workers are able to take time off sick without being penalized, including any self-isolation or quarantine requirements for COVID-19 to minimize risks to others. Provide construction workers with on-site access to self-contained portable toilets with sinks or an alternative existing functional toilet facility (toilets and hand washing area) -- enough toilet facilities should be provided for the number of workers on-site, segregated by gender. There should be an indication of whether the toilet facility is “in use” or “vacant”. Toilets should be cleaned at least twice daily to ensure they are kept in a hygienic condition to avoid creating a health hazard to workers. Toilet facilities to be provided with adequate supplies of hot and cold running water, soap, hand sanitizer, and hand drying device.	construction workers			

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		Provide workers with access to a shaded rest area on-site. Provide workers with a clean eating area with a supply of drinking water for breaks and lunchtime. Enough supplies of clean potable drinking water meeting national standards should be provided to workers on-site. If an authorized supplier of canned water is not used the drinking water source must be regularly tested to confirm it meets the drinking water standards. The working schedule will need to be developed to allow enough breaks and enough rest time in-between the shifts. Prevent standing water as it may become a breeding habitat for mosquitoes etc. Construction workers including subcontractors will be given awareness raising in HIV/AIDS, other communicable diseases including COVID-19, and sexual, exploitation, abuse and harassment with strict penalties (e.g., immediate					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		removal from site) for any non-compliance of workers to an agreed code of practice					
Stringing of conductors and Installation of underground cables and RMU and dismantling of old distribution lines	Occupational and community health and safety incident	Implement the agreed H&S Plan and avoid the occurrence of any H&S incidents as far as practicable. Require all construction workers including subcontractors to confirm they have seen and understood the requirements of the H&S plan before proceeding with the work. Require workers to observe the EHS Guideline on Construction and Demolition Equip all workers with task-appropriate personal protective equipment (PPE) such as hard hats, safety gloves, safety belt, ear protection, protective footwear, etc.in accordance with Table 2.7.1. Summary of Recommended Personal Protective Equipment According to Hazard in EHS Guidelines on Occupational Health and Safety with additional PPE provided as	No fatalities or lost time incidents 100% of H&S incidents including near miss recorded, immediately investigated, and corrective action taken to prevent repeat Compliance with H&S Plan Compliance with national laws and regulations No unresolved grievances from local community or construction workers	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported ESCT. EESSA to check and document compliance semi-annually in EMR.	Comply with mitigating measures; maintain records of health and safety incidents per the EMoP and maintain copies of training records	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		needed for COVID-19 risks and ensure that it is worn during construction Develop and enforce strict disciplinary system (e.g., immediate removal from site) for non-compliance with PPE requirements Check the load of the vehicles before use, all drivers and passengers to fasten seatbelt and comply with all transportation-related H&S laws and regulations Examination of all equipment and tools' quality and the presence of operational safety features before use Installation of barriers (a temporary fence ideally solid fence) at construction areas with hazard warning signs to deter people from accessing the construction site Implementation of safety measures while excavating the pits for poles and cable entry and exit pits to avoid collapse e.g., shoring if soil unstable Do not leave hazardous conditions (e.g., unfenced					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		and unlit open excavations without means of escape) overnight unless no access by public can be ensured During construction works ensure qualified first aider and trained fire marshal is always available on-site with an appropriately equipped first aid kit and appropriate fire extinguisher and other firefighting equipment immediately available for use; first aid and fire procedures should be displayed on-site Provide an ambulance for more serious cases to transport the patient to the hospital for treatment Plan with the nearest Health Center and/or Hospital for emergency care of workers, contact details for these to be posted on notices on-site Since PCBs are toxic and bioaccumulate, unless transformers have been certified PCB free all workers must avoid all exposure of transformer oil to skin and eyes and avoid any potential for accidental ingestion by wearing					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		suitable chemical and/or oil resistant gloves, goggles, and protective clothing even under normal working conditions if there is a risk of coming into contact with transformer oil. If oil meets the skin, the workers should immediately rinse the affected area with large amounts of running water. This may be done in a sink if the hands are the only portion of the body contacted or under a safety shower if the exposure area is more extensive. If large parts of the skin met with the oil, the workers should remove contaminated clothing while under the shower for a minimum of 15 minutes. Hand wash, safety shower and eyewash stations are therefore required at the construction sites.					
Electrical work	Occupational or community health and safety incident associated with electricity	Require workers to observe the EHS Guideline on T&D requirements for working with live power lines Only allow suitably trained and qualified workers to be allowed to work on electrical equipment and at	No fatalities or lost time incidents 100% of H&S incidents including near miss recorded, immediately	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported ESCT.EESSA to check and document	Comply with mitigating measures; maintain records of health and safety incidents per	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		height, these workers must have training record of attending suitable training course on electrical safety and working at height. Untrained workers will not be permitted to work with live electricity or at height. Ensure proper grounding and deactivation of live power lines during construction work or before any work near the lines and this will be checked and certified by Health and Safety Officer in advance Only suitably trained workers that meet the requirements set out in EHS Guidelines on Transmission and Distribution (T&D) to be allowed to work on live power lines with strict adherence to safety and insulation standards including those listed in the EHS Guidelines Require other workers to observe the minimum approach distances for excavations, tools, vehicles, and other activities when working around power lines	investigated, and corrective action taken to prevent repeat Compliance with H&S Plan Compliance with national laws and regulations No unresolved grievances from local community or construction workers		compliance semi-annually in EMR.	the EMoP and maintain copies of training records	

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		Unless transformers have been certified PCB free workers must wear suitable chemical and/or oil resistant gloves, goggles, and protective clothing whilst working with transformers. Eye wash station and water supply to shower to be provided during works due to risk of PCB encountering skin. Compliance of safety norms for installation of ring main unit Stopping all works and relocate all people not on duty to a safety area before switching on power to test the power grid Install on all electrical equipment visual and written warning signages to O&M staff and the public including the ISO 7010 Hazard Type: Electrical Symbol warning of the risk of electrocution. Ensure the base of all ground and pole mounted transformers to which the underground distribution lines connect are fenced with locked gate or similar					

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		deterrent with suitable warning signs. Ensure all RMU are securely locked with suitable warning signs.					
Installation of poles, conductors and underground cable	Interference with pedestrian and vehicle traffic	Comply with agreed traffic management plan (TMP) Installation works affecting footpaths and roads to avoid rush hours i.e., avoid the hours of 6am to 8 am and 4pm to 6 pm Safe access to property and footpaths and roads should be maintained wherever possible and diversions and alternative access provided and clearly signed where there are temporary blockages that are a health and safety risk Road safety and warning signs for footpaths and road blockages must be posted at 500m, 100m, and immediately in advance of the works at least one week prior to the works commencing to inform the public of the temporary blockage; for road blockages utilize flag men during works to control the traffic flow and protect	Compliance with TMP No unresolved grievances from local community	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported ESCT and to monitor compliance and respond to grievances raised. EESSA to check and document compliance semi-annually in EMR.	Comply with mitigating measures; maintain log sheets of installation works	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		construction workers and the road users Safety guides should be provided where works are on sidewalks or in locations of pedestrian crossings to help guide pedestrians, especially vulnerable persons, safely around the working area. Stockpiling of spoil and cable reels shall be away from properties and only in designated areas where no access will be blocked Traffic diversion works to be immediately dismantled on completion of works and the footpath and roads restored to their original condition.					
Installation of poles, conductors and underground cable	Loss of unknown physical cultural resources found during construction works	Follow approved chance find procedure if physical cultural resources are found during construction works; if physical cultural resources are encountered, all works at the find site should be immediately halted.	No damage to unknown physical cultural resources Compliance with GOI's Treasure and Trove Act	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported ESCT.EESSA to check and document compliance semi-annually in EMR.	Comply with mitigating measures	Throughout construction

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
Temporary outage of the electricity	Loss of power supply to the local community when distribution lines crossing the new distribution line are switched off	Provide one-week advance notice to the public through notices or pamphlets about the time and the duration of the utility disruption Restore the utilities immediately after all necessary works are carried out to minimize the public inconvenience	Temporary outages kept to minimum No unresolved grievances from local community	Part of contract cost, include costs of implementing EMP as BOQ line	Field teams to do day to day supervision supported ESCT.EESSA to check and document compliance semi-annually in EMR.		
OPERATION AND MAINTENANCE PHASE							
A. Physical Resources							
Use of PCB in transformers	Existing transformers containing PCBs (if any) are not in compliance with national legislation	BESCOM to ensure all pole and plinth mounted transformers are within their certified lifetime and property maintained without possibly of oil leak or release into the environment. Regular and periodic preventive maintenance to prevent any oil leakages. BESCOM to prepare inventory or and replace any existing transformers which contain PCBs in accordance with the GOI's Regulation of Use, Handling and Disposal of Polychlorinated Biphenyls and at latest by 31.12.2025.	100% of project transformers are PCB free Compliance with GOI's Regulation of Use, Handling and Disposal of Polychlorinated Biphenyls	n/a	ESCT to develop inventory of project transformers and to ensure legislative requirements met, copies of transfer notes for recycling and disposal of old transformers to be kept. EESSA to check and document compliance semi-	n/a	By end of 2025 and throughout O&M

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		In decommissioning and disposing of old transformers BESCOM will be required to follow the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 for transport, storage and disposal of potentially PCB oil containing transformers. Disposal to involve facilities capable of safely transporting and disposing of hazardous waste containing PCBs.			annually in EMR.		
Operation of switchgears and ring main unit (RMU)	Leakage of SF6 gas a potent GHG causing climate change impacts	SF6 leakages will trigger an alarm at the nearest concerned O&M Unit from which staff at to immediately attend to stop the leakage. Regular and periodic preventive maintenance to prevent any SF6 leakages. Database of all switchgears and RMU containing SF6 including total volume and annual leakage rate; annual monitoring of SF6 leakage from all switchgears and RMU in accordance with the EMoP. If trend of lowering gas pressure observed investigate cause	Database maintained, less than 0.1% leakage rate per switchgears and RMU with a total leakage of less than 100 tons CO2e/annum 100% of project and O&M staff have attended training on SF6 awareness raising	n/a	ESCT to develop database of RMU and implement an SF6 training plan for staff, copies of attendance records and photos to be kept on file. EESSA to check and document compliance semi-	n/a	Throughout O&M

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		of leak and take action to rectify it in accordance with manufacturer's instruction. Training of all project and O&M staff on the climate change impact of SF6, alternatives, H&S risks during O&M due to presence of toxic by-products, leakage minimization, and environmentally sound and safe disposal of old RMUs with SF6 by a certified industrial waste management company following International Electrotechnical Commission (IEC) standard 61634 to ensure SF6 is not released to atmosphere.			annually in EMR.		
Disposal of switchgears and RMU	Leakage of SF6 gas a potent GHG causing climate change impacts	Old switchgears and RMUs shall be recycled and disposed by a certified industrial waste management company following the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. The company will need to remove SF6 and treat the equipment prior to disposal in accordance with	Compliance with Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and International Electrotechnical Commission	n/a	ESCT to ensure procedures followed, certifications of company and transfer notes for recycling and disposal of old RMU to be kept. EESSA to check and	n/a	Throughout O&M

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		International Electrotechnical Commission (IEC) standard 61634 to ensure SF6 it contains is not released to the atmosphere.	(IEC) standard 61634		document compliance semi-annually in EMR.		
B. Human Environment							
Switchgears and RMU operation	Risk of fire causing H&S incident	Ensure emergency procedures are posted and provide fire extinguisher adjacent to switchgears and RMU	100% of switchgears and RMU have serviced fire extinguisher	n/a	ESCR to ensure requirement followed.	n/a	Throughout O&M
O&M activities	Occupational and community health and safety incident during O&M	Share the information of the routing of all lines, position of poles, underground cables to the relevant authorities and include warning marks above ground or over the cable, so when works need to be done by others, the location of the poles and cables would be known and avoided. In case of incident and line and cables are broken immediately notify the nearest BESCOM incident coordinator for handling measures with technical staff to inspect and repair. O&M team will repair the line and cable break as	No fatalities or lost time incidents 100% of H&S incidents including near miss recorded, immediately investigated, and corrective action taken to prevent repeat Compliance with national laws and regulations No unresolved grievances from local community or O&M workers	n/a	ESCT to ensure H&S n/a plan in place and develop and implement an annual training plan for O&M workers; keep H&S records per EMoP and keep copies of attendance records and photos to be kept on file. EESSA to check and document	n/a	Throughout O&M

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		soon as possible with repair works similar to construction. For all O&M works undertake risk assessment and ensure H&S plan in place before works that accords with national laws and regulations and the EHS Guidelines, considering both occupational and community H&S risks during O&M. H&S plan to include an emergency preparedness and response plan with communication systems and protocols for reporting and responding to any medical emergency or any other emergency circumstances during construction. Specifically, this will include measures to prevent and respond to COVID-19 cases plus natural hazards, earthquake, flood etc. Training of O&M workers on health and safety risk, management, emergency preparedness and response in case of an occupational or community health and	H&S plan in place and annual training plan for O&M workers developed and budget assigned 100% of O&M workers attended annual H&S trainings on health and safety risk, management, emergency preparedness and response per the plan		compliance semi-annually in EMR.		

Project Activity	Potential Environmental Impact	Mitigating Actions	Performance Standard	Budget/ Source	Institutional Responsibility		Schedule
					BESCOM	Contractor	
		safety incident before the commencement of any on-site works with annual refreshers. This is to include training on how to use first aid and firefighting equipment provided on-site. On all electrical equipment visual and written warning signages including the ISO 7010 Hazard Type: Electrical Symbol warning of the risk of electrocution will be maintained. Transformers to which project components connect are to be fenced with locked gate (if ground-mounted) or with similar deterrent for pole-mounted transformers. Switchgears and RMU to be kept securely locked at all times. Liaise with BBMP to ensure the existing storm water drainage is regularly maintained to avoid water puddles that may cause water percolating into cable					

ESCT – Environment and Social Corporate Team of BESCOM
EESSA – External Environment Social Safeguards Auditor periodic environmental monitoring reports

Note: BESCOM will include this ESMP in all the bidding documents and contracts for all its works and operations. Along with this ESMP the Environmental and Social Monitoring Plans (Annex 4) will also be included.

Annex 4: Environment and Social Monitoring Plan

S.No.	Environmental Component	Project Stage	Parameters to be monitored	Frequency	Performance Standard	Implementation	Supervision
1	Air Quality	Pre-Construction	SPM, PM10, PM2.5, SO2, and NO2 to be measured as 1-hour and 24-hour averages along with meteorological data- temperature humidity, wind speed, and wind direction-over a fortnight using professional, calibrated portable monitoring devices	One time for baseline establishment	National ambient air quality standards of CPCB must not be exceeded, or no increase above baseline if already exceeded	Contractor by CPCB approved laboratory to submit results to BESCOM for inclusion in monitoring reports	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.
		Construction		Once during active construction at sample location, ideally undertake during the dry season (if construction schedule allows this) or for other locations as directed by ESCT and field teams			
2	Noise and Vibration	Pre-Construction	Noise level (dB(A) as 1hr LAeq over a 48-hour period using professional, calibrated portable monitoring devices	One time for baseline establishment	CPCB standards for Noise and Vibrations, noise level must be limited to 55dB(A) as 1hour LAeq day and 45dB(A) as 1hour LAeq at night at residential receptors or no more than 3dB(A) above baseline if already exceeded	Contractor by CPCB approved laboratory to submit results to BESCOM for inclusion in monitoring reports	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.
		Construction		Once during active construction at sample location, or for other locations as directed by ESCT			
3	Construction materials and waste	Construction	Materials used and waste generated during construction (including type, volumes, sources, and disposal routes with copies of licenses if third parties are used)	Monthly	100% of materials used and waste generated sourced or disposed of in environmental sound manner	Contractor to keep records to submit to BESCOM for inclusion in monitoring reports	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.

S.No.	Environmental Component	Project Stage	Parameters to be monitored	Frequency	Performance Standard	Implementation	Supervision
4	Biodiversity and Trees	Construction	Number of trees removed and replanted during construction (including species, size, and economic value)	Monthly	100% of trees removed compensated for or with 1:2 replacement by native tree species in suitable alternative location	Contractor to keep records to submit to BESCOM for inclusion in monitoring reports	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.
5	Property damage	Pre-construction	Photographic and/or structural pre-condition surveys of existing property condition including utilities, structures, footpaths, roads and/or drains (For all property in or immediately adjacent to construction area)	One time for baseline establishment	Damages avoided but if caused paid for by contractor	Contractor to keep records; to be agreed with BESCOM and property owner prior to works to provide baseline for any claims	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.
6	Health and safety of workers and local community members	Construction	Health and safety incidents (near miss including fires, minor, lost time, and fatal) related to workers and local community members. (Record all incidents and responses taken (including date, time, and details of incident, treatment given, and the outcome) During the COVID-19 pandemic, daily temperature checks to be carried out at entrance of the work site at start of shift, and records of all suspected and confirmed cases to be kept.)	Monthly	Zero lost time or fatalities 100% lost time and fatalities/confirmed COVID-19 cases reported to BESCOM ESCT in 24 hours For 100% incidents/confirmed COVID-19 cases immediate action taken to avoid repeat	Contractor to keep records to submit to BESCOM for inclusion in monitoring reports	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.
		Operation and maintenance				BESCOM O&M units to keep records to submit to ESCT for inclusion in monitoring reports	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.

S.No.	Environmental Component	Project Stage	Parameters to be monitored	Frequency	Performance Standard	Implementation	Supervision
7	PCB Use	Operation and maintenance	Existing transformers containing PCBs (Record PCB status of all project-related transformers in inventory based on documentary records or, if not available, sample tests[26])	Annually	100% of existing transformers related to project are confirmed as being PCB free by 31.12.2025	BESCOM O&M units to keep records to submit to ESCT for inclusion in monitoring reports	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.
8	GHG emissions	Operation and maintenance	SF6 total volume and leakage rate (100% of switchgears and ring Annually main units containing SF6)	Annually	CO2e of total volume of SF6 in all switchgears and RMU must be significantly less than 100,000 tons CO2e (GWP = 22,800 kg CO2) with significantly less than 0.1% leakage rate per switchgears and RMU with a total leakage of significantly less than 10,000 kg of CO2e/annum	BESCOM O&M units to keep records to submit to ESCT for inclusion in monitoring reports	ESCT supported by Field teams. EESSA to check and document compliance semi- annually in EMR.
9.	Physical resettlement	Ongoing throughout resettlement process	Number and type of grievances regarding physical resettlement	Monthly	Monitoring reports	BESCOM	ESCT supported by Field teams. EESSA to check and document

[26] Following UNEP guidance for the identification of PCB and materials containing PCB (https://wedocs.unep.org/bitstream/handle/20.500.11822/32457/PCB.pdf?sequence=1&isAllowed=y) and a health and safety risk assessment and plan referring to the measures in UNEP (2002) PCB Transformers and Capacitors: From Management to Reclassification and Disposal, a representative sample of conservator type transformers should be screened for containing PCBs and if positive should be tested for PCB in a laboratory, starting with those at highest risk of containing PCBs. If any of these are found to contain PCBs then, taking a precautionary approach, the remaining conservator type transformers belonging to the same manufacturers batch should be labelled as positive for PCB and other conservator type transformers at risk should also be tested. It is not recommended to test hermitically sealed type transformers. If PCBs are found in existing transformers and any other project equipment they should be labelled as such. Workers must wear suitable chemical and/or oil resistant gloves, goggles, and protective clothing whilst sampling transformers etc.

S.No.	Environmental Component	Project Stage	Parameters to be monitored	Frequency	Performance Standard	Implementation	Supervision
							compliance semi- annually in EMR.

Annex 5: MP 4 - Hazardous Material Management Plan

With regard to BESCOM Operations, the following materials are identified as 'Hazardous Materials':

A) Asbestos-containing materials (ACM): This are defined as the fibrous form of mineral silicates. When asbestos exposure is suspected at work place certain precautions need to be taken. Always use personnel trained in asbestos handling to deal with asbestos. Never drill, hammer, cut, saw, break, damage, move and disturb any asbestos-containing materials or suspected materials. As a matter of principle, a) don't disturb Asbestos-Containing Materials or sources, b) refrain from smoking, eating or drinking near Asbestos-Contaminated Areas, c) engage in asbestos awareness training, d) comply with the regulations of controlling asbestos in the workplace, e) use a vacuum with HEPA filter when cleaning up asbestos, f) always wear protective clothing that can easily be discarded.

B) Lead-containing paint (LCP): Lead is a naturally occurring metal. Pure lead can combine with other substances to form various lead compounds. Lead paint is defined as "a paint film that contains greater than 0.1% of lead by mass in the dry film". The health risks associated with lead occurs via an accumulative effect within the human body. Depending on the amount of exposure, side effects of lead poisoning may not be apparent for many years. The most common exposure risks faced by workers are the inhalation of lead dust or fumes. The creation of the hazards generally relates to abrading or burning lead or lead coated surfaces. Other common sources of lead dust or fumes are a) Lead based paints – when removing paint by sanding or heat (e.g., creating dust), or when welding or cutting steel coated with lead or lead based paints; b) Welding, oxy cutting of steel coated with lead-based paint or primer; and c) Dismantling of equipment containing lead-based paint. Whatever method is used to remove lead-based paint, always take the following precautions; 1) If removing paint from the inside of a building, remove the curtains and furniture from the room and cover the carpets before beginning the job. After sanding, wet wipe surfaces to remove dust then use a commercial vacuum cleaner fitted with a suitable dust filter, 2) If removing the paint from the outside of a building, make sure all windows and doors are closed to prevent contamination inside. Collect all paint debris on a ground sheet large enough to contain all the debris. If working on a scaffold, tie a sheet underneath to catch falling paint. If removing paint by water blasting, try to collect all flakes of paint from the surrounding area, 3) Clean the area around the groundsheet with a vacuum cleaner to collect any other paint debris. Dispose of the contents immediately. After sanding, wet wipe surfaces to remove dust and then use a commercial vacuum cleaner fitted with a dust filter, 4) Do not burn paint debris or timber that is coated with paint containing lead, 5) Wrap up all paint debris securely in heavy-duty plastic bags, 6) Provide short-term secure storage for debris, 7) Paint wastes must be disposed of in

accordance with local Council requirements and 8) Keep children and pets away from the work area and make sure they don't eat or play with paint debris,

C) Ozone depleting substance (ODS): ODS for the purpose of this HMMP are substances used as a refrigerant within refrigeration and air-conditioning units (RAC) that acts to reduces the earth's upper atmosphere hence reducing the earth's ozone layer. Types of ODSs Used: Gaseous compounds including chlorofluorocarbons (CFC), halons, carbon tetrachloride, methyl chloroform, and hydrochlorofluorocarbons (HCFC) or mixtures of these used in refrigeration, fire retardants, solvents, aerosol propellants and in manufactured foams are identified as ozone depleting substances. All refrigeration and air-conditioning plant should be regularly inspected for traces of leaking refrigerant and/or oil, and for signs of leak-indicating dye. Whenever a system is charged with refrigerant and/or lubricant, the service person must clearly label the system with the refrigerant/lubrication type; name of service organization; and date of service. In addition, the refrigerant designated number shall be clearly displayed. A service person should be aware of the possibility that a refrigeration or air-conditioning system may have been incorrectly charged or incorrectly labelled. The type of refrigerant contained in the system must therefore be first established by checking the temperature/pressure relationship or by using other tests to verify that the labelling is correct.

D) Polychlorinated biphenyls (PCBs): Polychlorinated biphenyls (PCBs) are chlorinated organic compounds and oils used as a dielectric within electrical capacitors. They are very stable chemicals that resist change over time and from temperature variation. PCBs are fire resistant and very good insulators. Usage of PCBs in project equipment will be prohibited, the Regulation of Polychlorinated Biphenyls Order, 2016 requires BESCOM to ensure that all its existing transformers are confirmed PCB free by 2025. Prior to any removal of PCBs, workers involved should be suitably trained in the health and safety procedures and the use of appropriate PPE. The following PPE should be worn when handling items containing PCBs; Nitrile Gloves, Eye Protection; and Disposable Overalls. Care must be taken when handling damaged capacitors/ transformers to ensure that spillage does not occur. The person handling the damaged capacitors/ transformers should take the following precautions; a) put on personal protective equipment and clothing before removing damaged or leaking components, b) wear gloves that are made of materials that are resistant to PCBs, such as Viton, polyethylene, polyvinyl alcohol (PVA), polytetrafluoroethylene (PTFE), butyl rubber, nitrile rubber, or neoprene, c) do not use gloves made of polyvinyl chloride (PVC) or natural rubber (latex), d) use disposable gloves, e) wear disposable overalls made of Tyvek or made of materials with similar chemical resistant properties, f) when working with overhead equipment (e.g. Fluorescent light fixtures), wear a full face shield and appropriate hair protection, g) wash any non-disposable contaminated equipment with kerosene and collect the kerosene for disposal as a PCB contaminated solvent, h) if PCB vapours are suspected (e.g. PCB leaks onto a hot surface in a confined space), wear a twin cartridge type respirator suitable for chlorinated vapours, i) Workers must be clean shaven and respiratory protection must conform to standards of use and

maintenance of respiratory protective equipment and j) always ensure adequate ventilation. As the PCBs do not vapourise readily at room temperature, do not smoke after handling PCBs, employ good personal hygiene practices, including washing hands in warm, soapy water before eating, drinking, smoking, handling food, or using the toilet.

E) GHG: This is relevant, particularly in view of the usage of SF6 in RMUs and PCBs in existing transformers. Usage of SF6 will be minimized and RMUs properly sealed to avoid leakages and any leakages will trigger alarms at the nearest concerned O&M Unit for immediate arrest of leakages.

F) Synthetic mineral fibres (SMF): Synthetic mineral fibre (SMF) is a generic term used to collectively describe a number of amorphous (non-crystalline) fibrous materials, commonly referred to as "man-made mineral fibres" (MMMF). In all cases, it is essential that SMF materials be handled appropriately to control dust and debris, as they are irritating to the skin and mucous membranes. SMF fibres are generally thick and will scratch and puncture the skin causing rashes and irritation to the skin, nose and eyes if exposed to high levels of dust and debris. Protective eyewear therefore should be worn if handling SMF materials above the head, i.e., entering ceiling cavities. Action should be taken on a continuing basis to achieve the lowest workable exposure levels of SMF. The provision of engineering controls, greater attention to plant cleanliness, in particular within plant rooms and air handling units, and the containment of waste material may achieve this. Additionally, the use of binders or work practices which reduce the liberation of fibres and the provision of appropriate PPE can help reduce SMF levels to personnel and the environment

G) Oils and Lubricants: Lubrication oil is considered used oil. Any oil refined from crude oil and as a result of use has been contaminated with physical or chemical impurities. Any oil that is no longer useful to the original purchaser due to extended storage, spillage, or contamination with non-hazardous impurities such as dirt, rags, and water. Spent lubricating fluids removed from a truck, heavy equipment, automobile, or bus. Used oil may be a hazardous waste if; a) The concentrations of PCBs exceed 50 parts per million (ppm), b) Total halogens exceed 1,000 ppm and c) The oil is mixed with a hazardous waste. Used oil not being burned or recycled shall be managed as a hazardous waste unless laboratory analysis determines that the oil is not hazardous.

Transportation, storage, labelling, container management, security, disposal, etc. are to be taken care of as per standards for all hazardous materials.

Hazardous Materials Management at the Stores

Follow the below guidelines for safe hazardous material storage:

- Recognize that there are differential storage requirements for different materials.
- Group hazardous materials according to their hazard category (i.e., corrosives, flammables, toxins, etc.), not alphabetically, and separated by some sort of physical

barrier. An alphabetical storage system may place incompatible hazardous materials next to each other.

- All hazardous materials must be stored in secured areas, i.e., not accessible to the public.
- Highly toxic and reactive materials need additional means of security such as lockable cabinets.
- Read hazardous material labels and the SDS for specific storage instructions.
- Store hazardous materials in a well-ventilated area; however, do not store hazardous materials in a fume hood.
- Label all new material with the date in which it was received and the date in which it was opened. This will help prevent the accumulation of outdated hazardous materials and ensure that older hazardous materials are used first.
- Maintain an inventory of all hazardous materials in storage. This should be maintained in digital format. A hard copy of the inventory may also be maintained.
- Promptly discard, using EHS guidelines, outdated hazardous materials or hazardous materials no longer needed.
- Return hazardous material containers to their proper storage location after use.
- Store glass hazardous material containers so that they are unlikely to be broken. Glass containers should never be stored directly on the floor.
- Large metal containers can be stored on the floor in an isolated location.
- Store all liquid hazardous materials below eye level of the shortest person working in the area.
- Never store hazardous materials in a public area or corridor. Hazardous materials must be kept in a secured area.
- Do not store hazardous materials near heat sources or in direct sunlight.
- Periodically inspect storage locations for signs of corrosion or leakage and misplaced hazardous materials
- Nothing should be stored/placed on top of a flammable liquid storage cabinet.
- Heavier items should always be stored closer to the ground.
- Liquid hazardous material storage must have adequate secondary spill containment devices in place. Priority should be given to acids, reactives, flammables, toxic compounds, radioactive and any other materials that could present a hazard or affect your ability to work in case of a spill.
- If you make solutions, synthesize products or transfer hazardous materials to another container, make sure all containers are labeled.
- The containers should have an expiration date on the label, then the hazardous material must be used or disposed by that date.
- Inspect storage areas periodically.

Annex 6: MP 5 - Pollution Prevention and Response Plan

1. Overview

This document describes the appropriate measures for the pollution prevention and effective management of waste generated by BESCOM operations. It is for use by all BESCOM employees and applicable to all BESCOM operations.

2. Background

The purpose of this plan is to detail management and control measures for pollution prevention and the storage, handling and disposal of wastes generated during the construction and operational phase in accordance with the regulatory requirements.

2.1 Applicable Legislation and Guidelines

Regulatory Instruments for Solid Waste Management in India are as follows:

Solid Waste Management Rules, 2016
Plastic Waste Management Rules, 2016
E-waste (Management) Rules, 2016
Bio-Medical Waste Management Rules, 2016
Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016
Construction and Demolition Waste Management Rules, 2016

2.2 Waste Types

Waste types generated during BESCOM's operation will include but may not be limited to the following:

Waste Stream	Classification
Scrap metal - off-cut fabricated steel	Recyclable
Timber & general packaging	General waste
Cable off cuts (Electrical Repairs)	Recyclable
Human Waste (Sewage)	Sewage
Controlled Waste including oils, solvents and fuels	Hazardous waste
Paper and Cardboard	Recyclable
Plastics (PET)	Recyclable
Metals (copper, aluminium, steel)	Recyclable
Domestic waste	General solid waste (putrescible)
Office waste	
Transformers	Hazardous waste

2.3 Waste Management Centres

All waste is to be collected and disposed of by a licensed waste contractor. The licensed waste contractor will provide the required waste receptacles and the frequency of pickups will be negotiated with BESCOM. Waste collection will be documented in Waste Removal Register.

2.4 Potential Impacts

Primary activities across the BESCOM operations that are expected to generate waste include the office building (general office waste, sewage, recyclables), storage yards (general waste, hazardous waste, recyclables and packaging), power transmission and distribution network waste (hazardous waste, recyclables) and substations (general waste, hazardous waste, recyclables). Where further civil works take place, waste consisting of excess soils may be generated.

2.5 Management Principals

The management of waste generated during BESCOM operation shall be in accordance with the applicable legislations given in section 2.1 above. General principles of waste management include:

- Avoidance and Reduction;
- Re-use;
- Recycle;
- Recover; and,
- Disposal.

3. Pollution Prevention Plan

Phases/ Activities	Pollution Risks	Mitigation Measures	Responsibility
Pre-construction			
Surveying	- Removal of branches and other obstructions - Loss of vegetation, erosion - Air emissions - Soil contamination due to spills - Occupational Hazards, accidents	- Impact is very low, branches will re-grow, move location of survey equipment - Avoid removing grass and shrubs, avoid driving in areas where tracks are easily formed - Use new vehicles, use catalysators, turn off engines when possible - Adsorbent mats, removal of contaminated soil - Provide proper PPE, training and supervisions	- Survey Team supervisor
Soil exploration	- Trimming of shrubs, drilling holes on the ground - Loss of vegetation, erosion - Littering - Air emissions (exhaust gases, dust) - Noise generation - Soil contamination due to spills - Occupational Hazards, accidents	- Soil sample is very small and shrubs removed will regenerate; fill sampling holes - Avoid removing grass and shrubs, avoid driving in areas where tracks are easily formed - Instructions to workers - Use new vehicles and machinery, proper maintenance, use catalysators, turn off engines when possible, watering construction site to reduce dust.	- Survey Team supervisor

		- Noisy equipment and activities should be done only at daytime and if it is not possible, prior notice should be given to the neighbouring areas. - Admissible noise level into the living area, both inside and outside the buildings should be as per general EHS IFC guideline (2007) standards. - Adsorbent mats, removal of contaminated soil - Provide PPE, training and supervision	
Construction			
Site clearance and levelling works	- Loss of topsoil - Increase in suspended solids and turbidity in receiving drainage systems - Increase in air pollution from suspended particulates from soil carried and left on the road by trucks used in construction - Grease and oil from leaks and spillage affecting the water quality and soil contamination - Noise from heavy equipment - Items of archaeological or cultural significance accidentally discovered during earth moving and construction	- Conserve and stock top soil separately for use in site landscaping - Compact and cover excavated material stock pile especially during the rainy season - Add a silting basin at the end of the main drain prior to discharge. - Wet or cover the excavated soil pile and dusty construction materials such as sand, lime etc. during the dry season to reduce dust - Wet the work area and other areas with exposed surfaces to reduce dust - Wash all truck wheels before leaving the site and all construction trucks should be properly covered while on transit - Periodic check-up and maintenance of equipment especially oil seals, proper training and supervision of persons operating the equipment to report leaks, adsorbent mats, removal of contaminated soil - Fence the work area. All equipment should be provided with mufflers and noise reduction equipment - Noisy equipment and activity should be done only at daytime and if it is not possible prior notice should be given to the neighbouring areas. - Admissible noise level into the living area, both inside and outside the buildings should be as per general EHS IFC guideline (2007) standards. - Provide personnel involved in earth moving and excavation one- or two-hour seminar on protocol to follow if	Contractor (BESCOM to supervise)

		items of possible cultural significance are discovered. Coordinate with local archaeological authorities. In the meantime, the area where the item is discovered is cordoned and construction activities suspended until the experts from archaeological department have given their opinion or procedure on how to proceed with the work.	
Site works and construction	- Increase of air pollutants such as PM2.5, sulfur dioxide, nitrogen oxides from heavy trucks - Grease and oil from leaks and spillage affecting the water quality and soil contamination - Noise from heavy equipment - Increase of traffic congestion in the construction area especially heavy transformers and equipment are delivered and installed	- All equipment used must comply with the applicable laws. - Periodic check-up and maintenance of equipment especially oil seals, proper training and supervision of persons operating the equipment to report leaks, adsorbent mats, removal of contaminated soil - All equipment should be provided with mufflers and noise reduction equipment - Noisy equipment and activity should be done only at daytime and if it is not possible prior notice should be given to the neighbouring areas. - Admissible noise level into the living area, both inside and outside the buildings should be as per general EHS IFC guideline (2007) standards. - Coordinate with the local authorities to reroute traffic and assign special personnel to direct the traffic. - Follow Traffic Management Plan.	Contractor (BESCOM to supervise)
Construction	- Soil contamination, health and safety hazards caused by improper change procedures and waste management of batteries and transformer oil	- BESCOM to take full responsibility in utilization of old batteries (in accordance with applicable norms). - Analyses of PCB in transformer oil, removal of all PCB containing oil according to special instructions, temporary storage according to norms, delivery of used oil to legal waste management facility. - Collection, delivery and disposal of the used transformer oil to be done according to the Hazardous Waste Management Rules 2016. - Construction of proper storage site for used oil.	Contractor (BESCOM to supervise)

		- Change of batteries according to specific instructions	
Construction	- Soil contamination	- Immediate change of PCB containing oil from all transformers - Installation of new transformers without PCB containing oil, insulating oil shall comply with international standard IEC 60296	Contractor (BESCOM to supervise)
Construction	- Overall Waste Management	- A waste management hierarchy that consider prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes should be considered. Final disposal must be undertaken in an environmentally sound manner.	Contractor (BESCOM to supervise)
Construction Works	- Noise from the construction. The impacts could vary depending on the soil structure. In weak soil, such as in alluvial deposits in valley beds, piling may have to be carried out. Compressor and power tools will be needed for hard rock surfaces. Also blasting may be needed. Heavy equipment coming and entering the area can cause noise and ground vibrations.	- Noisy operations such as piling, rock breaking using power equipment and cement mixing should be limited to daytime operation when working close to residential areas. - Piling and rock breaking should be minimized during the spring months when birds, fish, and other animals are breeding. The noise could affect their breeding patterns as well as the survival of the young animals. - When operating close to villages, the noisy equipment should only be operated during daytime and if it is not possible the village residents should be given advance notice of the activity. Such activity should not last longer than two consecutive days. - Admissible noise level into the living area, both inside and outside the buildings should be as per general EHS IFC guideline (2007) standards). - Use of protection zones when blasting works are done (densely habituated areas). - No blasting along Nature Reserve Areas	Contractor (BESCOM to supervise)
Construction works	- Construction of the foundation will disturb the soil causing erosion and loss of fertile topsoil.	- Mimimize removal of vegetation. - Topsoil will be segregated to stored and restore after backfilling the foundation area. - Other excavated materials must be stored in a pile, properly compacted	Contractor (BESCOM to supervise)

		and wetted regularly to reduce any dust. - Most of the excavated materials will be used to backfill the foundation and any excess material will be used to raise the ground level around the foundations.	
Construction	- Air pollutant discharge from the equipment used during construction.	- While the cumulative emission over one year of construction work is high, when the emission is distributed over time, the overall impact on the air quality is negligible at a fraction of a microgram/cubic meter - Contractor will be required that emissions and noise level of all his equipment and machinery used in the construction must conform to the India's environmental standard. - Use of new vehicles and machinery, proper maintenance, use of catalysators, turn off engines, when possible, low speed driving - Spent materials such as welding rods, empty paint containers, and solvent containers must be properly collected, packed and stored in a secure place if there are no disposal facilities for toxic and hazardous wastes	Contractor (BESCOM to supervise)
Construction	- Surface and groundwater pollution and soil contamination due to spills and improper waste handling	- Careful handling and storage of fuels and chemicals, proper maintenance of vehicles and machinery - Proper waste management practices: waste separation, recycling, reuse and disposal. Special procedures for PCB containing oil. Use of dry toilets. - Follow Waste Management Plan - Adsorbent mats for spills, removal of contaminated soil	Contractor (BESCOM to supervise)
Operation And Maintenance			
Operation	- Corona noise from the conductor especially after a rain, natural deterioration of the conductor or premature deterioration of the conductor wires from	- Proper design of the wire tension to prevent corona discharge - Replacement of worn conductors	BESCOM

Maintenance	- Maintenance of the right of way	- Grazing and other organic means to control grasses would be preferred. - Use of herbicides should be avoided	BESCOM
	- Improper waste management practices causing littering and surface water, groundwater and soil contamination	- Proper waste management practices: waste separation, recycling, reuse, proper storage and disposal. Special procedures for hazardous waste.	BESCOM
Decommissioning			
Waste	- Removal of Conductors, Cables, Towers and Foundation and other C&D waste	- Ensure that all waste is recycled when possible - Good waste management practices - Cleaning of trash and other waste after decommissioning	BESCOM
Hazardous waste	- Contamination with PCB/TCB	- Transformers and electrical equipment decommissioned must be checked for contamination with PCB. If there are equipment contaminated, those equipment must be properly packed and sent to a toxic and hazardous disposal facility and in the absence of such facility to a secured storage.	BESCOM

4. Waste Management Plan

Management Actions	Strategies	Responsibilities
General housekeeping	All personnel working at the Facility are responsible for good housekeeping practices across the entire BESCOM area of operation and around the substation and Service compound. Any litter or rubbish is to be picked up and disposed of per this procedure.	All personnel
Waste collected at the BESCOM Facility	All waste generated by BESCOM operation is to be picked up and brought back to the service compound or storage yard by the responsible personnel.	All personnel
Inspections	Regular Facility Inspections to ensure that overall Facility cleanliness is maintained.	Facility Manager
Waste containers	General waste containers and recycling containers will be located throughout the BESCOM office building and work site. Receptacles and recycling will be emptied into the main waste containers as required.	Facility Manager
Transportation of waste	All vehicles and skips to be covered when transporting waste.	Facility Manager
Rubbish in vehicles	All vehicles cleared of rubbish and deposited into appropriate receptacles as required.	Vehicle Owners

Smoking	Smoking is only permitted in the designated smoking area within the Service Compound and on site. Cigarette butt disposal containers are provided in the designated areas. All cigarettes are to be fully extinguished prior to disposal.	All personnel
Incineration of waste	Incineration of waste, including vegetation and tree trimmings, is prohibited.	Facility Manager
Green waste	Green waste is to be removed from the Facility to a licensed green waste disposal. The exception is where trees and logs can be placed to provide suitable habitat, to be done in consultation with an ecologist.	Facility Manager/ Environment Manager
Metal waste	A metal recycling skip is to be maintained in the Service Compound and emptied when full. Metals to be sent to a recycling centre	Facility Manager
Recyclables	A recycling skip is to be maintained in the Service Compound and emptied when full. Regular inspections to ensure integrity of waste. Signage on information boards to detail what is considered recyclable. Includes aluminium cans, PET bottles.	Facility Manager
Paper and cardboard	A separate skip is to be maintained for paper and cardboard, which must be covered and emptied when full. Signage on information boards to detail what is considered recyclable.	Facility Manager
Organic waste	Organic waste is to be collected in separate containers and removed from the Facility regularly to prevent vermin.	Facility Manager
Soils	Where excavation or earthworks result in excess soils, they are to be used onsite where practicable. If soils have to be removed from the Facility, they are to be transported off site in accordance with SWM rules 2016	Facility Manager
Hazardous wastes	Managed as per the Hazardous Waste Management Rule 2016 strategies.	Facility Manager
Human wastes	Managed as per the Solid Waste Management Rules, 2016.	Facility Manager

5. Pollution Prevention at Stores

- A critical aspect for controlling accidental releases of liquid hazardous materials during storage and transfer is the provision of secondary containment. It is not necessary for secondary containment methods to meet long term material compatibility as with primary storage and piping, but their design and construction should hold released materials effectively until they can be detected and safely recovered.
- Appropriate secondary containment structures consist of berms, dikes, or walls capable of containing the larger of 110 percent of the largest tank or 25% percent of the combined tank volumes in areas with above-ground tanks with a total storage volume equal or greater than 1,000 liters and will be made of impervious, chemically resistant material. Secondary containment design should also consider means to prevent contact between incompatible materials in the event of a release.

- Other secondary containment measures that should be applied depending on site-specific conditions include: a) Transfer of hazardous materials from vehicle tanks to storage in areas with surfaces sufficiently impervious to avoid loss to the environment and sloped to a collection or a containment structure not connected to municipal wastewater/ stormwater collection system, and b) Where it is not practical to provide permanent, dedicated containment structures for transfer operations, one or more alternative forms of spill containment should be provided, such as portable drain covers (which can be deployed for the duration of the operations), automatic shut-off valves on storm water basins, or shut off valves in drainage or sewer facilities, combined with oil-water separators.
- Provision of secondary containment for components (tanks, pipes) of the hazardous material storage system, to the extent feasible
- Conducting periodic (e.g., daily or weekly) reconciliation of tank contents, and inspection of visible portions of tanks and piping for leaks;
- Use of double-walled, composite, or specially coated storage and piping systems particularly in the use of underground storage tanks (USTs) and underground piping. If double walled systems are used, they should provide a means of detecting leaks between the two walls.
- Separate highly toxic hazardous materials and carcinogens from all other hazardous materials. This storage location should have a warning label and should be locked.
- Time-sensitive hazardous materials, such as those that form peroxides, should not be kept longer than twelve months from purchase or six months after opening. If they are kept longer, then they need to be measured and monitored for peroxide development.
- Flammables should be stored in a well-ventilated area and large quantities in a flammable storage cabinet.
- Flammable, volatile hazardous materials should be kept in a cool place, away from sources of heat and ignition.
- If flammables are stored in refrigerators/freezers, the units should be designed, manufactured and approved to have spark-free interiors.
- No food is to be stored in the same refrigerator as hazardous materials, film or batteries. Hazardous substances can be absorbed by the food and subsequently ingested by individuals.
- Prohibition of all sources of ignition from areas near flammable storage tanks
- Have emergency response ready and cleaning up if spills occur.

6. Management Controls

Control	Purpose	Reference
Facility Inductions	To set out basic responsibilities and information for waste management	Facility Inductions
Inspection Forms	To identify waste issues	Facility Inspection Checklist
Complaints Register	To record complaints in relation to waste	Feedback and Complaints Register
Hazardous Material Register	Treatment of hazardous wastes	Hazardous Materials Register

MSDS Records	Treatment of hazardous wastes	SDS file in Facility Office
Waste Disposal Register	Disposal of wastes including sewage	Waste Removal Register

7. Monitoring & Inspection

Description	Frequency
Inspection of general housekeeping and segregation of waste	Monthly
Checks of MSDS, hazardous waste registers and disposal records	As required

8. Key Performance Indicators

KPI	Measurement
No waste or litter observed at the Facility	Inspection Reports
All waste disposed of appropriate manner	Waste Disposal Records
No loose or unsecured waste observed	Inspection Reports
No complaints from community/public	Complaints Register
Bins emptied on a regular basis to prevent overflowing and attracting pests and vermin	Inspection Reports
100% compliance with Environmental Procedures, Permits, approvals and applicable legislation as mentioned in section 2.1	Audits

Note: The MP 6 given under annex 7 supports this MP 5. These should be read together.

Annex 7: MP 6 – Solid and Hazardous Waste Management Plan

Head	Description
Purpose	To set out a procedure for disposal of waste from transportation, storage, installation and maintenance activities under BESCOM projects and operations in an environmental sound manner by complying with regulatory requirements.
Region	Applicable to installation work sites, stores, workshops, and transportation vehicles throughout the BESCOM jurisdiction.
References	CPCB Guidelines on hazardous waste management - PROCEDURE FOR MANAGEMENT OF HAZARDOUS AND OTHER WASTES available at: http://www.cpcb.nic.in/HWM_Rules_2016.pdf
Hazard Mapping / Assessment	Hazards from handling of waste, transportation of waste, storage conditions, disposal protocols and regulations; SF6 in RMUs and PCBs in existing transformers; Oils from existing transformers; existing transformers during transportation, vehicle accidents, waste generation from maintenance of DG set, sewage generation from stores/workshops/substations/kiosks; potential generation of excavated soil, demolition waste, waste wood, waste metals, cables, insulations, plastic, other demolished utilities if any, removal of parts of existing structures etc.
Incident Categorization (may be Classification/ levels)	NA
Suitability and Intended use of the activity, tool or material	Applicable to waste generations from i) transportation, ii) storage (stores and workshops, substations), iii) installation and maintenance activities ((a) prevention; (b) minimization; (c) reuse, (d) recycling; (e) recovery, utilization including co-processing; (f) safe disposal.
General Operating Procedures and Best Practices	**A. Procedure for hazardous waste** • Comply with the (i) Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 and Hazardous and Other Wastes (Management and Transboundary Movement). Amendment, Rules, 2019 (ii) Bio Medical Waste Management Rules, 2016, (iii) Construction and Demolition Waste Management Rules, 2016, (iv) E-Waste Management Rules, 2016, and (v) Plastic Waste Management Rules, 2016 for the collection, storage, and disposal of solid and hazardous wastes. • Store all wastes in designated, labelled area in an environmentally sound manner e.g., oils to be stored in sealed drums on drip trays, solid wastes to be stored in an enclosed bin. • It must be ensured that this inert waste is not contaminated with hazardous waste by maintaining good housekeeping for collection/storage.

	• Burning of wastes generated by project related activities is strictly prohibited. • Dumping of hazardous wastes on the side of the road, in drains etc. is strictly prohibited • Unused overhead distribution lines and poles which are dismantled to be immediately removed off site for reuse of disposal by a licensed waste disposal company in compliance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 with all waste transfer records retained, pay particular attention to wooden poles as they may contain preservatives and so need to be treated as hazardous waste • Unless reused or sold, other wastes to be disposed of to a suitably licensed waste management facility (depending on if hazardous or non-hazardous) with all waste transfer records retained. • At all the key facilities i.e., store, workshops, substations, and work sites, there must be designated storage areas for collecting the hazardous waste. • While transporting the transformers to the stores/workshops, it must be stored separately in a covered container and should not be mixed with other waste materials. • At the store there must be designated area for storing hazardous materials, and segregation between damaged and undamaged luminaries must be maintained. • There must be adequate PPEs provided to the workers engaged in the collection, storage, loading and unloading work to prevent the exposure of workers with the toxic materials. • Stores must have adequate ventilation arrangement to prevent the accumulation of toxic gases. • There must be a legal agreement for the safe disposal or recycling of hazardous waste material between the vendor and the SPCB authorized hazardous waste recycling/disposal units • The management must ensure that all the necessary records are maintained as per the Hazardous Waste (Management, Handling and Transboundary Movement) Rules, 2008. • Ensure all pole and plinth mounted transformers are within their certified lifetime and property maintained without possibly of oil leak or release into the environment. • Regular and periodic preventive maintenance to prevent any oil leakages. • Prepare inventory or and replace any existing transformers which contain PCBs in accordance with the GOI's Regulation of Use, Handling and Disposal of Polychlorinated Biphenyls and at latest by 31.12.2025. • In decommissioning and disposing of old transformers it will be required to follow the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 for transport, storage and disposal of potentially PCB oil containing transformers. • Disposal to involve facilities capable of safely transporting and disposing of hazardous waste containing PCBs

	• SF6 leakages will trigger an alarm at the nearest concerned O&M Unit from which staff at to immediately attend to stop the leakage. • Regular and periodic preventive maintenance to prevent any SF6 leakages. Database of all RMU containing SF6 including total volume and annual leakage rate; annual monitoring of SF6 leakage from all RMU. If trend of lowering gas pressure observed investigate cause of leak and take action to rectify it in accordance with manufacturer's instruction. • Training of all project and O&M staff on the climate change impact of SF6, alternatives, H&S risks during O&M due to presence of toxic byproducts, leakage minimization, and environmentally sound and safe disposal of old RMUs with SF6 by a certified industrial waste management company following International Electrotechnical Commission (IEC) standard 61634 to ensure SF6 is not released to atmosphere • Old RMUs shall be recycled and disposed by a certified industrial waste management company following the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. The company will need to remove SF6 and treat the equipment prior to disposal in accordance with International Electrotechnical Commission (IEC) standard 61634 to ensure SF6 it contains is not released to the atmosphere. **B. Non-hazardous waste** • At all the key facilities i.e., store, workshops, substations, and work sites, there must be designated storage boxes for collecting the waste. • While transporting transformers to the stores/workshops, it must be stored separately in a covered container and should not be mixed with other waste materials. • At the stores and workshops there must be designated area for storing hazardous materials, and segregation between damaged and undamaged luminaries must be maintained. • There must be adequate PPEs provided to the workers engaged in the collection, storage, loading and unloading work to prevent the exposure of workers with the toxic materials. • Stores and workshops must have adequate ventilation arrangement to prevent the accumulation of toxic gases. • There must be a legal agreement for the safe disposal or recycling of scrap waste material between the vendor and the SPCB authorized waste recycling/disposal units. • Construction material such as cables, sand etc., will be good quality materials and shall come from licensed factories and quarries. • Implement the agreed construction management plan and avoid or minimize the generation of wastes by as far as is practicable. • Collect and segregate construction wastes including scrap metal, oils, and solid waste; arrange garbage bins to collect these wastes during the construction wastes to they are not thrown on the floor. • Collect and segregate all domestic solid waste generated by construction workers; arrange garbage bins to collect these wastes during the construction wastes to they are not thrown on the floor.

	• Store all wastes in designated, labelled area in an environmentally sound manner e.g., oils to be stored in sealed drums on drip trays, solid wastes to be stored in an enclosed bin. • It must be ensured that this inert waste is not contaminated with solid waste by maintaining good housekeeping for collection/storage. • Burning of wastes generated by project related activities is strictly prohibited. • Dumping of solid wastes on the side of the road, in drains etc. is strictly prohibited. • Recover recyclable wastes that could be reused or sold to recyclers to the extent possible. • Unless reused or sold, other wastes to be disposed of to a suitably licensed waste management facility (depending on if hazardous or non-hazardous) with all waste transfer records retained. • Provision of adequate number of self-contained portable toilets with sinks for construction workers (generated wastewater to be disposed of to wastewater treatment plant) or access to alternative sanitary facilities (e.g., existing public toilets) that do not allow the untreated disposal of sewage to adjacent water bodies; use of pit latrines is prohibited (applies to both temporary work sites and any construction camps) • Strict prohibition on open defecation and urination and uncivil use of the road or private premises as a toilet by construction workers. • Minimize use of and wastage of clean water during construction. • Provide weekly toolbox talk to remind of the importance of waste disposal, prohibition of disposal on the road, in drains etc., prohibition on burning of wastes, and open defecation and urination. Develop a procedure/system to penalize through escalating fines or similar any construction workers who breach these requirements. **C. E-waste** E-waste to be disposed in line with the e-waste (Management and Handling) Rules, 2010. E-waste consumers should: • Ensure that e-waste generated by them is channelized to authorized collection centre (s) or registered dismantler (s) or recycler (s) or is returned to the pick-up or take back services provided by the producers; • Maintain records of e-waste generated by them in appropriate form. **D. Batteries** Batteries to be sent back to the manufacturer or disposed in line with the Batteries (Management and Handling) Rules, 2001. The battery consumers should: • Ensure that used batteries are disposed only through dealer/manufacturer/registered recycler/importer/reconditioned or at the designated collection centres • File half-yearly return in Form VIII to the SPCB.
Use, Storage of Tools and Records maintenance	Records to be maintained at Head Office of BESCOM and site offices PPEs and Tools associated with the procedures to be stored at Site Offices
Compliance to regulations/permits	All permits and regulations for generation, handling, transportation and disposal of waste

Safety Precautions	Handling of waste, transportation of waste, storage conditions, disposal protocols and regulations
Emergency Preparedness and Response (including PPE/First aid)	Ensure the availability of first Aid Kits on Site and in Inspection Vehicles Contact List of Health units, Rescue Vehicles within easy reach
Usage monitoring procedures (or protocol for replacement / refurbishment)	NA
Signage systems and symbols or coding	Dedicated storage for each type of waste, labelling, consignment notes, authorization documentation etc.;  
Details on competent users	This guideline is to be used by BESCOM site teams and Contractors, waste transportation and disposal contractors.
Training needs	Training to Site Staff and environment and social corporate team on Inspection Procedures, Discussions & format instructions for Contractors Personnel.
Duties / Responsibilities (with contact details)	Respective Site Supervisors (Give Contact Details), environment and social corporate team
Inspection Procedures and Documentation required	Internal Audit (Monthly): (Waste Generation Log on site) Site engineer, Contractor - Interview with site employees, Discussions on waste generation and management records and reports availability on site. The waste management report availability on site. The training to the employees and contractors is provided and they are well aware about the potential risks during the handling and storage and transportation protocols for various types of wastes and disposal requirements and responsibilities. DOCUMENTS: (i) Waste classification report, waste generation reports Disaster Management Plan, Emergency Response Plan and Protocols

	(ii) List of subcontractors, Local Body, Scrap Dealers selected by Local Body and major material suppliers including address, telephone number, and name of contact person, (iii) Training Records; iv) Daily total number of luminaries replaced at the assembly point and the number of luminaries getting damaged during the changing process, v) SPCB authorization for Hazardous waste generation, storage, & disposal vi) Total quantity of waste stored in the warehouse on each day and the percentage of waste sent for reuse, recycle and disposal, categorized as per type of waste vii) Records of the work permit issued by the EHS coordinator issued at the site viii) Manifest (Form-13) of disposed hazardous waste ix) Annual return (Form-iv) to SPCB by 30th June each year x) Half-yearly return in Form VIII to the SPCB xi) E-waste generation record in Form 2 xii) Agreement with the PCB authorized hazardous waste recycling/ reuse/ disposing unit xiii) Records of the injuries to the workers during the waste segregation, storage, loading and unloading process
Disposal of scraps and process wastes	Waste Generation Records, Waste Segregation, Storage, and Disposal Plan (agency names and schedule of disposal)
Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection. B. Protection and Control: waste storage as per waste management plan C. Pollution Control: Containment at storage locations, Spill prevention and clean-up plan. D. Scope of Final Disposal: to authorized agency/designated agency as per waste management plan and institutional mechanism
Info and Instructions to be passed on to communities	• to classify the waste • to ensure dedicated storage location for various types of waste • storage conditions and control measures for pollution prevention • final disposal plan

Wastewater Management

The sources of wastewater could be from the BESCOM corporate offices, field offices, contractors' facilities, contractors labour camps, etc. The management of wastewater is as below:

- The wastewater resulting from BESCOM operations is connected to the sewerage network of the BBMP. BBMP has facilities to treat the wastewater.
- Where required, the wastewater from the contractors' operations would be treated by the respective contractors.

- When the volumes are limited, the treatment would be through soak pits/ septic tanks, where permissible.
- Where septic tanks are used, the contents will be transported to the BBMP treatment facilities by licenced followed by sewage tanker operators.
- The storm water drains would not be polluted with sewerage. Natural drains, if any, would not be altered or polluted under any circumstances.
- No drains will be kept open during operations.
- Human scavenging will not be allowed.

Annex 8: MP 7 - Stakeholder and Community Relation Management Plan

1. Notify the community and stakeholders of upcoming BESCOM site activities on a regular basis.

Objective: To minimize any concerns or disruptions to the community and stakeholders or their normal schedule. Regular updates on site activities will enhance public participation in the site clean-up and enable the community and stakeholder to provide informed input to BESCOM.

Method: BESCOM will provide printed material, make telephone calls, and hold availability sessions to focus on current and upcoming site work. BESCOM also will use these methods to announce the release of important site documents, to discuss other milestones, and to publicize the time, place, and purpose of public meetings.

2. Notify local media of upcoming site activities on a regular basis.

Objective: To ensure the distribution of accurate and consistent information about site activities. BESCOM will issue press releases, contact media representatives, and hold news briefings as needed to provide the media with timely and accurate information.

Method: BESCOM will issue news releases, make telephone calls, and hold briefings to detail current and upcoming site activities; announce the release of key documents and other milestones; and publicize the time, place, and purpose of public meetings.

3. Designate an BESCOM Community Involvement Coordinator and Stakeholder Involvement Coordinator to handle site inquiries.

Objective: To ensure prompt, accurate, and consistent responses and information about the site.

Method: BESCOM will appoint a Community Involvement Coordinator and Stakeholder Involvement Coordinator for each worksite. They will work closely with all Stakeholders, Community and Remedial Project Manager for the site.

4. Respond promptly and accurately to inquiries from local residents, public officials, community groups, and the media.

Objective: To maintain two-way communication between BESCOM and the site community. Prompt, accurate responses will strengthen community involvement and enhance cooperation between BESCOM and other stakeholders in the site. Prompt responses to inquiries from local residents, media, and local officials will increase public awareness and understanding of site activities.

Method: Personal responses, meetings, and printed material will provide the basis for prompt responses from BESCOM to inquiries from the community. BESCOM's Community Involvement Coordinator and Stakeholder Involvement Coordinator will direct all inquiries to the proper contacts and ensure that a response is returned to the community and stakeholders in a timely manner.

5. Prepare and distribute site fact sheets and technical summaries.

Objective: To provide an easy-to-read update on site activities. Site fact sheets generally summarize technical work at the site and are mailed to residents, community groups, local and state officials, and other interested parties.

Method: BESCOM will mail fact sheets to all parties on the site mailing list and also will place copies in various locations in the site community. Fact sheets may include information about past, current, and upcoming site activities; question and answer sections focusing on community concerns; overviews of clean-up technologies; site maps; listings of BESCOM and other relevant contact persons; and mailing return forms so that residents can submit questions or comments and add their names to the BESCOM site mailing list. Copies of fact sheets also will be available at the local BESCOM information repository for the site.

6. Maintain contact with the immediate site community and stakeholders.

Objective: To maintain good communication between the site community, BESCOM, and other stakeholders, and to help keep other local residents informed of site activities.

Method: BESCOM will make personal contact or will provide written materials to inform the immediate site community and other stakeholders of site developments and upcoming community involvement activities.

7. Maintain and update the local information repository.

Objective: To provide a reference point where the public can review the latest information on the work being conducted at the site. BESCOM will update this collection of site-specific documents and the superfund process so that citizens can follow the progress of the site clean-up and provide input to the BESCOM.

Method: As BESCOM releases site documents, BESCOM will place the documents at the local information repository and the repository maintained at BESCOM's head office. These repositories serve as a reference for collection of site information. The information repository must contain the Administrative Record file, which includes the Remedial Investigation and Feasibility Study reports, the Proposed Remedial Action Plan, and other documents used by BESCOM to select the clean-up method. The repository should also include the Community Relations Plan, information about the Technical Assistance Grant program, and other information about the site.

8. Provide Technical Assistance Grant information.

Objective: To allow the site community and stakeholders a chance to review the work being conducted at the site. BESCOM will provide information about the Technical Assistance Grant program and review grant applications from qualified groups.

Method: BESCOM will make the application for information on Technical Assistance Grant available to any community member or stakeholders who requests it.

9. Publish public notices.

Objective: To inform the community and stakeholders of key site developments, public meetings, and the release of site documents.

Method: Notices will appear in the local news section of a daily local newspaper and may be published in other community publications as well. Notices will be given to all stakeholders individually. Notices include relevant dates, times, and locations of meetings or activities, as well as the name, address, and phone number of the primary BESCOM contact person. Public notices regarding site-specific documents, such as the Explanation of Significant Differences, will summarize the document briefly.

10. Conduct public meetings or availability (information) sessions.

Objective: To update the community and stakeholders on site developments and address any questions, comments, and concerns.

Method: Public meetings will be held in the evening at a central location in the site community so that all interested parties will be able to attend. Availability sessions usually are held all day and can be attended at any time. The BESCOM Community Involvement Coordinator, Stakeholder Involvement Coordinator, Remedial Project Manager, and other BESCOM staff will be present at these events.

11. Obtain a transcript of any public meeting held during a public comment period.

Objective: To document and provide a public record of the information presented at the public meeting. This transcript documents all of the information presented at the public meeting, including community and stakeholders' questions and BESCOM's responses to them.

Method: BESCOM will arrange for a local stenographer to transcribe a word-for-word record of public meetings.

12. Conduct informal meetings and workshops.

Objective: To enable BESCOM to explain the Superfund process, describe site work, share information on site-related issues, and request input from the community and stakeholders.

Method: BESCOM will conduct informal meetings and workshops on an as-needed basis and as requested by the community and stakeholders. They will take place at a convenient location within the community and will involve the participation of the BESCOM Community Involvement Coordinator, Stakeholder Involvement Coordinator, Remedial Project Manager, and other BESCOM staff as needed.

13. Maintain and update site mailing lists.

Objective: To use in distributing site fact sheets, providing telephone updates, and conducting other community and stakeholder involvement activities.

Method: BESCOM will maintain an up-to-date listing of all stakeholders, and local officials; local media; community groups; and other interested parties. BESCOM will also maintain a separate and private list of residents, obtained from local tax records, public meeting sign-in sheets, and community interviews. To protect the privacy of residents, BESCOM will not release the list to the press or general public.

14. Revise the Community and Stakeholder Relations Plan.

Objective: To identify and address community and stakeholders needs, issues, or concerns regarding the site or the clean-up remedy that are not addressed in this Community and Stakeholder Relations Plan.

Method: BESCOM will revise the Community and Stakeholder Relations Plan as community and stakeholder concern warrants, every two years, or at the time a new Record of Decision is issued at the site. The Revised Community and Stakeholder Relations Plan will update the information presented in the previous version of the Community and Stakeholder Relations Plan.

15. Provide communication avenues for the Community and Stakeholders.

Objective: To utilize various communication resources to encourage community and stakeholder involvement in BESCOM's Superfund activities.

Method: BESCOM will establish a Superfund toll-free hot line and electronic mail (email) access to allow community members to contact BESCOM officials and obtain site specific public documents and other Superfund information.

Community and Stakeholder Relations Activities and Timing

Activity	Timing
1. Notify residents and stakeholders of upcoming site activities.	As site activity warrants.
2. Notify local media of upcoming site activities.	As site activity warrants.
3. Designate an BESCOM's primary contact person.	Person has been designated.
4. Respond promptly and accurately to inquiries	As needed.
5. Write and distribute site fact sheets.	As site work progresses
6. Maintain contact with the immediate site community, township officials and other stakeholders.	As site activity warrants.
7. Maintain and update each local information repository.	As new site documents are released.
8. Provide Technical Assistance Grant information.	As requested.
9. Publish public notices	At milestones, such as the Proposed Plan, Record of Decision, and for other reasons as needed.
10. Conduct public meetings and availability sessions.	Before beginning construction on the remedy and as needed.
11. Obtain a transcript of public meetings during a public comment period.	As needed; Proposed Plan transcript was placed in the information repository.
12. Conduct informal meetings and workshops.	As needed and based on community and stakeholder's interest.
13. Maintain and update site mailing lists.	Lists have been established; update as needed.
14. Revise the Community Relations Plan.	As needed.
15. Provide communication avenues for the community and stakeholder.	Toll-free hotline and e-mail access will be established.

Annex 9: Grievance Redress Mechanism

BESCOM has an established well-functioning GRM comprising (i) a General Manager as Customer Relations Officer (CRO) who serves as the nodal officer for all grievances; (ii) a web-enabled grievance registration and redressal system on the BESCOM website; (iii) a dedicated toll-free phone number (1912) for grievance registration and redressal; (iv) a dedicated SMS number 58888 for filing grievances; (v) a Consumer Grievance Redressal Forum (CGRF); (vi) Ombudsman established under the Karnataka Electricity Regulation Commission to deal with matter related to electricity, and (vii) a Vigil Mechanism[27] for transparency and reporting any wrongdoings.

BESCOM has constituted an Internal Complaints Committee (ICC) with 7 members on 1st January 2019. This ICC is fully functional and has received 11 complaints on sexual harassment and work place discrimination/ harassment and all the 11 complaints are resolved satisfactorily.

BESCOM has a Citizen Charter[28] that deals with the provision of various service under its jurisdiction and procedures for redressing grievances.

All the contractors under agreements with BESCOM are required to establish a GRM for resolving the complaints/ grievances of the workers they employ. The contractors will submit monthly reports to BESCOM on the GRM. The contractors and their workers can use the site level GRM (given below) for redressal of their grievances.

GRM Specific to BESCOM Contracts

In addition, BESCOM will constitute Grievance Redress Committees (GRC) at division level, where contracts are under implementation, and nominates Contractor officers and E&S officers to act as GRM focals to receive any complains on the ground. The typical GRC will consist of the members as listed in table below, ensuring a gender balance. It will function as an open forum for hearing complaints and exploring quick resolutions to resolving any conflicts. Constitution of a typical GRC is given below:

Sl. No.	GRC Member
1	Executive Engineer of the Division
2	Representative of BBMP
3	Representative of local NGO/CSO (Female)
4	Representative of Contractor
5	Project E&S Officers for Subdivision
6	Representative of Community (Female)

The General Manager as CRO with the support of the ESCT, and contractor shall implement the GRM procedures of taking/ recording all complaints, handling on-the-spot resolution of minor problems, taking care of complainants paying particular attention to vulnerable groups and provision of responses to project affected persons. A global complaint register would be maintained for each contract and at contract package level a contract specific compliant register will be maintained by the contractor for each contract package under the project. The GRC with the support of the contractor will keep records of all grievances received, however minor and easily dealt with, including contact details of

[27] VIGIL-Mechanism-2015.pdf (karnataka.gov.in)

[28] https://bescom.karnataka.gov.in/storage/pdf-files/CR/BESCOM-Citizens-Charter-Englatest-.docx

complainant, date that the complaint was received, nature of their grievance, agreed corrective actions, and date these were agreed and implemented, and the final outcome.

At field level, project affected persons would be encouraged to first discuss their grievances with the contractor. For instances where the complainant meets the contractor's representative on site or lodges a complaint or phones up or sends an email to contact details given by the contractor the contractor's GRM focal will log the grievance and immediately inform the GRC. The contractor will send the logged grievance with all details for maintaining the database at contract level to the GRC.

The ESCT would be responsible for management of complaints pertaining to environmental and social aspects. They will categorize the grievance as major (accidents, power outages, utility disruption, construction related major inconveniences, etc.) or minor (loss of partial access, construction related minor inconveniences, etc.). All grievances will be brought to the attention of the Chief General Manager (Projects). The Chief General Manager will review all the grievances received and those which are outstanding during monthly review meetings. Grievance redress review will be a specific the part of the agenda of the monthly review meetings.

Once received, if the contractors fail to resolve the issue within one week or the resolution is not to the satisfaction to the affected person, then the grievance will be escalated to the ESCT for resolution who will have a further period of one week, at which point the affected person must be informed of the outcome. Grievances not redressed by the GRC to the satisfaction of the affected person will be brought to the Chief General Manager (Projects) for resolution who will convene the GRC at division level, again informing the project affected person of its status and inviting them to send a representative. Each GRC meeting will record its deliberations and inform the concerned parties of a resolution within two weeks of its findings and recommendations. The GRM will resolve grievances within a maximum time limit of one month of receiving the complaint.

Communities will be informed about the GRM through the outreach of BESCOM such as notices in the local urban body offices; project sign board providing names and contact details of persons from BESCOM and the contractor with whom complaints could be lodged etc. Options will be available to submit complaints verbally or in writing in-person, by phone, social media, email, or letter. Any documentation relating to submitting and feeding back on grievances will be in Kannada and other appropriate local languages. After receiving grievance, the complainant will be provided with acknowledgement of the grievance receipt. The GRM will be open to both the local community and workers who are employed on the contracts.

The GRM does not impede access to the country's judicial or administrative remedies. The affected persons have the right to refer the grievances to appropriate courts of law if not satisfied with the redress at any stage of the process.

Annex 10: SOP 1 - Air and Noise Pollution Control Procedures

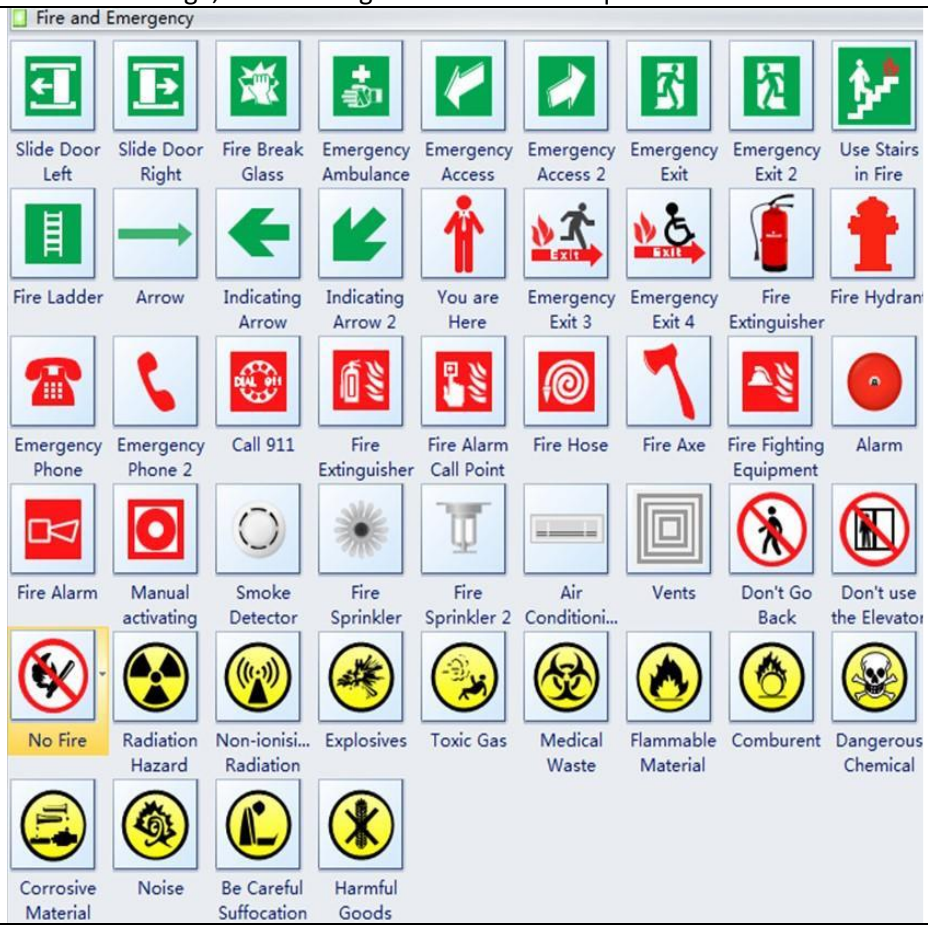
SOP-01	Air and Noise Pollution Control Procedures
Head	**Description**
Purpose	To mitigate risks due to air and noise emissions during transportations and from power machines running on fossil fuels at site locations.
Coverage: Program/ Region	Applicable to work sites throughout BESCOM jurisdiction (transportation, stores, workshops, substations, and installation and maintenance activities)
References	CPCB emission limits for Vehicle Exhaust, DG sets. (Based on the vehicle, Indian Stage 2000 to Bharat Stage-IV emission standards) No.14 of 1981, [29/3/1981] - The Air (Prevention and Control of Pollution) Act 1981, amended 1987 and rules thereof
Hazard Mapping / Assessment	A routing plan for vehicles to be assessed for control of air and noise pollution because of transport vehicles. Use of DG sets in substations and stores/workshops to be monitored and phased out. Checks on following parameters to be carried out in the project planning stage: • Transport of materials through unpaved roads • Unorganized routes creating air and noise pollution • Use of backup diesel generator for the facilities including stores, workshops, substations • Open burning of solid waste onsite by workers. • Site enclosure for excavation to check dust/air pollution.
Incident Categorization (may be Classification/ levels)	Low
Suitability and Intended use of the activity, tool or material	Applies to: (i) all activities of transportation. (ii) Power generation at site using fossil fuels e.g., DG sets (iii) Excavation activities
General Operating Procedures and Best Practices	• Prepare Logistics Plan: Optimized selection of route reduces the distance, time, fuel and hence the total gaseous emission and dust emissions to air/noise. • Use of Bharat Stage (BS) IV emission standard vehicles for transportation. • Prepare warehouse management plan by setting up DG set at sufficient height for the Chimney as per Central Pollution Control Board norms; keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC obtained and emergency response procedures. • Non-use of DG set can be put as a Selection of warehouse selection. • Design of kiosk: Typical design showing weather protection, fire safety and waste storage space.
Use, Storage of Tools and Records maintenance	Records of DG sets to be maintained at BESCOM and site offices Routing plan of the vehicle to be submitted to Supply & Logistics team by the suppliers.
Compliance to regulations/permits	i. Vehicle emission standard of CPCB, India ii. Vehicle Specification Report, PUC certificate of vehicle iii. Emission norms for DG sets

Safety Precautions	No Transport of materials through unpaved roads. Organized routes for reducing air emissions. Restrict use of backup diesel generator for the facilities including warehouses. Stop Open burning of solid waste onsite by workers. Create site enclosure for excavation to check dust/air pollution.
Emergency Preparedness and Response (including PPE/First aid)	NA
Usage monitoring procedures (or protocol for replacement / refurbishment)	Quarterly checks on: a) Submission of routing plans b) Stores, workshops
Signage systems and symbols or coding	NA
Details on competent users	Site team and Contractors, distribution and installation teams.
Training needs	Training to site team and environment and social corporate team on Inspection Procedures & Discussions.
Duties / Responsibilities (with contact details)	Field staff, environment and social corporate team.
Inspection Procedures and Documentation required	DOCUMENTS: a) Vehicle routing plans b) Vehicle Specification Report, PUC certificate c) Vehicle Maintenance Plan with Authorized Service Stations receipts d) Report on usage of DG in warehouses
Disposal of scraps and process wastes	NA
Site management	NA
Info and Instructions to be passed on to communities	NA

Annex 11: SOP 2 - Fire and Emergency Procedures

SOP-02	Fire and Emergency Procedures
Head	**Description**
Purpose	To set out a procedure to establish the procedures to ensure safety of BESCOM operations from fire incidences
Coverage: Program/ Region	Applicable to work sites, stores, workshops, substations, and installation and maintenance activities throughout BESCOM jurisdiction
References	Guidance Note – IFC Available at: https://siteresources.worldbank.org/INTRANETENVIRONMENT/Resources/244351-1279901011064/OccupationalHealth.pdf;
Hazard Mapping / Assessment	Fire risk during Transportation, work sites, stores, workshops, substations, and installation and maintenance activities and also from Handling of waste, transportation of waste, and storage sites; Injury due to the accidental fire event; Fire risk due to storage of diesel for the back-up DG set.
Incident Categorization (may be Classification/ levels)	Fires are classified in the following categories: Class A Fires: Involving combustible materials of organic nature, such as wood, paper, rubber and many plastics etc. where the cooling effect of water is essential for extinction of fires. Class B Fires: Involving flammable liquids, petroleum products or the like, where a blanketing effect is essential Class C Fires: Involving flammable gases under pressure including liquefied gases, where it is necessary to inhibit the burning gas at fast rate with an inert gas, powder or vaporizing liquid for extinguishers Class D Fires: Involving combustible metals, such as magnesium, aluminium, zinc, sodium, potassium, etc. when the burning metals are reactive to water and water containing agents and in certain cases to carbon dioxide, halogenated hydrocarbons and ordinary dry powders.
Suitability and Intended use of the activity, tool or material	Applicable to all sites, transportation vehicles, waste storage and transportation activity, installation and maintenance sites
General Operating Procedures and Best Practices	Most of the procedures suggested in current SOPs will fall in this
Use, Storage of Tools and Records maintenance	Records to be maintained at BESCOM and site offices. PPEs and Tools associated with the procedures to be stored at Site Offices

Compliance to regulations/permits	All permits and regulations: The following IS and BIS standards and codes should be adhered: • 1641:1988 – Code of practice for fire safety of buildings (general): General principles of fire grading and classification - 2171:1999 – Specification for portable fire extinguishers, dry powder (cartridge type) • 2546:1974 – Specification for galvanized mild steel fire buckets • 2878:2004 – Fire extinguisher, carbon dioxide type (portable and trolley mounted) – specification • 4308:2003 – Dry chemical powder for fighting B and C class fires - specification - 7673:2004 – Firefighting equipment • 10204:2001 – Specification for portable fire extinguisher, mechanical foam type - 14609:1999 – Dry chemical powder fighting A, B, C class fires – specification • IS 2190:2010 – Selection, installation and maintenance of first aid fire extinguishers – code of practice - IS 15683: 2006 – Portable fire extinguishers – performance and construction
Safety Precautions	Detection and Prevention mechanism in place; Warehouse Plan - to keep the DG set fuel away from all electrical equipment and sockets, providing space for equipment as per Fire NOC obtained and emergency response procedures.
Emergency Preparedness and Response (including PPE/First aid)	Depending on the size of the facility, locality and type of work being undertaken, the requirement of firefighting equipment changes. It is essential for all facilities to obtain No Objection Certification from the state or local Fire Department. This certification prescribes the appropriate firefighting equipment to be installed at the facility. These could include: - Fire hose reel - Fire extinguishers - Sand buckets - Fire extinguishers are the most common type of firefighting equipment being installed at office facilities, warehouses and sales offices. They should be selected based on the type of fire hazard, as depicted below: - Class A fires – Water, foam, ABC dry powder and halocarbons - Class B fires – Foam, dry powder, clean agent and carbon dioxide - Class C fires – Dry powder, clean agent and carbon dioxide extinguishers - Class D fires – Extinguishers with special dry powder for metal fires; - Fire Prevention – extinguishers, alarms, sprinklers, smoking rules, exits, personnel assigned, separation of flammable materials and dangerous operations, explosion-proof fixtures in hazardous locations, waste disposal, training First Aid Program/Supplies – medical care facilities locations, posted emergency numbers, accessible first aid kits
Usage monitoring procedures (or protocol for replacement / refurbishment)	Placement of the extinguishers at appropriate locations and heights • Identification of a fire safety team, comprising of security guards and fire marshals (typically employees comprising of environment personnel and nominated people from other departments). • Training and capacity building of fire safety team on the usage of fire extinguishers. External training must be sought for all security guards on the usage of these equipment. • Mock drills to train employees on emergency evacuation.

	• Regular inspection of fire extinguishers to identify leakage, discharge, breakage, etc. Refilling them wherever required.
Signage systems and symbols or coding	
Details on competent users	This plan is to be used by BESCOM site teams and Contractors, waste transportation and disposal contractors;
Training needs	Training to Site Staff and environment and social corporate team on Inspection Procedures, Discussions & format instructions for Contractors Personnel.
Duties / Responsibilities (with contact details)	Respective Site Supervisors (Give Contact Details), environment and social corporate team.
Inspection Procedures and Documentation required	The following general safety precautions must be ensured to avoid fire accidents: • Smoke only in designated areas. Extinguish matches, tobacco products and place them in approved containers • Close containers of flammable liquids when not in use • Only operate equipment that you have been trained on. Before operating new equipment, read the instructions carefully • In case of emergency evacuation, do not panic or run. Do not use elevators. Use the staircase to evacuate and stand in the safe assembly area till instructed by the site environment coordinator or security supervisor to resume work • In case you spot fire first, inform the site environment supervisor or security and sound the emergency alarm

	• Follow the precautions issued by the local government in case of earthquake or other natural disasters
Disposal of scraps and process wastes	Waste Generation Records, Waste Segregation, Storage, and Disposal Plan (agency names and schedule of disposal) shall be in place. Quick removal of flammable wastes from site (preferably within 1 hour of generation). Leave fire exits free of wastes.
Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection. B. Protection and Control: waste storage as per waste management plan C. the fire prevention and control measures as covered above D. OHS Training to be part of the training provided to all workers
Info and Instructions to be passed on to communities	Fire risks from the facility, the evacuation plan, emergency information and signal types and meaning, emergency response and control provisions on site.

Annex 12: SOP 3 - Electrical Safety Procedures

SOP-03	Electrical Safety Procedures
Head	**Description**
Purpose	To set out a procedure to establish the procedures to ensure safety of BESCOM operations from electrical risks (electrical hazards can cause burns, shocks and electrocution)
Coverage: Program / Region	Applicable mainly to installation and maintenance works on sites in and partly applicable to stores, workshops, substations and temporary storage activities within BESCOM jurisdiction.
References	- IFC - Environmental, Health, and Safety (EHS) Guidelines -The Health and Safety (Safety Signs and Signals) Regulations 1996 (http://www.hse.gov.uk/pUbns/priced/l64.pdf)
Hazard Mapping / Assessment	Electric risk during installation and maintenance activities on site, from electrical installations in the stores, workshops, substations.
Incident Categorization (may be Classification/ levels)	Burns, shocks and electrocution;
Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs;
General Operating Procedures and Best Practices	Workers may get exposed to safety hazards from contact with live power lines during on-site work. The prevention and control measures associated with live power lines/cables includes: • Only trained and certified workers shall be allowed to install, maintain, or repair electrical equipment. • Deactivate and properly ground live power cables before work is performed on, or in close proximity to the lines. • Ensure that live-wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems shall: 1. Distinguish live parts from other parts of the electrical system. 2. Determine the voltage of live parts. 3. Understand the minimum approach distances outlined for specific live line voltages. 4. Ensure proper use of special safety equipment and procedures when working near, or on, exposed energized parts of an electrical system • Workers shall not approach an exposed, energized or conductive part even if properly trained unless: 1. The worker is properly insulated from the energized part with gloves or other approved insulation; 2. The energized part is properly insulated from the worker and any other conductive object; or 3. The worker is properly isolated and insulated from any other conductive object (live-line work); • Strict procedures for de-energizing and checking of electrical equipment shall be in place before any maintenance work is conducted. If de-

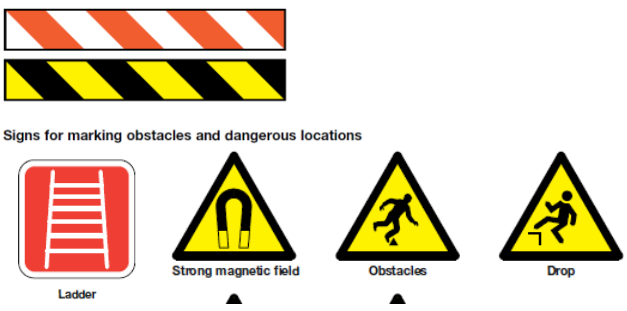
	energizing is not possible, electrical installations should be moved or insulated to minimize the hazardous effects; • In order to protect workers from electric shock in case of a faulted circuit to conductive equipment, all non-current carrying conductive components must be bonded together with a conductor of sufficient size. The impedance of the complete ground-fault circuit (phase conductor and bonding conductor) should be low enough to ensure sufficient flow of ground-fault current for fast operation of the proper circuit protective devices, and to minimize the potential for stray ground currents on solidly grounded systems. § Assume that all overhead wires are energized at lethal voltages. Never assume that a wire is safe to touch even if it is down or appears to be insulated. - Never touch a fallen overhead power line. Call the electric utility company to report fallen electrical lines. § Stay at least 10 feet (3 meters) away from overhead wires during on-site activities. If working at heights or handling long objects, survey the area before starting work for the presence of overhead wires. § Never operate electrical equipment while you are standing in water. § If working in damp locations, inspect electric cords and equipment to ensure that they are in good condition and free of defects, and use a ground-fault circuit interrupter (GFCI).
Use, Storage of Tools and Records maintenance	Records to be maintained at BESCOM and site offices. PPEs and Tools associated with the procedures to be stored at Site Offices
Compliance to regulations/permits	All permits and regulations: § Indian Electricity Act 2003 • Indian Electricity Rules 2005 • Avoid working during rains, 'Use of signs, barriers (e.g., locks on doors, use of gates, use of steel posts surrounding transmission towers, particularly in urban areas), and education / public outreach to prevent public contact with potentially dangerous equipment; • Grounding conducting objects (e.g., fences or other metallic structures) installed near power lines, to prevent shock; • Detection and Prevention mechanism in place; • Other precautions mentioned in SOP.
Emergency Preparedness and Response (including PPE/First aid)	Employees who work directly with electricity should Use the personal protective equipment required for the jobs they perform. This equipment may include rubber insulating gloves, hoods, sleeves, matting, blankets, line hose, and industrial protective helmets designed to reduce electric shock hazard. All help reduce the risk of electrical accidents.
Usage monitoring procedures (or protocol for replacement / refurbishment)	Audit for faulty cables and electrical equipment; Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work.
Signage systems and symbols or coding	Buddy system for working at heights; Signages for public during the installation and maintenance plan.

	 Signs for marking obstacles and dangerous locations 
Details on competent users	This plan is to be used by BESCOM site teams and Contractors
Training needs	Training to Site Staff and environment Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel
Duties / Responsibilities (with contact details)	Respective Site Supervisors (Give Contact Details), environment and social corporate team.
Inspection Procedures and Documentation required	Preventive maintenance at stores, workshops, substations; The inspection reports to be in place with Corrective actions and preventive actions taken.
Disposal of scraps and process wastes	NA
Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, avoid; C. Prevention and control measures as covered in SOP; • Marking all energized electrical devices and lines with warning signs • Locking out (de-charging and leaving open with a controlled locking device) and tagging-out (warning sign placed on the lock) devices during service or maintenance • Checking all electrical cords, cables, and hand power tools for frayed or exposed cords and following manufacturer recommendations for maximum permitted operating voltage of the portable hand tools • Double insulating / grounding all electrical equipment used in environments that are, or may become, wet; using equipment with ground fault interrupter (GFI) protected circuits • Protecting power cords and extension cords against damage from traffic by shielding or suspending above traffic areas • Appropriate labelling of service rooms housing high voltage equipment (‘electrical hazard’) and where entry is controlled or prohibited

	• Establishing “No Approach” zones around or under high voltage power lines • Rubber tired construction or other vehicles that come into direct contact with, or arcing between, high voltage wires may need to be taken out of service for periods of 48 hours and have the tires replaced to prevent catastrophic tire and wheel assembly failure, potentially causing serious injury or death; • Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work.
Info and Instructions to be passed on to communities	Emergency response plan, electrical safety instructions on the cables, transformers sets and other installations outside the site/work boundary where people can come in contact with these equipment, emergency information and signal types and meaning, emergency response and control provisions on site.

Annex 13: SOP 4 - Work at height and Fall Prevention Procedures

SOP-04	Work at height and Fall Prevention Procedures
Head	**Description**
Purpose	To set out a procedure to prevent injury and property damage when conducting work at height.
Coverage: Program / Region	Applicable mainly to installation and maintenance works on sites within BESCOM jurisdiction.
References	- IFC - Environmental, Health, and Safety (EHS) Guidelines
Hazard Mapping / Assessment	During installation and maintenance activities on site
Incident Categorization (may be Classification/ levels)	High - due to potential risk involved
Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs or installations and maintenance
General Operating Procedures and Best Practices	The following precautions are to be taken: • Installation of guardrails with mid-rails and toe boards at the edge of any fall hazard area. • Proper use of ladders and scaffolds by trained employees • Use of fall prevention devices, including safety belt and lanyard travel limiting devices to prevent access to fall hazard area, or fall protection devices such as full body harnesses used in conjunction with shock absorbing lanyards or self-retracting inertial fall arrest devices attached to fixed anchor point or horizontal life-lines. • Appropriate training in use, serviceability, and integrity of the necessary PPE. • Inclusion of rescue and/or recovery plans, and equipment to respond to workers after an arrested fall. • Prior to initiating work, the equipment and location must be verified for safety and appropriateness using the following steps. • For all work of more than 1 day in duration, a systematic verification of the satisfactory implementation of this procedure must carried out by Competent Person, at a frequency appropriate the duration and risk of the task. • On completion of the work, it must be formally verified by a Competent Person, that the work place has been left in a satisfactory condition and that all persons have safely returned from the workplace. Note: Many accidents occur because floor gratings have been removed and not replaced, or superfluous materials are left in elevated positions causing slip, trip and fall hazards
Use, Storage of Tools and Records maintenance	Records to be maintained at BESCOM and site offices. PPEs and Tools associated with the procedures to be stored at Site Offices

Compliance to regulations/permits	The Public Liability Insurance Act, 1991, amended 1992 - for compensations to victims; February 2009, the National Policy on Safety, Health and Environment at Work Place.
Safety Precautions	Fall prevention and protection measures should be implemented whenever a worker is exposed to the hazard of falling more than two meters; into operating machinery; into water or other liquid; into hazardous substances; or through an opening in a work surface. Fall prevention / protection measures may also be warranted on a case-specific basis when there are risks of falling from lesser heights.
Emergency Preparedness and Response (including PPE/First aid)	• Install fall protection devices such as full body harnesses; • Usage of the approved (type and rating) fall protection equipment is mandatory. • Fall Protection Equipment must be inspected by the user & trained person daily. • Double hook full body Safety harnesses that have been used in a fall arrest situation must be withdrawn from service and not reused/issued until after a full examination. - Records of the results of thorough examinations must be kept on site • Lifelines fall arrestor used for the attachment of Double hook full body Safety harnesses must be: • Horizontal lifelines must be made of steel rope 12 mm diameter (min) • Installed at waist height or above • Tensioned by use of a turnbuckle or similar • Designed to support the maximum number of workers • Securely anchored at both ends with triplicate wire rope clamps at points able to withstand the dynamic load generated by a fall • All lanyards must be made of flame-resistant materials. Inertia reels may be used to enable more safe movement around certain areas.
Usage monitoring procedures (or protocol for replacement / refurbishment)	Monthly Safety Audits at installation site;
Signage systems and symbols or coding	Buddy system for working at heights; Signages for public during the installation and maintenance plan. 

Details on competent users	Site teams and Contractors
Training needs	Training to Site Staff and environment Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel, Safety procedures for working at confined spaces, safety procedures for handling of hazardous materials; Use of suitable masks for reducing exposure to dust emissions and toxic fumes on site; Providing training to the workers for handling hazardous material and exposure to toxic gases
Duties / Responsibilities (with contact details)	Respective Site Supervisors (Give Contact Details), environment and social corporate team
Inspection Procedures and Documentation required	The inspection of procedures, PPEs, Usage and Trainings on site; Incident Reporting Records, Event Logs, PPE inventory, Work plan, Manpower details to be maintained by safety officer.
Disposal of scraps and process wastes	NA
Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, follow the safe work procedures and close out;
Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site.

Annex 14: SOP 5 - Portable Tools and Equipment Handing Procedures

SOP-05	Portable Tools and Equipment Handing Procedures
Head	**Description**
Purpose	To describe the steps while using, maintaining and storing portable tools and portable equipment
Coverage: Program / Region	Applicable for all activities throughout BESCOM jurisdiction.
References	• IS/ISO 6789 (2003): Assembly tools for screws and nuts – Hand torque tools – Requirements and test methods for design conformance testing, quality conformance testing and recalibration procedure • IS 841:1983 – Specification for steel hammers • IS 844:1979 (Part 1, 2 & 3) – Technical supply conditions, dimensions, dimensions for screw drivers for recessed head screws • IS 2027:1992 – Spanners and sockets – width across flats • IS 6131:1980 – Technical requirements for hand operated wrenches (spanners) and sockets - IS 6586:1989 – Claw hammers – specification • IS 9065: 1979 – Specification for Aluminium hammers • IS 12453:1988 – Specification for nut drivers
Hazard Mapping / Assessment	Hazards during the use of tools and equipment;
Incident Categorization (may be Classification/ levels)	Medium to High - due to various types of tools and equipment involved
Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs;
General Operating Procedures and Best Practices	• All tools and equipment will be maintained in good working condition and have current certificates as required by law • Equipment and tools used on site (by BESCOM employees or contractors) will be inspected on a daily basis by the site supervisor • Equipment and tools approved by the supervisor on a daily basis can only be used • Any tool or equipment that is found to be unsafe or not in safe working condition must immediately be set aside for service, repair or replacement • Only the right tools should be used for the job • Users of tools must have received training on the tools they are meant to use. The training has to be provided by the supervisor or safety in charge of that program • Tools and equipment must be disconnected prior to service or maintenance • Contractors and sub-contractors (irrespective of levels of sub-contracting) must take ownership of the hand tools provided by them and be responsible for the safe upkeep of the tools

Use, Storage of Tools and Records maintenance	Records to be maintained at BESCOM and site offices; PPEs and Tools associated with the procedures to be stored at Site Offices
Compliance to regulations/permits	The Public Liability Insurance Act, 1991, amended 1992 - for compensations to victims; February 2009, The National Policy on Safety, Health and Environment at Work Place;
Safety Precautions	• Personal protective equipment approved for the selected hand tools must be used while operating with the hand tools - All portable electrically powered tools need to be grounded and insulated to prevent electrical shock • Power tools should not be lifted or carried using its cord • Pocket knives, utility knives, Swiss knives or any other self-assembled tools shall not be used for stripping wires • All fuel powered tools shall be stopped and disconnected at the time of refueling, servicing and maintaining - Safety goggles with side shields should be used to prevent eye injuries from particles/pieces • Sharp edges of the tools should be covered with appropriate material prior to storage • Tools should not be carried in pockets or unassigned bags • Tools should not be modified informally, extended, sharpened or twisted in an unauthorized manner • While drilling, cutting, striking or breaking, it should be ensured that any electrical wiring in the vicinity, especially wiring that can come in contact with the hand tool is not live • Special safety requirements while using striking tools or hammers: • Always hit with a striking face of the hammer • Do not modify the hammer on your own • Ensure that if the hammer head is loose, please set it aside and use an alternate hammer • Choose the appropriate hammers for drilling nails or strike steel or concrete chisels • The striking face must not be cracked or mushroomed, as there is a likelihood of the hammer chipping, leading to small particles moving around the place
Emergency Preparedness and Response (including PPE/First aid)	First Aid Program/Supplies – medical care facilities locations, posted emergency numbers, accessible first aid kits; Provide Personal Protective Equipment (PPE) – type, size, maintenance, repair, age, storage, assignment of responsibility, purchasing methods, standards observed, training in care and use, rules of use, method of assignment;
Usage monitoring procedures (or protocol for replacement / refurbishment)	Monthly Safety Audits at installation site;
Signage systems and symbols or coding	Signage system to be in place for storage of tools, usage areas, list of Dos and Don'ts at work areas, markings on tools/equipment
Details on competent users	Site teams, safety officer and Contractors

Training needs	Training to Site Staff and environment Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel
Duties / Responsibilities (with contact details)	Site Supervisors, environment and social corporate team
Inspection Procedures and Documentation required	The inspection of procedures, PPEs, Usage and Trainings on site; Incident Reporting Records, Event Logs, PPE inventory, Work plan, Manpower details to be maintained by safety officer;
Disposal of scraps and process wastes	NA
Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, follow the safe work procedures and close
Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site;

Annex 15: SOP 6 - Traffic Safety Procedures

SOP-06	Traffic Safety Procedures
Head	**Description**
Purpose	To set out a procedure to be adopted by the site management team to ensure the safe and efficient movement of traffic and also to ensure the safety of workmen at construction sites.
Coverage: Program / Region	Applicable to vehicles at installation work sites, stores, workshops, substations, and transportation vehicles throughout BESCOM jurisdiction
References	IFC - Environmental, Health, and Safety (EHS) Guidelines
Hazard Mapping / Assessment	Hazard to workplace from heavy vehicles and access roads traffic, hazard to community
Incident Categorization (may be Classification/ levels)	High
Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs - During transportation, loading-unloading at warehouse/storage kiosks and also the traffic of construction vehicles at the installation/maintenance sites;
General Operating Procedures and Best Practices	1) Traffic at Construction Site: All construction workers should be provided with high visibility jackets with reflective tapes. The conspicuity of workmen at all times shall be increased so as to protect from speeding vehicular traffic. • Warn the road user clearly and sufficiently in advance. • Provide safe and clearly marked lanes for guiding road users. • Provide safe and clearly marked buffer and work zones • Provide adequate measures that control driver behaviour through project's operational zones. • Traffic management plans shall include provision for traffic diversion and selection of alternative routes for transport of equipment. If necessary, the contractor shall carry out road widening before commencement of works to accommodate the extra load • The primary traffic control devices used in work zones shall include signs, delineators, barricades, cones, pylons, pavement markings and flashing lights. 2) Traffic on Roads: In BESCOM operations, there are projects which require workers to undertake work on/beside roads where traffic flow is ongoing. This could include main roads, street roads and roads in commercial and residential areas. Therefore, it is extremely important to follow this SOP for reducing traffic related accidents while working on roads • Traffic cones of 500mm, 750mm and 1000mm high and 300mm to 500mm in diameter or in square shape at base and are often made of plastic or rubber and normally have retro-reflectorized red and white band shall be used wherever required. • Drums about 800mm to 1000mm high and 300mm in diameter can be used either as channelizing or warning devices. These are highly visible, give the appearance of being formidable objects and therefore command the respect of drivers.

	• Full height fence, barriers, barricades etc. shall be erected around the site in order to prevent the working area from the risk of accidents due to speedy vehicular movement. In the same way barricades protect the road users from the danger due to equipment and other temporary structures falling off from height. • All barricades shall be erected as per the design requirements of the Employer, numbered, painted and maintained in good condition and also Barricade in-charge maintains a barricade register in site. • The contractor shall not undertake loading and unloading at carriageways obstructing the free flow of vehicular traffic and encroachment of existing roads by the contractor applying the excuse of work execution. • The contractor shall ensure the cleanliness of roads and footpaths by deploying proper manpower for the same. The contractor shall have to ensure proper sweeping, cleaning washing of roads and footpaths on all the time throughout the entire stretch till the currency of the contract including disposal of sewerage.
Use, Storage of Tools and Records maintenance	Records to be maintained at BESCOM and site offices; PPEs and Tools associated with the procedures to be stored at Site Offices
Compliance to regulations/permits	The motor vehicle act 1988 and its amendments till date; The National Road Safety Policy; Vehicle Safety Standards; and Other local rules and regulations at concerned areas; The Public Liability Insurance Act, 1991, amended 1992 - for compensations to victims; February 2009, the National Policy on Safety, Health and Environment at Work Place; Pollution Under Control Certificate, 2. Vehicle Maintenance Plan with Manufacturer Authorized Service Stations receipts,
Safety Precautions	1) General Safety: driving safety, traffic rules, vehicle maintenance routine, community areas, accident preventions measures by speed limits and lane restrictions for heavy vehicles, construction vehicles with speed restrictions and work procedures, trained drivers for each activity; 2) Traffic Management: • Traffic management plans shall include provision for traffic diversion and selection of alternative routes for transport of equipment. If necessary, the contractor shall carry out road widening before commencement of works to accommodate the extra load • The primary traffic control devices used in work zones shall include signs, delineators, barricades, cones, pylons, pavement markings and flashing lights.
Emergency Preparedness and Response (including PPE/First aid)	Accident response plan, first aid procedures, rescue operations plan, data of nearest hospitals on the vehicle route (Contact Details, Emergency Numbers, Insurance Coverage)
Usage monitoring procedures (or protocol for	Monthly Safety Audits of vehicle contractors and drivers; PUC Check of vehicles; Drivers trainings schedule and vehicle maintenance program;

replacement / refurbishment)	
Signage systems and symbols or coding	Signages for vehicle parking, moving, no-parking areas, traffic flow direction, work-in-progress instructions, congestion areas, signal system for traffic control; Warehouse Management Plan: showing vehicular movement, parking space for vehicle to avoid honking and idling.  Signs for marking obstacles and dangerous locations  Industrial vehicles  Danger: electricity  General danger 
Details on competent users	Site teams and Contractors.
Training needs	Training to Site Staff and environment Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel, Provide Training for Drivers: trainings to drivers on precautions to be taken while driving near the sensitive areas (school, residential area, eco-sensitive areas, no-honking zones etc.), Vehicle to operate avoiding night time operation near residential areas and traffic congestion time on busy routes
Duties / Responsibilities (with contact details)	Safety Unit, Respective Managers, Site Supervisors, environment and social corporate team, Traffic controller.
Inspection Procedures and Documentation required	Vehicle inspection for emissions, maintenance records, traffic routes, selection of optimized routes by transportation vehicle, fuel consumption trends; Vehicle records, Registrations, Insurance, Driver details, PUC records
Disposal of scraps and process wastes	NA
Site management	NA
Info and Instructions to be passed on to communities	Emergency response plan, emergency information and signal types and meaning, emergency response and control provisions on site;

Annex 16: SOP 7 - Personal Protective Equipment Procedures

SOP-07	Personal Protective Equipment Procedures
Head	**Description**
Purpose	To set out a procedure to describe the requirements of Personal Protective Equipment (PPE) for the on-site operations. The purpose of this Standard is to describe the requirements of Personal Protective Equipment (PPE) for the on-site operations. PPEs are intended to be worn or held by a person at work which protects them against one or more risks to their health and safety
Coverage: Program / Region	Applicable to vehicles at installation work sites, stores, workshops, substations and transportation vehicles throughout BESCOM jurisdiction
References	• IFC - Environmental, Health, and Safety (EHS) Guidelines • OSHA Personal Protective Equipment (PPE) Standards • OSHA Safety and Health Topic "Personal Protective Equipment" • OSHA Technical Manual, Section VIII: Personal Protective Equipment • NIOSH Safety and Health Topic: "Protective Clothing and Ensembles" • OSHA 29 CFR 1926.1050Stairways and Ladders • OSHA Non-Mandatory Compliance Guidelines for Hazard • Assessment and Personal Protective Equipment Selection 1910 Subpart App B • NIOSH Personal Protective Equipment Checklist
Hazard Mapping / Assessment	At all workplaces (Installation sites, warehouse and kiosks and waste handling on vehicles) Hazard assessment shall be conducted separately. In addition to the PPEs required for general hazards associated; PPEs shall be chosen to take care of special location / activity-based hazards as well
Incident Categorization (may be Classification/ levels)	High
Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs; To be able to choose the right type of PPE, the hazards involved in the task or work environment shall be carefully considered by BESCOM. PPE must also meet the needs of the individual. The following factors should be considered when assessing the suitability of PPE: • Is the PPE appropriate for the risk involved and conditions at the place where exposure may occur? e.g., goggles are not suitable when full-face protection is required • Does the PPE prevent or adequately control the risks involved without increasing the overall risk? e.g., gloves should not be worn when using a pillar drill, due to the increased risk of entanglement • Can the PPE be adjusted to fit the wearer correctly? e.g., if a person wears glasses, ear defenders may not provide a proper seal to protect against noise hazards • Has the state of health of those using it been taken into account? • What are the needs of the job and the demands it places on the wearer? How long will the PPE need to be worn? What are the requirements for visibility and communication?

	• If more than one item of PPE is being worn, are they compatible? For example, does a particular type of respirator make it difficult for eye protection to fit properly?
General Operating Procedures and Best Practices	Safety requires proper planning of work, proper usage of safety tools, exercise of good judgment and intelligent supervision. Experience proves that majority of the accidents are preventable. Working unsafely such as throwing materials or tools, at another worker should be prohibited. The following are the minimum requirements of safety devices and special tools: • Safety Helmets • Gloves • Safety Belts • Well supported ladders • Hand Tools kit Personal protective equipment is available for different purposes and to protect various functions of the human body. It is essential to pick the appropriate PPE for the hazard type. The following PPE have been suggested keeping BESCOM's operations in mind. There are three main types of hearing protection: 1) Hearing Protection: • earmuffs/defenders, which completely cover the ear, • earplugs, which are inserted into the ear canal, • Semi-inserts (also called canal-caps), which cover the entrance to the ear canal. Hearing protection must be worn by anyone who is likely to be exposed to noise at or above the Exposure Action Level set by The Control of Noise at Work Regulations 2005. 2) Head protection There are three widely used types of head protection: • industrial safety helmets (hard hats), which are designed to protect against materials falling from height and swinging objects - industrial scalp protectors (bump caps), which are designed to protect from knocking against stationary objects • caps/hair nets, which protect against entanglement Tasks where head protection may be required include: • construction, · building repair, · work in excavations, · work with bolt driving tools • driving motorcycles and all-terrain vehicles, etc. Turban-wearing Sikhs are exempt from the requirement to wear hard hats on construction sites by virtue of The Employment Act 1989. 3) Eye protection There are several types of eye protection: • safety spectacles: these are similar to regular glasses but have a tougher lens. They can include side shields for additional protection. • eye shields: a frame-less one-piece moulded lens, often worn over normal prescription glasses • safety goggles: these are made with flexible plastic frames and an elastic headband • face shields: heavier and bulkier than other type of eye protector, face shields protect the face, but do not fully enclose the eyes so do not protect against dusts, mists or gases. Tasks where eye protection may be required include: • handling hazardous substances where there is a risk of splashing

	• work with power driven tools where materials are likely to be propelled • welding operations, · work with lasers, · using any gas or vapour under pressure. 4) Foot protection There are a number of types of safety footwear: • safety boots or shoes. Normally have steel toe-caps but can have other safety features (e.g., steel mid-soles, slip resistant soles, insulation against heat and cold) • Wellington boots, which can be supplied with steel toe-caps • anti-static and conductive footwear. These protect against the build-up of static electricity. Tasks where foot protection may be required include: construction, demolition, building repair, manual handling where there is a risk of heavy objects falling on the feet, work in extremely hot or cold environments, work with chemicals and forestry. If there is a risk of slipping that cannot be avoided or controlled by other measures, attention must be given to the slip resistance of soles and replacement before the tread pattern is overly worn. 5) Hand and arm protection Hand and arm protection comes in a variety of forms, including: • gloves and gauntlets (leather, nitrile, latex, plastic coated, chain mail, etc.) • wrist cuffs and armlets, e.g., used in glass cutting and handling • barrier cream may sometimes be used, where gloves cannot practicably be used. Tasks where hand and arm protection may be required include: the manual handling of abrasive, sharp or pointed objects, work with vibrating equipment such as pneumatic drills and chainsaws, construction and outdoor work, work with chemicals and other hazardous substances (e.g., bodily fluids) and work with hot or cold materials. 6) Body protection: Types of body protection include: • overalls, aprons and coveralls (protection against hazardous substances) - clothing for cold, heat and bad weather • high visibility clothing (e.g., jackets, vests) • harnesses • back supports • life jackets. 7) Respiratory protection There are two main types of respiratory protective equipment: • respirators that filter contaminated air or clean it as it is breathed in • respirators that supply clean air from an independent source. Work with harmful dusts, fumes, vapours can require respiratory protective equipment. Tasks where respiratory protection may be required include; work with harmful substances, work in areas where large amounts of nuisance dust is present, work that creates dust (e.g., disc cutters) Special Tools: • Well protected Hand tools • Well supported ladders for Work at height. Table: Summary of Recommended PPEs according to Hazard

	<table><tr><th>Objective</th><th>Workplace Hazards</th><th>Suggested PPE</th></tr><tr><td>Eye and face protection</td><td>Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation.</td><td>Safety Glasses with side-shields, protective shades, etc.</td></tr><tr><td>Head protection</td><td>Falling objects, inadequate height clearance, and overhead power cords.</td><td>Plastic Helmets with top and side impact protection.</td></tr><tr><td>Hearing protection</td><td>Noise, ultra-sound.</td><td>Hearing protectors (ear plugs or ear muffs).</td></tr><tr><td>Foot protection</td><td>Falling or rolling objects, pointed objects. Corrosive or hot liquids.</td><td>Safety shoes and boots for protection against moving & falling objects, liquids and chemicals.</td></tr><tr><td>Hand protection</td><td>Hazardous materials, cuts or lacerations, vibrations, extreme temperatures.</td><td>Gloves made of rubber or synthetic materials (Neoprene), leather, steel, insulating materials, etc.</td></tr><tr><td rowspan="2">Respiratory protection</td><td>Dust, fogs, fumes, mists, gases, smokes, vapors.</td><td>Facemasks with appropriate filters for dust removal and air purification (chemicals, mists, vapors and gases). Single or multi-gas personal monitors, if available.</td></tr><tr><td>Oxygen deficiency</td><td>Portable or supplied air (fixed lines). On-site rescue equipment.</td></tr><tr><td>Body/leg protection</td><td>Extreme temperatures, hazardous materials, biological agents, cutting and laceration.</td><td>Insulating clothing, body suits, aprons etc. of appropriate materials.</td></tr></table> Reference: International Finance Corporation (IFC). 2007. Environmental, Health, and Safety (EHS) Guidelines Available at: https://www.ifc.org/wps/wcm/connect/9aef2880488559a983acd36a6515bb18/2%2BOccupational%2BHealth%2Band%2BSafety.pdf?MOD=AJPERES
Use, Storage of Tools and Records maintenance	**Maintenance of PPE** • An effective system of maintenance of PPE is essential to make sure the equipment continues to provide the degree of protection for which it is designed. Therefore, the manufacturer's maintenance schedule (including recommended replacement periods and shelf lives) must always be followed. • Maintenance may include; cleaning, examination, replacement, repair and testing. The wearer may be able carry out simple maintenance (e.g., cleaning), but more intricate repairs must only be carried out by competent personnel. • The costs associated with the maintenance of PPE are the responsibility of the BESCOM/ contractor. • Worn out or ineffective PPEs shall be replaced at the earliest. • Employer shall maintain additional spares (at least 10 percent of actual required stock) on site. **Storage for PPE** • It is very important to appropriately store PPE to ensure they can be used for a long time • Where PPE is provided, adequate storage facilities for PPE must be provided for when it is not in use, unless the employee may take PPE away from the workplace (e.g., footwear or clothing). PPEs and Tools associated with the procedures to be stored at Site Offices. Records to be maintained at BESCOM and site offices

	• Accommodation may be simple (e.g., pegs for safety helmets) and it need not be fixed (e.g., a case for safety glasses or a container in a vehicle). • Storage should be adequate to protect the PPE from contamination, loss, damage, damp or sunlight.
Compliance to regulations/permits	Each BESCOM operation shall ensure that it complies with the requirements of this Standard. Performance against the requirements of this Standard shall be assessed periodically, documented and, where required, reported to BESCOM. The evaluation of performance shall include, as a minimum, confirmation that: • Correct usage of PPE for different types of work carried on the sites. • EHS manager is aware of the hazards related to the work and same is conveyed to the contractors. • The EHS manager has the ultimate responsibility for action tracking and close-out; • Awareness shall be created among the workers and the contractors via daily tool box meetings.
Safety Precautions	Employer must institute all feasible engineering and work practice controls to eliminate and reduce hazards before using PPE to protect against hazards through (i) Engineering Controls (Initial design specifications, Change in Work procedures, use of appropriate tools and safe work practices such as machine guards, Ventilation, Substitution with less harmful material, Enclosure of process, Isolation of process, Change the process etc.) and (ii) Work Process Controls (remove employees from exposure by Job rotation of workers, Wet methods, Personal hygiene, Housekeeping and maintenance) Where PPE is provided, employees must be provided with adequate information, instruction and/or training on its use. The extent of information, instruction and/or training will vary with the complexity and performance of the kit. Information and instruction should cover: • the risk(s) present and why the PPE is needed • the operation (including demonstration), performance and limitations of the equipment • use and storage (including how to put it on, how to adjust and remove it) • any testing requirements before use, especially flammability tests • any user maintenance that can be carried out (e.g., hygiene/cleaning procedures) • factors that can affect the performance of the equipment (e.g., working conditions, personal factors, defects and damage) - how to recognize defects in PPE, and arrangements for reporting them • where to obtain replacement PPE The following are guidelines which an employer can use to begin the selection of the appropriate PPEs. The site information may suggest the use of combinations of PPE selected from the different protection levels (i.e., A, B, C, or D) as being more suitable to the hazards of the work. PPE is divided into four categories based on the degree of protection afforded: 1. Level A – Level 'A' PPEs are selected when the greatest level of skin, respiratory, and eye protection is required. • Positive pressure, full face-piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA, approved by the National Institute for Occupational Safety and Health (NIOSH). • Totally-encapsulating chemical-protective suit. • Coveralls. • Long underwear

	• Gloves, outer, chemical-resistant. • Gloves, inner, chemical-resistant. • Boots, chemical-resistant, steel toe and shank. • Hard hat (under suit) • Disposable protective suit, gloves and boots (depending on suit construction, may be worn over totally-encapsulating suit) 2. Level B – Level B PPE are used when highest level of respiratory protection is necessary but a lesser level of skin protection is needed. • Positive pressure, full-face piece self-contained breathing apparatus (SCBA), or positive pressure supplied air respirator with escape SCBA (NIOSH approved). - Hooded chemical-resistant clothing (overalls and long-sleeved jacket; coveralls; one or two-piece chemical-splash suit; disposable chemical-resistant overalls). - Coveralls. • Gloves, outer, chemical-resistant. • Gloves, inner, chemical-resistant. • Boots, outer, chemical-resistant steel toe and shank. • Boot-covers, outer, chemical-resistant (disposable). • Hard hat. • Face shield 3. Level C - The concentration(s) and type(s) of airborne substance(s) is known and the criteria for using air purifying respirators are met - Full-face or half-mask, air purifying respirators (NIOSH approved). • Hooded chemical-resistant clothing (overalls; two-piece chemical-splash suit; disposable chemical-resistant overalls). • Coveralls. • Gloves, outer, chemical-resistant. - Gloves, inner, chemical-resistant. • Boots (outer), chemical-resistant steel toe and shank. - Boot-covers, outer, chemical-resistant (disposable). - Hard hat. • Escape mask. • Face shield. 4. Level D - A work uniform affording minimal protection: used for nuisance contamination only • Coveralls - Gloves • Boots/shoes, chemical-resistant steel toe and shank - Boots, outer, chemical-resistant (disposable) • Safety glasses or chemical splash goggles • Hard hat • Escape mask - Face shield
Emergency Preparedness and Response (including PPE/First aid)	• First aid box containing antiseptic liquid and cream, bandage, cotton, painkiller pills. • Quick to access On-call medical aid and transport to nearby hospital; Display of emergency numbers on site - Trained First Aid Providers among works
Usage monitoring procedures (or protocol for replacement / refurbishment)	Monthly safety audit to ensure adequate PPEs are in place, training programs on PPE usage, Training to First Aid Providers and PPE maintenance records If your workers refuse to wear the required PPE, they should be re-deployed to a less dangerous job or area, or if necessary disciplined. Disobeying safety instructions should be at least as serious as other rule breaking. Contractual terms and conditions should treat failure to follow reasonable Health & Safety instructions as potential gross misconduct.

Signage systems and symbols or coding	Signages at workplace about suitable PPEs to wear, signages at PPE Storage areas   
Details on competent users	Site teams and Contractors
Training needs	Initial training and engagement of workers on workers shall include (i) Consultation on the best PPEs (ii) Education on why it's needed (iii) Given input on its use Training to Site Staff and environment Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel where PPE is provided, employees must be provided with adequate information, instruction and/or training on its use. The extent of information, instruction and/or training will vary with the complexity and performance of the kit. Information and instruction should cover: • the risk(s) present and why the PPE is needed • the operation (including demonstration), performance and limitations of the equipment • use and storage (including how to put it on, how to adjust and remove it) • any testing requirements before use • any user maintenance that can be carried out (e.g., hygiene/cleaning procedures) • factors that can affect the performance of the equipment (e.g., working conditions, personal factors, defects and damage) - how to recognize defects in PPE, and arrangements for reporting them • where to obtain replacement PPE, In addition to initial training, refresher training may be required from time to time. Supervisor checks on the use of PPE may help determine when refresher training is required.
Duties / Responsibilities (with contact details)	Unit Head, Respective Managers, Site Supervisors, environment and social corporate team; The workers shall ensure that PPE provided is properly used. • PPE must be worn and used in accordance with the instructions provided to them • workers must take all reasonable steps to ensure that PPE is returned to the accommodation provided for it after it has been used (unless the employee may take PPE away from the workplace e.g., footwear or clothing) • PPE must be examined before use, § any loss or obvious defect must be immediately reported to their supervisor, § employees must take reasonable care for any PPE provided to them and not carry out any maintenance unless trained and authorized. While the responsibility of implementing the procedure lies on all BESCOM personnel, employees of the vendor, contractor and their supply chain actors, specific responsibilities have been allotted, keeping the significance of the standard in mind. 1) Environment personnel Apart from the responsibility of implementing the SOPS, the environment personnel have the following specific responsibilities for this SOP • Must ensure that appropriate PPEs are used for different types of work carried on the sites.,

	• Should be aware of the hazards related to the work and same is conveyed to the contractors. • Shall conduct surprise site inspections to assure the compliance with the appropriate use of PPEs., § Has the ultimate responsibility for action tracking and close-out; 2) EHS Officer of Contractor Apart from the responsibility of implementing SOPs, the environment officer of the vendor/contractor/sub-contractor has the following specific responsibilities for this SOP • EHS officer must ensure that appropriate PPEs are used for different types of work carried on the sites., § EHS officer should be aware of the hazards related to the work and same is conveyed to the workers. • Awareness shall be created among the workers and the contractors via daily tool box meetings., § Must ensure that PPEs used by workers are in good condition and expiry date is not passed. • In case of non-compliance, report should be made to EHS officer of BESCOM., § Conduct regular checks twice a day to ensure compliance with the appropriate use of PPEs 3) Workers All workers have a duty to: • Follow instructions from EHS officer of contractor/ BESCOM., • In case of any problem related to their PPE, workers should immediately inform to the EHS officer of contractor and get replacement. There should be facility on site for the worker to request new PPE • Follow trainings and instructions (unless they think that would be unsafe, in which case they should seek further instructions before continuing)
Inspection Procedures and Documentation required	The inspection reports to be in place with Corrective actions and preventive actions taken;
Disposal of scraps and process wastes	There should be special suitably labelled storage receptacles on site and labour camps to dispose-off worn out or PPEs or Use and Throw PPEs (Receptacles themselves should not be an impediment to safety and should be kept away from circulation areas and emergency ingress/egress)
Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; No PPE shall be left around unattended at site in such a manner that it hampers the general work or community safety. B. Protection and Control: risk areas demarcation, avoid; C. It is very important to appropriately store PPE to ensure they can be used for a long time • Where PPE is provided, adequate storage facilities for PPE must be provided for when it is not in use, unless the employee may take PPE away from the workplace (e.g., footwear or clothing). • Accommodation may be simple (e.g., pegs for safety helmets) and it need not be fixed (e.g., a case for safety glasses or a container in a vehicle). • Storage should be adequate to protect the PPE from contamination, loss, damage, damp or sunlight.

Info and Instructions to be passed on to communities	• Immediate host communities shall be informed about the type of hazards assessed for the site and the type of PPEs suggested for workers. • Communities shall be advised top follow PPE protocols and use suitable PPEs while traversing near the work sites. They shall be provided with the information on suitable PPEs and where to access / buy these.

Safety Audit Procedure

SOP-8	Safety Audit Procedure
Head	**Description**
Purpose	To describe safety audit for BESCOM onsite operations and for its office
Coverage: Program / Region	Applicable to offices, vehicles at installation work sites, stores, workshops, substations, and transportation vehicles throughout BESCOM jurisdiction
References	IFC - Environmental, Health, and Safety (EHS) Guidelines OSHA Safety Audit Checklist • British Standards Institutions (BSI) – Occupational Health and Safety management System • International Organization for Standardization – Guidelines for auditing quality system and Environmental Management System - Workplace Regulations 1992
Hazard Mapping / Assessment	Hazard from unsafe procedures, Injury due to the accidental fire event; handing of transformers with oil, PCBs, SF6, Fire risk due to storage of diesel for the back-up DG set; Fire and hazards due to storage of old transformers which has potential for toxic release due to heavy metal and other hazardous material content.
Incident Categorization (may be Classification/ levels)	High
Suitability and Intended use of the activity, tool or material	Applicable to all sites under the programs;
General Operating Procedures and Best Practices	1) Audit Types: Safety audit shall be done to ensure safety of workers and BESCOM employees. Two types of safety audit can be conducted: • Internal Audit • External Audit 2) Audit Requirements: The following requirements should be adhered to • The EHS Officer shall ensure that periodic safety audits are conducted to verify that the system is working as planned and is facilitating achievement of the BESCOM objectives and targets. • The Safety audits will be completed in accordance with the checklist attached. • Auditors will conduct the safety audits using the audit guidelines in annex B as a guide. • Auditors will record audit findings using notes, the internal audit report, and safety audit work sheet forms as appropriate. • Each area supervisor will review audit findings: • Develop corrective action or rebuttal to non-conformances. • Implement response actions within one week of their submittal, unless circumstances specified in writing prevent such response. • The EHS Officer will determine which findings will be referred to the formal corrective action review system.

	• Summarize and present the results of the safety audits to management on a quarterly basis at the Management Review Board meeting. • Collect and file safety audit reports. • Prior to an on-site audit, an auditor is to obtain copies of all documented procedures and training records and arrange a pre-audit interview with the area supervisor. • Each member of an audit team will meet once they have each completed their assigned audit task to compile all notes and complete an audit report. • The safety officer will meet with the area supervisor to hand over the audit report and answer any questions he or she may have at that time.
Use, Storage of Tools and Records maintenance	Records to be maintained at BESCOM and site offices. PPEs and Tools associated with the procedures to be stored at Site Offices
Compliance to regulations/permits	NA
Safety Precautions	NA
Emergency Preparedness and Response (including PPE/First aid)	NA
Usage monitoring procedures (or protocol for replacement / refurbishment)	Monitor the corrective actions; Monitor the effectiveness of the audit procedures
Signage systems and symbols or coding	NA
Details on competent users	Site teams and Contractors
Training needs	Training to Site Staff and environment Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
Duties / Responsibilities (with contact details)	1) environment and social corporate team and QS&S Division • EHS officer shall conduct safety audit for on-site operations every month and document it properly. • BESCOM employees shall conduct monthly office inspection and findings shall be escalated to the higher management. • EHS officer shall ensure that findings of both office inspection and on-site operations hall be followed and mitigated through appropriate measures. 2) EHS Officer of Contractor • EHS officer of contractor shall conduct safety audit daily and document it. Immediate actions shall be taken for the findings. - Every day before start of work, EHS officer shall ensure that findings of previous day are closed. • In case of any critical finding, EHS officer of contractor shall immediately inform EHS officer of BESCOM.
Inspection Procedures and Documentation required	Inspection procedures for auditing methods and results; Inspection of corrective actions;

Disposal of scraps and process wastes	NA
Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection; B. Protection and Control: risk areas demarcation, avoid;
Info and Instructions to be passed on to communities	NA

Risk Assessment Matrix

1. Risk Assessment					
Operation/ Work/ Contract				Reference Number	
Location address				Coordinates	
Risk being assessed	Electric Shock, Fire, Slips, Trips Falls, Work at height, etc.				
2. Initial Risk Assessment					
High		Medium		Low	
Fatal/ Major injury/ Loss (certain/ very likely) 7-9		Lost time/ disability (Reasonably Likely) – 4-6		Minor injury/ Disease/ Loss (Seldom/ unlikely) 1-3	
Score		Score		Score	
3. Control Measures – Steps taken and Steps to be taken to reduce risks					
Activity – What is the hazard?	Harm – Who or what?	What is already being done?	What Improvements are needed?	Actions – Who?	Action – When?
Electric Shock					
Fire					
Slips, Trips, Falls					
Falling from heights					
Falling from mobile elevating flatforms					
Tools/ materials falling					
Falls from ladders					
Others					
4. Further measures					
Additional Measures		Current Actions		Additional measures needed	
Trained Supervision					
Training and Instructions					
Emergency Plans					
Tools and equipment with r reduced noise/ vibration					
Tool Box Talks					
Review					
Dates of Review					
Remarks					
5. Risk Assessment after all measures taken					
High		Medium		Low	
Fatal/ Major injury/ Loss (certain/ very likely) 7-9		Lost time/ disability (Reasonably Likely) – 4-6		Minor injury/ Disease/ Loss (Seldom/ unlikely) 1-3	
Score		Score		Score	
If score is medium or high do further assessments. If the score is low no further assessment is needed.					

H&S Monitoring and Reporting Format

S.No.	Objective	Indicator	Measure/ Monitor	Frequency	Corrective Action	Responsibility
1	Risk Assessment	Risk Category	% Risk Assessment Completed	Monthly	Review progress of H&S implementation Training	ESCT
2	Work procedures	Documented work procedures	% Work Procedures completed Inspection of documents	Monthly	Review progress of H&S implementation Improve safety awareness and culture	ESCT
3	Provision of Safe Workplace	Work place inspection target for each frontline supervisor Workplace visibility tour by middle and senior managers	% Scheduled inspections completed % Actions arising completed % Visibility/ inspection tours completed	Monthly	Review progress of H&S implementation	ESCT
4	Workers Safety	Performance based observations	% Employees working safely % Personnel protective equipment (PPE) compliance	Monthly	Review progress of H&S implementation Training Incentives Improve safety awareness and culture	ESCT
5	Incident reporting and implementation of remediation measures	Timeliness of reporting Incident investigation effectiveness Log of corrective actions	% Incidents reported within 24 hours % Near-miss incidents % Incident investigation complete on time % Corrective actions implemented	Monthly	Review progress of H&S implementation Training	ESCT
6	Safe and competent workers	Performance assessment including training needs identification and Training records	% Performance assessments completed % Scheduled training completed	Monthly	Review progress of H&S implementation Training Improve safety awareness and culture	ESCT
7	Quality tools and equipment	Tools and equipment tested and tagged	% Tools tested % Tools passing tests	Monthly	Review progress of H&S implementation Training Improve safety awareness and culture	ESCT
8	Health and safety training	Number of trainings completed	% Trainings completed	Monthly	Review progress of H&S implementation	ESCT

		Number of workers attending trainings Feedback from workers	% Workers attending trainings % Satisfaction during feedback		Training Improve safety awareness and culture	
9	Awareness creation	Number of banners on safety Number of IEC programs conducted	% Safety aspects covered % Workers participated % Behaviour change	Monthly	Review progress of H&S implementation Training Improve safety awareness and culture	ESCT

Annex 18: SOP 9 - Work Close-out Procedures

SOP-9	Work Close-out Procedures
Head	**Description**
Purpose	Ensure all work is completed satisfactorily, required documentation is completed and/or received in accordance with contract requirements and effect the project's transition to BESCOM.
Coverage: Program / Region	Applicable to work sites throughout BESCOM jurisdiction
References	OSHA Field Inspection Reference Manual Available at: https://www.osha.gov/Firm_osha_data/100005.html
Hazard Mapping / Assessment	High Hazard to Communities
Incident Categorization (may be Classification/ levels)	NA
Suitability and Intended use of the activity, tool or material	Work Close out procedures applies to: (i) all instances of work completion (ii) all instances of emergency close out by the contractor due to various reasons
General Operating Procedures and Best Practices	Prepare and Schedule Work Closeout related meetings and activities as per proposed timetable and adhere to the same
Use, Storage of Tools and Records maintenance	• Records to be maintained at BESCOM and site offices. PPEs and Tools associated with the procedures to be stored at Site Offices
Compliance to regulations/permits	All permits and regulations for Transport of Materials and Wastes, Store Maintenance, Site Work, Electrical Works to be checked
Safety Precautions	• Pre-inspection discussion with site team regarding precautions • Appropriate PPEs shall be used for site visits and stock taking
Emergency Preparedness and Response (including PPE/First aid)	• Ensure the availability of first Aid Kits on Site and in Inspection Vehicles • Contact List of Health units, Rescue Vehicles within easy reach
Usage monitoring procedures (or protocol for replacement / refurbishment)	NA
Signage systems and symbols or coding	General Warning Signages
Details on competent users	Site teams and Contractors
Training needs	Training to Site Staff and environment Personnel on Inspection Procedures, Discussions & format instructions for Contractors Personnel,
Duties / Responsibilities	Unit Head, Respective Managers, Site Supervisors, environment Officials

Inspection Procedures and Documentation required	Walkthrough inspection 1: (Baseline for Closeout: At the beginning of site work) Site engineer, Contractor - Interview with site employees, Discussions on permits/certificates required from various agencies for work initiation, operation and closeout, Prepare schedule and list of items to be removed from various sites during various stages (Daily, weekly, end of work), Inventorying the materials, List of materials to be collected, and wastes types to be removed, Receptacles and special considerations required for general and emergency situations, signages and barricading requirements, information to be passed on to the communities regarding the work, contact persons, emergency situations, warnings Walkthrough inspection 2: (Daily Closeout) Site engineer, Contractor - Work Status and close out daily; check all items stowage off site safely, barricading and signages for any materials or works on site, check items on various sites, Inventorising the materials, reporting near miss-out incidents • Preparation of Punch List: The BESCOM site team (BESCOM site supervisor) shall prepare a punch list before 15 days of work closeout from each site/local body; on determining that the Contractor's work has progressed to the point of Substantial Completion. Punch list of the Contractor's work which shall include items of work remaining to be performed by the Contractor to bring its work into compliance with the requirements of the drawings and/or specifications. Contractor shall proceed promptly to complete and correct items within thirty (15) days of its receipt of the punch list from BESCOM site team. The site teams failure to include an item of deficiency on the punch list shall not relieve the Contractor of its responsibility to perform its work in accordance with the project drawings and/or specifications. • O&M Instructions: Contractor shall pass on to the BESCOM staff - on site & in writing: Before 5 days of Work Closeout A. Contractor shall start up, test, adjust, balance and otherwise place in a satisfactory working condition all components of structural, mechanical and electrical systems, and shall fully instruct representatives of BESCOM regarding the care and operation of such systems. B. Contractor shall instruct the BESCOM Maintenance Supervisor, proper methods of cleaning and maintaining all parts and equipment and replacement of consumable items. - Walkthrough Inspection with BESCOM 3: (Final Closeout) Contractors Engineer, BESCOM staff: Closeout interview with Sub Contractors, Contractors; Check all items and wastes are inventorised, safely and securely stowed, all materials and equipment are removed from the site including screws, nails, ladders, loose wires, construction material, batteries, packaging wastes; and that all records are maintained. Installed poles and systems will be inspected by a licensed professional engineer (PE) or a state or city certified special inspection agency. If deficiencies are found during the inspection, the contractor shall remediate the deficiencies at its cost until satisfying all requirements set forth by the PE or certified special inspection agency and got certified. Check that all operations and maintenance instructions are passed on and assimilated by the authorized BESCOM personal.

	V. CONTRACT CLOSEOUT DOCUMENTS Conduct Contract Closeout Meeting with BESCOM staff and pass on: (i) All documents, certificates, permits, licenses as per Contract Conditions, (ii) List of subcontractors and major material suppliers including address, telephone number, and name of contact person, (iii) Validated warranties and notarized copies of all guarantees for equipment and materials specifically called for in the Contract Document (iv) Conformed Construction Drawings (As-Built) including (a) As-Built drawings that reflect all completed construction work shall be provided. These drawings shall incorporate all changes due to addenda modifications, change orders, field conditions and record actual locations of all items on the tracings, clearly and neatly. To be provided in print and AutoCAD, (b) For all buried construction, three (3) bid sets of blue line prints, checked with licensed engineer, with recorded changes or as specified in the contract. (iv) Three (3) sets of any operating manual, assembled and bound, each containing: a. Explanatory brochures of all equipment, b. Catalogue cut, c. Wiring diagrams, d. Instruction sheets for operation and maintenance.
Disposal of scraps and process wastes	As per above procedures & agreed Contract Conditions Suitable receptacles shall be kept on site, without hinderance to movement or traffic; for segregated storage of different types of wastes and construction materials
Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately before final inspection. B. Protection and Control: 1. Fire Protection (a) Store volatile waste removed during final cleaning in covered metal containers and remove from premises in accordance with local, state and central regulations. (b) Gasoline and fuel oil storage facilities shall be located offsite and maintained in full compliance with local, state and central regulations. 2. Pollution Control: Conduct clean up and disposal operations as required by local, state and central regulations. C. Cleaning Materials: 1. Use only cleaning materials recommended by manufacturer on surfaces to be cleaned., 2. Use cleaning materials only on surfaces and as recommended by the cleaning material manufacturer. D. Scope of Final Clean-Up: 1. General

	(a). Use experienced workers or professional cleaners for final cleaning activities, (b) Maintain clean work spaces without sharps, rejects and wastes; 2. Remove grease, dirt, dust, stains, labels, fingerprints and other foreign materials from interior and exterior surfaces, 3. Repair, patch and touch up marred surfaces to match surfaces to adjacent finishes, 4. Clean surfaces of equipment; remove excess lubrication. 5. Clean light fixtures and lamps., 6. Remove waste, foreign matter and debris from footpaths, drainage systems and dispose in appropriate points suggested by the local body in closed/covered containers. Ensure proper waste containment at disposal points 7. Remove waste, debris and surplus materials from site. Clean grounds; remove stains, spills and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces.
Info and Instructions to be passed on to communities	• To alert on various equipment, sharps, wires abandoned on site • To be aware of the dangers associated with strewn materials and wastes on site • Special issues in case of emergencies occurring prior to close out like Flooding and Drainage problems (Electrical), heavy winds, stampedes near around areas of installation or operations • Suggested Grievance Reporting Mechanisms

Annex 19: SOP 10 - Emergency Response Procedures

SOP-10	Emergency Response Procedures
Head	**Description**
Purpose	Ensure that BESCOM can deal with emergency situations effectively by planned and coordinated response procedures
Coverage: Program / Region	Applicable to work sites throughout BESCOM jurisdiction
References	1) OSHA Principal Emergency Response and Preparedness Requirements and Guidance Available at: https://www.osha.gov/Publications/osha3122.pdf 2) OSHA's Walking-Working Surfaces Standard (1910.22(a))
Hazard Mapping / Assessment	High Hazard to Workers, Communities • Conduct a Process Hazard Analysis (PHA) for each covered process, and update and revalidate the PHA every 5 years. • Incorporate emergency shutdown actions and operations into the written operating procedures for each process. Include conditions that require emergency action and the qualified operator responsible for performing these procedures.
Incident Categorization (may be Classification/ levels)	High
Suitability and Intended use of the activity, tool or material	Applies to: (i) all instances of natural or manmade emergencies, accidents during planning, design, construction, operation and maintenance activities till full work close out
General Operating Procedures and Best Practices	EXIT ROUTES • Ensure that the number of exit routes is adequate based on the number of employees, the size of the building, its occupancy, and the arrangement of the workplace. • Separate an exit route from other workplace areas with materials that have the proper fire resistance-rating for the number of stories the route connects. • Ensure that exit routes meet width and height requirements. The width of exit routes must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route. • Ensure that doors used to access exit routes have side hinges and swing in the direction of travel (depending on occupancy and hazard areas). • Design exit routes that lead to an outside area with enough space for all occupants. • An outdoor exit route is permitted but may have additional site-specific requirements. • Ensure that required exit routes and fire protections are available and maintained, especially during repairs and alterations. • Ensure that employee alarm systems are installed, operable. • Direct employees through exit routes using clearly visible signs. These signs must meet the required letter height and illumination specifications.

	• When openings could be mistaken for an exit, post appropriate signs stating “NOT AN EXIT.” • Arrange exit routes so that employees are not exposed to the dangers of high hazard areas. • Exit routes must be free and unobstructed. Prevent obstructions, such as decorations, furnishings, locked doorways, and dead-ends within exit routes. FIRE EXTINGUISHERS • Provide only approved portable fire extinguishers. • Maintain fire extinguishers. Maintenance includes monthly visual inspections, hydrostatic testing, annual internal examinations, and all associated documentation. - Ensure that the travel distance from employee to the nearest extinguisher is appropriate for the fire class. EMERGENCY ALARMS • Provide a distinctive and perceivable alarm system for emergency action or safe evacuation. • Specific requirements may apply if the alarm system includes telephones/manual operations, the workplace has 10 or fewer employees, or alarms serve more than one purpose. • Ensure that all equipment used for alarm systems is approved and spare components are available. • Test alarms at the frequency required. Follow special safety requirements for testing or restoring alarms.
Use, Storage of Tools and Records maintenance	• Records to be maintained at BESCOM and site offices. • PPEs and Tools associated with the procedures to be stored at Sites/ Site Offices
Compliance to regulations/permits	NA
Safety Precautions	• Pre-inspection discussion with site team regarding precautions for emergencies - Appropriate PPEs shall be used for site visits and stock taking
Emergency Preparedness and Response (including PPE/First aid)	• Ensure the availability of first Aid Kits on Site and in Inspection Vehicles • Contact List of Health units, Rescue Vehicles within easy reach • Ensure that medical personnel are ready and available for advice and consultation on the overall employee safety and health condition in the workplace. • Provide trained personnel and adequate first aid supplies to render first aid when a medical facility is not in near proximity to the workplace. • Provide suitable facilities for immediate emergency use if exposure to injurious or corrosive materials is possible.
Usage monitoring procedures (or protocol for replacement / refurbishment)	NA
Signage systems and symbols or coding	• General Warning Signages,

	• Also, posters on response mechanisms can be placed, with contact details (in local language and Hindi) 
Details on competent users	This SOP is to be used by BESCOM officials, BESCOM site teams, Manager and Vendors
Training needs	• Adequately train personnel expected to administer first aid. Provide education specific to any equipment employees are expected to use as part of an emergency action plan. Provide training upon initial assignment and at least annually thereafter. • Establish procedures and instruct employees on when and how to sound an alarm and notify emergency personnel, and what each alarm type means. • Review the emergency action plan with each employee when the plan is developed, responsibilities shift, or the emergency procedures change. • Provide training to employees who are expected to assist in the evacuation. • As a host employer, BESCOM shall clearly communicate emergency action plans with contractors. Contract employers must ensure that their employees are instructed in potential fire, explosion, or toxic release hazards related to their jobs. • Train employees in emergency procedures applicable to their work, such as pole top and manhole rescue. • Train sufficient employees in first aid and CPR, when working on or near exposed lines or equipment at 50 volts or more.
Duties / Responsibilities	BESCOM Unit Heads of project; Respective Managers, Site Supervisors, BESCOM Officials
Inspection Procedures and Documentation required	Identify possible emergency scenarios based on the nature of the workplace and its surroundings. • Prepare a written emergency action plan. The plan does not need to be written and may be communicated orally if there are 10 or fewer employees. At a minimum, the plan must include: • The fire and emergency reporting procedures; • Procedures for emergency evacuation, including the type of evacuation and exit routes; • Procedures for those who remain to operate critical operations prior to evacuation; • Procedures to account for employees after evacuation; • Procedures for employees performing rescue and medical duties; and • Names of those to contact for further information or explanation about the plan.
Disposal of scraps and process wastes	As per above procedures & agreed Contract Conditions Suitable receptacles shall be kept on site, without hinderance to movement or traffic; for segregated storage of different types of wastes and construction materials

Site management	HOUSEKEEPING STANDARDS A. General Housekeeping: Each Contractor shall clean all areas of site and structure (exterior and interior) involved in its respective contract work immediately B. Protection and Control: 1. Fire Protection (a) Store volatile waste removed during final cleaning in covered metal containers and remove from premises in accordance with local, state and central regulations. (b) Gasoline and fuel oil storage facilities shall be located offsite and maintained in full compliance with local, state and central regulations. 2. Pollution Control: Conduct clean up and disposal operations as required by local, state and central regulations. C. Cleaning Materials: 1. Use only cleaning materials recommended by manufacturer on surfaces to be cleaned., 2. Use cleaning materials only on surfaces and as recommended by the cleaning material manufacturer. D. Scope of Final Clean-Up: 1. General (a). Use experienced workers or professional cleaners for final cleaning activities, (b) Maintain clean work spaces without sharps, rejects and wastes; 2. Remove grease, dirt, dust, stains, labels, fingerprints and other foreign materials from interior and exterior surfaces, 3. Repair, patch and touch up marred surfaces to match surfaces to adjacent finishes, 4. Clean surfaces of equipment; remove excess lubrication. 5. Clean light fixtures and lamps., 6. Remove waste, foreign matter and debris from footpaths, drainage systems and dispose in appropriate points suggested by the local body in closed/covered containers. Ensure proper waste containment at disposal points 7. Remove waste, debris and surplus materials from site. Clean grounds; remove stains, spills and foreign substances from paved areas and sweep clean. Rake clean other exterior surfaces. 8. All workplaces should be kept clean and orderly and in a sanitary condition including passageways, storerooms and service rooms. Floors should be clean and dry. 9. Drainage should be present where wet processes are used. 10. Prevent trips, slips and falls especially during emergency operations; by maintaining good housekeeping standards around work spaces, kiosks and ware houses. 11. Eliminate fire hazards, control dust, avoid tracking materials, prevent falling objects, clear clutter 12. Maintain emergency evacuation support vehicle easily accessible to work site, discuss with employees and arrange safe assembly point in case of emergencies

Info and Instructions to be passed on to communities	• To Alert the staff, vendors, site personnel on various emergency situations • To be aware of the mock drills and procedures on site • Special issues in case of emergencies occurring prior to close out like Flooding and Drainage problems (Electrical), heavy winds, stampedes near around areas of installation or operations

Annex 20: SOP 11 – Labor Management Procedures

SOP-11	Labor Management Procedures
Head	**Description**
Purpose	The Labor Management Procedures (LMP) are developed to manage risks under BESCOM operations and activities. The LMP sets out the BESCOM's approach to meeting national requirements as well as the objectives of the ILO and World Bank's Environmental and Socials Standard 2: Labor and Working Conditions (ESS2) and Standard 4: Community Health and Safety (ESS4).
Coverage: Program / Region	Applicable to work sites throughout BESCOM jurisdiction. The LMP applies in to all BESCOM activities related workers whether full-time, part-time, temporary, seasonal or migrant workers.
References	1) ILO International labour standards (https://www.ilo.org/global/standards/introduction-to-international-labour-standards/conventions-and-recommendations/lang--en/index.htm) 2) WBG ESS2 and ESS4
Workers Categories	As per WBG ESS2, the workers on BESCOM activities can be defined into the following four areas: • Direct workers: people employed or engaged directly by the BESCOM to work specifically in relation to the BESCOM operations. • Contracted workers: people employed or engaged through third parties to perform work related to core functions of the BESCOM operations regardless of the location • Primary supply workers: people employed or engaged by the BESCOM primary suppliers. • Community labour: people engaged and employed in providing community labour
Key potential labor risk	Risks at Corporate Office Risks at Work Site Risk at contractor's office and temporarily accommodation
Operating Procedures – Direct Workers	The following are the mitigation measures that will be implemented during implementation of BESCOM operations to ensure that the risks to operations' direct workers. The operation or activity manager and the director will have the overall responsibility to ensure the aspects highlighted are implemented. To ensure compliance, the following clauses will be included in the employment contract, where relevant. **General Provisions:** • All project staff will be provided with an employment contract as per the requirements of local laws. • All direct project staff employed for the purpose of the project will be above 18 years. Minor will not be required to be employed as a direct project worker. • Maximum working hours for staff will not exceed the maximum limit set in the local laws, i.e., 48 hours a week. • Equal training opportunity will be available to all staff working in the project without discrimination, based on gender or otherwise, as specified

	in the local laws. It is responsibility of the Project Manager and the Project Director to ensure that such discrimination does not exist. • All staff will be entitled to breaks during working hours as per the local laws. They will also be provided with the entitled leaves under the local laws, in addition to paid maternity and paternity leaves as per the social protection policy of the government. • All staff will be made aware of grievance redress mechanism available for the staff specified under this LMP. • Provide health insurance packages to all project staff, equivalent to that given by other government companies and institutions working in similar capacities. • Staff will be made aware of the avenues available at the central government of India for victims of sexual harassment. Staff will be able to lodge complaints to the Sexual Harassment Prevention Committee at the BESCOM HQ, established under national laws. • Staff will be provided a pension contribution and deductions will be made from their salaries for their contribution in accordance with the local laws. • Any foreign party employed by the project will have a valid work permit and a work visa while working in India. **At Site Office:** • A work station with computer will be provided to all staff. • Separate male and female toilet facilities will be provided at all project offices. • Drinking water will be available at all project offices. • All project offices will be free of pests. Where pests are detected pest control measures will be taken immediately. • Fire detection and firefighting equipment will be available at all project offices. • Emergency evacuation plan will be established for all project offices and staff will be made aware of the plan and periodic simulation exercises that needs to be implemented. • All software's essential for functioning of the assigned tasks will be provided to all project staff. **At the Field:** • When travelling on road, safety considerations will be made. • Hard hats (through contractors, investors or project directly) will be provided to all project staff when visiting project construction sites. • Enclosed shoes will be worn by all project staff when visiting project construction sites (safety shoes are preferable). • Safety harness will be provided (through contractors, investors or project directly) to all project staff when climbing heights at project sites. • Electrical Protective gloves (through contractors, investors, implementation partners or project directly) will be provided to all project staff inspecting power systems. • Ear plugs will be provided to all project staff (through contractors, investors or project directly) when visiting high noise areas for example power houses.

	• Arrangement will be made to ensure that water is available to all project staff at the field. Ideally a refillable water bottle would be provided to each project staff to be used during field visits. • Some form of identification will be there identifying the staff belonging to project when attending meetings and sites. • Where a state of emergency or an epidemic is declared, all travel to that place will seize with immediate effect. • A daily subsistence allowance (DSA) will be provided to all project staff covering lodging, meals, gratuities and transport costs when travelling in field. The rate of DSA will be determined based on the rates at locations where project is implemented and will be revised based on changes to rates. To ensure enforcement of these aspects highlighted in the LMP, these provisions will be included in the employment contracts of all direct workers.
Contracted Workers	**General Provisions:** • List of workers to be utilized in relation to the project, with proof of employment will be required to be submitted to BESCOM by all investors/contractors. • Construction work can only commence once the following conditions are met: ✓ Toolbox training completed by all staff employed by the contractor ✓ All the required Personal Protective Equipment are acquired by the contractor for all workers • Any newly employed party by the contractor will be required to complete the toolbox prior to commencing any physical work. • As per the provisions of the employment, all parties employed by any contracted party will be above 18 years of age. Minors will not be employed. All contractors and investors will be required to provide document evidence (passport, identity card or birth certificate) confirming age of employees to BESCOM prior to involving them on activities of the project. In addition, for minors', consent of the parent will be provided in writing together with evidence of legal guardianship. • Maximum working hours for staff will not exceed the maximum limit set in the employment act, i.e., 48 hours a week. To confirm this, monthly attendance and duty sheets need to be submitted to BESCOM during the construction / installation phase. • An internal transparent and accountable system will be established within the company to tackle issues of sexual harassment, physical and psychological harassment and workplace bullying. Details of this system will be shared with BESCOM prior to signing any contracts or agreements. • All contracted staff will be made aware of grievance redress mechanism available for the staff specified under this LMP. • The leave policy of the company will be shared and confirmed that it is in line with national laws and regulations. • All foreign parties employed by all contractors/investors will have valid work permit. The work permit details will be shared with BESCOM. • All vehicles used by any contractor/investor for the purpose of the project will have valid registration, insurance and road worthiness.

	At Work Sites: • All provisions that are required under Health and Safety Regulation of India will be strictly adhered to. • All workers will be provided with Personal Protective Equipment (PPE) by the contractor/Investor. In this regard the following will be observed: ▪ Hard hats should be used by all workers when undertaking construction and when undertaking inspections at height. ▪ Enclosed safety shoes should be worn by all construction workers. ▪ Safety harness should be used by all workers when climbing heights at project sites. ▪ Electrical Protective gloves should be provided to workers when dealing with electrical components. ▪ Chemical protective gloves should be provided to all workers when dealing with any chemicals. ▪ Construction safety goggles should be worn by all construction workers. ▪ Ear plugs should be worn by all construction workers working in environments with high noise (working above 75 decibels). ▪ Masks should be worn when dealing with chemicals and when working in dusty environments. • All chemicals will be stored on hard surfaces and should be covered. • Portable drinking water will be made available at the construction site during construction phase. • Adequate safety signs will be installed at the work site giving clear direction. These will be provided in addition to English in the language of the workforce. • Construction work site will be demarcated & fenced, and warning signs will be displayed both in English and Kannada. • When construction is undertaken, clearly demarcated bins for waste disposal will be placed and emptied daily. • Open pits will not be left for water to accumulate for a long time. • Any stockpiled sand will be covered to prevent sand particles from being airborne. • All vehicles and equipment used for the project will be used by well trained personnel. • Any scaffolding used will be to British Standard (BS1139). • When working at night, adequate lighting will be provided. • A designated toilet facility will be available within 10 minutes of the construction site. • Breaks will be given to the workforce during mealtimes. • The site will be cleaned daily following completion of days' work. **At Contractors' Offices and Temporary Accommodation Site(s)** • Constant and reliable electricity supply will be available at project office and accommodation site. • Shower and toilet facilities will be available at temporary accommodation site. • Toilet and drainage will be connected to local sewer system, where not available septic tanks will be used for treatment prior to disposal.

	• A minimum ratio of 01 toilet/shower per 20 workers will be maintained. Separate facilities will be provided for men and women. • Individual bedding will be provided to all workers. • Storage space for individual belongings will be provided for all workers. • Male and Female workforce will be housed separately. • Designated locations for waste disposal with clearly marked bins will be established. Bins will be emptied daily. • Sufficient lighting and cooling systems will be established. • Portable drinking water will be provided. • The site will be cleaned daily. • Monthly inspections to determine pest infestation of the site will be undertaken. • Meals to the site will be prepared from a clean facility (whether food prepared on site or off site). To ensure enforcement of the aspects highlighted for the contracted workers by the contractor, the conditions highlighted under this section will be included in the contracts signed with all contractors.
Community workers	The BESCOM operations will not engage community workers. Community workers are not currently used by BESCOM in any activities or operations due to the specialized labor needs required.
Primary supply workers	As the BESCOM activities and operations involves procuring and installation of electricity distribution systems primary supply workers will be involved as part of the operations. These workers will not be stationed in India for long periods, they are likely to come install and leave the country within a short period of time. However, all provisions as per local laws for contracted workers will apply to primary supply workers as well.

Annex 21: SOP 12 – Chance Find Procedures

SOP-12	Chance Find Procedures
Head	**Description**
Purpose	The chance find procedure is a project or activity specific procedure that outlines actions required if previously unknown heritage resources, particularly archaeological resources, are encountered during construction or operation of facilities. A Chance Find Procedure, as described in IFC Performance Standard 8, is a process that prevents chance finds from being disturbed until an assessment by a competent specialist is made and actions consistent with the requirements are implemented.
Coverage: Program / Region	Applicable to work sites throughout BESCOM jurisdiction. This procedure is applicable to all activities conducted by the BESCOM personnel, including contractors, that have the potential to uncover a heritage item/site. The procedure details the actions to be taken when a previously unidentified and potential heritage item/site is found during construction activities. Procedure outlines the roles and responsibilities and the response times required from both project staff, and any relevant heritage authority.
References	1) IFC Performance Standard 8 (http://www.ifc.org/wps/wcm/connect/dd8d3d0049a791a6b855faa8c6a8312a/PS8_English_2012.pdf?MOD=AJ PERES
Induction/ Training	All personnel, especially those working on earth movements and excavations, are to be inducted on the identification of potential heritage items/sites and the relevant actions for them with regards to this procedure during the Project induction and regular toolbox talks
Chance find procedure	If any person discovers a physical cultural resource, such as (but not limited to) archaeological sites, historical sites, remains and objects, or a cemetery and/or individual graves during excavation or construction, the following steps shall be taken: • Stop all works in the vicinity of the find, until a solution is found for the preservation of these artefacts, or advice from the relevant authorities is obtained; • Immediately notify a site supervisor. The supervisor will then notify the Construction Manager and the EHS Officer; • Record details in Incident Report and take photos of the find; • Delineate the discovered site or area; secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities take over; • Preliminary evaluation of the findings by archaeologists. The archaeologist must make a rapid assessment of the site or find to determine its importance. Based on this assessment the appropriate strategy can be implemented. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage such as aesthetic, historic, scientific or research, social and economic values of the find; • Sites of minor significance (such as isolated or unclear features, and isolated finds) should be recorded immediately by the archaeologist, thus causing a minimum disruption to the work schedule of the Contractor. The results of all

	archaeological work must be reported to the Department of Archaeology, once completed. • In case of significant find the Department of archaeology should be informed immediately and in writing within 7 days from the find. • The onsite archaeologist provides the department experts with photos, other information as relevant for identification and assessment of the significance of heritage items. • The Department of archaeology must investigate the fact within 2 weeks from the date of notification and provide response in writing. • Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain of cultural or archaeological importance) conservation, preservation, restoration and salvage; • Construction works could resume only after permission is granted from the responsible authorities. • In case no response received within the 2 weeks period mentioned above, this is considered as authorisation to proceed with suspended construction works. One of the main requirements of the procedure is record keeping. All finds must be registered. Photolog, copies of communication with decision making authorities, conclusions and recommendations/guidance, implementation reports ± kept. **Additional information:** **Management options for archaeological site** 1. Site avoidance. If the boundaries of the site have been delineated attempt must be made to redesign the proposed development to avoid the site. (The fastest and most cost-effective management option) 2. Mitigation. If it is not feasible to avoid the site through redesign, it will be necessary to sample it using data collection program prior to its loss. This could include surface collection and/or excavation. (The most expensive and time-consuming management option.) 3. Site Protection. It may be possible to protect the site through the installation of barriers during the time of the development and/or possibly for a longer term. This could include the erection of high visibility fencing around the site or covering the site area with a geotextile and then capping it with fill. The exact prescription would be site- specific. **Management of replicable and non-replicable heritage** Different approaches for the finds apply to replicable and non-replicable heritage. **Replicable heritage** Where tangible cultural heritage that is replicable and not critical is encountered, mitigation measures will be applied. The mitigation hierarchy is as follows: • Avoidance;

	• Minimization of adverse impacts and implementation of restoration measures, in situ; • Restoration of the functionality of the cultural heritage, in a different location; • Permanent removal of historical and archaeological artefacts and structures; • Compensation of loss - where minimization of adverse impacts and restoration not feasible. **Non-replicable heritage** Most cultural heritage is best protected by in situ preservation, since removal is likely to result in irreparable damage or even destruction of the cultural heritage. Nonreplicable cultural heritage must not be removed unless all of the following conditions are met: • There are no technically or financially feasible alternatives to removal; • The overall benefits of the project conclusively outweigh the anticipated cultural heritage loss from removal; and Any removal of cultural heritage must be conducted using the best available technique advised by relevant authority and supervised by archaeologist. **Human Remains Management Options** The handling of human remains believed to be archaeological in nature requires communication according to the same procedure described above. There are two possible courses of action: • Avoid. The development project is redesigned to completely avoid the found remains. An assessment should be made as to whether the remains may be affected by residual or accumulative impacts associated with the development, and properly addressed by a comprehensive management plan. • Exhumate. Exhumation of the remains in a manner considered appropriate by decision makers. This will involve the predetermination of a site suitable for the reburial of the remains. Certain ceremonies or procedures may need to be followed before development activities can recommence in the area of the discovery.
Emergency Contacts:	BESCOM HQ: Department of Archeology of Karnataka:

Annex 22: SOP 13 – Land Acquisition and Compensation Procedures

SOP-13	Land Acquisition and Compensation Procedures
Head	**Description**
Purpose	To define process and steps followed by BESCOM in case of any land acquisition is required for any projects or activities.
Coverage: Program / Region	Applicable to work sites throughout BESCOM jurisdiction.
References	1) Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, 2) Electricity Act, 2003 3) Indian Telegraph Act, 1885
Land Acquisition and Compensation Provisions under regulatory framework	The BESCOM distribution system that includes construction of overhead and underground distribution lines in its jurisdiction are implemented in accordance with the provisions of the Electricity Act, 2003. There is no permanent land acquisition involved in BESCOM operations. However temporarily damages may occur during installation of poles and underground cable laying. The compensation towards "damages" during implementation of such projects is governed by Section 67 & 68 of the Electricity Act read with Section 10 & 16 of the Indian Telegraph Act, 1885. The present stipulations provide for compensation towards all damages without acquisition of land which are assessed/ reviewed by the revenue authority of the state. However, there is no clear definition of the term "damages", nor are there any guidelines in this regard. The Indian Telegraph Act provides for compensation towards damages (without acquisition) while placing the tower/poles and stringing the conductor. The local authorities/ District Magistrates have been provided Power under Section 16 (1) of the Telegraphic Act for adjudication and fixing the compensation. Therefore, Distribution lines are constructed under the ambit of Electricity Act, 2003. The provisions stipulated in section 67–68 of the Electricity Act, 2003 read with section 10 & 16 of the Indian Telegraph Act, 1885 governs the compensation. As per the provision of Indian Telegraph Act, 1885 Section 10 b, there is no need to acquire any land. However, compensation for all damages are paid to the individual land owner as per the provision of Section-10 d of Indian Telegraph Act, 1885.
Land Acquisition and Compensation Provisions Process	BESCOM distribution system work consist of components such as construction of distribution lines (33 kV/11 kV and 440 V). The 33 and 11 kV lines will either be underground or overhead. In most of the cases, it is overhead unless otherwise it is a congested urban area or some sensitive areas. The impacts are mostly temporary. Temporary impacts are foreseen in terms of loss of crops and trees during the construction of distribution line. However, most of the distribution lines usually follow the existing road/streets side and construction will avoid crop season. There may be need for tree trimming at certain places or may be felling of some trees. Distribution line does not have any specific right of way, however, the construction related damages will occur within seven meters of width.

	Following are the standard operating Procedures for handling the social impacts and mitigation and implementation of BESCOM distribution projects/activities: **<u>Overhead Distribution Lines</u>** • Construction of lines shall avoid passing through or over residential houses or any structures and shall try the best to follow existing roads and shall be planned during the off-crop season and in case of unavoidable impacts the losses will be compensated. • Loss of crops during construction of line will be compensated at market value to be computed with assistance of agriculture department. • Loss of trees during construction of line will be compensated at market value to be computed with assistance of horticulture department. • Advance notice shall be provided to the people regarding the route alignment and construction schedule • Consultation with the farmers shall be conducted prior to laying the lines and if any concerns arise the contractor shall try to sort it out in the field or else bring it to the notice of the project's executing and implementing agencies for appropriate negotiation • Restoration of land post construction is to be ensured by the contractor • Establishment of Grievance Redress Mechanism for sorting out any major issues **<u>Underground Distribution Lines/Cables</u>** • The underground (UG) cable shall be laid under existing roads and shall not require additional rights of way for construction. The roads shall be restored after construction and any impaired access shall resume thereafter. • Temporary impacts are usually foreseen in terms of restriction of access during construction to road side shops and houses and mobile vendors who operate in the project areas. • Adequate consultation, coordination and prior approval shall be obtained from all the relevant utilities that may be required to be shifted • Construction timing shall avoid peak business hour in the urban area • Traffic management shall be monitored during construction • Proper notice and project related construction activities shall be shared with the people where the underground cables are to be laid in terms of safety, security, and potential impacts and its mitigation. • Any unavoidable damage may it be permanent or temporary shall be compensated as per the laws and regulation. • Adequate restoration shall be done post construction • Functional complaints and grievance redress mechanism shall be established to resolve any grievances of the people.

Annex 23: BESCOM EHS Annual Training Calendar (to be revised annually for 3 years)

Classroom Training

Topics	Y1T1	Y1T2	Y1T3	Y1T4	Y2T1	Y2T2	Y3T3	Y2T4	Y3T1	Y3T2	Y3T3	Y3T4
Introduction to ESMS procedures	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)	C1 (20)	C2(20)	C1/C2(20)	C1/C2(20)	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)
CEMP Templates and Preparation	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)	C1 (20)	C2(20)	C1/C2(20)	C1/C2(20)	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)
HMM, PP and SHWM, PCB regulations, SF6, etc.	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)	C1 (20)	C2(20)	C1/C2(20)	C1/C2(20)	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)
Risk assessment for H&S	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)	C1 (20)	C2(20)	C1/C2(20)	C1/C2(20)	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)
Supervision and Monitoring, Stakeholder Engagement, GRM, etc.	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)	C1 (20)	C2(20)	C1/C2(20)	C1/C2(20)	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)
Environment Social Management, Gender and Labour	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)	C1 (20)	C2(20)	C1/C2(20)	C1/C2(20)	C1(20)	C2(20)	C1/C2(20)	C1/C2(20)

C1(20) – Corporate Office with 20 Participants
Training Locations: C1 - Corporate Office, C2 - Circle Office
Participants per Training: 20 persons for all trainings
Y1T1 – Year 1 Term 1 - Trainings planned on quarterly basis; Term indicates a quarter (3 months duration)

Exposure visits/Experience sharing workshops (35 Participants: Field Offices and Contractors)

Topics	Training Sessions (Exposure Visits/ Experience Sharing Workshops)
Environment and Social Impacts & Mitigation	Training 1: Visits to Government Bodies/ Undertakings (Participant:10 Nos)
Construction and overall program safety	Training 2: Visits to Installation & Distributing agencies (10 Nos)
Awareness on guidelines and legislation including development of required guidance material	Training 3: Visits to Manufacturing Agencies of key equipment (10 Nos)
Contingency Plan, Emergency Plan	
Monitoring & Reporting framework	Training 4: Circle and Division Office EHSS Officers (15 Nos)

Annex 24: Job Competency Matrix – ESCT, Corporate Office and Nodal Officers

S.No.	Position	Qualification	Experience
1	Assistant General Manager – ESCT – Corporate Office	A degree in environmental management with IOSH training or equivalent practical experience	5 to 10 years of practical experience hazardous materials management/pollution prevention.
2	Environmental Manager – ESCT – Corporate Office	A degree in environmental management with IOSH training or equivalent practical experience	2 to 3 years of practical experience in ESMS implementation and audit
3	Social Manager – ESCT – Corporate Office	A degree in social science with IOSH training or equivalent practical experience	2 to 3 years of practical experience in ESMS implementation and audit
4	Assistance General Manager – H&S – QS&S – Corporate Office	A degree in environmental management with IOSH training or equivalent practical experience	5 to 10 years of practical experience and holding IOSH Managing and Working Safely or equivalent.
5	Nodal E&S Officer (Stores) – Field Team	A degree in electrical engineering with IOSH training or equivalent practical experience	2-5 years of practical experience in construction site management
6	Nodal E&S Officer (Works) – Field Team	A degree in electrical engineering with IOSH training or equivalent practical experience	2-5 years of practical experience in construction site management
7	Nodal H&S Officer – Field Team	A degree in electrical engineering with IOSH training or equivalent practical experience	2-5 years of practical experience in construction site management