Environment and Social Due Diligence Report
(Appendix 5)

June 2016

IND: Accelerating Infrastructure Investment Facility in India
–Mihit Solar Power Private Limited

Prepared by

India Infrastructure Finance Company Limited for the Asian Development Bank

Environment

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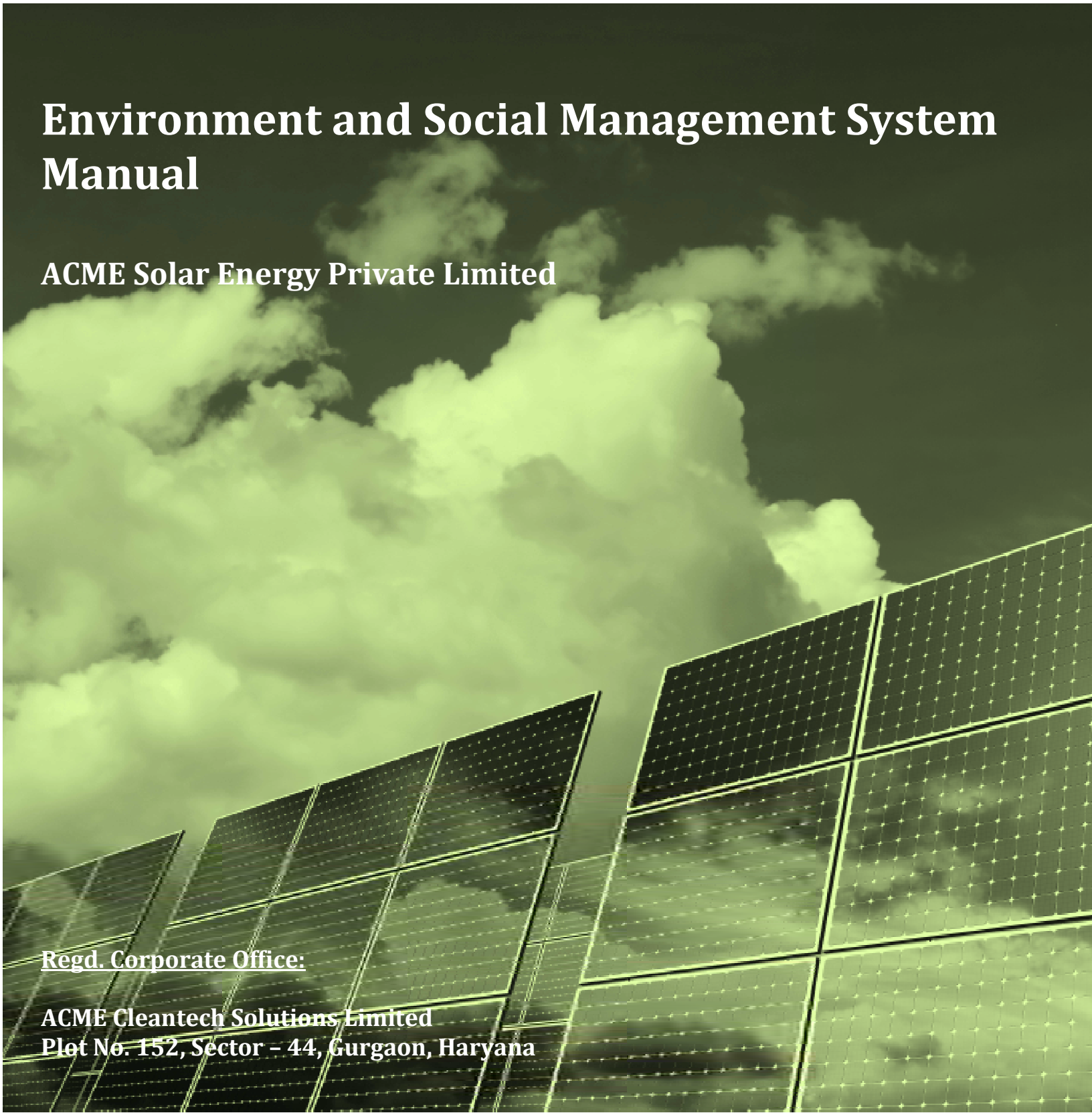
Environment and Social Management System Manual

ACME Solar Energy Private Limited



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List of Abbreviations

ASEPL	ACME Solar Energy Private Limited
ADB	Asian Development Bank
CPCB	Central Pollution Control Board
COMD	Commissioning, Operation, Maintenance and De-commissioning
CSE	Confined Space Entry
CTE	Consent to Establish
CTO	Consent to Operate
COP	Corporate Operating Procedures
CSR	Corporate Social Responsibility
EHSS	Environment, Health & Safety and Social
EPC	Engineering, Procurement and Construction
ESMU	Environmental and Social Management Unit
ESMS	Environment and Social Management System
EHS	Environment Health & Safety
EIA	Environment Impact Assessment
EMP	Environment Management Plan
FPIC	Free Prior and Informed Consent
HR	Human Resources
IP	Indigenous People
IEE	Initial Environmental Examination
IFC	International Finance Corporation
IR	Involuntary Resettlement
LPG	Liquefied Petroleum Gas
LOTO	Lock Out Tag Out
MW	Mega Watt
MoEF	Ministry of Environment and Forests
NSC	National Safety Council
NGO	Non Governmental Organization
PS	Performance Standard
PPE	Personal Protective Equipment
PV	Photovoltaic
PAP	Project Affected People
PTW	Permit To Work
RAP	Rehabilitation Action Plan
R&R	Rehabilitation and Resettlement
SPS	Safeguard Policy Statement
SC	Scheduled Caste
ST	Scheduled Tribe
SPCB	State Pollution Control Board
SDO	Sub Divisional Officer

DOCUMENT AMENDMENT SHEET

Document Name & No.	Revision No.		Effective Date	Reason for Amendment
	From	To		
ESMS Manual ASEPL 18 January 2013	00	-		Updation with respect to ADB Safeguard Policy Statement, 2009
ESMS Manual ASEPL 18 January 2013	01		18.01.2014	-
ESMS Manual ASEPL 18 January 2013	01		30.12.2014	Review
ESMS Manual ASEPL 18 January 2013	01		01.04.2015	Review

TERMINOLOGIES AND DEFINITIONS

The terminology is interpreted as per IFC Performance Standards 2012, ISO 14001:2004, IFC Guidance Notes on Performance Standards on Environmental and Social Sustainability 2012, Asian Development Bank (ADB) Safeguard Policy Statement (SPS), 2009 and other relevant and applicable regulations, policies, standards and guidelines.

The terms and definitions used in this ESMS manual are as follows –

Acceptable Risk[1]: Risk that has been reduced to a level that can be endured by the organization having regard to its legal obligations and its own Corporate EHSS Policy.

Audit[2]: Systematic examination to determine whether activities and related results conform to planned arrangements and whether these arrangements are implemented effectively and are suitable for achieving the organization's policy and objectives.

Affected family[3]:

- a family whose primary place of residence or other property or source of livelihood is adversely affected by the acquisition of land for a project or involuntary displacement for any other reason; or
- a tenure holder, tenor, lessee, or owner of other property, who on account of acquisition of land in the affected area or otherwise, has been involuntary displaced from such land or other property; or
- any agricultural or non-agricultural laborer, landless person (not having homestead land, agricultural land, or either agricultural or homestead land), rural artisan, small trader or self employed person, who has been residing or engaged in any trade, business, occupation or vocation continuously for a period of not less than three years preceding the date of declaration of the affected area, and who has been deprived of earning his livelihood or alienated wholly or substantially from his main source of trade, business, occupation or vocation because of the acquisition of land in the affected area or being involuntarily displaced for any other reason.
- "family" includes a person, his or her spouse, minor sons, unmarried daughters, minor brothers, unmarried sisters, mother and other relatives residing with him and dependent on him or her for their livelihood; and includes "nuclear family" consisting of a person, his or her spouse and minor children.

Affected people[4]**:** People living in the vicinity of the project area who may or may not be the titleholders but people whose homestead is acquired, or tenants, land lessees, sharecroppers and day laborers, or tribal population dependent on forest produce whose livelihood is affected directly or indirectly because of the project activity.

Affected Community[5]**:** Local communities that are subject to risks or impacts from a project.

Baseline Studies[6]**:** This is a study which should be conducted as part of the ESIA, for the relevant biodiversity attributes and ecosystem services. Baseline studies should comprise some combination of literature review, stakeholder engagement and consultation, in-field surveys and other relevant assessments. The extensiveness of the baseline should

[1] ACME EHS Policy (2.2 – Definitions)
[2] ACME EHS Policy (2.2 – Definitions)
[3] NRRP 2007
[4] Social Expert
[5] Glossary of Terms: IFC Policy & Performance Standards and Guidance Notes
[6] IFC Guidance Notes (GN) on Performance Standards on Environmental and Social Sustainability 2012 (GN 9)

vary depending on the nature and scale of the project. For sites with potentially significant impacts on natural and critical habitats and ecosystem services, the baselines should include in-field surveys over multiple seasons and conducted by competent professionals and external experts, as necessary. In-field surveys/ assessments should be recent and data should be acquired for the actual site of the project's facilities, including related and associated facilities, and the project's area of influence.

Biodiversity[7]: The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Bonded Labor[8]: Practice that forced labor is extracted by creating debt or other obligations not based on a valid and mutually beneficially economic purpose that must be worked off on terms that effectively prevent the worker's exit from the work.

Commissioning[9]: This phase is a combination of phases that occur in the life cycle of the project, before the real operation of the plant starts. For example; feasibility studies, design, construction etc.

Construction[10]: This phase of the project in general includes site preparation activities such as clearing and grading; construction of access and on-site roads; preparation and use of material and equipment, placement of solar collectors; construction of the electrical substation., central control facility and ancillary facilities.; and installation of power and signal cables (typically buried or vaulted); construction of a transmission line etc.

Continual improvement[11]: Recurring process of enhancing the environmental management system to achieve improvements in overall environmental performance in line with the organization's EHSS policy.

Community Engagement[12]: Ongoing process involving disclosure of information, consultation with affected communities and the establishment of grievance mechanism.

Corporate Social Responsibility[13]: Continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large.

Displaced Persons[14]: In the context of involuntary resettlement, displaced persons are those who are physically displaced (relocation, loss of residential land, or loss of shelter) and/or economically displaced (loss of land, assets, access to assets, income sources, or means of livelihoods) as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas.

Decommissioning[15]: The activities in this phase of the project in general range from mothballing to full removal of equipment and facilities. A decommissioning plan would need to be prepared and approved prior to the actual

[7] ADB Safeguard Policy Statement 2009
[8] Glossary of Terms: IFC Policy & Performance Standards and Guidance Notes
[9] INDUS Definition
[10] http://teeic.anl.gov/er/solar/activities/construct/index.cfm
[11] ACME EHS Policy (2.2 – Definitions)
[12] Glossary of Terms: IFC Policy & Performance Standards and Guidance Notes
[13] World Business Council for Sustainable Development (WBCSD).
[14] ADB Safeguard Policy Statement 2009
[15] http://teeic.anl.gov/er/solar/impact/decom/index.cfm

decommissioning of the project. Underground components would be removed to some depth to ensure an unobstructed root zone for revegetation.. More deeply buried components might be abandoned in place. Following removal of site components, site reclamation and revegetation would mitigate some impacts, such as soil erosion and visual impacts..

Economic Displacement[16]: Loss of land, assets, access to assets, income sources, or means of livelihoods as a result of (i) involuntary acquisition of land, or (ii) involuntary restrictions on land use or on access to legally designated parks and protected areas**.**

Environment[17]: Surroundings in which an organization operates, including air, water, land, natural resources, flora, fauna, humans and their interrelation

Environmental Aspect[18]: Element of an organization's activities, products or services that can interact with the environment.

Environmental Impact[19]: Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.

Environmental and Social Management System (ESMS)[20]: the part of the overall management system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing ,and maintaining the environment policy ESMS is a framework having a set of actions and procedures defined, which are to be implemented concurrently, integrating environmental and social risk management into a Company's business processes.

Environmental Management System Audit: A systematic and documented verification process of objectively obtaining and evaluating evidence to determine whether an organization's environmental management system conforms to the environmental management system audit criteria set by the organization, and for communication of the results of this process to management.

Environmental Objective[21]: Overall environmental goal, arising from the environmental policy, that an organization sets itself to achieve, and which is quantified where practicable.

Environmental Performance[22]: Measurable result of the environmental management system, related to an organization's control of its environmental aspects, based on its environmental policy, objective and targets.

Environmental Policy[23]: Statement by the organization of its intentions and principles in relation to its overall environmental performance which provides a framework for action and for the setting of its environmental objective and targets.

Environmental Target[24]: Detailed performance requirements, quantified where practicable, applicable to the organization or part thereof, that arises from the environmental objectives and that needs to be set and met in order to

[16] ADB Safeguard Policy Statement 2009
[17] ISO 14001:2004 – Terms & Definitions – 3.5
[18] ISO 14001:2004 – Terms & Definitions – 3.6
[19] ISO 14001:2004 – Terms & Definitions – 3.7
[20] ISO 14001:2004 – Terms & Definitions – 3.8
[21] ISO 14001:2004 – Terms & Definitions – 3.9
[22] ISO 14001:2004 – Terms & Definitions – 3.10
[23] ISO 14001:2004 – Terms & Definitions – 3.11
[24] ISO 14001:2004 – Terms & Definitions – 3.12

achieve objectives.

Free Prior Informed Consent (FPIC)[25]: *FPIC is documentary evidence that has to* be established through good faith negotiation between the client and the Affected Communities of Indigenous People (i) of the mutually accepted process between the client and affected parties, and (ii) of the agreement between the parties as the outcome of the negotiations; towards *fulfillment of requirements of Performance Standard 1, 7 & 8 of IFC PS 2012.* FPIC does not necessarily require unanimity and may be achieved even when individuals or groups within the community explicitly disagree.

Hazard[26]: Source or situation with a potential for harm in terms of injury or ill health.

Hazards Identification[27]: Process of recognizing a existing hazard and defining its characteristics.

Incident[28]: Event that gave rise to an accident or had the potential to lead to an accident.

Indigenous People[29]: Social groups with identities that are distinct from mainstream groups in national societies, and are often among the most marginalized and vulnerable segments of the population. This term is used in a generic sense to refer to a distinct social and cultural group possessing the following characteristics in varying degrees –

- Self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
- Collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
- Customary cultural, economic, social, or political institutions that are separate from those of the mainstream society or culture; or
- A distinct language or dialect, often different from the official language or languages of the country or region in which they reside.

Informed Consultation & Participation (ICP)[30]: In-depth exchange of views and information, and an organized and

iterative consultation, leading to the client's incorporating into their decision-making process the views of the Affected Communities on matters that affect them directly, such as the proposed mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

Interested party[31]: Individual or group concerned with or affected by the environmental performance of an organization.

Involuntary Displacement[32]: Displacement of people caused by direct or indirect impact of any developmental activities other than natural/ seasonal/ livelihood related voluntary migration patterns.

Land Acquisition[33]: Acquisition of land under the Land Acquisition Act 1894 (1 of 1894), as amended from time to

[25] IFC PS 7 (2012)
[26] ACME EHS Policy (2.2 – Definitions)
[27] ACME EHS Policy (2.2 – Definitions)
[28] ACME EHS Policy (2.2 – Definitions)
[29] IFC PS 7 (2012) – Introduction (para 1), Scope of Application (para 4 and 5)
[30] IFC PS 1 (2012) – Stakeholder Engagement (para 31)
[31] ACME EHS Policy (2.2 – Definitions)
[32] INDUS Definition in consultation with Social Expert
[33] Land Acquisition Act 1894

time, or any other law of the Union or a State for the time being in force.

Livelihood[34]**:** The full range of means that individuals, families, and communities utilize to make a living, such as wage-based income, agriculture, fishing, foraging, other natural resource-based livelihoods, petty trading and bartering.

Mitigation[35]**:** These measures include, minimizing habitat loss (Eg: strategic habitat retention and post-development restoration) and establishing and maintaining an ecologically similar protected area. In projects with natural habitat components, project appraisal and supervision arrangements should include appropriate environmental expertise to ensure adequate design and implementation of mitigation measures by the project sponsor. Appropriate conservation and mitigation measures remove or reduce adverse impact on natural habitats or their functions, keeping such impacts within socially defined limits of acceptable environmental change.

Non-conformity[36]: Non fulfillment of a requirement.

Objective:[37] Goals, in terms of EHSS performance that an organization sets itself to achieve, and which is quantified where practicable.

Occupational Health & Safety[38]: Conditions & factors that affect the well –being of employees, temporary workers, contractor personnel, visitors and any other person in the work place.

OHS Management System[39]: Part of the overall management system that facilitates the management of the OH & S risk associated with the business of the organization. This includes the organization structure, planning activities, responsibilities, practices & maintaining the organization's OH&S policy.

Operation & Maintenance[40]**:** This phase of the project in general includes Minimal land-disturbing activities and associated impacts are anticipated during the operation phase. Routine activities would include operation of the solar facility to produce power, and regular monitoring and maintenance activities to ensure safe and consistent operation. Mirror washing would be required routinely. Both on and off-site maintenance of access roads may be required.

Organization[41]**:** Company, corporation, firm, enterprise, authority of institution, or part or combination thereof, whether incorporated or not, public or private, that has its own function and administration.

Other Backward Classes[42]**:** People other than Scheduled Caste, Scheduled Tribes, Forward Castes & Religious Minorities like Muslims, Christians, Buddhists, Sikhs, Jains etc; and who are economically and socially backward.

Prevention of pollution[43]**:** Use of processes, practices, materials or product that avoid, reduce or control pollution, which may include recycling, treatment, process changes, control mechanisms, efficient use of resources and material substitution.

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[34] IFC PS 5 (2012) – Introduction (para 1)
[35] IFC GN (2012)
[36] ISO 9000:2000, 3.6.2
[37] ACME EHS Policy (2.2 – Definitions)
[38] ACME EHS Policy (2.2 – Definitions)
[39] ACME EHS Policy (2.2 – Definitions)
[40] http://teeic.anl.gov/er/solar/impact/op/index.cfm
[41] ISO 14001:2004 – Terms & Definitions – 3.16
[42] Classification done by the Central & State Government in line with *Article 340* of the Constitution of India.
[43] ISO 14001:2004 – Terms & Definitions – 3.18

Performance[44]**:** Measurable result of the OHS Management System, related to the organization's control of health and safety risks, based on its OH & S policy and objectives.

Project[45]**:** A defined set of business activities, including those where specific physical elements, aspects and facilities likely to generate risks and impacts, have to be identified for example, corporate entities which have portfolios of existing physical assets, and/ or intend to develop or acquire new facilities, and investment funds or financial intermediaries with existing portfolios and/ or which intend to invest in new facilities.

Risks[46]**:** Combination of the likelihood and consequence(s) of a specified hazardous event.

Risks Assessment[47]**:** Overall process of estimating the magnitude of risk and deciding whether the risk is tolerable or not.

Safety[48]**:** Freedom from unacceptable risk or harm

Scheduled Tribes[49]**:** The Scheduled Tribes are the tribes or tribal communities or part of or groups within these tribes and tribal communities which have been declared as such by the President through a public notification.

Screening[50]**:** This is a process where the project should be assessed for the associated social and environmental risks, based on relevant baseline data and considering identified relevant stakeholders that may cause adverse impacts.

Scoping[51]**:** This process establishes the Terms of Reference for the assessment process, which includes an inventory of risks and impacts to be assessed. Scoping may take the form of an initial desktop analysis and literature review, including a study of regional studies and assessments, the use of global or regional screening tools such as Integrated Biodiversity Assessment Tools (IBAT) and field reconnaissance Scoping for ecosystem services may also take place through consultation with Affected Communities as part of Stakeholder Engagement process.

[44] ACME EHS Policy (2.2 – Definitions)
[45] IFC PS 1 (2012)
[46] ACME EHS Policy (2.2 – Definitions)
[47] ACME EHS Policy (2.2 – Definitions)
[48] ACME EHS Policy (2.2 – Definitions)
[49] Article 342 of the Constitution
[50] IFC GN 18 (2012)
[51] IFC GN 105 and IFC GN 4 (2012)

1. Introduction

Acme Solar Energy Private Limited (hereafter referred as 'ASEPL') is a flagship company of ACME group that is engaged in development and promotion solar energy generation through Photovoltaic technologies. As on date, ASEPL has developed capabilities for developing, constructing, and operating Mega Watt (MW) scale power projects. ASEPL also provides Engineering, Procurement and Construction (EPC) services to other solar power developers as well.

ASEPL has pioneered solar power development in India and has commissioned the first solar thermal power project based on Tower Technology[52] in Asia. This state-of-the-art technology is highly energy efficient. ASEPL is at the forefront of initiating a dialogue between innovative technology and the environment for a better today and safer tomorrow. ASEPL is the Solar Holding Company (Solar Hold Co.) of ACME group. ASEPL is further divided into subsidiaries as per the solar power plants established in different regions of India. ACME has already established 25 MW Solar Power Project in Madhya Pradesh. ACME is in the process of establishing 100 MW Solar Power Project in Rajasthan and other Projects which are upcoming in the states of Odisha, Bihar, Uttar Pradesh, Chhattisgarh, Assam, Andhra Pradesh, Uttarakhand etc.

This Environment and Social Management System (ESMS) is an updation of existing Environment and Social Management System (ESMS) to be in line with Asian Development Bank (ADB) Safeguard Policy Statement (2009), Social Protection Strategy (2001), ADB Gender and Development Policy (1998), Public Communication Policy (PCP) (2011), IFC Sustainability Framework 2012, World Bank EHS Guidelines and other applicable laws and regulations pertaining to environment, health, safety, social and labour in India.

The updated ESMS would provide ASEPL comprehensive procedures at the corporate level for assessing and managing social, environmental, health and safety issues at all stages of the life cycle of their projects based in India.

The organisational structure of ACME is as follows:

[52] The solar power tower, also known as 'central tower' power plants or 'heliostat' power plants or power towers, is a type of solar furnace using a tower to receive the focused sunlight. It uses an array of flat, movable mirrors (called heliostats) to focus the sun's rays upon a collector tower (the target). Concentrated solar thermal is seen as one viable solution for renewable, pollution-free energy.

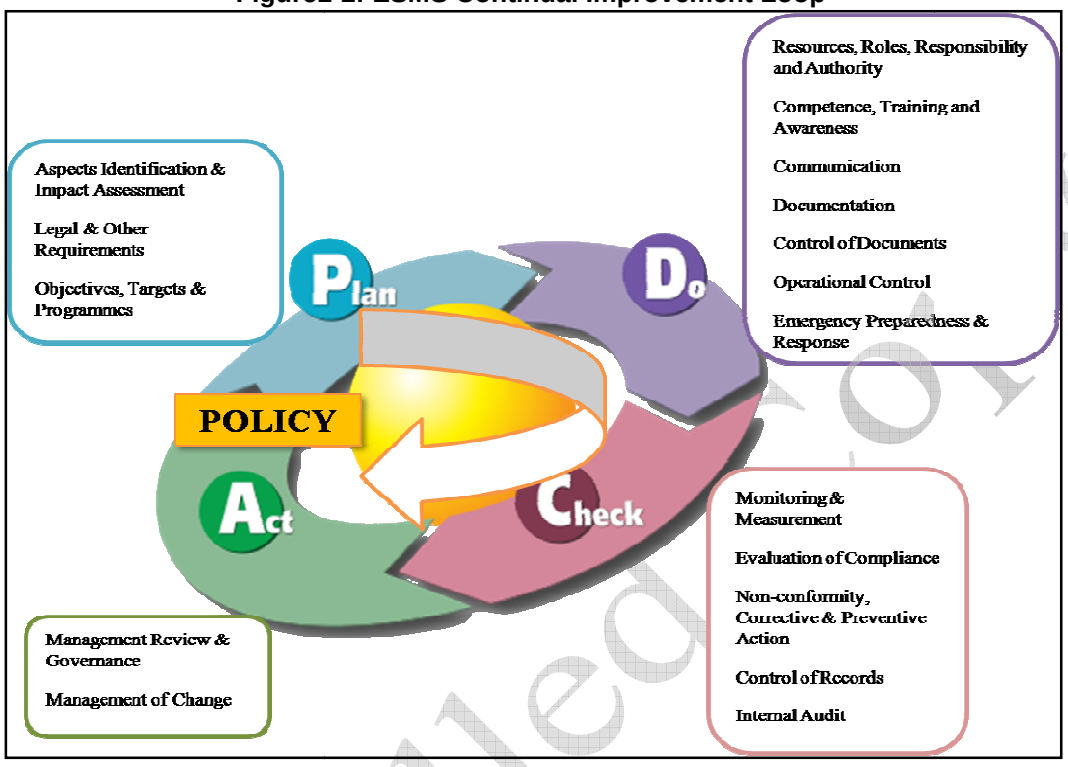
Figure 1-1: Organisational Structure of ASEPL

This ESMS Manual is prepared as an outline of the Management System at the Corporate Level, which provides generic guidelines that are required to be skillfully adopted and validated for each project under ASEPL. The desired flexibility has been given to the ESMS Manual to make it applicable to all future and present solar PV projects of ASEPL and its subsidiaries, irrespective of specific site or project conditions. This manual covers the Commissioning, Operation, Maintenance & De-commissioning (hereinafter referred to as C, O, M & D) phases of the project.

It addresses elements of the management system drawing upon the fundamentals from ISO 14001:2004, International Finance Corporation (IFC) Sustainability Framework 2012 and describes how the requirements of IFC Sustainability Framework 2012 are implemented via the management system. In addition, updation of the manual has been incorporated in line with Asian Development Bank (ADB) Safeguard Policy Statement (2009), Social Protection Strategy (2001), ADB Gender and Development Policy (1998), Public Communication Policy (PCP) (2011), and other applicable laws and regulations pertaining to environment, health, safety, social and labour in India.

The documentation that supports the general descriptions given in this manual is identified and cross-references are provided. This supporting documentation provides the mechanism by which the management system elements are implemented. For example, a general description on the Legal Procedures to be followed while going for a solar project is provided in this manual. The ESMS Continual Improvement Loop as per ISO 14001:2004 has been provided below:

Figure1-2: ESMS Continual Improvement Loop



The above figure outlines how the ESMS for ASEPL shall approach the Management of Environment, Health, Safety and Social (EHSS) Issues. The ESMS Manual shall provide a list of various actions (e.g.: mitigation and monitoring) to be undertaken. During the execution of monitoring of these activities, some form of monitoring audit shall occur to assess the success of these actions. Based on the assessment, changes have to be planned and built into mitigation and monitoring activities that might have been identified initially.

ASEPL aims to utilize analysis of its process and implementation related data for bringing in continual improvements within the system for the increased effectiveness of the management system.

2. Purpose and Scope

The purpose of developing the ESMS Manual for ASEPL is to ensure compliance with the company's environmental and social objectives during the C, O, M and D phases, of any solar photovoltaic projects undertaken by ASEPL in India. The ESMS Manual is a part of overall management framework for mitigation and monitoring of environmental and social aspects and impacts during the C, O, M and D phases of Solar PV Power Projects established by ASEPL. This manual is developed in line with the requirements of

- IFC Sustainability Framework 2012
- ADB Safeguard Policy Statement (SPS, 2009),
- ADB Social Protection Strategy (2001),
- ADB Gender and Development Policy (1998),
- ADB Public Communication Policy (PCP) (2011)
- IFC Sustainability Framework, 2012
- Applicable national regulations; and
- ISO 14001: 2004

The scope of ESMS Manual covers Environment, Occupational Health & Safety and Social aspects during C, O, M and D phases of the Solar PV Power Plants within ASEPL. This document outlines the system components by which environmental and social aspects are managed during the various phases of the projects carried out by ASEPL and its subsidiaries. The environmental and social management system has been designed with the following key features in mind:

- To integrate Environment and Social Management Manual to the overall Business Management of the company.
- To make the Management System multilevel taking cognizance of the way the company is organized and structured.
- To make the management system flexible and dynamic that can accommodate changes and improvements.
- To ensure that the environmental and social management components of the management system take advantage of elements that are common to project management and integrate with health and safety, project compliance, security, government and public affairs where appropriate.
- To ensure that even if the management arrangements for different projects during the C, O, M and D phases will be markedly different (due to contractual agreements), alignment between the C, O, M and D phases has been built into the system.
- To make sure that transparent translation of ESMS Manual is achievable with minimum alteration in individual projects.
- To make management system consistent with the requirement of ISO 14001:2004.
- To make the management system all-inclusive, i.e. all EHSS (Environment, Health, Safety and Social) management issues are managed through the system.

3. Policies

ASEPL has prepared Environment, Health & Safety (EHS) Policy and Social Policy as principles and guidelines to ensure that the issues related to environment, health, safety and social are addressed appropriately and decisions that are taken give rational outcomes. These policies are applicable to all the workers employed directly or indirectly by ASEPL for all its projects.

3.1 Environment, Health & Safety (EHS) Policy

ASEPL values the surroundings as they are important resources and is committed to minimize adverse EHS impacts of their business during the entire life cycle of the project, and dedicate them further to –

- Comply with all applicable EHS legislations and all other requirements of interested parties.
- Adopt measures to prevent pollution, injuries & ill health.
- Ongoing improvement in processes and continual improvement in EHS performance.
- Adopting measures to minimize accidents and optimal utilization of resources, in particular groundwater and adopting waste management practices.
- Educating, motivating and involving all our suppliers and business associates to adopt similar approaches towards environment protection and safety realization in their products, activities and services.
- This EHS policy should be widely communicated to all persons working for or on behalf of ASEPL.
- The policy statement shall have to be communicated to all employees and sub contractors of the plant with the intent that they are made aware of their individual obligations. It should be ensured that this is understood and implemented by all concerned.
- This policy shall be available to interested parties and public and shall be reviewed periodically to ensure that they remain relevant and appropriate to company.

3.1.1 EHS Policy Objective

The main objectives of the EHS policy of ASEPL are as follows -

- To comply with all legal requirements during all the C, O, M and D phases of the project.
- To ensure safe work practices and clean environment during the O&M phase.
- To have continual improvement in areas having significant impacts on Environment, Health and Safety.
- To increase awareness of all stakeholders through regular consultation during all the project phases.

3.2 Social Policy

ASEPL believes that a healthy society is the key to sustainable business environment. Values like respecting human rights, working in a transparent manner and abiding by all the applicable rules and regulations form a part of the work culture at ASEPL. And hence, ASEPL is committed to conduct its business in a socially responsible manner by minimizing the social impacts of the project activities during the entire life cycle of the project, on the

people directly or indirectly related with the project and help them in improving their socio-economic profile that can be sustained over a period of time. For the same, we shall dedicate ourselves for ensuring the following:

- At the time of site selection and feasibility analysis, ASEPL shall make decent efforts to ensure that there is no significant displacement of people and their moveable properties, so as to have minimal impacts on the socio-economy and the livelihoods of the people.
- ASEPL shall devise avenues for greater community engagement and participation, taking special cognizance of the needs of the indigenous people.
- ASEPL shall take all appropriate efforts to comply with the requirements of the applicable labor laws mainly related to child labor, forced labor/bonded labor, migrant workers etc. It shall also ensure that appropriate remedial actions are taken in case of any non-compliance in the above respect. ASEPL shall not employ trafficked persons.
- ASEPL shall take due cognizance regarding provision of equal opportunities; and equal wages for equal work irrespective of any bias.
- ASEPL shall treat all stakeholders fairly and promptly at all times. ASEPL shall deal any complaints/ requests raised by stakeholders promptly and professionally (as per the Grievance Redressal Policy of ASEPL).
- ASEPL shall provide workers with documented information that is clear and understandable, regarding their rights under national labor and employment law and any applicable collective agreements, including their rights related to hours of work, wages, overtime, compensation and benefits during the various phases (C, O, M and D) of the project.
- ASEPL shall ensure that stakeholders (mainly those directly or indirectly affected and influenced by the project) are adequately informed of their rights to resolution, through frequent stakeholder consultation and are encouraged to seek judicial or third party opinion, wherever there is any interpretational uncertainty through appropriate stakeholder forum or otherwise.

3.2.1 Social Policy Objective

The main objectives of the Social Policy of ASEPL are as follows –

- To ensure a sound worker-management relationship for the sustainability of the company.
- To work for the wholesome betterment of the socio-economy of the project and people affected by it through appropriate Community Engagement Plans, Social Development Plans and Corporate Social Responsibility (CSR) activities. To promote compliance with national employment and labor laws.
- To provide fair, adequate and appropriate compensation to the project affected people and wherever possible, impart basic set of skills to such people for enabling them to be productive for the operation of the project activities. To provide a forum for the people around the project area to discuss and solve grievances in minimum possible time. To provide a safe and healthy work atmosphere that is free from any kind of favoritism on the basis of personal characteristics.

3.3 CSR (Corporate Social Responsibility) Policy

Taking responsibility for society was the driver for founding ASEPL. At ASEPL, we believe that Corporate Social Responsibility (CSR) is the way to conduct business that achieves a balance and integration of economic, environmental and social aspects while at the same time addressing stakeholder expectations.

Under this CSR policy, the company shall affirm its commitment of seamless integration of marketplace, workplace, and environment and community concerns with business operations. ASEPL shall make CSR as an integral business process in order to support sustainable development at all its subsidiaries. As per this policy, the company shall constantly endeavor to be a good corporate citizen and enhance its performance.

3.3.1 ASEPL Mission under CSR Policy

Whilst being committed to excellence in outputs and deliverables through constant team work and ceaseless innovation, we recognize our responsibilities towards social and environmental dimensions of our business and thus aim to visibly play a leading role within our spheres of influence.

ASEPL shall strive to be a leader while continuing its business in a socially and environmentally responsible manner. The company shall affirm to its commitment to contribute to nation building measures through improving quality of life of our workforce, their families and the communities of the area where the company and its subsidiaries exist. It shall be a priority under this policy to take care of issues related to global warming, preservation of cultural heritage and special vocational programs for youth.

3.3.2 Structure under CSR Policy

There is a Corporate Sustainability Cell (CSC) that works directly under ASEPL Board of Directors. This CSC is headed by Human Resource Head of the company. Functional scorecard and Key Result Areas (KRAs) shall be aligned with the company's strategic objectives. Regular reporting to CSC after stakeholder dialogue, action plans and targets programs shall be evolved on continual basis. An independent budget shall be allotted from the Corporate for the Corporate Social Responsibility (CSR) initiatives and Community Development Programs (CDPs) at subsidiary levels.

3.4 Rehabilitation and Resettlement Policy

ASEPL should take decent efforts at the time of site selection and feasibility analysis, to make sure that there is minimum or no displacement of people and their moveable properties so as to cause least effect on the sources of livelihoods of the people. While identifying land for its projects, ASEPL is required to concentrate on private lands wherein land purchase can take place on a 'willing buyer-willing seller' basis with the private land owners. This policy is designed in line with the objectives of ADB Safeguard Requirement on Involuntary Resettlement, Paragraph 25 of Section 4 on Negotiated Land Acquisition wherein negotiated settlement has been considered to avoid expropriation and eliminate the need to use governmental authority to remove people forcibly. Here ASEPL is encouraged to acquire land and other assets through a negotiated settlement wherever possible, based on meaningful consultation with affected persons, including those without legal title to assets. This will ensure that

any negotiations with displaced persons openly address the risks of asymmetry of information and bargaining power of the parties involved in such transactions. For this purpose, ASEPL will engage an independent third party to document the negotiation and settlement processes. ASEPL will agree with ADB on consultation, processes, policies and laws that are applicable to such transactions; third-party validation; mechanisms for calculating the replacement costs of land and other assets affected; and record-keeping requirements. In case the project(s) is/ are being established on a government land, ASEPL or its subsidiary shall communicate through appropriate medium to the Revenue Department of the concerned state stating that policy provisions with respect to Rehabilitation & Resettlement (R&R) as suggested by the concerned Revenue Department have been followed while designing/ adapting the R&R policy of ASEPL for that particular project. ASEPL is also required to abide by Paragraph 17 of IFC PS 5 on Land Acquisition and Involuntary Resettlement wherein informal rights of the people are also taken into consideration. ASEPL is required to follow the regulation on the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 if any private land shortlisted for its projects has been notified by appropriate Government.

3.4.1 Rehabilitation and Resettlement Policy Preamble

The purpose of this statement is to set out the basic principles for the R&R of people affected by projects established by ASEPL. As such, this statement attempts to streamline the different R&R practices that are being followed by subsidiaries and to modify them in a way that allows subsidiaries to deal more effectively with resettlement and rehabilitation issues.

While ASEPL's basic philosophy for compensating land losers and other project affected people remains substantially unchanged, the statement emphasizes the need to cultivate and maintain good relationships with the people affected by ASEPL.

It also underscores that the subsidiaries have a responsibility towards the local people whose livelihood, temporary as well as permanent, is taken away because of the activities of the project. On the other hand, subsidiaries need to protect themselves more effectively against unjustified claims. To this end, the statement proposes that subsidiaries prepare detailed Resettlement and Rehabilitation Action Plans (RAPs) that clearly identify, at an early stage, the entitlements of the people affected by Solar Photovoltaic (PV) Projects.

3.4.2 Rehabilitation and Resettlement Policy Objective

In line with the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013-
At district level, the following people/ organizations should be responsible for the R&R related issues and activities

- District Collector
- Land Acquisition Officer
- ADM Land
- ASEPL Representative

- Legal Advisor
- NGO

While at village level, the composition will consist of -

- Panchayat Member
- NGO Representative
- Opinion Leaders (neutral and non-political)
- Tribal and /or Minority Community Representative

Besides settling R&R issues, the above people/ organizations shall also look after the Grievance Redressal issues, Community Development Plans, supervision of other project related activities; for example alternate grazing arrangement for the cattle displaced because of the project activities.

- In the light of growing difficulties many subsidiaries face in land acquisition highest priority will be given to avoiding or minimizing disturbance of local population. In their decisions to establish new plants or expand existing ones, subsidiaries will explore alternative sites and project designs in order to minimize need for resettlements. Wherever people are likely to be affected by the project, the subsidiaries will prepare resettlements and rehabilitation action plans for the project.
- Through the preparation of resettlement and rehabilitation action plans, subsidiaries will safeguard that project-affected people improve or at least regain, their former standard of living and earning capacity after a reasonable transition period. The transition period is to be kept to a minimum. However, the involvement of subsidiaries in resettlement and rehabilitation activities will continue until all the actions specified in the RAP have been completed.
- Involuntary resettlement is conceived and executed as a development program with project affected people being provided sufficient resources and opportunities to share in a project's benefits. To the extent that is necessary, the concurrence, approvals and support from the concerned Government authorities will be sought. In parallel, subsidiaries will also work closely with Non-Government Organizations (NGOs), which are legally recognized and constituted and also have the confidence of the project affected people, in the preparation and implementation of RAPs.
- Corporate Social Responsibility (CSR) – Apart from the above steps to be taken under the project specific RAPs, CSR activities shall be intensified in and around the villages where the land has been acquired. A separate provision shall be made and a separate institution shall be created to closely monitor such activities.
- While taking up CSR Projects that will be designed with a "Bottom-up" approach; the programme will be designed with due consultation with the Project Affected People (PAP); overriding priority will be given to villagers being displaced as a result of acquisition of land by the projects. It is absolutely essential that involvement of project affected people, particularly land losers, be insured in the process of making decisions for utilization of the allocated funds.
- Actual implementation of R&R plan must follow a detailed survey of the project affected villages to formulate the list of persons/ families affected by the project, the nature of the effect, the likely loss of income, etc.

3.4.3 Eligibility Criteria for Economic Rehabilitation Benefits

This benefit shall accrue only to Entitled Project Affected Person (PAP). Entitled Project Affected Person shall be one from the following categories –

- People from whom land is acquired including tribals (if any) cultivating land under traditional rights.
- People whose homestead is acquired
- Sharecroppers, land lessees, tenants and day laborers
- Tribal/Non tribal dependent on forest produce
- Non title Holders- To be determined through own socioeconomic survey: Scope of defining of a cutoff date for giving compensation.

3.4.4 Eligibility Criteria for Resettlement Benefits

- Only a "Displaced" family or person shall be eligible for resettlement benefits.
- A family or person shall be termed "displaced" and hence eligible for resettlement benefits if such family or person has been a permanent resident and ordinarily residing on the project area[53] on the date of publication or notification under *Section 16* of the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 and on account of acquisition of his/her homestead land/ structure is displaced form such areas or he/ she is a homestead less or landless who has been/ is required to be displaced.
- In addition, any person who are displaced may have formal legal rights to the land; they may have recognized but not formal legal rights to land (e.g., through traditional customary claim to the land or communal possession of community land); or they may have no recognizable legal right to the land (including government land) they occupy (e.g., informal or opportunistic settlers). In addition, displaced persons may be seasonal or permanent tenants, paying and non-paying or seasonal migrants.

3.4.5 Eligibility and Compensation

Drawing upon the elements of IFC PS and ADB SPS against The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, circle rates and market rates, the *Table 3-1* below shows the compensation and rehabilitation efforts subsidiaries will offer for each person or family affected by one of their project. Evidence to the effect that a person is a legitimate Project Affected Person (PAP) will need to be provided in the form of a written legal document, or reference to a record, such a Revenue Officer Certificate (Certificate from Revenue Department/ Tehsildar/ RI/ Title or Patta of Revenue Department), Electoral Roll, Ration Card, etc.

[53] Project area will be evaluated and defined for individual projects depending on specific project location, needs assessment, environmental and social parameters like agricultural or grazing shift etc.

Table 3-1: Guidelines for Eligibility and Compensation for Rehabilitation Benefits

S. No.	Category of Persons affected by the Project	Compensation and Rehabilitation Plans Provisions
1	People (including tribals (**if any**) cultivating land under traditional rights) from whom land is acquired	All titleholders shall receive monetary compensation at replacement values of the lands acquired based on current market rates. The value of the land shall be determined on the basis of prevailing legal norms of the Central Government; project specific State Government(s), and the policy requirements of the lending organizations. In case of tribals (**if any**) cultivating land under traditional rights, authentication of land held under traditional rights by state authorities will be necessary. In addition to above, the following shall apply – • Subject to the suitability and availability of vacancies and further subject to approval of the Board of Directors of the Subsidiary company concerned, they shall offer employment. The employment shall be released to actual land losers or their dependent as prescribed in the R&R Policy notified by Ministry of Rural Development. The list of the people to be given employment shall be vetted and concurred by all land losers in presence of District Officials and officials/ representatives from the subsidiary company of ASEPL. • Land for land option shall be preferred. **NOTE –** • The subsidiary companies shall offer monetary compensation/ onetime cash grant/ financial package as announced by the concerned State Government. • All lands/assets lost will require to be compensated at replacement value. • In addition, all land losers will be given priority in employment opportunities by ASEPL and its subsidiaries besides attaining compensation for the land parcels sold. • A person receiving a job foregoes all claims to above compensation and a person receiving above compensation forgoes all claims to employment. o A list of the land losers shall be prepared in the descending order of land lost and employment released in that order upto the cut off determined on the basis of vacancy and suitability of candidate. Any deviation in the priority for release of employment can be made only with full justification to be recorded in writing and accepted by Company Officials, District Officials, as well as the concerned local leaders and specially the persons whose claim is superseded.
2	People whose homestead is acquired (if any)	An alternate house site of same area and assistance in constructing the new house (if required by the displaced family) shall be provided. Compensation for shifting shall be as follows – • Each affected family that is displaced and has cattle, shall get financial assistance for construction of cattle shed. • Each affected family that is displaced shall get a onetime financial assistance for shifting the family, building materials, belongings and cattle. • Each affected person who is a rural artisan, small trader or self employed person and who has been displaced shall get a onetime financial assistance for constructing working shed or shop. **OR**

		• A onetime lump sum payment.
3	Sharecroppers, Land Lessees, Tenants and Day Laborers	Any subsidiary of ASEPL shall assist Project Affected Persons (PAP) to establish non-farm self employment through the provision of infrastructure, petty contracts or formation of co-operatives. **OR** Contractors shall be persuaded to give jobs to eligible PAPs on preferential basis, where feasible, in compliance with Contract Labor Act 2007 and relevant policies of State or Centre on wages. • In addition, the subsidiary/ies shall make decent efforts so that there is no or minimum displacement of tribal community/ies. However, if there is a group of tribal people whose non-displacement otherwise leads to financial non-viability of the project, the subsidiary/ies shall shift the tribal community as a unit and provide facilities to meet the specific needs of the tribal community that will allow them to maintain their unique cultural identity. • Tribal affected family shall be given one time financial assistance for loss of customary rights or usages of forest produce. Loss of customary rights needs to be authenticated by the District Authority. • Tribal affected families resettled out of the district shall be given higher rehabilitation and resettlement benefit.
4	Non-titleholders/Informal Rights	• ASEPL and its subsidiaries shall compensate any displaced persons having informal entitlements in cases where livelihood like seasonal agriculture, grazing activities etc. is affected. A one-time full lump sum payment shall be provided to non titleholders. This payment will be based on the value of crops sown or value of fodder at present market rate. • In addition, employment opportunities shall also be provided by ASEPL and its subsidiaries to these non titleholders whose livelihood has been affected.

3.4.6 Rehabilitation Efforts

ASEPL shall make the following rehabilitation efforts to prevent any sort of misbalances because of any of their present and future project(s) and in making the life of the people easier.

Non-farm self-employment

This provision shall be open only to those who are sharecroppers, land lessees, tenants, day laborers, or landless tribals (if any), or tribals dependent on forest produce.

Resettlement Benefit

Compensation to the homestead whether in the category of land owner or land less category is same and provides for one time lump sum payment in lieu of –

- Alternate house site of same area.
- Assistance in designing the new house if so desired by the displaced family
- Shifting allowance
- Assistance for construction of cattle shed, working shed or shop

- Substance allowance

Women

Special attempts shall be made to ensure that women will be given adequate access to income generating opportunities offered under this policy. Training and skill development programmes to be carried out on priority basis through CSR Action Plans, to be developed for individual projects.

Community Facilities

The subsidiary will examine the feasibility of providing facilities for setting up or running of existing primary or upper primary school(s), good road with street light in the project area, pucca drain, pond, dug well or tube well for drinking water supply, community centre, place of worship, dispensary, grazing land for cattle and playground. Similar infrastructural facility, if necessary, will be extended to the host locality. The community facilities and services would be available to all residents of the area, including PAPs and host population.

The operation for the operation of community facilities would be flexible and all efforts will be made to involve the State and Local Self Government/ Panchayat for operating the facilities. To achieve this, subsidiaries will pursue with these agencies to ensure the same. The planning of the community facilities and their construction should be undertaken in consultation with the affected communities.

3.4.7 Implementation, Monitoring and Evaluation, Dispute Mechanism

The rehabilitation action plan will address the following –

- The project design including an analysis of alternative designs aimed at avoiding or minimizing resettlement;
- Socio-Economic Survey and activities to ensure restoration of incomes of PAPs in line with ASEPL's R&R Policy;
- Description of the institutional and other mechanisms for provision of entitlements;
- Time table for the acquisition and preparation of the resettlement site(s);
- The cost and budgets for the resettlement and rehabilitation of PAFs;
- Project-specific arrangements to deal with grievances of PAFs;
- Time tables, benchmarks and arrangements for the monitoring the R&R effort.

Implementation of a Resettlement Action Plan shall be considered completed when the adverse impacts of resettlement have been addressed in a manner that is consistent with the relevant plan as well as the objectives of FC PS 5 and ADB IR Safeguard Requirement. It may be necessary for the client to commission an external completion audit of the Resettlement Action Plan to assess whether the provisions have been met, depending on the scale and/or complexity of physical and economic displacement associated with a project.

3.4.8 Socio Economic Survey

- A baseline socio-economic survey will be carried out to identify the PAPs to ensure restoration of incomes of PAPs in line with the ASEPL's R&R policy for any Solar PV Project of subsidiaries for the fulfillment of the broad requirements of IFC PS 5, ADB IR safeguard requirement and the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013.
- The basic objective of the Socio-economic study will be to generate baseline data on the social and economic status of the population who are likely to lose their source of livelihood or homestead because of the project. The database will be to formulate a viable and practical Rehabilitation Action Plan (RAP) for the affected people in line with their entitlements.
- The RAP shall be monitored & evaluated periodically and will be flexible for any amendment (if deemed necessary).

3.5 Grievance Redressal Policy

3.5.1 Policy Preamble

It is the policy of ASEPL to ensure that –

- All stakeholders are treated fairly and promptly at all times.
- Any complaints/ requests raised by stakeholders are dealt with promptly and professionally.
- Stakeholders (mainly those at or near the project site(s)) are informed of their rights to resolution of dispute(s) or complaint(s) and are encouraged to seek judicial or third party opinion wherever there is any interpretational uncertainty through appropriate stakeholder forum or otherwise.

ASEPL shall follow a "Bottom-up" approach in Grievance Redressal and thereby shelter the confidence of the stakeholders in the company and protect their interest under law. All complaints and queries received by the company shall be treated efficiently and fairly. ASEPL shall ensure that all the employees concerned are informed of the rights of all the other stakeholders and the Grievance Redressal Mechanism (GRM) prevalent in ASEPL for handling the various complaints and queries.

4. Applicable Framework

4.1 Applicable Legal Requirements

This section provides a summary of applicable environment, health and safety and social legislative requirements for the existing and new Operations undertaken by ASEPL Management.

4.1.1 Regulatory and Enforcement Framework in India

Environment

The execution and enforcement of environmental regulations is the responsibility of the State governments through the State Pollution Control Boards (SPCBs) – the State Pollution Control Board (SPCB) in the case of operations in the respective States. The SPCBs are responsible for enforcing compliance under the Water Act, 1974, the Air Act, 1981, the Environmental (Protection) Act, 1986 and rules framed there under and the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008. This responsibility is discharged through the introduction of secondary legislation formulated in accordance with national legislation.

The central laws are formulated by the Ministry of Environment and Forests (MoEF) and the State Governments are required to consider these regulations as base level, though they can make the more stringent requirements for their respective states, but in no way more lenient than the national regulations.

The Central Pollution Control Board (CPCB) was established in September 1974 along with SPCBs, for the purpose of implementing provisions of the Water (Prevention and Control of Pollution) Act, 1974. The executive responsibilities for the industrial pollution prevention and control are primarily executed by the CPCB at the Central level, which is a statutory body, attached to the MoEF. The key bodies are:

- Ministry of Environment and Forests, MoEF (National level)
- Central Pollution Control Board, CPCB (National level)
- State Environment Impact Assessment Authority, SEIAA (State Level)
- State Pollution Control Boards, SPCBs (State level)

Health & Safety and Social

In India, Health & Safety Management is under the Ministerial purview of Department of Labour and Employment at Central and state level which is responsible for publishing regulations, amendments and their enforcement. The Petroleum and Explosives Safety Organization (PESO) formerly Department of Explosives, with its Head Office in Nagpur, Maharashtra operates under the Ministry of Commerce and Industry, Department of Industrial Policy & Promotion, Government of India. With an overall objective of ensuring safety and security of public and property from fire and explosion, the Organisation as a statutory authority is entrusted with the administration of Explosives Act, 1884, Petroleum Act, 1934; Inflammable Substances Act, 1952 and the rules framed there under. Specific authorities dedicated for management of health and safety issues are:

- Chief Controller of Explosives, CCoE (National Level)
- Deputy Chief Controller of Explosives (State Level)
- Chief Labour Commissioner/State Labour Department
- Directorate General, Factory Advice Service and Labour Institutes (DGFASLI)
- National Safety Council (NSC) was set up by the Ministry of Labour

Panchayati Raj is a decentralized form of Government wherein each village is responsible for managing its own affairs. Under the three tier local self governance system in India (through 73rd amendment of constitution) village level panchayats have been given powers to manage local resources and be responsible for local administration. The constituency comprises of ex-official members (all sarpanchas of the panchayat samiti area, the MPs and MLAs of the area and the SDO of the subdivision), co-opt members (representatives of SC/ST and women), associate members (a farmer of the area, a representative of the cooperative societies and one of the marketing services), and some elected members. The samiti is elected for 5 years and is headed by the Chairman and the Deputy Chairman.

4.1.2 Legal and Other Requirements

Below are the applicable laws pertaining to each aspect by which ASEPL will ensure compliance by adhering to the requirements as a time bound action.

➢ ***Environment Aspect***

- The Wildlife Protection Act, 1972
- The Water (Prevention and Control of Pollution) Act, 1974
- The Water (Prevention and Control of Pollution) Cess Act, 1977
- The Air (Prevention and Control of Pollution) Act, 1981
- The Environment Protection Act 1986 and Rules there under (with amendments)
- The Forest (Conservation) Act 1980 as amended in 1988
- The Noise Pollution (Regulation and Control) Rules, 2000
- Batteries (Management and Handling) Rules, 2001
- The Biodiversity Act, 2002
- Hazardous Waste (Management, Handling and Trans boundary Movement) Rules, 2008
- National Green Tribunal Act, 2010
- E-Waste (Management and Handling) Rules, 2010
- EIA Notification 2006 – Environmental Clearance (EC) and Public Consultation as a part of EC Process

➢ ***Health and Safety Aspect***

- The Petroleum Act, 1934
- The Gas Cylinder Rules 2004
- The Explosive Act, 1884
- The Electricity Act, 2003

- The Factories Act, 1948 and state specific Factories Rules
- The Building and Other Construction Workers Act, 1996 and The Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Central Rules, 1998

➢ ***Social Aspect***

- The Factories Act, 1948
- The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013
- The Employees' Compensation Act 1923
- The Employee State Insurance Act 1948
- The Public Liability Insurance Act 1991
- The Minimum Wages Act, 1948
- The Employees' Provident Fund Act, 1948
- The Payment of Gratuity Act, 1972
- The Maternity Benefit Act, 1961
- The Bonded Labor (Abolition) Act 1976
- The Child Labour (Prohibition and Regulation) Act, 1986
- The Contract Labour (Regulation and Abolition) Act, 1970
- The Inter State Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979
- The Companies Act, 2013
- The Industries Disputes (Amendment) Act, 2010
- The Trade Union Act, 1926
- The Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989
- The Scheduled Castes Tribes and Other Traditional Forest Dwellers Act, 2006

➢ ***Archaeology and Cultural Heritage Related Regulations***

- The Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010
- Indian Treasure Trove Act 1878 (as modified upto September 1949)
- The Antiquities and Art Treasures Act, 1972

➢ ***State Level Legislations***

- State specific Factories Rules
- State specific Land Acquisition Act & & Rehabilitation and Resettlement Policies
- State specific Panchayati Raj Act
- CERC, SERC and CEA Regulations
- State specific Electricity Regulatory Commission (compliance audit) regulations

➢ ***Environmental Legislations***

The Article 48-A of the Constitution of India states that the State shall endeavor to protect and improve the environment and to safeguard the forest and wild life of the country. At the same time, it shall be the fundamental duty of every citizen of India under Article 51-A (g) of the Constitution of India, to protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures. The requirements under various Environment related Acts enacted and amended, as per the requirements of time and situations, are described in the following sections.

THE WILDLIFE (PROTECTION) ACT 1972 AS AMENDED IN 1993

The Wildlife Protection Act 1972 provides for protection to listed endangered species of flora and fauna and establishes a network of ecologically important protected areas. The objective is also to control poaching, smuggling and illegal trade in wildlife and its derivatives. The Act empowers the Central and State Governments to declare any area to be Wildlife Sanctuary, National Park or a closed area. There is a blanket ban on carrying out any industrial process or activity inside any of these protected areas. The act was amended in January 2003 and punishment and penalty for offences under the Act have been made more stringent.

THE WATER (PREVENTION AND CONTROL OF POLLUTION) ACT 1974

The Water Act is enacted with the objective of prevention & control of water pollution in India. The Act aims at the maintaining or restoring the wholesome nature of water for the establishment of Boards and to vest them with such powers so as to enable them to carry out the purposes of the Act. This Act introduced the State Pollution Control Boards (SPCB) to grant Consent to industries, for their wastewater discharges. The establishment or operation of any industry cannot be undertaken without the prior consent of the SPCB

THE WATER (PREVENTION AND CONTROL OF POLLUTION) CESS ACT 1977

This Act has provisions for the levy and collection of a cess on water consumed by persons carrying on certain industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution constituted under the Water (Prevention and Control of Pollution) Act, 1974.

THE AIR (PREVENTION AND CONTROL OF POLLUTION) ACT 1981

This Act has provisions the prevention, Control and abatement of air pollution for the establishment, with a view to carrying out the aforesaid purpose, of boards, for conferring on and assigning to such Board powers and Functions relating thereto and for matters connected Therewith. This Act introduced the State Pollution Control Boards (SPCB) to grant Consent to industries, for their Air Emissions. The establishment or operation of any industry cannot be undertaken without the prior consent of the SPCB

ENVIRONMENT PROTECTION ACT AND RULES 1986

This act was introduced in 1986 as an umbrella legislation that provides a holistic framework for protection and improvement to the environment. In terms of responsibilities, the Act and the associated Rules, require for obtaining environmental clearances for specific types of new/expansion projects and for submission of

environmental statement to the SPCBs annually. This Act gave birth to many other rules later on, which are discussed in this chapter.

The Environment Protection Act calls for procedural requirements for:

- **Obtaining Environmental Clearance-:** MoEF in its *Office Memorandum No. J-11013/41/2006-IA.II (I)* dated 13th May 2011 stated that the Solar Photovoltaic Power Projects are not covered under the ambit of EIA Notification, 2006 and hence, no environmental clearance is required. Hence, the Solar Power PV Projects does not require preparation of Environmental Impact Assessment Report and pursuing Environmental Clearance from Central Government or State Level.

- **Submission of Environmental Statement-:** The MoEF, Government of India (GOI), vide its notification *No. G.S.R. 329(E)*, dated 13th March 1992, incorporated *Rule 14* on submission of Environmental Audit report, by every industry, as an amendment to the Environmental (Protection) Rules 1986, which applies to every industry, operation or process requiring Consent to Operate under the Water Act, Air Act, or both or Authorization under the HWM Rules, issued under the EPA 1986. In the Environmental Statement the project specific subsidiary will be required to submit information about their activities, raw materials consumption, products, air and wastewater management, water consumption, solid and hazardous waste management, etc. to the State Pollution Control Board.

THE FOREST (CONSERVATION) ACT (FCA), 1980 AS AMENDED IN 1988

The Forest Conservation Act was adopted in 1980 to protect and conserve forests. It strictly restricts and regulates the de-reservation of forests top use of forest land for non-forest purposes without the prior approval of Central Government. To this end the Act lays down the pre-requisites for the diversion of forest land for non-forest purposes. The FCA is relevant for the power sector for siting guidelines for hydroelectric power plants, and for passage of transmission through forest areas.

THE NOISE POLLUTION (REGULATION AND CONTROL) RULES 2000

Under these Rules, the State Government categorizes areas into industrial, commercial, residential or silence areas/ zones for the purpose of implementation of noise standards for different areas. The State Government takes measures for abatement of noise including noise emanating from vehicular movements, blowing of horns, bursting of sound emitting firecrackers, use of loud speakers or public address system and sound producing instruments and ensure that the existing noise levels do not exceed the ambient air quality standards specified under these rules.

Table 4-1: Ambient Air Quality Standards in respect of Noise

Category of Area / Zone	Limits in dB(A) Leq*	
	Day Time	Night Time
Industrial Area	75	70
Commercial Area	65	55

Residential Area	55	45
Silence Area	50	40

THE BATTERIES (MANAGEMENT AND HANDLING) RULES 2001

The Batteries (Management and Handling) Rules 2001 were notified on 16th May 2001 and they came into effect on 9th July 2002. The most recent amendment in the Rules have been through the Batteries (Management and Handling) Amendment Rules 2010 dated 4th May 2010.As most of the facilities use lead-acid batteries in the electrical inverters, company owned vehicles and other emergency backup systems in the control rooms, etc. they would be classified as a *"Consumer"* and are thus required to comply with the above Rules.

BIOLOGICAL DIVERSITY ACT 2002

Taking cognizance of the International Convention on Biodiversity (CBD), and to address the excessive pressure on biodiversity, the Government of India has enacted Biological Diversity Act, 2002 (BDA 2002).The legislation aims at regulating access to biological resources so as to ensure equitable sharing of benefits arising from their use. The salient features of the legislation are:

- To regulate access to biological resources of the country equitable share in benefits arising out of the use of biological resources
- To conserve and sustainable use of biological diversity
- Setting up of National Biodiversity Authority (NBA), State Biodiversity Board (SBB) and Biodiversity Management Committees. (BMC's)

HAZARDOUS WASTE (MANAGEMENT, HANDLING & TRANSBOUNDARY MOVEMENT) RULES 2008

The Rules inter-alia provide for: a new criteria for defining hazardous wastes; responsibilities and duties of a facility for handling of hazardous wastes; maintenance of proper documents with respect to the quantities and characterization of hazardous wastes; grant and renewal of Authorization for handling of such wastes; storage of hazardous waste in properly labeled containers and at designated places within the facility; labeling and packaging of hazardous wastes; transportation of hazardous wastes; disposal of waste through authorized contractors [or operators of CHW-TSDF], maintenance of manifests, identification of disposal sites; designing and setting up of a disposal facility; operation and closure of a landfill site; import and export of hazardous wastes for dumping and disposal or for recycling and reuse; accident reporting and follow up; record keeping; submission of returns; provision for appeal; and liability if hazardous waste is not properly handled and managed.

NATIONAL GREEN TRIBUNAL ACT 2010

On 2nd June 2010, the *National Green Tribunal Act 2010* was *notified*. The *NGT Act 2010*, which has come into force on the 18th October 2010 through *MOEF Notification#S.O.2569 (E)* is an *Act* to provide for the establishment of a *NGT* for the effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal rights relating to environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto.

E-WASTE (MANAGEMENT AND HANDLING) RULES 2011

The e-Waste Rules 2011 define the responsibilities of all producer(s) of electrical and electronic equipment collection center(s), dismantler(s), recycler(s), consumer(s) or bulk consumer(s) involved in manufacturing, processing, sale and purchase of electrical and electronic equipment or components.

THE FACTORIES' ACT 1948

In India, most of the Health and Safety (H&S) issues for industrial facilities are regulated through various provisions in the *Factories Act 1948*. Factory Act is an act "to consolidate and amend the law regulating labor in factories" and has been amended from time to time (last amended on 19th April 2001). The primary aim of the original Act has been to ensure the welfare of the workers in terms of not only their working conditions in factories but also their employment benefits. While ensuring the safety and health of the workers, the Act also contributes to environmental protection. The Act defines a *"Factory"* as a work place employing 10 or more workers (if the work is carried on with the aid of power) or a work place employing 20 or more of workers (if the work is carried on without the aid of power).

The Act enjoins every *"Occupier"* of a factory to ensure the health, safety and welfare of the workers. The occupier is also required to provide information, instruction, training and supervision to all the workers and ensure safe means of access to and egress from the place of work.

THE ELECTRICITY ACT 2003

The act notified on 26th May 2003, consolidates the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of the electricity tariff, ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies, constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto.

- As per Section 76 (subsection-1) and Section 81 (subsection-1), the act laid down provisions for constitution of the 'Central Electricity Regulatory Commission (CERC)' & 'State Electricity Regulatory Commission (SERC)' respectively.
- As per Section 7 of the said act, any company generating electricity (except for Hydro-power) need not apply for license for generation of energy. Rather License is required for the transmitting company.
- As per Section 61, per unit tariff shall be decided by the State Regulatory Commission
- As per Section 178 (subsection-1) and 181(subsection-1), the CERC & the specific SERC can formulate appropriate regulation for better implementations of the provisions of the said act.

ELECTRICITY RULES 2005 (AS AMENDED UPTO 26th OCTOBER 2006)

Under Section 176 of Electricity Act 2003, the Central Government has enacted the above rules that contain guidance on generation, transmission and distribution of electricity, tariffs for generating companies, inter-state trading license etc.

CITES

Convention on International Trade in Endangered Species of Wild Fauna & flora (CITES), also known as *The Washington Convention*, is a multilateral treaty, drafted as a result of a resolution adopted in 1963 at a meeting of members of the International Union for Conservation of Nature (IUCN).CITES is one of the largest conservation agreements in existence. Participation is voluntary, and countries that have agreed to be bound by the Convention are known as Parties. Although CITES is legally binding on the Parties, it does not take the place of national laws. Rather it provides a framework respected by each Party, which must adopt their own domestic legislation to implement CITES at the national level.

Although the Convention itself does not provide for arbitration or dispute in the case of noncompliance, 30 years of CITES in practice has resulted in several strategies to deal with infractions by Parties. The Secretariat, when informed of an infraction by a Party, will notify all other parties. The Secretariat will give the Party time to respond to the allegations and may provide technical assistance to prevent further infractions. Other actions the Convention itself does not provide for but that derive from subsequent COP 11 resolutions may be taken against the offending Party. These include:

- Mandatory confirmation of all permits by the Secretariat
- Suspension of cooperation from the Secretariat
- A formal warning
- A visit by the Secretariat to verify capacity
- Recommendations to all Parties to suspend CITES related trade with the offending party
- Dictation of corrective measures to be taken by the offending Party before the Secretariat will resume cooperation or recommend resumption of trade

Bilateral sanctions have been imposed on the basis of national legislation (e.g. the USA used certification under the Pelly Amendment to get Japan to revoke its reservation to hawksbill turtle products in 1991, thus reducing the volume of its exports). In India, such requirements are addressed in Wildlife Protection Act 1986.

RAMSAR CONVENTION (THE CONVENTION ON WETLANDS OF INTERNATIONAL IMPORTANCE ESPECIALLY AS WATERFOWL HABITATS)

The Ramsar Convention (The Convention on Wetlands of International Importance, especially as Waterfowl Habitat) is an international treaty for the conservation and sustainable utilization of wetlands ,i.e., to stem the progressive encroachment on and loss of wetlands now and in the future, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value. The Convention uses a broad definition of the types of wetlands covered in its mission, including lakes and rivers, swamps and marshes, wet grasslands and peat lands, oases, estuaries, deltas and tidal flats, near-shore marine areas, mangroves and coral reefs, and human-made sites such as fish ponds, rice paddies, reservoirs, and salt pans.

MoEF Guidelines for Wetlands, 2007

According to the MoEF guidelines, the following should be categorized as wetlands:

- Wetlands classified as Ramsar Wetlands of International Importance under Ramsar Convention as specified in the schedule.
- Wetlands in areas that are ecologically sensitive and important
- Wetlands lying in within UNESCO world heritage site
- Wetlands below elevation of two thousand five hundred meters with and area equal to grater those five hundred hectares.
- Any other wetland so notified by authority and therefore notified by Central Government.

Following activities are restricted in the wetlands –

- Reclamation of wetlands,
- Setting up of new industries and expansion of existing industries
- Manufacture or handling or disposal of hazardous substances covered under Manufacture, Storage and Import of Hazardous Chemical rules,1989
- Discharge of untreated wastes and effluents from industries, cities towns and other human settlements.
- Solid waste dumping

Following activities shall not be undertaken without the prior approval of state government within the wetlands, namely:

- Withdrawal of water or the impoundment, diversion or interruption of water resources within the local catchment area of wetland ecosystem;
- Harvesting of living and non-living resources;
- Grazing to the level that the basic nature and character of the biotic community is not adversely affected;
- Treated effluent discharges falling within the standards laid down by Central Pollution Control Board or State Pollution Control Committee;
- Construction of boat jetties;
- Dredging only if the wetland is impacted by siltation;
- Activities within the zone of influence; as per the definition of wetlands that may directly affect ecological character of wetland;
- Aquaculture, agriculture and horticulture within the wetland

<u>EIA NOTIFICATION 2006 - ENVIRONMENTAL CLEARANCE AND PUBLIC CONSULTATION</u>

With the recent suppression of Environmental Impact Assessment (EIA) Notification of January 1994, Environmental Clearance is now subject to the requirements of EIA notification SO no. 1533 dated 14 September 2006. As per schedule to the notification, which lists down 39 types of projects or activities (formulated from eight heads), which pertain to either of the two categories i.e. Category A or B, based on their threshold and likely spatial extent of potential impacts on human health and natural and manmade resources. All 'Category A' projects or activities require Environmental Clearance from Environmental Impact Assessment Authority (EIAA) constituted at MoEF, Government of India. The EIAA will issue Environmental Clearance based on

recommendations of the Expert Appraisal Committee (EAC), while projects under Category 'B1' (Category B is subdivided into B1 and B2 categories as per description given below under Stage I - Screening) require prior Environmental Clearance from State /Union territory Environment Impact Assessment Authority (SEIAA), based on recommendations of a State level Expert Advisory Committee (SEAC). At present, Solar Power projects do not require prior or post Environmental Clearance either from the SEIAA or the MoEF and hence, the above is not applicable. However, in case any amendment in the EC notification arrives in future and the solar power projects are subjected to EC in such a case the above process or any other process applicable at that time will have to be followed.

- ***Health & Safety Legislations***

ASEPL should adhere to the health & safety laws as listed below in all phases of its project life cycles.

THE PETROLEUM ACT, 1934

ASEPL needs to obtain License, for the storage of petroleum, if; Class B petroleum (petroleum having a flash-point of twenty-three degrees Centigrade and above but below sixty-five degrees Centigrade) is being stored for more than or equal to 2,500 litre or

Class C petroleum (petroleum having a flash-point of sixty-five degrees Centigrade and above but below ninety-three degrees Centigrade) is being stored for more than or equal to 45,000 litres.

THE GAS CYLINDERS RULES, 2004

ASEPL should ensure that a license to store any compressed gas in any cylinder shall be procured from Chief Inspector of the area having its operations or during construction of its facility.

THE EXPLOSIVE ACT, 1884

ASEPL should ensure that no manufacture, possession or importation of any explosive which is of so dangerous a character is to be undertaken at the site

THE ELECTRICITY ACT, 2003

ASEPL management to ensure that each facility in India has a work license to lay down or place electric supply lines

THE FACTORIES ACT, 1948 AND STATE SPECIFIC FACTORIES RULES

ASEPL should ensure that all workers are provided with appropriate PPEs (safety shoes, gloves, hat etc.).ASEPL management should ensure that workers involved in works at heights, moving machinery during construction phase should be sufficiently trained and are well versed with the dangers that can encountered by them on site. ASEPL should ensure that no machinery, plant or equipment shall be constructed, situated, operated or maintained in any factory in such a manner as to cause risk of bodily injury.

THE BUILDING AND OTHER CONSTRUCTION WORKERS ACT, 1996 AND THE BUILDING AND OTHER CONSTRUCTION WORKERS' (REGULATION OF EMPLOYMENT AND CONDITIOON OF SERVICE) CENTRAL RULES, 1998

ASEPL management should ensure that any new construction proposed should be registered under this act. ASEPL management should ensure that hours of work, welfare measures should be provided to the workers engaged during construction consisting of accommodation, sanitation drinking water and first aid.

ASEPL should ensure safety measures to be adopted like for fire protection, fencing of motors, preparation of emergency plans, timely maintenance of appliances, marking of safe loads.

- ***Social & Labor Welfare Legislations***

ASEPL should closely adhere to all the social & labor related laws providing all the benefits to its workers in compliance with the legal provisions and company's own policy. These laws are listed above and explained in detail in the following paragraphs.

WORKMEN'S COMPENSATION ACT 1923

The Workmen's Compensation Act 1923 (as amended up to 31st may 2010) has been framed with a view to provide social security and financial protection to workers and their dependents. Under this *Act*, a workman who dies or suffers occupational disease or disablement due to accident is entitled to get compensation from the employer.

Main Provisions and Scope of the Act:

Under the Act, the State Governments are empowered to appoint Commissioners for Workmen's Compensation for (i) settlement of disputed claims, (ii) disposal of cases of injuries involving death, and (iii) revision of periodical payments. Sub-section (3) of Section 2 of the Act, empowers the State Governments to extend the scope of the Act to any class of persons whose occupations are considered hazardous after giving three months notice to be published in the Official Gazette. Similarly, under Section 3(3) of the Act, the State Governments are also empowered to add any other disease to the list mentioned in Parts A and B of Schedule – II and the Central Government in case of employment specified in Part C of Schedule III of the Act.

Compensation

The Central Government in exercise of the powers conferred by *Sub-section (1B)* of *Section 4* of the *Employee's Compensation Act 1923*, through its *Notification#S.O.1258(E)* dated 31st May 2010 has increased the monthly wages, prescribed for determining the maximum amount of compensation from Rs 4,000/- to Rs 8,000/-. Now the amount of compensation for death has been raised from Rs 80,000/- to 120,000/- and for permanent total disablement from Rs 90,000/- to Rs 140,000/-. A workman covered under *Employees State Insurance (ESI) Act 1948* is not entitled to get compensation under *the Workmen's Compensation Act 1923*

THE EMPLOYEE STATE INSURANCE ACT 1948

The promulgation of *Employees' State Insurance Act 1948* envisaged an integrated need based social insurance scheme that would protect the interest of workers in contingencies such as sickness, maternity, temporary or permanent physical disablement, and death due to employment injury resulting in loss of wages or earning

capacity. The *Act* also guarantees reasonably good medical care to workers and their immediate dependants. The *Act*, in fact, tries to attain the goal of socio-economic justice enshrined in the *Directive Principles of State Policy* under *Part 4* of Indian Constitution, in particular *Articles 41, 42* and *43* which enjoin the State to make effective provisions for securing, the right to work, to education and public assistance in cases of unemployment, old age, sickness and disablement.

THE CHILDREN (PLEDGING OF LABOR) ACT 1923

This Act prohibits making of agreements to pledge the labor of children, and the employment of children whose labor has been pledged.

THE CHILD LABOR (PROHIBITION AND REGULATION) ACT 1986 AS AMENDED THROUGH 25TH SEPTEMBER 2008

This Act prohibits the employment of children below the age of 14 in factories, mines and in other forms of hazardous occupation, and regulates the working conditions of children in other employment. The Act also regulates the working conditions of children in all other employment, which are not prohibited under this Act.

THE PUBLIC LIABILITY INSURANCE ACT 1991

The Public Liability Insurance Act, *as amended through 31st January 1992,* and the Public Liability Insurance Rules 1991, *as amended through 23rd April 1993*. In recent times, the risks of accidents have increased with the growth of hazardous industries. Those affected by these workers are not only workmen but also those who are living in the vicinity of hazardous industries. The industrial workers are covered against such risks under specific laws like *Workmen's Compensation Act 1923* and the *Employee's State Insurance Act 1992* but members of the public who become victims to accidents arising out of handling of hazardous substances from within these hazardous installations were not assured of any relief except through long legal processes. Therefore, a need was felt to provide immediate relief to those who live in the vicinity of hazardous industries and consequently were likely to suffer death, injury or loss of property due to accidents occurring in it.

As per this *Act,* the owner shall be liable to pay relief as specified in the *Schedule*:

- Reimbursement of medical claim up to Rs 12,500/- in each case;
- Relief of Rs 25,000/- per person for fatal accident in addition to the reimbursement of medical expenses up to Rs12,500/-;
- For permanent total or permanent partial disability or other injury or sickness, the relief will be as follows: (a) reimbursement of medical expenses incurred up to a maximum of Rs 12,500/- in each case; and (b) cash relief on the basis of percentage of disablement as certified by an authorized physician. The relief for total permanent disability will be Rs 25,000/-;
- Compensation for loss of wages due to temporary disability will be Rs 1000/- per month for a maximum of 3 months; and
- For damage to property up to Rs 6000/- depending on the damage.

THE BUILDING AND OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT 1996

This Act regulates the employment and conditions of service of building and other construction workers and provides for their safety, health, and welfare measures. In addition to various health and safety requirements, the Act requires registration of each establishment within a period of sixty (60) days from the commencement of work to ensure that there are no malpractices and to discourage non-compliance of law by circumventing and registration of building workers as beneficiaries under this Act. The Act also requires constitution of Safety Committees in every establishment employing 500 or more workers with equal representation from workers and employers in addition to appointment of safety officers qualified in the field. Further, the Act also grants the authority to State and local governments to enact additional rules for the safety and health of construction workers, as well as the authority to install State Welfare Boards, and State and Local Inspectors.

THE MINIMUM WAGES ACT 1948

The concept of Minimum Wages was first evolved by ILO [in] year 1928 with reference to remuneration of workers in those industries where the level of wages was substantially low and the labor was vulnerable to exploitation, being not well organized and having less effective bargaining power. The *Minimum Wages Bill* was passed by the Indian Dominion Legislature and came into force on 15th March 1948 and henceforth came to be known as the *Minimum Wages Act 1948*. Under the *Act,* both the State and the Central Government are "*Appropriate Governments*" for fixation/revision of Minimum rates of Wages for employments covered by the Schedule to the *Act*. The *Minimum Wages Central Rules 1950* came into force on 14th October 1950 by the Central Government in exercise of the powers conferred by *Section 30* of the *Minimum Wages Act 1948*.

THE EMPLOYEES PROVIDENT FUND ACT 1952

The *Employees' Provident Funds and Miscellaneous Provisions Act 1952* (hereafter referred to as *EPF & MP Act 1952*) came into force with effect from 1st March 1952 as a part of series of legislative interventions, provides for the institution of Compulsory *Provident Fund*, Family Pension Fund and Deposit Linked Insurance Fund for the benefit of the employees. The objective of the *Act* and the *Scheme* framed there under is to ensure that all industries to which the *Act* has been made applicable establish compulsory *Provident Fund* for Employees with effect from the date when the scheme has been declared applicable to them.

THE PAYMENT OF GRATUITY ACT 1972

The Payment of Gratuity Act 1972 is a social security enactment which provides a scheme for the Payment of Gratuity to employees engaged in Factories, Mines, Oilfields, Plantations, Ports, Railway Companies, Shops or other Establishments and for matters connected therewith or incidental thereto. It fulfilled the universally recognized need of compensation for loss of income due to unemployment arising either out of incapacity to work due to invalidity, old age, etc.

THE MATERNITY BENEFIT ACT 1961

In today's world problems faced by women in the economic sphere of life are mostly related to unequal wages and discrimination resulting from their biological role in nature of childbearing. With the objective of providing maternity leave and benefit to women employees, the Maternity Benefit Bill was passed by the Parliament and subsequently received assent of the President on 12th December 1961 to become an Act known as the Maternity

Benefit Act 1961. The Act was promulgated to regulate the employment of women in certain establishments for certain period before and after child birth and to provide for maternity and certain other benefits. The Chief Inspector of Factories is the appellate authority under the Act for any issues arising in this matter. Wherever the worker is covered by the Employee's State Insurance (ESI) the Maternity Benefit is paid by the ESI Corporation, in other cases, the management has to pay the prescribed benefits. The Maternity Benefit Act 1961 extends to the whole of India and applies in the first instance to the following:

- To every establishment being a factory, mine or plantation including any such establishment belonging to Government and to every establishment wherein persons are employed for the exhibition of equestrian, acrobatic and other performances; and
- To every shop or establishment within the meaning of any law for the time being in force in relation to shops and establishments in a State, in which 10 or more persons are employed, or were employed, on any day of the preceding 12 months.

THE PROHIBITION OF SEXUAL HARASSMENT OF WOMEN AT WORKPLACE (PREVENTION, PROHIBITION AND REDRESSAL) BILL 2012

Sexual Harassment affects women in all spaces of their existence. Working women are no exception. Sexual harassment results in violation of the Fundamental Rights of a woman to equality under Article 14 and Article 15 of the Constitution of India. The issue of the famed Vishaka Guidelines in 1997 was a landmark step for the abolition of sexual assault on women in workplaces in India. "The Prohibition of Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Bill 2012" has been passed by Lok Sabha on 3rd September 2012, with the object to provide protection to women against Sexual Harassment at all workplaces both in the public and private sector, whether organized or unorganized and for the prevention and redressal of complaints of Sexual Harassment. Women who are employed as well as those who enter the workplace as clients, customers or apprentices besides the students and research scholars in colleges and universities and patients in hospitals, are sought to be covered under the proposed legislation. As per the Bill, the employer shall provide a safe working environment, organize awareness programs, treat sexual harassment as misconduct under the service rules and make provisions for actions against such misconduct, monitor and submit reports to the top management.

THE RIGHT TO FAIR COMPENSATION AND TRANSPARENCY IN LAND ACQUISITION, REHABILITATION AND RESETTLEMENT ACT, 2013

If ASEPL tends to expand their existing facility at a later stage where land acquisition might take place, they shall ensure that a notification to the effect will need to be published in the Official Gazette and in two daily newspapers.

ASEPL shall ensure that the land losers (if there) are made aware about their rights to raise concerns. The objectives of the ASEPL regarding R&R issues have been designed in line with this policy that contains provisions to minimize displacement, ensure adequate rehabilitation package, protecting rights of weaker sections of society in order to provide a better standard of living to the "affected families".

CONSTITUTIONAL PROVISIONS PROTECTING TRIBES AND EXTENDING SPECIAL STATUSThe

Constitution of India identifies certain groups/communities as tribal groups and lays out special provisions for such

group with the objective of promoting and safeguarding the social, educational and economic interests of the Schedules Tribes. The President is empowered to specify, after consultations with the Governor of a state "tribes or tribal communities" to be listed under the Schedules tribe list. In conjunction with this certain areas have been declared as "Scheduled Areas" in the constitution.

- Thus the specification of Scheduled Areas in relation to a particular State/Union Territory is by a notified Order of the President, after consultation with the State Governments concerned. Regulations are framed under the Fifth schedule of the Constitution to prevent the exploitation of tribals by non-tribals and alienation of agricultural land of tribal being passed on to non-tribals.
- The Constitutional provisions (fifth Schedule and Article 224) empower the governor of a state to regulate and make regulations for Scheduled Areas and Scheduled Tribes.

THE BONDED LABOR (ABOLITION) ACT 1976

It states that all forms of bonded labor stands abolished and every bonded laborer stands freed and discharged from any obligations to render any bonded labor (Ch II, Section 4). There is another provision according to the Constitution of India, Part III, and Fundamental Rights No 23, which provides for Right against Exploitation.

THE EQUAL REMUNERATION ACT 1976

As per this Act, it is the duty of an employer to pay equal remuneration to men and women workers for same work or work of a similar nature.

THE INTER-STATE MIGRANT WORKMEN (REGULATION OF EMPLOYMENT AND CONDITION OF SERVICE) ACT 1978

The Act provides for regulation of the employment of inter-state migrant workmen and provision for the conditions of service and related matters. This applies to every establishment in which more than five (5) inter-state migrant workmen are employed or who were employed on any day of the preceding twelve (12) months. This Act becomes particularly important in cases where the project is established on borders of two or more states, where there is a high possibility of inter-state migration of laborers.

PROTECTION OF CHILDREN FROM SEXUAL OFFENCES ACT 2012

In exercise of the powers conferred by Sub-section (1) , with clauses (a) to (d) of Sub-section (2) of Section 45 of the above Act, the Ministry of Women and Child Development, Government of India (GOI), has published a notification making the rules related to the protection of sexual offences against children. The rules also highlight the roles and responsibilities of District Child Protection Unit (DCPU), Child Welfare Committee (CWC) related to Care and Protection, Emergency Medical Care etc. The monitoring of the implementation of the Act will be done by National Commission for Protection of Child Rights (NCPCR) or State Commission for Protection of Child Rights (SCPCR), as the case may be.

Archaeology and Cultural Heritage Related Regulations

THE ANCIENT MONUMENTS AND ARCHAEOLOGICAL SITES AND REMAINS (AMENDMENT & VALIDATION) ACT, 2010

As per Section 20A (4) of the Act, no permission including carrying out any public work or project essential to the public or other constructions, shall be granted in any protected area on and after the date on which the Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Bill 2010 receives the assent of the President.Under Section 23,
(1)Where, as a result of any excavations made in any area under section 21 or section 22, any antiquities are discovered, the archaeological officer or the licensee, as the case may be, shall,- (a) as soon as practicable, examine such antiquities and submit a report to the Central Government in such manner and containing such particulars as may be prescribed ; (b) at the conclusion of the excavation operations, give notice in writing to the owner of the land from which such antiquities have been discovered, of the nature of such antiquities.
(2) Until an order for the compulsory acquisition of any such antiquities is made under sub-section (3), the archaeological officer or the licensee, as the case may be, shall keep them in such safe custody as
(3) On receipt of a report under sub-section (1), the Central Government may deem fit may make an order for the compulsory acquisition of any such antiquities.
(4)When an order for the compulsory acquisition of any antiquities is made under sub-section (3), such antiquities shall rest in the Central Government with effect from the date of the order.
Under Section 27, any owner or occupier of land who has sustained any loss or damage or any diminution of profits from the land by reason of any entry on, or excavations in, such land or the exercise of any other power conferred by this Act shall be paid compensation by the Central government for such loss, damage or diminution of profits.
The above regulation will be applicable to ASEPL, in case it undertakes the construction of the project and comes across any artefact of archaeological importance during any excavation or earth work.

INDIAN TREASURE TROVE ACT 1878 (AS MODIFIED UPTO SEPTEMBER 1949)
The act defines 'treasure' as anything of any value, hidden in soil or anything affixed to soil and treasure handing over procedure.

As per section 4 of the said act, whenever any treasure exceeding in amount or value ten rupees is found, the finder shall, as soon as practicable, give to the Collector notice in writing—

- Of the nature and amount or approximate value of such treasure;
- Of the place in which it was found;
- Of the date of the finding:

And either deposit the treasure in the nearest Government Treasury, or give the Collector such security as the Collector thinks fit, to produce the treasure at such time and place as be may from time to time require

THE ANTIQUITIES AND ART TREASURES ACT, 1972
This is an act which regulates trade in 'antiquities' and 'art treasures', and provides for prevention of smuggling and fraudulent dealing in antiquities and art treasures.

Both of above regulations will be applicable to ASEPL, in case it undertakes the construction of the project and comes across any artifact of archaeological importance during any excavation or earth work.

4.1.3 Applicable International Standards/Requirements

4.1.3.1 IFC Sustainability Framework, 2012

The IFC Performance Standards (PS) applies to private sector projects and provides project participants with instruments to structure, design, construct and manage the operations of projects in an environmentally and socially acceptable manner, while providing measures to avoid or mitigate adverse environmental and social impacts resulting from the projects. These Performance Standards are intended to focus on outcomes rather than process, thereby stressing the implementation of sound environmental and social management systems that achieve desired outcomes, including the mitigation of adverse impacts.

The following Performance Standards shall be typically applicable to any Solar Photovoltaic Power Project:

- PS1: Assessment and Management of Social & Environmental Risks & Impacts
- PS2: Labor and Working Conditions
- PS3: Resource Efficiency and Pollution Prevention
- PS4: Community Health, Safety & Security
- PS5: Land Acquisition and Involuntary Resettlement
- PS6: Biodiversity Conservation & Sustainable Management of Living natural Resources
- PS7: Indigenous Peoples
- PS8: Cultural Heritage

o **Performance Standard 1: Assessment and Management of Social & Environmental Risks & Impacts**

Objectives:

- Identifying and assessing environmental and social impacts in the project's area of influence.
- Avoiding, minimizing, mitigating or compensating for adverse impacts.
- Ensuring that affected communities are engaged on issues that may affect them
- Promoting improved environmental and social performance through effective management systems.

Requirements:

- Conducting an Environmental and Social Impact Assessment (ESIA or EIA) of the project, appropriate to the nature of the project's environmental and social risks and potential impacts, to include issues identified in Performance Standards 2 to 5.
- Establishing Environmental and Social Management Plans commensurate with the findings of the ESIA and consultation with affected communities.
- Establishing Action Plans where specific mitigation measures and actions are required for the project to comply with applicable laws, regulations and the requirements of these Performance Standards.
- Providing organizational capacity and contractor / employee training to enable project to achieve continuous environmental and social performance.

- Establishing and maintaining a timely process of community engagement, including a grievance mechanism, focusing on disclosure of information and consultation with local communities affected by project risks or adverse impacts that is free from external manipulation, interference or coercion to ensure relevant and understandable access to project information.
- Establishing procedures to monitor and measure the effectiveness of the environmental and social management program, including internal reporting of the program's effectiveness to the project's senior management, disclosure of Action Plans (including material changes to such Plans) to affected communities, and external reporting to affected communities on the results of Action Plans, commensurate with the concerns of the affected communities.

o **Performance Standard 2: Labor and Working Conditions**

Objectives:

- Establishing, maintaining and improving the worker-management relationship
- Promoting fair treatment and equal opportunity for workers, in compliance with national laws
- Protect workforce by addressing child labor and forced labor
- Promote safe working conditions and protect / promote the health of workers

Requirements:

- Establishing a Human Resources Policy consistent with the requirements of this Standard that informs employees of their rights under national labor and employment laws.
- Documenting & communicating to all employees' conditions and terms of employment.
- Respecting collective bargaining agreements with worker organizations and provide reasonable conditions and terms of employment that, at a minimum, comply with national law, and enable alternative means for worker expression of grievances where national law restricts worker organizations.
- Practicing non-discrimination and equal opportunity in making employment decisions.
- Providing a mechanism for workers to raise workplace concerns.
- Protecting the workforce from forced labor and illegal or economically exploitative child labor.
- Providing workers with a safe and healthy work environment, taking into account risks inherent to the particular project sector.

o **Performance Standard 3: Resource Efficiency and Pollution Prevention**

Objectives:

- Avoiding or minimizing adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.
- Promoting more sustainable use of resources, including energy and water.
- Reducing project-related GHG emissions.

Requirements:

- Taking consideration of ambient conditions and application of technically and financially feasible, resource efficiency and pollution prevention principles and techniques those are best suited to avoid, or where avoidance is not possible, minimize adverse impacts on human health and the environment.
- Implementation of technically and financially feasible and cost effective measures for improving efficiency in its consumption of energy, water, as well as other resources and material inputs, with a focus on areas that are considered core business activities.
- Consideration of alternatives and implementing technically and financially feasible and cost-effective options to reduce project-related GHG emissions during the design and operation of the project.

o **Performance Standard 4: Community Health, Safety & Security**

Objectives:

- Avoiding or minimizing the risks to, and impacts on, the health and safety of the local community over the project life cycle, from both routine and non-routine circumstances.
- Ensuring that the safeguarding of personnel and property is carried out in a legitimate manner that avoids or minimizes risks to the community's safety and security.

Requirements:

- Evaluating risks and impacts of the project on health & safety of the affected community during the project lifecycle and establish preventive/mitigation measures to reduce/minimize the impacts.
- Disclosing of action plans to affected community and the government agency.
- Designing, constructing, operating and decommissioning of Structural elements or components in accordance with good industrial practice to reduce impact on community health & safety.
- Minimizing of impacts on the health and safety of the community caused by natural hazards that could arise from the land use changes due to project activities.
- Preventing or minimizing the potentials for community exposure to communicable diseases during project activities.

o **Performance Standard 5: Land Acquisition and Involuntary Resettlement**

Objectives:

- Avoiding or minimizing involuntary resettlement whenever feasible by exploring alternative project designs.
- Mitigating adverse social and economic impacts by providing compensation for loss of assets at replacement cost and ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation and informed participation of those affected.
- Improving or at least restore livelihoods and living standards of displaced persons.
- Improving living conditions among displaced persons through provision of adequate housing with security of tenure at resettlement sites.

Requirements:

- Avoiding or at least minimizing involuntary resettlement by exploring alternative project designs balancing environmental, social and economic costs and benefits; and by acquiring land through negotiated Settlements.
- Compensating with adequate benefits for displaced person as per Performance Standard.
- Disclosing of all relevant information and consultation with affected persons and communities in decision making process related to resettlement.
- Establishing a grievance mechanism to record and resolve communities' concerns and grievances about the relocation and compensation.
- Resettlement planning and implementation of the displaced persons/communities.

o **Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources**

Objectives:

- To protect and conserve biodiversity.
- To maintain the benefits from ecosystem services.
- To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities

Requirements:

- The risks and impacts identification process as set out in Performance Standard 1 should be considered with regards to direct and indirect project-related impacts on biodiversity and ecosystems services and identify any significant residual impacts.
- Screening and assessing the risks and potential impacts on biodiversity and ecosystem services in the project area of influence, taking into account the following:
- The location and scale of project activities, including those of associated facilities;
- Its supply chains
- The project's proximity to areas of known biodiversity
- The types of technology that will be used.
- The ESIA or any follow-up Biodiversity/ecosystem services-related assessment should take into account the differing values attached to biodiversity and ecosystem services by Affected Communities.

o **Performance Standard 7: Indigenous Peoples**

Objectives:

- To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples.
- To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and/or compensate for such impacts.
- To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.

- To establish and maintain an ongoing relationship based on informed consultation and participation with the Indigenous Peoples affected by a project throughout the project's life-cycle.
- To ensure the Free, Prior, and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this Performance Standard are present.
- To respect and preserve the culture, knowledge, and practices of Indigenous Peoples.

Requirements:

- Checking if there are Communities of Indigenous Peoples who are resident upon the lands affected by the project as well as those who are nomadic or who seasonally migrate over relatively short distances, and whose attachment to ancestral territories may be periodic or seasonal in nature.
- Identifying communities of Indigenous Peoples who do not live on the lands affected by the project, but who retain ties to those lands through traditional ownership and/or customary usage, including seasonal or cyclical use.
- Identifying communities of Indigenous Peoples who have lost collective attachment to lands and territories in the project area of influence, occurring within the concerned group members' lifetime, as a result of forced severance, conflict, involuntary resettlement programs by governments, dispossession from their lands, natural calamities or incorporation into an urban area but who retain ties to lands affected by a project.
- Identifying groups of Indigenous Peoples who reside in mixed settlements, such that the Affected Indigenous Peoples only form one part of the more broadly defined community.
- Identifying communities of Indigenous Peoples with collective attachment to ancestral lands located in urban areas.

o **Performance Standard 8: Cultural Heritage**

Objectives:

- To protect cultural heritage from the adverse impacts of project activities and support its preservation.
- To promote the equitable sharing of benefits from the use of cultural heritage.

Requirements:

- The screening phase of the risks and impacts identification process should identify the extent and complexity of potential cultural heritage risks and impacts in the project's area of influence.
- The screening phase of the risks and impacts identification process should identify the extent and complexity of potential cultural heritage risks and impacts in the project's area of influence.
- The assessment should generally address potential adverse impacts to cultural heritage and, where possible, opportunities for its enhancement.
- Data collection and other assessment studies should be undertaken to avoid, minimize, and mitigate potential project impacts to cultural heritage resources.
- Measures should be undertaken for the protection of already-disturbed cultural heritage that are different from measures for the protection of untouched cultural heritage.

4.1.3.2 ADB Safeguard Policy Statement (SPS), 2009

ADB affirms that environmental and social sustainability is a cornerstone of economic growth and poverty reduction in Asia and the Pacific. ADB's Strategy 2020 therefore, emphasizes assisting Developing Member Countries (DMCs) to pursue environmentally sustainable and inclusive economic growth. In addition, ADB is committed to ensuring the social and environmental sustainability of the projects it supports. In this context, the goal of ADB's Safeguard Policy Statement (SPS) is to promote the sustainability of project outcomes by protecting the environment and people from project's potential adverse impacts.

The objectives of ADB's safeguards are to:

a) avoid adverse impacts of projects on the environment and affected people, where possible;
b) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

For corporate finance projects with subprojects, Safeguard Requirements 1-3 apply in addition to establishing and maintaining an ESMS.

The ESMS shall incorporate the following elements:

a) environmental and social policies;
b) screening, categorization, and review procedure;
c) organizational structure and staffing including skills and competencies;
d) environmental and social areas;
e) training requirements; and
f) monitoring and reporting.

A. <u>Environmental Safeguards</u>

The SPS includes explicit policy principles and requirements on:

- environmental assessment process
- biodiversity protection and natural resources management
- pollution prevention and abatement
- occupational and community health and safety

<u>Environment Categorisation</u>

A proposed subproject is assigned one of the following categories depending on the significance of the potential environmental impacts and risks:

(i) **Category A.** A proposed subproject project is classified as category A, if it is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment (EIA), including an environmental management plan (EMP), is required.

(ii) **Category B.** A proposed subproject is classified as category B if its potential adverse environmental impacts are less adverse than those of category A projects. These impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for category A projects. An initial environmental examination (IEE), including an EMP, is required.

(iii) **Category C.** A proposed project is classified as category C if it is likely to have minimal or no adverse environmental impacts. An EIA or IEE is not required, although environmental implications are reviewed and subproject specific environment management plan is framed.

A project's environment category is determined by the category of its most environmentally sensitive component, including direct, indirect, induced, and cumulative impacts. Each proposed subproject is scrutinized as to its type, location, scale, sensitivity and the magnitude of its potential environmental impacts. The level of detail and comprehensiveness of the EIA or IEE should commensurate with the significance of the potential impacts and risks.

B. Social Safeguards

ADB Social Safeguard Policies updated in June 2009 has categorized social safeguard requirements into two; namely i) Safeguard Requirements 2: Involuntary Resettlement ii). Safeguard Requirement 3: Indigenous Peoples.

Involuntary Resettlement (IR) -The three important elements of the IR Policy are:

- Compensation to replace lost assets, livelihood, and income;
- Assistance for relocation, including provision of relocation sites with appropriate facilities and services; and
- Assistance for rehabilitation to achieve at least the same level of well-being with the project as without it.

IR Categorisation

A proposed subproject is assigned one of the following categories depending on the significance of the probable involuntary resettlement impacts:

(i) **Category A.** A proposed project is classified as category A, if it is likely to have significant involuntary resettlement impacts. A resettlement plan, including assessment of social impacts, is required. The involuntary resettlement impacts of an ADB-supported project are considered significant, if 200 or more persons will experience major impacts, which are defined as (i) being physically displaced from housing, or (ii) losing 10% or more of their productive assets (income generating)

(ii) **Category B.** A proposed project is classified as category B, if it includes involuntary resettlement impacts that are not deemed significant. A resettlement plan, including assessment of social impacts, is required.

(iii) **Category C.** A proposed project is classified as category C, if it has no involuntary resettlement impacts. No further action is required.

C. Indigenous People (IP)

For the development interventions it supports or assists, ADB will ensure that affected populations and persons are at least as well-off as they would have been in the absence of the intervention, or that adequate and appropriate compensation be provided. Policy implementation should ensure equality of opportunity for Indigenous Peoples to participate in decision making and benefit sharing. Implementation must also ensure that bank-financed interventions affecting Indigenous Peoples are:

- Consistent with the needs and aspirations of affected Indigenous Peoples;
- Compatible in substance and structure with affected Indigenous Peoples identity, culture, and social and economic institutions;
- Conceived, planned, and implemented with the informed participation of affected communities;
- Equitable in terms of development efforts and impact; and
- Not imposing the negative effects of development on Indigenous Peoples without appropriate and acceptable compensation and their approval.

Consultation with Indigenous Peoples is the key to developing an effective, accurate, responsive Indigenous Peoples Plan.

IP Categorisation

A proposed project is assigned to one of the following categories depending on the significance of the potential impacts on Indigenous Peoples:

(i) **Category A.** A proposed project is classified as category A if it is likely to have significant impacts on Indigenous Peoples. An Indigenous Peoples plan (IPP), including assessment of social impacts, is required.

(ii) **Category B**. A proposed project is classified as category B if it is likely to have limited impacts on Indigenous Peoples. An IPP, including assessment of social impacts, is required.

(iii) **Category C.** A proposed project is classified as category C if it is not expected to have impacts on Indigenous Peoples. No further action is required.

Based on the categorization as discussed above for social safeguards pertaining to involuntary resettlement and indigenous people a screening will be undertaken to assess the impacts on affected communities and Indigenous

Peoples. To serve this purpose, the Project proponent is required to retain qualified and experienced experts to carry out a full social impact assessment (SIA), and if impacts on Indigenous Peoples are identified, the borrower/client will prepare a Resettlement Plan (RP) or Indigenous People Plan (IPP) in conjunction with the feasibility study (SIA).

Resettlement plan or Indigenous People Plan is to be prepared that is commensurate with the extent and degree of the impacts: the scope of physical and economic displacement and the vulnerability of the affected persons.

4.1.3.3 ADB Social Protection Requirements

The Social Protection Strategy, 2001spells out the scope of social protection and commitment of ADB to develop priority interventions in five major elements:

- labor market policies and programs designed to generate employment, improve working conditions and promote the efficient operations;
- social insurance programs to cushion the risks associated with unemployment, ill health, disability, work-related injury and old age;
- social assistance and welfare service programs for the vulnerable groups with inadequate means of support, including single mothers, the homeless, or physically or mentally challenged people;
- micro and area-based schemes to address vulnerability at the community level, including micro-insurance, agricultural insurance, social funds and programs to manage natural disasters; and
- child protection to ensure the healthy and productive development of children.

ASEPL and its subsidiaries shall comply with applicable labour laws in relation to its operations, and shall take the following measures to comply with the core labour standards[54]:

a) carry out its activities consistent with the intent of ensuring legally permissible equal opportunity, fair treatment and non discrimination in relation to recruitment and hiring, compensation, working conditions and terms of employment for its workers (including prohibiting any form of discrimination against women during hiring and providing equal work for equal pay for men and women engaged by the Borrower);

b) not restrict its workers from developing a legally permissible means of expressing their grievances and protecting their rights regarding working conditions and terms of employment;

c) engage contractors and other providers of goods and services:

[54] the core labour standards are the elimination of all forms of forced or compulsory labour; the abolition of child labour; elimination of discrimination in respect of employment and occupation; and freedom of association and the effective recognition of the right to collective bargaining, as per the relevant conventions of the International Labor Organization; forced labour means all work or services not voluntarily performed, that is, extracted from individuals under threat of force or penalty; and child labour means the employment of children whose age is below the statutory minimum age of employment in the relevant country, or employment of children in contravention of International Labor Organization Convention No. 138 'Minimum Age Convention" (www.ilo.org).

(i) who do not employ child labour or forced labour;
(ii) who have appropriate management systems that will allow them to operate in a manner which is consistent with the intent of (A) ensuring legally permissible equal opportunity and fair treatment and non discrimination for their workers, and (B) not restricting their workers from developing a legally permissible means of expressing their grievances and protecting their rights regarding working conditions and terms of employment; and
(iii) whose subcontracts contain provisions which are consistent with paragraphs (i) and (ii) above.

4.1.3.4 The Equator Principles 2013

Equator Principles have been collectively developed by world's leading financial institutions and lending agencies keeping an eye on the enviro-social risk attached to investments in any developmental project. These principles are an industry benchmark for determining, assessing and managing social and environmental risk in project financing designed in line with the UN Guidelines, IFC Performance Standard and the World Bank's guidelines. The institutions who have formally adopted these Principles are known as the Equator Principles Financial Institutions (EPFIs). The EPFIs have consequently adopted these Principles in order to ensure that the projects they finance are developed in a manner that is socially responsible and reflect sound environmental management practices. By doing so, negative impacts on project- affected ecosystems and communities should be avoided wherever possible, and if these impacts are unavoidable, they should be reduced, mitigated and/or compensated for appropriately. These Principles are intended to serve as a common baseline and framework for the implementation by each EFPI of its own internal social and environmental policies, procedures and standards related to its project financing activities. The version of the principles used for guidance in this ESMS is of 2013 which is in line with the IFC PS 2012.

5. Planning

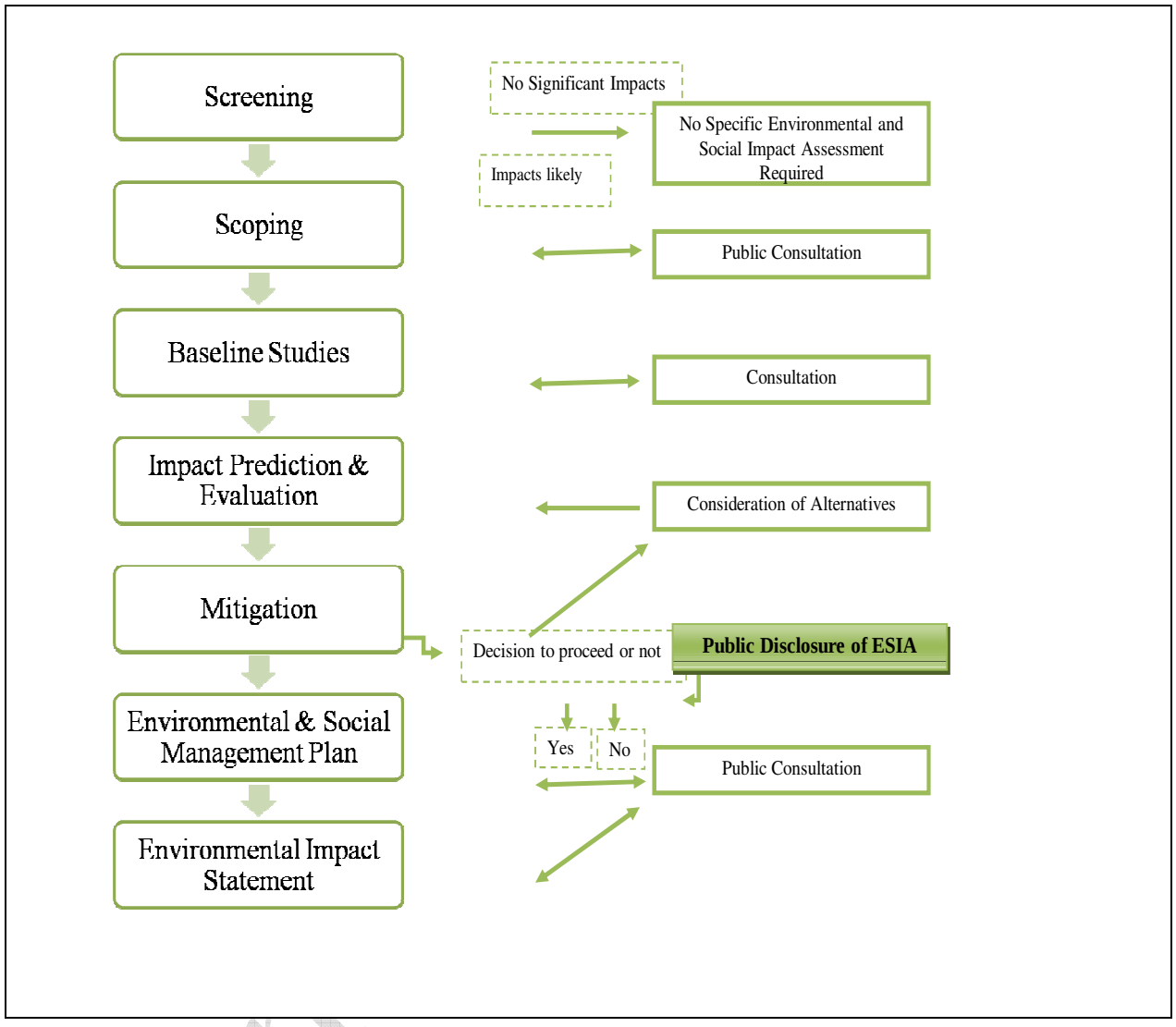
Several components of the EHS & Social policy need to be planned for better implementation of the same. ASEPL understand the importance of good procedural planning for better efficient execution of our business interest with lesser financial as well as enviro-social risks.

This sub section covers aspects of identification, risk identification and mitigation planning, regulatory compliance requirements as well as other requirements and guidelines (like that of IFC, ADB, World Bank, Equator Principles) for efficient planning for ensuring that the policy objectives are being met. Before the establishment of any project, it has been a standard practice to conduct ESIA process in line with ESMS manual. Planning for individual projects will mostly depend upon the specific site condition as well as the socio-economic profile of the project area. Therefore, ASEPL and its subsidiaries should use ESIA as a tool for identifying aspects/impacts and risks; that will aid in efficient planning.

The ESIA process incorporates a number of key steps illustrated in

Figure 5-1. The assessment process constitutes a systematic approach to the evaluation to the project(s) in the context of the Environmental, Socio-Economic and Regulatory aspects in which the project(s) is/are proposed. A typical ESIA has the following outline (Appendix K).

Figure 5-1: ESIA Process



Activities that are generally assessed during C, O, M and D phases include the following three on a broad scale–

- Planned routine activities
- Planned but non-routine activities
- Unplanned or accidental events

Following are the key components that have been discussed below:

➢ Identifying and Evaluating Environmental and Social Aspects

ASEPL and its subsidiaries shall establish and maintain a well documented procedure for identification and evaluation of various enviro-social aspects related to the entire life cycle of the project activities as well as to process/ activity/ functioning of each department. All input and output streams for the process/activity/ function shall have to be identified and characterized. The impacts on the environment due to the identified environmental aspects should be determined thorough exhaustive ESIA exercise involving baseline survey and identification of impacts.

➢ EHSS Risk Assessment

ASEPL and its subsidiaries shall establish and maintain a documented procedure for the on-going identification of hazards, the assessment of risks and the implementation of necessary control measures.

- ASEPL & subsidiaries shall ensure that the results of these assessments and the effects of these controls shall be considered while setting its EHS objectives
- The methodology for hazards identification and risk assessment shall be defined with respect to its scope, nature and timing to ensure that it is proactive rather than reactive.
- It shall provide for classification of risks and identification of those that are to be eliminated or controlled by appropriate and applicable measures.
- It shall be consistent with the operating experience and capabilities of risk control measures employed.
- It shall provide input into the determination of facility requirement, identification of training needs and development of operational controls for the monitoring of required actions to ensure both the effectiveness and timeliness of their implementation.
- It shall consider human capabilities, behavior and attitudes, while conduction of risk assessment.

5.1 Baseline Assessment

In practice baseline assessment is a standard set of procedures for establishing present site conditions with respect to its environmental and social set up and composition is an important process, which helps in identification of risks, impacts and planning for their mitigation and management. For that reason, ASEPL considers it worth to carry out a thorough, ground clearing baseline assessment of the project area for enforcement of best EHSS management practices.

A Typical Baseline Assessment before setting up a new solar PV project should consist of:

- **Secondary Data review related to Demography, Local Environmental Setting and Socio-Economic Baseline**

  This data may be obtained from the government sources, both local as well as national to confirm the accuracy of data. Also, data from reports and latest articles published in other reliable sources can also be used for this purpose.

- **Socio-economic Survey**

A typical socio-economic survey is conducted to map and recognize the socio-economic profile of the area in the vicinity of the project to gauge the level of acceptance/ reluctance of the project by the people living in that area. The components of this survey includes data on family type, family size, sources of livelihood, livestock details, quality of accommodation; expenditure, assets owned and indebtness details; land details, farming details and other such observations by the assessor.

- **Environmental Baseline Survey**

Environmental baseline survey, as the name suggests, is conducted to assess the environmental conditions before the establishment of project. It is a requirement under this kind of survey to pay special heed to the local biodiversity and hence, proper planning needs to be carried out to ensure that no harm is done to the biodiversity because of the project activities.

- **Market Research Survey**

This survey is carried out to have an idea about the rates of land (residential, commercial, and agricultural), trees, crops and other assets etc.

- **Needs Assessment**

Every project brings with itself some expectation to the local people, mainly for employment and raising the standard of living. Therefore, a need assessment survey is basically carried out to assess this level of expectation of the local stakeholders.

- **Participatory Rural Appraisal (PRA)**

PRA is an approach used to incorporate the knowledge and opinions of rural people in the planning and management of development projects and programmes.

The practice of baseline assessment survey contributes in foreseeing adverse impact on the overall EHSS front which through planning and implementation of adequate mitigation and management measures these impacts and risks can be minimized and controlled.

Activities that are predicted to result in significant environmental and social impacts during construction phase generally include –

- Site Preparation
- Minor excavation and leveling
- Hauling of earth materials and wastes
- Cutting, filling and drilling
- Erection of concrete and steel structures
- Road construction
- Right of Way (ROW) Clearance/ ROW Preparation

- Painting and finishing
- Clean up operations
- Landscaping and plantation
- Habitat fracturing, etc.

These activities can be further divided into two categories, viz. sub-structural and super-structural work. Moreover, construction work will involve cutting of trenches, excavation, concreting etc. All these activities attribute to dust pollution. The super-structural work will involve operation of large construction equipment like cranes, concrete mixers, hoists, welding sets etc. There may be emission of dust and gases as well as noise pollution from these activities.

Mechanical erection work involves extensive use of mechanical equipment for storage, transportation, erection and on-site fabrication work. These activities may generate some air contaminants and noise pollution. The electrical activities are less polluting in general, but are associated with other kinds of hazards.

Given below are some generic aspects and impacts typically linked to the C, O, M and D phases of a Solar PV based power plant.

5.1.1 Significant EHSS Aspects and Impacts

Table 5-1: Identification of Aspects and Probable Environmental Impacts during Commissioning Phase

Commissioning Activities	Environment Aspects	Probable Impacts
Land Acquisition	Land	• Any significant impact on land-use might be there that depend on the specific project and should be well taken care of.
Site Clearing and Leveling (cutting, stripping, excavation, earth movement, compaction)	Air	• Fugitive Dust Emissions • Air emissions from construction equipments and machinery & vehicular movement
	Water	• Run-off from construction area • Pollution • Hydrological Changes
	Land	• Loss of top soil
	Ecology/ Biodiversity	• Loss of vegetation/ habitat/ biodiversity in the region • Adverse effects on delivery of Ecosystem Services • Sustainable management of living natural resources • Habitat loss • Overexploitation • Threat of Invasive Alien Species
Transportation and	Air	• Air Emissions from vehicles

Commissioning Activities	Environment Aspects	Probable Impacts
Storage of Construction Material/ Equipment		• Fugitive dust emission due to traffic movement
	Water	• Run-off from storage areas of construction material
	Waste generation and disposal	• Possibility of temporary or permanent health impacts (on the workers on-site and on the animals/ humans that are in the vicinity of the project activity, if the construction materials contains any hazardous substances) • Nutrient loading
Civil/ Construction Activities	Air	• Air emissions form construction machinery • Fugitive dust emissions
	Water	• Run-off from construction • Pollution
Mechanical and Electrical Erection Activities	Air	• Air emissions from machines/ activities
Influx of Labor and Construction of Temporary Houses	Land	• Change in land use pattern of the area
	Water	• Sanitary effluents from labor colonies
Transportation and Disposal of Construction Debris	Air	• Air emissions form transport vehicles • Fugitive dust emissions due to movement of traffic • Spillage and fugitive emissions of debris materials
	Water	• Run-off from Disposal Areas
	Soil	• Conversion of land into waste land

Table 5-2: Identification of Aspects and Probable Environmental Impacts during Operation & Maintenance Phase

Operation & Maintenance activities	Environment Aspects	Probable impacts
Transportation	Air	• Air Emissions from Vehicles • Fugitive Dust Emissions due to Traffic • Noise due to Vehicular movement
	Public Utilities	• Increased flow of traffic
	Water	• Effluents from Oil Storage Areas
Burning of Fuel	Air	• No Stack emissions from solar Project
Water Treatment for various uses	Water	• Generation of Wastewater due to PV Cleaning Modules

Operation & Maintenance activities	Environment Aspects	Probable impacts
Equipment Cooling	Water/ Ecology	• Discharge of Hot Water containing chemicals
Operation of Transformers and Switchyard	Water	• Generation of effluents containing oil
Day to Day operations	Ambient Noise	• Nuisance in public life
Transmission Line	Energy Loss during Transmission	• Decrease in the amount of the total energy reaching the Sub-station, and hence the people.

Table 5-3: Identification of Aspects and Probable Environmental Impacts during Decommissioning Phase

Decommissioning Activities	Environment Aspects	Probable Impacts
Dismantling	Ambient Noise	• Noise pollution because of the dismantling of panels and other constructions related to the project activities.
	Air	• Fugitive Dust Emissions arising out of operations during this phase which mainly include land clearing, structure removal, backfilling, dumping, restoration of disturbed areas (grading, seeding, planting), and truck and equipment traffic.
	Hazardous material/ Waste Management	• Substantial amounts of solid and industrial waste would be generated that can pose serious ecological problems. ***Therefore, solid material*** • ***(e.g., concrete and masonry, steel, reflecting mirrors, power cable etc.) could be recycled and sold as scrap or used in road building; the remaining nonhazardous waste should be sent to permitted disposal facilities.***
Removal of access and on-site roads, buildings, and other structures; and heavy vehicle traffic.	Soil & Geologic Resources	• Surface disturbance, heavy equipment traffic, and changes to surface runoff patterns can cause soil erosion. Impacts of soil erosion include soil nutrient loss and reduced water quality in nearby surface water bodies.

Table 5-4: Identification of Aspects and Probable Social Impacts during different phases of the Project

Activities	Social Aspects	Probable Impacts
During Commissioning, Operation & Maintenance Phase		
Transportation	Overburden on Local Transportation	• Increased flow of traffic leading to traffic congestion, depending on the current conditions prevalent in the project area. • Accidental Risk
Pre-Construction	Land Rates	• If land rates are less than the circle or market rates, it might create a social unrest at some or the other phase of the project.
Construction and general operational activities	Labor Influence – sizable influx of population	Employment opportunities shall increase • Stress on infrastructure • Effect on the social fabrics of the project area • Changes in income & expenditure consumption including food/ housing inflation • Possibility of Transmission of Diseases – both human as well as through livestock
	Labor Issues like Child Labor, Forced Labor, Bonded Labor, and Equal remuneration for men and women for	• Non-compliance on part of ASEPL.
	Electrocution	• Possibility of animal/ human deaths
	Transmission Line	• Health and Safety Hazards
	Habitat Fracturing	• Disputes between villagers/ families
	Wetlands	• Impacts like temporary or permanent drying of Wetlands may occur if proper measures are not taken during the initial phase, mainly during the feasibility study of the project.

Activities	Social Aspects	Probable Impacts
	R&R Issues	• People might have to migrate to some other places because of the project • Might even lose their permanent source of livelihood
	Cultural Heritage	• There might be likely impact on cultural resources, especially if the project is located near a tribal area
Decommissioning	Socio- Economic Condition of the local residents	• Direct positive impact by creation of jobs during the Decommissioning phase, but indirect and negative impact in long run because of loss of jobs and revenue after decommissioning is completed. The socio-economic condition might deplete in the absence of other options for earning livelihood or sources of income. Therefore, ASEPL shall take due steps to minimize the negative impacts by means of competence building during the C, O, M and D phases of the project so that the local people are able to survive the impacts of decommissioning.
	Health and Safety Hazards due to Dismantling Activities	• Accidents during transportation of oversized or overweight equipments/ materials • Possible contact with natural hazards, such as uneven terrain and dangerous plants, animals, or insects.

5.2 Identification of Legal and Other requirements

Chapter 3 details the applicable legal requirements that should be considered while establishing the objectives and targets for the project and should be complied with.

5.3 Screening and Categorization of the Project

The project shall be scrutinized as to its type, location, scale and sensitivity and the magnitude of its potential environmental impacts. The projects will be assigned a category pertaining to environment and social safeguards of ADB safeguard policy. The table below presents a gist of categorization and the procedure that will be followed after the screening stage of the project.

Table 5-5: Application of ADB & IFC Safeguards Requirements for all ASEPL's Subprojects

Category Assigned	Environmental Safeguards	Involuntary Resettlement Safeguards	Indigenous Peoples Safeguards	IFC Sustainability Framework, 2012
Category A (with potential significant impacts)	Category A projects from Environment, Indigenous people and Involuntary Resettlement will be excluded from ASEPL portfolio			
Category B (with less significant impacts)	Comply with PIAL and (i) Safeguards Requirements 1 of the ADB Safeguard Policy Statement, including IEE preparation & submission, and (ii) compliance with National and State laws	Comply with PIAL and (i)Safeguards Requirements 2 of the ADB Safeguard Policy Statement, including RP preparation & submission, and (ii) compliance with National and State laws	Comply with PIAL and (i) Safeguards Requirements 3 of the ADB Safeguard Policy Statement, including IPP preparation & submission, and (ii) compliance with National and State laws	Comply with all triggered Performance Standards, World Bank EHS guidelines and National regulations as applicable to the project. Submit regular audit reports and annual report on compliance to environment and social action plan, Environment and Social Management Plan as part of ESIA.
Category C (with minimal or no impacts)	Comply with ADB's PIAL & National and State laws.	Comply with ADB's PIAL & National and State laws. No further action is required	Comply with ADB's PIAL & National and State laws. No further action is required	
Review and Information Disclosure Procedures for all Categories	Key relevant environmental information from EIA/IEE disclosed to affected people during project preparation. ADB to review Environmental assessment report for Category B subprojects.	Environmental and Social Performance Report Key information from RP disclosed to affected people during project preparation. ADB to review RP for Category B subprojects.	Environmental and Social Performance Report Key information from IPP disclosed to affected people during project preparation. ADB to review IPP for Category B subprojects.	

Category Assigned	Environmental Safeguards	Involuntary Resettlement Safeguards	Indigenous Peoples Safeguards	IFC Sustainability Framework, 2012
	Disclosure of Environmental and Social Safeguards Compliance Audit and monitoring reports including Corrective Action Plan and IEE for sub projects submitted to ADB for review.	Disclosure of Environmental and Social Safeguards Audit report, Corrective Action Plan and IEE covering IR aspects for subprojects submitted to ADB for review. Monitoring reports for Category B projects disclosed locally in a form and language understandable to affected people.	Disclosure of Environmental and Social Safeguards Audit report and Corrective Action Plan and IEE covering IP aspects for subprojects submitted to ADB for review. Monitoring reports disclosed locally in a form and language understandable to affected people.	
	Disclosure of E&S monitoring report for Category B subprojects on ADB's website is mandatory and on ASEPL website is encouraged.	Disclosure of safeguards documents on ADB's website is mandatory and on ASEPL website is encouraged	Disclosure of safeguards documents on ADB's website is mandatory and on ASEPL website is encouraged	
ASEPL will submit to ADB and IFC an annual environmental and social monitoring report of subprojects including ASEPL's performance in implementing its ESMS. For projects with involuntary resettlement impacts, submission of semi-annual reports will be submitted to ADB.				

5.3.1.1 Identification & Evaluation of Environmental and Social Aspects and Associated Impacts/ Health & Safety Hazards & Associated Risks

Purpose

To establish a procedure for identification of environmental and social aspects and associated impacts/ occupational health & safety hazards and associated risks.

Scope

All activities, products and services of ASEPL.

Responsibility and Authority

A Core Group consisting of EHS Management Cell, HR Department, Regulatory Department and Solar Financial Controller is responsible for identifying aspects–impacts, hazards-risks and evaluating its significance and risk assessment.

Solar Financial Controller is responsible for updating the list of aspects-impacts, hazards-risks for all new activities, products or services that might be added from time to time.

5.3.1.2 Due Diligence of New and Existing Projects

Purpose

This procedure is being established to ensure the Optimum returns from the project, feasibility and viability for establishing a project and accordingly analyze the pros and cons once the project establishes in desired location.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational, maintenance & decommissioning phases.

Terms and Definitions

- **Power Evacuation Feasibility** - Study which is done for calculating adequate capacity at the transmission utilities sub- station, distance to sub-station, right of way issues.
- **GHI** – Global Horizontal Irradiance
- **CUF –** Capacity Utilization Factor
- **Financial Pre-Feasibility -** Preliminary calculations on the overall cost, generation and cost of generation would be assessed to establish project financial viability. This activity is a go/no-go assessment for the project.
- **Geological Due Diligence -**Preferred orientation of land is flat; the same must be assessed at this stage. Other criteria of review include state of drainage system, dust percentage in air and soil strength to support structures.

Roles and Responsibility

- Technical Feasibility – to be done by Chief Technology Officer.

- Supplier Selection – to be done by Head Procurement and Corporate Sustainability Cell.
- Financial Feasibility – to be done by GM Finance.
- Power Evacuation Feasibility – to be done by Head Projects.
- Site Accessibility – to be done by Head Projects.
- Engineering Feasibility – to be done by Head Engineering.

Procedure

- **Identification of Site:** The first task towards project development is the identification of a suitable site. ASEPL or its subsidiary needs to identify a site and check its availability from local Patwari (Clerk level officer at state revenue department).
- **Solar Isolation and Shadow Assessment :** Site specifications including level of solar irradiation at site, temperature and obstacles which may cast shadows need to be checked initially. It is recommended that for ascertaining accuracy of solar irradiation data, especially for large solar thermal plants, dedicated weather stations are erected at the site for local irradiation measurement and a minimum of 12 to 18 months of data is gathered for observation. It is also recommended that ground based data be correlated with satellite and ground station data to get a better idea about the average annual irradiation and irradiation patterns at the proposed site.
- **Geological Due Diligence:** Preferred orientation of land is flat; the same must be assessed at this stage. Other criteria of review include state of drainage system, dust percentage in air and soil strength to support structures.
- **Social Audit of the Site:** Along with availability of labor at site, the security and local social support for power plant are important factors and shall also need to be assessed. It is recommended that local communities are engaged immediately after site identification and finalization. .
- **Power Evacuation Feasibility and Site Accessibility:** Power evacuation feasibility must be established which would include availability of adequate capacity at the transmission utilities sub- station, distance to sub-station, right of way issues etc. Connectivity to the site (road and rail) and distance from urban areas would also need to be examined for suitability. Accessibility of site by trucks and cranes is critical and must be assessed.
- **Technology and Supplier Selection:** An appropriate Solar technology would be identified based on factors such as maturity and performance of the technology, space requirements and availability, available GHI, cost of technology (capital and O&M), projected CUF's, risks associated with the technologies, need for trained manpower, level of commercial development and technology support available from technology supplier, availability of technology suppliers/ performance guarantees etc. All of these factors play a critical role in the identification of a suitable technology. For the selected technology, equipment providers shall then be identified and selected.
- **Financial Pre-Feasibility:** Preliminary calculations on the overall cost, generation and cost of generation would be assessed to establish project financial viability. This activity is a go/no-go assessment for the project.

Monitoring

Internal audits of Due Diligence Process to be held every six monthly. All records of these reports shall be maintained by the Corporate EHS Manager at the Corporate Office only.

Reporting

Due Diligence Reports will be consolidated from concerned departments by Head Human Resource and will be shared with the Head Projects.

Record Keeping / Outcome

- Due Diligence Report
- Technical Report
- Financial Feasibility Report
- Project Feasibility Report

5.3.1.3 Screening of Project Alternatives

There shall be a mandatory exercise of screening to decide between the alternatives before establishing any project by ASEPL or any of its subsidiaries. The exercise should take into consideration various project management and location alternatives as well technological alternatives that shall be examined as part of the Pre-feasibility, for the proposed power plant as part of the ESIA study.

Management Alternatives

Management alternatives shall be to examine the option of 'Go/ No-Go' option, i.e., whether to install or not install the power plant as in whether to bringing in any change or no change to the baseline scenario, and the 'alternative technology' option, i.e., using different type of Solar PV panels available and choosing the best kind, taking into consideration the project life time, location, climatic condition, site area etc.

- The option of Go shall be chosen only with enough justification for the project's location, technological alternatives as well as how the project will positively benefit the society as a whole.
- The option of No-go can be exercised in conditions where the management feels that the area is too pristine or too much ecological sensitive a site which might get significantly affected due to such a power project are discussed in a brief below.

Location Alternatives

ASEPL shall ensure that the land required for its current and future projects shall be barren, unpopulated and in non-notified area for tribal population, so that there is minimum environmental and social impacts and no or minimum R&R issues.

Technological Alternatives

Photovoltaic (PV) technology converts energy from the sun (photons) into electricity. Current PV technologies use semiconductor materials also found in computers and other electronic equipment. Semiconductors release electrons from their atomic bonds producing electrical current.

There are two leading manufactured solar photovoltaic (PV) technologies in commercial use today; crystalline silicon PV and thin-film PV. The vast majority of solar module demand comes from crystalline silicon (80%) with thin-film making up

the balance. Since 2008, thin-film has gained ground on crystalline silicon largely due to the higher manufacturing costs associated with crystalline silicon PV.

Crystalline silicon PV (c-Si)

C-Si cells were first commercialized by Bell Labs in the 1950s. They are made by slicing high purity silicon into thin wafers the thickness of a human hair. Three types of crystalline silicon are used in the production of solar cells:

Mono-crystalline silicon uses single-crystal wafer cells cut from cylindrical ingots. These are very expensive due to the manufacturing process involved.

Poly or multi-crystalline silicon cells are made from square cast ingots. These cells are less expensive than mono-crystalline but also less efficient.

Ribbon silicon is made by drawing flat thin-films from molten silicon creating a multi-crystalline structure. Their efficiencies are lower but costs are significantly cheaper by saving on material waste.

Mono-crystalline silicon solar modules are the workhorse of the solar industry. They are extremely durable and have the highest commercial power conversion efficiencies. However, growing the single crystalline structure in the manufacturing process is time consuming and extremely expensive.

Poly-crystalline solar modules are made from a block of silicon that contains multiple crystals. These panels are square in shape with a mosaic-like structure. The poly-crystalline modules are much cheaper to produce than mono-crystalline due to their less stringent crystal structures. The trade-off for less expense with polycrystalline cells; however, is their lower efficiencies over mono-crystalline silicon modules.

Thin-film PV (CdTe, a-Si, CIGS)

Thin-film PV is the fastest growing sector of the solar cell manufacturing industry. Thin-film cells are manufactured by applying very thin layers of semiconductor material to inexpensive materials such as glass, plastic or metal. Thin-film semiconductors absorb light more easily than c-Si, therefore requiring less semiconductor material, making them far less expensive than crystalline silicon modules.

There are three leading manufactured thin-film PV modules presently:

CdTe or Cadmium Telluride thin-film currently has the lowest Wp (watt peak) production cost due to a balance between ease of production and higher cell efficiency (currently 6 – 11%: limited to 31% maximum).

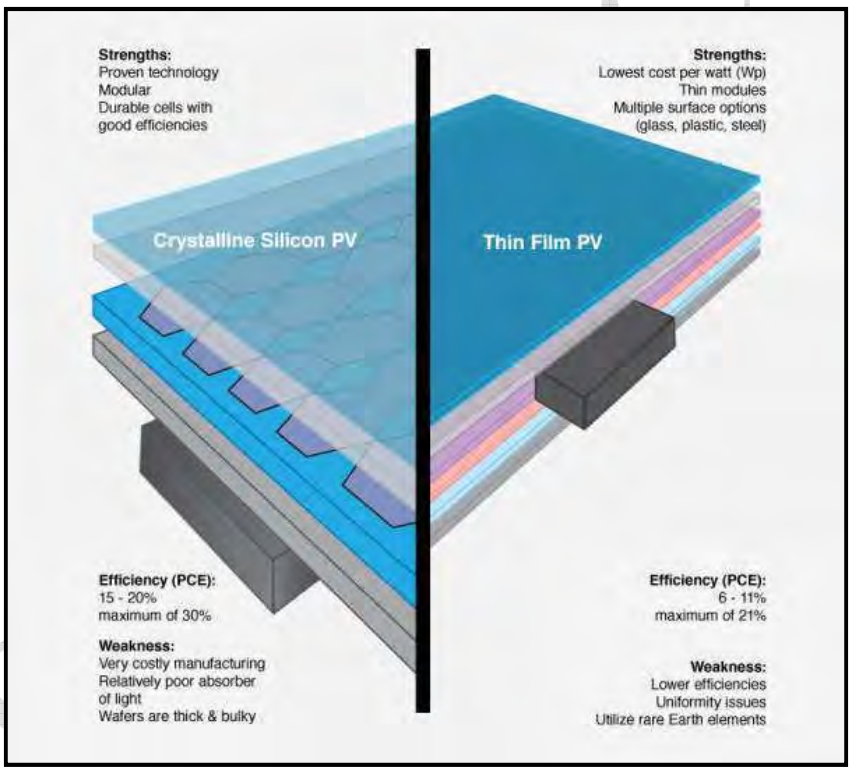
a-Si or Amorphous Silicon thin-film uses a highly proven but slower layer deposition manufacturing process which results in lower efficiencies (currently 6 – 8%: limited to 12% in-lab). Microcrystalline technology is used as an upgrading technology to boost the amorphous silicon products to efficiencies of around 10%.

CIGS or Copper Indium Gallium Selenide thin-film has been able to reach the highest efficiencies in production: 13 – 14% max, and averaging around 10%. There are difficulties in controlling the uniformity of the active layer on larger formats, and this does not currently work on steel.

All currently manufactured thin-film PV solar cells rely on either rare earth elements (such as Indium or Tellurium). These elements have very finite quantities globally and are often situated in only a few locations with exports strictly controlled by those countries. Despite the lower cost advantages of thin-film PV technologies, none of them can achieve commercially produced efficiencies over 17%. The combination of these factors restricts thin-film from achieving terawatt scale global power production.

ASEPL shall ensure that the selected technology for current and future projects should produce high energy output and is bankable as compared to all other available technologies.

Figure 5-2: Comparison between Crystalline Silicon PV and Thin Film PV



5.3.1.4 Contractor Engagement Procedure

Purpose

This procedure defines responsibilities and provides requirements for planning and carrying out contractor work at ASEPL facilities. The purpose of these requirements is to minimize or eliminate risk to personnel health & safety and to the environment. This document contains basic safety information regarding procedures for Contractors working at ASEPL

facilities. This document identifies, work practices and procedures that must be followed to minimize impact to personnel health & safety and to the environment while working at ASEPL. All Contractors and Sub-Contractors performing work at ASEPL facilities are expected to comply with these requirements and all applicable laws and regulations that pertain to environmental, health and safety standards and/or work practices. Failure to abide by these requirements and applicable environmental, health, and safety standards and /or work practices, may subject to corrective action that may result in disqualification for future consideration of work at ASEPL or termination of contract agreements with ASEPL. Provision of PPEs needs to be mandatorily covered with work agreements with contractors.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Terms and Definitions

- **Contractor:** A firm who is contracted directly with ASEPL to perform work or provide services on the premises of ASEPL.

References

- The Environment (Protection) Act of India, 1986, India
- The Noise Pollution (Regulation and Control) Rules,2000, India
- Policy principles of Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012
- Performance Standard 2 on Labour and Working Conditions of IFC Sustainability Framework, 2012
- ADB's Social Protection Strategy, 2001

Roles and Responsibilities

Head Procurement and Corporate Sustainability Cell – will be responsible for ensuring Contractor Management Procedure at Corporate level, and Stores Officer at Site will be responsible for Site level.

Procedure

a.) **Pre-employment and employment procedure.** ASEPL will provide a scope of work prior to the contractor which will include EHS aspects to be taken care of while performing the work. Potential EHS issues are identified by contractor and EHS requirements are satisfied prior to the bidding process, apart from the following:

- Pre-qualification status of the Contractor should be confirmed,
- Project specifics such as location, timelines, milestones, quality and responsibilities for human and material resources are clarified.

- Identification of orientation and training needs, frequency of training and responsibility for providing the training

b.) **Contractor pre- employment evaluation.** In order to be eligible to perform work on site, a contractor must be pre qualified. The process for prequalification involves evaluating the contractor on ASEPL's EHS performance criteria and qualifying them as acceptable/non-acceptable. Standardized pre-qualification criteria to assess contractor's compliance with Environment, Health and Safety regulations and industry best practices shall be developed and maintained. There are two potential outcomes of their qualification assessment which will result in the assignment of contractor acceptance status. Acceptable-Pre qualification criteria have been met. Non Acceptable-Pre qualification criteria have not been met. ASEPL shall appoint contractors with acceptable status if the score is 8 or above. However if contractors do not meet the minimum criteria or score, they shall be qualified as unacceptable. In such case, additional efforts shall be made by the contractor to satisfy ASEPL's acceptance.

c.) **General Requirements**

Regulatory Compliance

- The Contractor and Sub-Contractor personnel shall:
- Ensure compliance with all applicable laws and regulations of any governmental entity that pertain to environmental, health and safety standards and/or work practices.
- Correct unsafe work practices, conditions, and regulatory violations committed by Contractor and Sub-Contractor personnel.
- Notify the ASEPL EHS Manager of conditions or practices found on site that could result in serious injury, property damage, or environmental damage.

Emergency Reporting

- Dial the site emergency number to report any emergency.

Incident Reporting

- All incidents resulting in injuries that require medical treatment (i.e., more than first aid) and property damage or "near miss" incidents that could have resulted in serious injury or property damage must immediately be reported to the ASEPL Project Manager.

Report of Injuries

- The contractor shall report to the ASEPL EHS Manager all work-related injuries, and illnesses involving Contractor/Subcontractor workers, that require medical treatment (i.e., more than first aid), as soon as the Contractor obtains knowledge of such incident.
- The contractor is further responsible for completing and submitting any reports or other records required by the above notifications.

Incident Investigation

- All serious or potentially serious incidents involving Contractor and Subcontractor personnel on ASEPL property or those that involve ASEPL employees or property damage will be investigated jointly by the Contractor, the ASEPL Project Manager/EHS Manager, and a member of the ASEPL employee.

Hazard Reporting

- Any identified hazards discovered by the contractor that is beyond their ability and/or responsibility to fix must be immediately reported.

Injury Prevention / Safety

- The contractor shall develop and maintain all appropriate safety programs or injury and illness prevention programs for its workers assigned to ACME. Such programs shall include training that is appropriate to the general type of work which Contractor's worker is to perform, and shall adhere to all regulatory requirements.

Safety Equipment

- Prior to commencement of an assignment, contractor will assure that contract and subcontract personnel are outfitted with all appropriate personal protective equipment (PPE) that is issued for the specific person (e.g., SAFETY Shoes and SAFETY GLASSES) and appropriate "general issue" PPE for site specific hazards.
- The PPEs and safety appliances provided by the Contractor shall be of the standard as prescribed by Bureau of Indian Standards (BIS). If materials conforming to BIS standards are not available, the Contractor shall procure PPE and safety appliances as approved by ASEPL. PPEs are required for the following protection:
    - Head Protection (Safety helmets)
    - Foot Protection (Safety footwear, Gumboot, etc)
    - Body Protection (High visibility clothing (waistcoat/jacket), Apron, etc)
    - Personal fall protection (Full body harness, Rope-grap fall arrester, etc)
    - Eye Protection (Goggles, Welders glasses, etc)
    - Hand Protection (Gloves, Finger coats, etc)
    - Respiratory Protection. (Nose mask, SCBAs, etc)
    - Hearing Protection (Ear plugs, Ear muffs, etc)

Environmental Health & Safety Training

- The Contractor is responsible for ensuring all of its employees and subcontractors have the proper training with regard to environmental, health, and safety and are competent to perform their job functions at ASEPL work sites. Contractor will participate in HSE trainings offered by ASEPL to ensure that Contractor employees and subcontractors safety procedures, and environmental requirements, etc. The Contractor will make a copy of the content of their training available to ASEPL upon request.

Licenses / Permits

- The Contractor must ensure all contractor and subcontract personnel have the required licenses or permits for the work they perform.

Parking / Traffic

- All traffic rules must be obeyed while on ASEPL properties including stop signs, parking restrictions and posted speed limits.

Use of Equipment / Vehicles

- The Contractor must provide their own tools, equipment, and vehicles. All tools and equipment must be clearly label with ownership identification.

Behaviors that will be considered misconduct include:

- Theft, damage, or unauthorized possession or use of property/systems.
- Unauthorized access to computer files.
- Use, possession, sale, dissemination or other involvement in illegal drugs or controlled substances.
- Unauthorized use or possession of alcohol.
- Being under the influence of alcohol, drugs, or controlled substances.
- Acts of physical violence or acts involving threats, intimidation, harassment, or coercion.
- Introduction onto ASEPL with explosives, firearms, chemicals, or other dangerous weapons or devices.
- Safety violations which present a risk of serious injury or property damage.
- Creation, viewing, distribution, or storage of sexually explicit materials.

Stopping Work

- For an EHS violation ASEPL may direct the contractor to immediately stop work and leave the site. The Contractor must also provide the ASEPL Plant Head/EHS Officer with information on hazardous work performed by the contractor and subcontractor (e.g., welding, using volatile solvents, operating equipment powered by internal combustion engines, ionizing radiation, laser beams, etc.)

Occupational Health Centre

- The Contractor shall ensure at the construction site an occupational health centre, mobile or static is provided and maintained in good order. A qualified medical officer shall be appointed in the occupational health centre. Contractor shall ensure one First-aid box for 100 workers provided and maintained for providing First-aid to the workers. Every first-aid box shall be distinctly marked “First-aid”.

d.) **Environment Requirements**

- ASEPL Contractors are expected to fully support and cooperate with these efforts. ASEPL will act in an environmentally responsible manner in regard to our operations, products and services. To achieve this result, we will:
    - Operate a common environmental management system that includes reporting of our performance and the practice of continual improvement.
    - Ensure our products and operations comply with relevant environmental legislation and regulations.
    - Conduct our operations in a manner that is committed to conservation of resources, prevention of pollution, and promotion of environmental responsibility among our employees.
    - Responsibly manage the use of hazardous materials in our operations & services.
    - Inform suppliers, including contractors, of our environmental expectations and require them to adopt environmental management practices aligned with these expectations.

- ASEPL will create the health and safety practices and work environments that enable our people to work injury and illness free. To achieve this result, we will:
    - Assure managers and employees are trained and accountable for preventing works related injuries and illnesses.
    - Ensure ASEPL operations comply with applicable occupational health and safety regulations.
    - Inform suppliers, including contractors, of our occupational health and safety expectations and require them to adopt sound occupational health and safety management practices.

e.) **Safety requirements**

- Contractors are expected to understand and comply with all applicable laws and regulations of any governmental entity that pertain to environmental, health and safety standards and/or work practices applicable to the activities they perform. These include but are not limited to:
    - Storage, handling, and use of flammable liquids and hazardous materials
    - Storage, handling, and use of compressed gas cylinders
    - Periodic safety inspections of equipment and work-site housekeeping
    - Use of fall protection while working at heights
    - Following electrical safety practices and lock out / tag out procedures
    - Proper use of personal protective equipment
    - Proper maintenance and use of ladders and other equipment
    - Guarding of wall and floor openings, open trenches, and excavations
    - In case Contractors does not comply with Safety PPE, ASEPL will arrange the same on their behalf and will debit the cost to contractors.

Confined Spaces

- ASEPL site contain Confined Spaces and Permit Required Confined Spaces. Entry into Permit Required Confined Space must meet Safety requirements including rescue availability. Activities should be performed remotely from outside the confined space if possible.

Electrical Safety

- Only individuals meeting requirements for qualification, licensing, and training will install, repair, modify, or remove electrical service, wiring, or equipment at ASEPL site. Electrical work should be performed on de-energized circuits unless a compelling reason exists requiring the work be conducted on energized electrical circuits. Exceptions are made for testing and calibrating of equipment that must be operating to be tested or calibrated. Appropriate work permits, guarding, PPE and safe work practices must be adhered. Unguarded energized parts shall not be left unattended.

Lock Out / Tag Out (LOTO) Procedure

- Contractors must coordinate LOTO activities with ASEPL Project Manager when employees of both ASEPL and the Contractor or Subcontractor are involved.

Aisles, Exits, and Walking Surfaces

- All exits, aisle ways, and other walking surfaces must be kept free and clear of equipment, tools, materials, debris, and other tripping or slipping hazards at all times. When construction activities create a hazard for pedestrians, the area must be barricaded to prevent entry and safety signs posted to redirect pedestrian traffic. ASEPL must review any plans to block an exit aisle. Barricades must be used to isolate any staged equipment and identify the owner of the equipment.

Housekeeping

- Debris and other scrap materials of the job must be cleaned up daily and placed in debris boxes or other suitable containers for disposal on a regular basis.

Structural Supports

- Approval from the ASEPL Project Manager must be received before drilling or cutting into structural components.

Working Alone

- Personnel working in potentially hazardous locations should have at least one other person present at all times, or be under continuous surveillance by a responsible person, as consistent with Safety regulations and the contractor's internal requirements.

Environmental Management Procedures

Applicable to and any contractor activity that creates hazardous waste products that cannot be disposed of in regular trash or sanitary sewer. Contractors are expected to understand and comply with all laws and regulations that pertain to environmental, health and safety standards and work practices applicable to the activities they perform.

Waste Management and Disposal

- **Wastewater Disposal –** The discharge of any material must be to the proper drain. ASEPL facilities contain drains for sanitary sewage. Activities generating waste liquids must be pre-planned with ASEPL Project Management and ASEPL EHS Officer to verify the appropriate drain or collection method for waste discharge.
- **Hazardous Waste –** The Contractor is responsible for all contractor and subcontractor purchased chemicals and any hazardous waste generated by the contractor and subcontractor using their purchased materials in the ordinary course of their work, e.g., left over paint, etc. The Contractor is responsible for the prompt removal from ASEPL site of any such hazardous waste generated and for following all applicable laws for disposal. Any Broken Glass, Wire, Metal Sheets with sharp edges and Wooden Waste is also Hazardous Waste. ASEPL is responsible for managing the off-site transfer and disposal of the hazardous waste that is hazardous due to ASEPL business processes, e.g. removal of contaminated duct work or equipment, etc. It may be necessary to make job or task specific determinations as to who "owns" specific hazardous waste.
- **Solid Waste Storage, Disposal, and Recycling –** The Contractor and Subcontractor personnel are required to sort, separate, and recycle recyclable materials while performing work on the ASEPL site. The Contractor and the Subcontractor personnel will adhere to the following: No hazardous wastes will be placed into any area inside ASEPL site.

Chemical Release

- ASEPL Project Management must be notified immediately regarding any chemical release to air, ground, water, or storm drain.

Monitoring and evaluation

- Contractor compliance will be measured through a combination of site inspections and formal audits.
- Site inspections in the form of camp walks will be employed by the ASEPL's site EHS Officer to assess the camp management procedures adopted. An audit programme developed will monitor and evaluate implementation and compliance with the requirements and procedures specified under this plan. It will include auditing of the site procedures as well as reporting and documentation.
- The internal safety audit report shall be provided to the site Manager who in turn will use this information as part of the evaluation of the contractor's performance

Record keeping/ outcome

- Contractor acknowledgement of receipt – Appendix E1
- Contractor Pre- Qualification Criteria – Appendix E2
- Contractor Performance Evaluation Checklist – Appendix F

5.3.1.5 Financial Requirements

Adequate financial provisions shall have to be earmarked for Environmental and social management programmes individual projects; instead of which the objective of the ESMS will fall short of realization.

The estimation shall be based on –

- Internal resources needed
- Human resources both in the needed for the people leading the action, and time spent by others in the organization who are addressed by the Action.
- Materials needed
- Equipment to be allocated purchased, leased or rented
- Facilities - existing or to be provided
- External resources
- Services provided, e.g. training courses, consultancy etc.
- Temporary staff, contractors etc
- Outsourced process.

5.4 Operational and Business Requirements

There shall have to be a detailed operational plan with a clear management structure with defined set of roles and responsibilities. There shall be competent manpower at each level of the management structure for effective realization of the EHS & Social policies of ASEPL. The detailed ESMS Structure is provided in the implementation chapter (Chapter 6).

5.5 Grievance Redressal Mechanism

Approach and Objective

The ASEPL shall have a dedicated team with adequate manpower and infrastructure to receive, resolve and close the complaints and queries successfully

The Head of the Regulatory Department is designated as Grievance Officer (GO) for all the subsidiaries of ASEPL. The grievance is received by the GO through post/ grievance box. GO shall have to submit a status report to the Chief Grievance Officer[55] (CGO) in ASEPL Corporate Office by 7th of every month. The contact details of the GO shall be maintained and updated in the following format displayed at prominent places available to public at all subsidiaries.

[55] Executive Director

Table 5.6 – Contact Details of Grievance Officers at Various Subsidiaries

S. No.	Name of the Grievance Officer	Telephone Numbers and Email IDs

Name and Contact Details of the Chief Grievance Officer

Mr. ……..
Executive Director
Mobile No. / Telephone No. …….
Email ID …….
Corporate Office (Address)

Helpline no./website/portal

Telephone No. …….
Fax ……
Website …….
Email ID ……...

Response to be expected by a person lodging the Grievance

All grievance received by post/grievance box shall be acknowledged and a record shall be maintained.
All complainants shall be provided acknowledgement on receipt of grievance within seven (7) days from the day of receipt by the GO.

Information on Receipt

Details of grievance received shall be maintained by the GO in a register as per the following format.

Table 5.7 – Details of Grievance Received

S. No.	Date of Receipt	Particulars of Complainant				Particulars of Grievance			
		Name	Address	Landline/ Mobile	Whether acknowledgement given at the time of receipt	Subject of the Grievance	Office	Brief Description	Date of acknowledgement/ Date of redress

Communication to Complainant

All complainants shall be given grievance number and expected time of redressal by the GO as per the time norm. Complainant can approach higher authorities if grievance is not resolved within the prescribed timeline. If grievance is not resolved within the expected time, the Complainant shall be provided the following information by the GO –

- Information on reasons for delay.
- Updated expected time of redressal.
- If not addressed within the expected time, action to be taken by the complainant.

At the time of final redress the complainant shall be provided with the following information by the office responsible for redress of the grievances –

- Action taken for redress.
- If not satisfied with the redress action, other avenues for pursuing the matter.

This information shall be given in the same letter / order through which the final decision on redress is conveyed to the complainant.

Table 5.8 – Criteria for Classification

S. No	Grievance Criteria	Grievance Details
1.	EHS Related	
2.	Social Related	

The following will be the flow in which any complaint will be acknowledged and redressed –

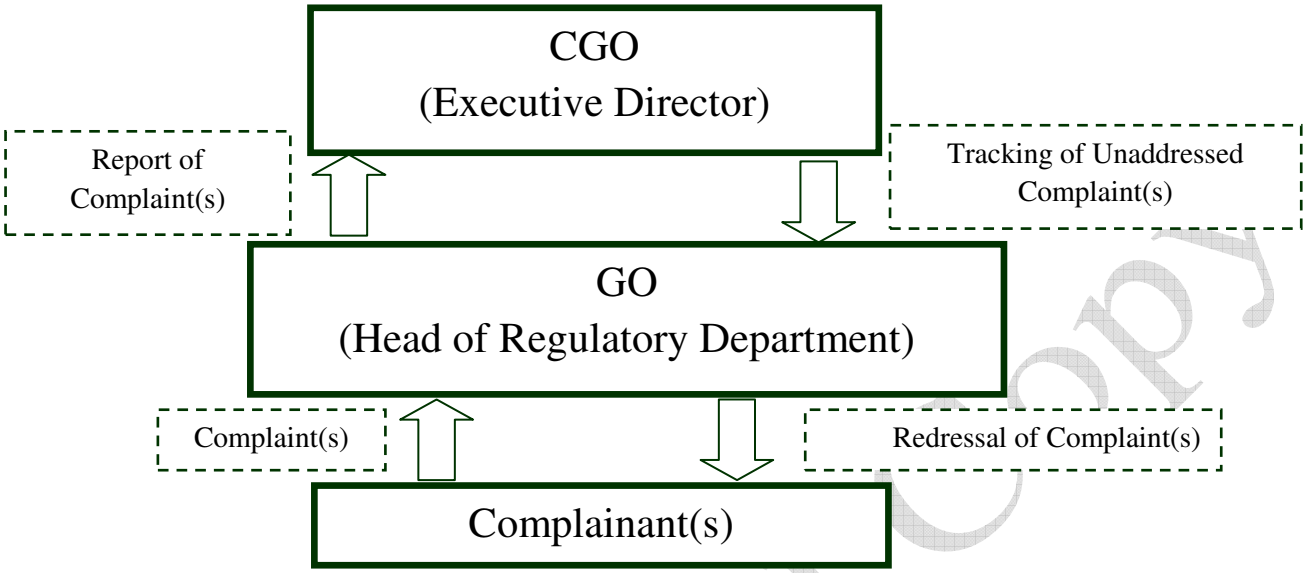


Table 5.9 – Time Norms for Redress

S. No	Grievance Category	Time norms for redress
1.	EHS Related	1 week
2.	Social Related	1 week

Table 5.10 – Level of Responsibility for Redress

S. No.	Grievance Category	Timelines for Redressal by Grievance Officer at Subsidiary Level	Timelines for Redressal by Chief Grievance Officer at Corporate Office
1.	EHS Related	1 week	2 weeks
2.	Social Related	1 week	2 weeks

Analysis and Prevention

All grievances shall be analyzed to find out the root cause of the frequent grievances in any particular area and matters shall be taken up with the competent authority for necessary modification in the policy / rules and regulations to prevent the same. The following format shall be used for root cause analysis of grievance prone areas by every GO –

Table 5.11 – Root Cause Analysis of Grievance

S. No.	Date and Description of Grievance	Grievance Prone Areas Identified	Root Cause Identified	Action Required to Improve System	Planned date and Authority responsible for taking action	Action Taken on Date

Periodic Review

All the GOs of ASEPL shall have to submit a monthly progress report to the CGO at ASEPL Corporate Office by 7th of every month. Thereafter, the CGO shall take up the matter for resolving unaddressed grievances. He/ She will track the unaddressed grievances with the GO on a fortnightly basis.

5.4.1.3 Grievance Redressal Mechanism Design and Implementation Process

This section describes the step by step process for implementing the GRM:

Step 1 - Design of GRM

All the Grievances are first received by designated GO of the respective subsidiaries of ASEPL by Post / Grievance Box or even orally. For the complaints that are received orally, there should be a provision that the same are documented in a record register. All the grievances are categorized as per criteria defined, level of responsibility for redress and timeline for redress for each level. The details of complainant, complaint description and any other information provided by the complainant are noted. Thereafter, the grievance is forwarded to the concerned department for redressal and the status is informed to the head of the subsidiary. All the GOs of ASEPL have to submit a status report of grievances to the CGO in ASEPL Corporate Office by 7th of every month. All Grievances which remain unaddressed are taken up by the CGO with the respective subsidiaries and is appraised of the status.

Step 2 - Implementation of GRM

The CGO shall ensure that the GOs are nominated as each subsidiary of ASEPL. These GOs are responsible for implementing the process as documented above and ensure that they are aware and trained in respect of their role in implementation of the process flow. They shall also conduct an awareness campaign to spread awareness among all stakeholders about GRM.

Step 3 - Grievance Prevention

All the grievances shall be analyzed for finding the root cause using the information on grievance description and subsequent redressal provided to the complainant. The most frequent types of grievance and the most frequent cause behind the grievance shall be identified and remedial action shall be taken. It should be ensured that the GRM is modified in order to prevent the root causes from recurring. Every quarter, results of the previous quarter's analysis shall be reviewed to ensure that there is no backlog in the redressal of grievances.

Step 1 **Design of GRM**	•Task 1 - Prepare a list of Data Items to be captured in GRM •Task 2 - Prepare the internal process flow chart for GRM
Step 2 **Implementation Process of GRM**	•Task 1 - Implement the process flow through existing systems •Task 2 - Training / Workshops on GRM •Task 3 - Launch the GRM •Task 4 - Publicize the GRM
Step 3 **Grievance Prevention**	•Task 1 - Conduct systemic analysis •Task 2 - Identify grievance prone areas and remedial actions •Task 3 - Take follow up action to address grievance prone areas

5.6 Emergency Preparedness & Response Plan

5.6.1.1 Introduction

Despite the best efforts for safe execution of activities throughout the life cycle of the project (during C, O, M and D phases) of the project, there is still possibility of any kind of accident(s) occurring in the plant. However, preplanned effective action can avoid high potential losses measured in both human and monetary basis. Therefore, to minimize the loss during any such situation, ASEPL shall establish, implement and maintain a procedure to identify potential emergency situations and responses to such situations in order to prevent and/or mitigate environmental impacts that are associated with them. This shall be done as a proactive measure to ensure community health, safety and security. ASEPL shall draw up an onsite Emergency Preparedness and Response Plan detailing the disaster control measures, and spread awareness about the safety measures to be taken in the event of an accident, to the workers and general public in the vicinity.

ASEPL shall review and revise its Emergency Preparedness and Response Plan and related procedures, in particular after the occurrence of accidents or emergency situations.

ASEPL shall also periodically test the procedures and the preparedness wherever feasible.

5.6.1.2 Objectives of Emergency Preparedness and Response Plan

The plan is prepared to make best use of resources at its command and/ or outside agencies for the following purposes –

- To rescue victims and their treatment for speedy recovery.
- To safeguard others by evacuating them to safer places.
- To localize/ contain emergency with minimum damage to life and property.
- To eliminate emergency, if possible.
- To identify the dead or affected personnel and inform their relatives.

- To provide relevant data / record for subsequent enquiry.
- To rehabilitate the affected people.
- To be ready for mutual aid if need is raised to help neighboring unit.
- To provide authoritative information to the concerned authorities.
- To identify potential hazards associated with any process and need to take required precautions.

5.6.1.3 Emergency Preparedness and Response

Brief Description about the Plant

A brief description of the specific project site/ location should be given in individual ESIA reports for each project highlighting the areas where the emergency situations can occur during the life cycle of the project.

A general identification of emergency situations that may occur during the different phases of the project is outlined in the following table –

Table 5.12 – Identification of Emergency Situations

ASPECTS	PROJECT PHASES		
	Commissioning	**Operation & Maintenance**	**Decommissioning**
Environment	• Natural Disasters like earthquakes, floods, cyclones, lightning etc. • Soil compaction, potential alteration of drainage channels, and increased runoff and erosion. • Adverse impacts on native vegetation and wildlife in many ways, including loss of habitat; interference with rainfall and drainage; or direct contact causing injury or death caused because of the clearing and use of large areas of land for solar power facilities. The impacts are exacerbated when	• Natural Disasters like earthquakes, floods, cyclones, lightning etc. • In arid settings, any increase in water demand can strain available water resources. • Use of or spills of chemicals at solar facilities (for example, dust suppressants, dielectric fluids, herbicides) could result in contamination of surface or groundwater leading to acute pollution of water sources.	• Natural Disasters like earthquakes, floods, cyclones, lightning etc.

	the species affected are classified as sensitive, rare, or threatened and endangered.		
Health	• Inhalation Exposure	• The construction and operation of solar facilities generates particulate matter, which can be a significant pollutant particularly in any nearby areas, thereby causing negative effects on the health of the local flora and fauna • Concentrating solar power systems may employ materials such as oils or molten salts, hydraulic fluids, coolants, and lubricants that may be hazardous and present spill risks. Use of or spills of chemicals at solar facilities (for example, dust suppressants, dielectric fluids, herbicides) could result in contamination of surface or groundwater leading to water borne diseases in the area.	• Inhalation Exposure • Photovoltaic panels may contain hazardous materials, and although they are sealed under normal operating conditions, there is the potential for environmental contamination if they were damaged or improperly disposed upon decommissioning.
Safety	• Structural collapse due to extra weight	• Fire (3 Basic Types – an external fire to a building equipped with a solar power system; a fire originating within a structure from other than the solar power system; a fire originating in the solar power system as the point of ignition • Electric Shock	• Structural collapse due to extra weight
Social	• Land disturbance/land use impacts leading	• Because Solar Plants are generally large facilities with	• Impacts on socio-economic

	to social unrest • Impacts on cultural and socioeconomics (by interfering with activities like grazing of animals which is a major occupation in many regions in India)	numerous highly geometric and sometimes highly reflective surfaces, these facilities may create visual impacts which may become an emergency situation (requiring response and/or mitigation) in long run. Also, aesthetic issues are by their nature highly subjective. • Concentrating Solar Power (CSP) systems could potentially cause interference with aircraft operations if reflected light beams become misdirected into aircraft pathways. • Electric and magnetic fields produced by solar facilities like all other electrical generating facilities interfering with the general operations for example telecommunication or radio transmission.	condition of the locals because quite a lot of people might lose their livelihoods, which were associated directly or indirectly with the project activities.

ASEPL shall plan and implement adequate preventive and mitigation measures for individual project as per the identified emergency aspects for that particular project.

The general emergency preparedness that can be replicated (with required alterations) at most of the present and future solar power plants of ASEPL are as follows –

Emergency Control Room & Assembly Point

Security office at the plant gate shall be facilitated as Emergency Control Room (ECR) and the respective Operations Manager/ Plant Head shall be nominated as key personnel and will have access to the ECR. No other personnel shall have access to the control room.

ECR will also contain the following data –

- Safety data pertaining to all hazardous material/ processes likely to cause emergency.
- Procedure of measure to be taken in case of significant emergency condition.

- Personal protective and rescue equipments.
- First aid arrangements.
- Clearly written down procedure for emergency shutdown.
- Addresses of employees.
- List of key personnel, senior & responsible officer addresses and telephone numbers identified to take up course of action in an emergency.
- Emergency communication system through mobile phone, walky-talky etc.
- Emergency organisation chart.

Transport Services:

The security-in-charge of the plant shall be responsible for transportation of injured person during emergency. One van shall be available round the clock only for the emergency purpose.
In case the emergency vehicle is not there because of any reason, he shall take vehicle of other officials.
As per the degree of emergency, he will seek the support of senior officials for their vehicles, as follows –

S. No.	Designation	Name	Contact Number
1	Operations Manager		
2	Medical Officer		
3	Plant Head		

In case of major emergency, he will contact the local transport service –

S. No.	Name of the Transporter	Contact Number
1		
2		
3		

Emergency Siren Tone –

Emergency siren tone shall be operated by security person. On hearing emergency siren/ alarm –

- Non-essential personnel shall follow safe route for evacuation.
- Non-essential persons will not rush towards incident site.
- Key / Essential personnel shall report to control room.

Specific guidelines on actions to be performed in case of an emergency silent tone shall be drafted and communicated for each particular project.

List of Personal Protective Equipments (PPEs) –

S. No.	PPEs	Used For Protecting
1	Rubber Gloves	Hands (chemical burn)
2	Safety Goggles	Eye protection
3	Welding Shield	Eye protection (during welding)
4	Face Mask	Welding fumes

5	Safety Shoes	Foot protection
6	Ear Plugs/ Muffs	Hearing protection
7	Helmet	Head protection

This is a general list and list of items (PPEs) can be edited as per the specific requirement(s) at each plant.

Emergency Organization (Key Responsibilities)

S. No.	Emergency Organisation	Official Designation
1	Incident Controller (IC)	Plant Head
2	Site Controller (SC)	Operations Manager

- Site controller will report to incident controller.
- Incident controller will decide about the level of emergency and accordingly decide the course of action. He shall also report to the top management (i.e. Corporate Sustainability Cell (CSC)) regarding emergency.

Role of Incident Controller

His primary duty is to take charge at the scene of incident. His responsibilities / duties are as follows –

- He may be required to take decisions whether to stop or continue any process and take technical decisions to control the incident and simultaneously inform/ consult senior officers as per requirement.
- On knowing about emergency in any area of the plant, assess the scale of emergency, alert panel and field operators to start controlling their respective sections.
- After assessing the scale of emergency likely to exist, take actions as per the emergency. As per the assessment of risk, if necessary, inform CSC for declaration of major emergency and activate emergency response plan accordingly. As per the situation ensure that site controller is informed.
- The SC will work under the directions of the IC. Till IC's arrival, SC may have to execute following responsibilities.
    - Direct for evacuation of plant and areas likely to be affected by the emergency.
    - Ensure key persons are called-in.
    - Direct all operations within the affected area with the following priorities. Secure the safety of personnel. Minimize damage to plant, property and environment. Minimize loss of material.
- Depending on the incident, instruct partial or total shut down, isolations, fire fighting, rescue operations.
- Direct for search of casualties.
- Instruct other department to take emergency shutdown/ cutting off supply and other appropriate actions and also emergency evaluation help etc.
- Evacuate non-essential workers/ visitors/ contractors to safe assembly points.
- Brief SC and keep him informed about the developments.
- Preserve evidences that will be necessary for subsequent inquiry into the cause of the emergency and concluding preventive measures.
- Send runner (messengers), if telephones are not working for communication.

Role of Site Controller

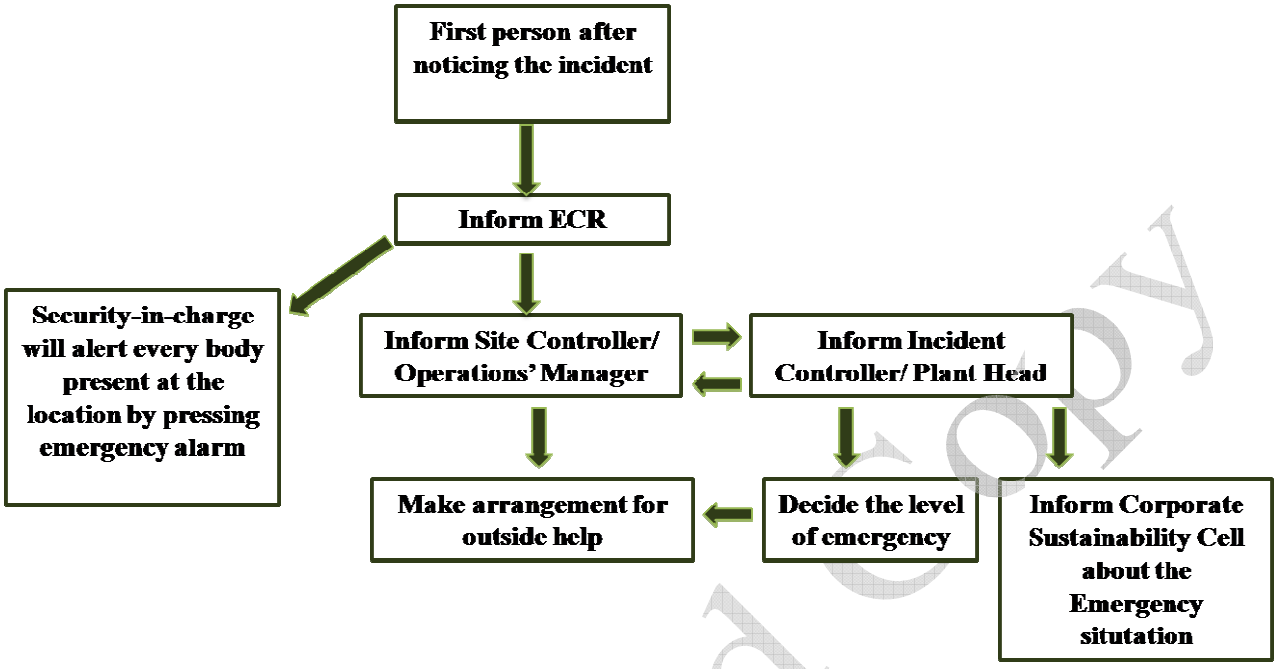
- As soon as he comes to know about the incident, he shall inform the ECR or security office.

- He has over all responsibilities, for directing operations and calling outside help from emergency control room.
- Assess the situation quickly and find out the level of emergency from IC and declare the emergency.
- Ensure that key personnel are called in.
- Direct all emergency operations within the affected area with following priorities –
    - Personal safety, including of surrounding community.
    - Plant, property and environment safety.
    - Minimum loss of production.
- Continuously review and assess possible developments to determine most probable course of events and actions.
- Make an assessment of the situation and ensure that whatever resources are required are made available and utilized in a co-ordinate manner.
- Direct the safe shut down of plants in consultation with incident controller and key personnel, if necessary.
- Check that all non-essential workers, visitors, contractors are evacuated to safe assembly points.
- If necessary, arrange for evacuation of neighboring population.
- Ensure that search for casualties, within the affected area has been carried out and arrange for hospitalization of victims and additional medical help if required.
- Ensure that liaison is made with outside agencies such as police services, chief of fire services, expert on health and safety, meteorological office, district emergency authorities, collector and inspector of factories, with the help of other key personnel. Provide advice on possible effects to areas outside the factory.

Arrange for up to-date recording of emergencies. Do not restart the plant unless it is declared safe to start by the competent authority.

Emergency Information System

The first person, who observes / identifies the hazardous incident, shall inform it as per emergency reporting system given underneath.



Assembly Point & Emergency Escape

The plant area and roads in front of the main gate (usually gate no. 1) of the plant shall be used as assembling point during emergency.

In case of an emergency break out in any part of the plant premises, all non-essential people shall follow the emergency escape route described for his work area and come to the emergency assemble point. No person will be allowed to leave the plant without the permission from his departmental head/ immediate in charge.
After the assessment of initial emergency situation, the respective in charge/ supervisor may allow the non-essential personnel to leave the premises in consultation with respective departmental head, after counting the number of personnel under his control and confirming that no person is detained in the emergency area.

Evaluation of Functioning of Emergency Preparedness and Response Plan

Emergency preparedness, among employees of different responsibilities and levels shall be monitored through Mock Drill / Fire Drill / Emergency Evacuation Drill / Functioning of Emergency Reporting System, not less than once in a calendar year; to check the effectiveness of the documented plan in the break of an actual emergency situation.

Two (2) senior personnel from the Corporate will be designated as the observer, who would observe the effectiveness of the plan of an emergency situation. They will not be assigned any other responsibility in the break out of an emergency.

Feedback will be taken, and the training on emergency preparedness / disaster management plan will be provided accordingly. The Emergency Preparedness and Response Plan shall also be updated from time to time as per the requirements.

Public Information System

During a crisis following an accident the people of the area and large number of media representatives would like to know about the situation from time to time and the response of the district authority to the crisis. It is important to give timely information to public in order to prevent panic and rumor. The emergency public information is carried out in three phases –

Before the Crisis –

This will include the safety procedures to be followed during an emergency through posters, talks, awareness programs and mass media in different languages including the local languages, leaflets containing Do' s / Don'ts should be circulated to educate the employees/ people in vicinity.

During the Crisis –

Dissemination of information about the nature of incident, actions taken and instruction to the employees/ public about protective measures to be taken evacuation etc. is the important steps during this phase.

After the Crisis –

Attention should be focused on information concerning restoration of essential services, travel restriction etc.

- Quick dissemination of emergency instruction to the public.
- Receiving all calls from the media/ public regarding emergency situation and respond meticulously.
- Obtaining current information from the concerned authority.
- Preparing news release.
- Maintaining contact with hospital and get information about casualties.

Emergency Medical Plan

During the crisis, medical plan in terms of manpower, transport and equipment as per organizational response are implemented. The organizational response structure shall be set up as under –

- First-aid post
- Causality response center
- Government hospitals

5.7 Procedure on Indigenous Peoples

Purpose

To recognize Indigenous People's rights in the design and implementation of projects by fostering respect for their identity, dignity, human rights, livelihood systems and cultural uniqueness. While implementing projects, the project proponent is required to give culturally appropriate social and economic benefits to the indigenous peoples. They are to ascertain that this population does not get adversely impacted as a result of the projects and they should be encouraged to participate actively in projects that affect them.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Terms & Definitions

"Indigenous People" refers to a distinct, vulnerable, social and cultural group possessing the following characteristics in varying degrees:

(i) self-identification as members of a distinct indigenous cultural group and recognition of this identity by others;
(ii) collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories;
(iii) customary cultural, economic, social or political institutions that are separate from those of the dominant society and culture; and (iv) a distinct language, often different from the official language of the country or region.

"Grievance" is an issue, concern, problem or claim (perceived or actual) that an individual or community group wants a company to address and resolve.

References

- Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989,
- Government of India (GOI) Panchayat Extension to the Scheduled Areas Act (PESA), 1996 (GOI)
- The Scheduled Tribes and Other Traditional Forest Dwellers Act, 2006 (GOI)
- Section 41 and 42 of Chapter V of The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement, 2013 (GOI)
- Indigenous Peoples Safeguards of ADB's Safeguard Policy Statement, 2009
- ADB's Public Communication Policy, 2011
- Performance Standard 8 on Indigenous People of IFC Sustainability Framework, 2012

Roles and Responsibilities

HR Head at Corporate Level: The HR Head at the Corporate Office shall take the decision of framing an Indigenous People's Plan (IPP) when required for a project area. This will be based on the Checklist of Identifying Impacts and Risks submitted by the EHS Officer at Site Level Once approved by him, he is to keep the controlled copy with him and send a copy of the same to the EHS Officer to be maintained and documented at the site level.

A report highlighting the severity of risks and impacts of the indigenous population due to a project design and implementation will be made by the HR Head. Accordingly, on the approval of the ASEPL Board, an Indigenous Peoples Plan will be developed by the (HR) Head. A budget with the assistance of **Senior Manager – Finance** will also be included within the Plan. The Plan shall be submitted directly to the ASEPL Board for approval and further execution. He shall supervise the EHS Officer in implementing the IPP at the project level and monitor its execution. He shall submit a status report every month to the ASEPL Board whenever an IPP gets executed.

EHS Officer at Site Level: The EHS Officer is responsible to assess the risks and impacts that a project might have on the nearby community especially on the Indigenous population directly or indirectly affected by the project activities. A checklist shall be filled for identifying the risks and impacts with the help of the HR Head, and submitted by him to the HR Head for approval. A copy of the checklist once approved will be maintained and documented by him at the Site Level. He shall give his inputs to the HR Head on aspects relating to the Indigenous Peoples Plan whenever required. Once the Plan is approved by the ASEPL Board and forwarded to him by the HR Head, he shall be responsible for its implementation with the supervision of the HR Head. During this entire process he is to be in constant contact with the affected indigenous communities and accordingly execute the plan in phases. He is to submit a fortnightly report to the HR Head on the status of execution of the plan whenever an IPP has been made for a project area.

Standard Operating Procedure

Consultation and Participation

In any new project that ASEPL is proposing to undertake, risks and impacts on Indigenous People will be assessed by the EHS Officer. A checklist for identifying indigenous people has been attached as Appendix A which will be filled by him and he will be assisted in this exercise by the HR Head. On the basis of presence of Indigenous People, a communication process will be chalked out by the EHS Officer and sent to the HR Head for approval. The following format on the communication process shall be followed by the EHS Officer.

Table 5-13: Communication Process for Identified Indigenous People

S.No.	Identified Indigenous Communities (including total number of population and male/female breakup)			Location	Materials to be Disseminated	Communicated Methods	Frequency
	Total Population	Male	Female				

Once the checklist and communicative methods have been furnished by the EHS Officer to the HR Head, the HR Head will write a report highlighting the severity of risks and impacts affecting the indigenous community due to the project activities and submit the same to the ASEPL Board for approval. The following format on the status of assessment shall be used by the HR Head.

Table 5-6: Assessment Status of Indigenous People

S.No.	Project Locatio	Identified Indigenous Community			Criteria of Classification of Risks & Impacts (Social/EHS)	Brief Description of Risks& Impacts	Status on Indigenous People	Positive/ Negative Impact on Company	Remarks (Way Forward)
		Total Population	Male	Female					

Once an approval by the ASEPL Board is given to develop an Indigenous People Plan, the HR Head shall develop one with assistance from EHS Officer. The Senior Manager-Finance shall assist the HR Head in terms of budgeting for the plan as well. The following outline shall be used to frame an Indigenous Peoples Plan.

- Executive Summary of the Indigenous Peoples Plan
- Description of the Project
- Social Impact Assessment
- Information Disclosure, Consultation and Participation
- Beneficial Measures
- Mitigative Measures
- Capacity Building
- Grievance Redressal Mechanism
- Monitoring, Reporting and Evaluation
- Institutional arrangement
- Budget and Financing

The Plan once developed shall be submitted to the ASEPL Board for approval. Once approved, the HR Head will forward the same to the EHS Officer and guide the EHS Officer in implementing the same.

Information Disclosure

A summary of the Indigenous People Plan shall be disclosed to the Local Authority of the affected area, uploaded on the Company's website and discussed with the affected indigenous families identified. Regular updates of the same will be disclosed to the above mentioned stakeholders regularly.

Grievance Redressal Mechanism: The Grievance Redressal Mechanism Procedure developed will be applicable here as well.

Monitoring

The HR Head shall monitor the progress of implementation of the IPP. Internal audits every quarter shall be undertaken in addition, to regular monitoring by the HR Head. To build transparency in the system, an external audit every six monthly can be undertaken by a third party consultation or identified Non Governmental Organization. The findings and suggested

corrective actions plans of the audits will be shared with the HR Head and EHS Officer. They will in turn, implement the corrective action plan and follow up on these actions to ensure their effectiveness.

Reporting

Monthly Report by HR Head to ASEPL Board highlighting the progress of the IPP implementation, internal audits findings and corrective action plan and its status. The following reporting format shall be used by the HR Head.

Table 5-7: Reporting Format on IPP at Corporate Level

S.No.	Activities Implemented	Timeline	Status of Implementation	Budget Utilized	Internal Audit Findings	Corrective Action Plan Suggested	Remarks

Fortnightly Report by EHS Officer to the HR Head highlighting the progress of the IPP implementation, grievances and status of completion shall be regularly submitted. The following format shall be used by the EHS Officer

Table 5-8: Reporting Format on IPP at Site Level

S.No.	Activities Planned	Budget Allotted	Budget Utilized	Timeline	Activities Pending	Remarks

Record Keeping

i. Assessment Report of Indentified Indigenous People
ii. Report on communication methods adopted for communicating with the Indigenous People by the EHS Officer
iii. Monthly Report by HR Head to MD on progress of Indigenous People's Plan
iv. Fortnightly Report by EHS Officer to Social Head on progress of Indigenous People's Plan

5.8 Procedure on Land Acquisition and Involuntary Resettlement

Purpose

The procedure has been developed to address issues pertaining to Land Acquisition and Involuntary Resettlement and is required:

- To avoid or at least minimize involuntary resettlement wherever feasible by exploring alternative project designs

- To mitigate adverse social and economic impacts from land acquisition or restrictions on affected persons' use of land by: (i) providing compensation for loss of assets at replacement cost; and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation, and the informed participation of those affected.
- To improve or at least restore the livelihoods and standards of living of displaced persons
- To improve living conditions among displaced persons through provision of adequate housing with security of tenure at resettlement sites

Scope

This procedure will be applicable during the Planning, Site Selection, and Construction of all Sub Projects. It will cover full or partial, permanent or temporary involuntary resettlement impacts resulting in physical displacement, economic displacement and restrictions on land use or access to legally designated parks and protected areas.

References

- Section 2 (3a) of Chapter I and Section 46 of Chapter VI of The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, Government of India (GOI)
- Involuntary Resettlement Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 5 on Land Acquisition and Involuntary Resettlement of IFC Sustainability Framework, 2012

Roles and Responsibilities

HR Head (Corporate Level): The HR Head based on the report by the EHS Officer on identification of physical and economic displacements, informal rights and restriction on access roads will determine whether or not a Resettlement Action Plan (RAP) will be developed for a particular sub project. A report on this will be made and submitted to the ASEPL Board.

HR Head along with the Senior Manager- Finance will outline the budget and phases of RAP. If economic displacement also takes place, the HR Head will also create a Livelihood Restoration Plan (LRP) and will budget for the same. The same will be submitted to the ASEPL Board for his approval and the HR Head will supervise the implementation of the plans as developed.

EHS Officer (Site Level): During the screening of a new project, the EHS Officer shall identify the impacts and risks commensurating on the communities and landowners of the identified land parcels. He is required to hold consultations with the land owners identified and document his meetings with them. In addition, he is required to ascertain if a negotiated settlement is being carried out and adequate compensation is settled upon wherein the landowners is paid more than the prevailing market rate of the area. The EHS Officer is required to also carry out a survey of the land parcel and establish if no informal rights are being infringed upon along with any restrictions being breached leading to designated national parks and protected area. Once the RAP and LRP has been developed, implementations of the same will be the responsibility of the EHS Officer.

Standard Operating Procedure

ASEPL will avoid the acquisition of land that results in the displacement of people. However, where such displacement is unavoidable, adverse impacts on individuals and communities will be minimized through adjustments in routing or siting of project facilities.

The EHS Officer based at the Site Level shall identify and consult with all persons and communities that will be displaced by land acquisition as well as host communities who will receive those who are resettled, to obtain adequate information about land titles, claims and use. In addition, the EHS Officer will also identify persons who lose the land they occupy in its entirety or in part who have no formal legal rights to such land, but who have claims to such lands that are recognized or recognizable under national law; as well as persons who list the land they occupy in its entirety or in part who have neither formal legal rights nor recognized or recognizable claims to such land.

Affected communities should also have the opportunity for informed participation in resettlement planning so that the mitigation of the adverse project impacts is appropriate and the potential benefits of resettlement are sustainable. For illiterate people, suitable other communication measures for disclosure of information will be provided by ASEPL.

Once the EHS Officer has identified the affected persons and communities, he will report the same to the HR Head based at the Corporate Level. The reporting format has been provided in the following:

Table 5-17: Reporting Format on Identified Affected Persons

S.No.	Location	Project	No. of Affected Persons	Land Area	Informal Rights, if any	Remarks

The HR Head will assess the situation and report the status to the ASEPL Board along with observations on the way forward. If on discussion, it is apparent that a Resettlement Action Plan (RAP) is to be developed, the HR head will develop one with inputs from the EHS Officer. The budget of the same will be made in collaboration with the Senior Manager – Finance. Once developed, the RAP will be submitted to the ASEPL Board for approval.

An outline of the RAP has been provided in the following. Whenever, a RAP is to be developed, the HR Head will incorporate the components mentioned below:

- Executive Summary
- Project Description
- Scope of Land Acquisition and Resettlement
- Socio- Economic Information and Profile
- Information Disclosure, Consultation and Participation
- Grievance Redressal Mechanism
- Legal Framework
- Entitlements, Assistance and Benefits

- Relocation of Housing and Settlements
- Income Restoration and Rehabilitation
- Resettlement Budget and Financing Plan
- Institutional arrangements
- Implementation Schedule
- Monitoring and Reporting

During the development of the RAP, a cut-off date for eligibility of affected persons will be established and information regarding the same will be documented and disseminated throughout the project area. This will be initiated by the EHS Officer.

The RAP shall include the recommended eligibility criteria within its component as mentioned in the following:

Payment of cash compensation for lost assets will be made where:

- livelihoods are not land-based;
- livelihoods are land-based but the land taken for the project is a small fraction of the affected holding and the residual land is economically viable;
- replacement land or housing of comparable quality is not available locally; or
- active markets for land, housing, and labor exist locally, displaced persons use such markets, and there is sufficient supply of land and housing.

Cash compensation levels made will be sufficient to replace the lost land (or lost access to land) and other assets at full replacement cost at market area. The calculation of full replacement cost will be based on the following elements:

- fair market value;
- transaction costs;
- interest accrued,
- transitional and restoration costs; and
- other applicable payments, if any

Compensation for economic displacement resulting from land acquisition will be made promptly in order to minimize adverse impacts on the income stream of those who are displaced. Credit facilities, training, and employment opportunities will also be provided so that they can improve or at least restore their income-earning capacity, production levels and standards of living to pre-displacement levels. In the event that compensation is paid by the responsible governmental agency, ASEPL will collaborate with the agency to help accelerate payments. For those requiring physical relocation, secured tenure to relocation land will be provided.

Individuals and communities directly affected by resettlement will have the opportunity to participate in the negotiation of compensation packages and consultations regarding eligibility requirements, resettlement assistance, suitability of resettlement sites and the timing of resettlement activities.

In cases where land acquisition affects commercial structures, affected business owners will be provided:

- the costs of re-establishing commercial activities elsewhere;
- the net income lost during the transition period; and
- the costs of transferring and reinstalling plant, machinery, or other equipment.

Business owners with legal rights or recognized or recognizable claims to land where they carry out commercial activities will be provided with replacement property of equal or greater value or cash compensation at full replacement cost.

ASEPL will develop procedures in a transparent, consistent, and equitable manner if land acquisition is through negotiated settlement to ensure that those people who enter into negotiated settlements will maintain the same or better income and livelihood status.

The affected population will be informed about the Grievance Redressal Mechanism (GRM) developed by the EHS Officer. For more information on the Mechanism, refer to the GRM Procedure.

The EHS Officer will be responsible for implementation of the RAP and he will be supervised by the HR Head.

Monitoring

The HR Head shall monitor the progress of implementation of the RAP. Internal audits every quarter shall be undertaken in addition, to regular monitoring by the HR Head. To build transparency in the system, an external audit every six monthly can be undertaken by a third party consultation or identified Non Governmental Organization. The findings and suggested corrective actions plans of the audits will be shared with the HR Head and EHS Officer. They will in turn, implement the corrective action plan and follow up on these actions to ensure their effectiveness.

Reporting

Monthly Report by HR Head to ASEPL Board highlighting the progress of the RAP implementation, internal audits findings and corrective action plan and its status. The following reporting format shall be used by the HR Head.

Table 5-9: Reporting Format on RAP at Corporate Level

S.No.	Activities Implemented	Timelin	Status of Implementation	Budget Utilized	Internal Audit Findings	Corrective Action Plan Suggested	Remarks

Fortnightly Report by EHS Officer to the HR Head highlighting the progress of the RAP implementation, grievances and status of completion shall be regularly submitted. The following format shall be used by the EHS Officer.

Table 5-10: Reporting Format on RAP at Site Level

S.No.	Activities Planned	Budget Allotted	Budget Utilized	Timeline	Activities Pending	Remarks

Record Keeping

- Report on Assessment of Identified Affected Population by EHS Officer to HR Head
- Monthly Progress Report by HR Head to ASEPL Board on RAP Implementation
- Fortnightly Progress Report By EHS Officer to HR Head in RAP Implementation
- Semi-annual reporting by Corporate Sustainability Cell to ADB on RAP implementation detailing the elements identified in the RAP and status of implementation.

5.9 Standard Operating Procedure on Module Recycling

Purpose

It will be the responsibility of ASEPL to ensure safe disposal of Modules which have been broken because of its hazardous nature.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Terms & Definitions

- **Hazardous Waste** is any waste with the potential to cause danger to health or environment whether alone or when in contact with other waste or substance.
- **Disposal** means any operation which does not lead to recycling, recovery and include physical, chemical, biological treatment, incineration and disposal in secured land.
- **Hazardous Waste Site** mean a place of collection, reception, treatment, storage of hazardous waste and its disposal to the environment which is approved by the competent authority.
- **PV Module** A PV module is basically a solar photovoltaic module used in converting Sun light into electrical energy. They are usually manufactured as a sealed unit with a given output voltage and wattage rating.
- **End of Life Modules** shall mean any Module which has been taken out of service and is no longer subject to a workmanship warranty pursuant to the Module Warranty Terms and Conditions.
- **Pollution Prevention and waste minimization** are terms that refer to the practices that reduce or eliminate the amount of pollutants which would have entered any waste stream or that would have been released into the environment prior to recycling, treatment, or disposal.

References

- The Environment (Protection) Act 1986, India;
- Hazardous waste (Management, Handling and Trans boundary Movement) Rules 2010, India
- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012
- Performance Standard 3 on Resource Efficiency and Pollution Prevention of IFC Sustainability Framework, 2012

Roles and Responsibilities

- **Project Manager** - It will be the responsibility of Project Manager at Project Construction & Decommissioning stage to ensure that Broken Modules are being stored properly and being disposed off in accordance with this procedure.
- **Operations Manager** - It will be the responsibility of Operations Manager at Operations & Maintenance stage to ensure that Broken Modules are being stored properly and being disposed off in accordance with this procedure.
- **Site Stores Officer** – Responsible for taking stock and ensure complete documentation which needs to be shared with Corporate Sustainability Cell.
- **Corporate Sustainability Cell** – Responsible for making arrangements for ensuring movement of Broken Modules to supplier along with Replacement Order. Complete Documental Formalities (Insurance/Transport/ Terms and Conditions/ Warranty) etc .
- **Site EHS Officer** – Need to ensure that Broken Modules are not being used at Site and are stored in Safe Manner.
- **Corporate EHS Manager** – Need to ensure that sufficient precautions are taken for due storage and onward communication to Head Projects and Head Human Resource at Monthly Review.

Standard Operating Procedure

- **Module Collection and Recycling:** ASEPL shall use commercially reasonable efforts to collect and recycle End of Life Modules in a manner that is protective of the environment and that maximizes the recovery of both the Module semiconductor material and glass; provided that any such collection and recycling shall be performed in compliance with applicable laws and regulations.
- ASEPL's obligations in this regard shall be satisfied by having such collection and recycling performed by Seller or its designee if Buyer and Seller mutually agree on the terms and conditions for Seller or its designee to perform such service pursuant to a separate written agreement.
- Separate Demarcated Area (barricaded by Caution tape) must be ensured as designated area for storing the broken modules, near site Office or security area so that the same can be vigilated accordingly. Sufficient steps of demarcation must be done so that they don't mix up with Healthy Modules or other stock items.
- Specific PPEs are required to be used such as Safety Gloves, Safety Shoes, Safety Helmets, Safety Goggles while movement of broken modules from placed location to Storage Area.

- Personnel's involved must be trained in handling the modules. It shall be ensured that every storage location and collection point should be managed and inspected on a regular basis. In the event that such End of Life Modules are not so collected and recycled.
- ASEPL shall dispose of all End of Life Modules in compliance with applicable laws and regulations and use a landfill that at a minimum includes the following design, operational and maintenance components: appropriate containment (i.e. liner), leachate collection and treatment system, storm water drainage controls, daily cover of waste with eventual capping of landfill and post-closure maintenance.
- **Disposal of Modules:** The hazardous and non-hazardous solid waste will be collected and stored in a segregated manner and will not be permitted to mix. No scattering or dumping of wastes in the open
    - Storage area shall be secured, have adequate ventilation and weather protection.
    - Disposal agency/agencies for the various types of hazardous wastes shall be identified and Memorandum of Understanding shall be signed with them for disposal of hazardous wastes generated.

Monitoring

Monitoring of Broken Modules will be done by Operations Manager and Site EHS Officer along with Site Stores Officer. Monitoring will be done on Monthly basis.

Reporting

Information pertaining to Broken Modules and its condition will be reported by Site EHS Officer to Corporate EHS Manager, and simultaneously by Site Stores Officer to Corporate Sustainability Cell Manager.

Record Keeping/ Outcome

- Inventorisation of all areas from where modules are collected (as given in the table below)

Table 5-19: Inventorisation of all areas where modules are collected

Module Identification No.	Plot No. (Location)	Module Type	Number of Broken Modules

- Inspection Form of Temporary Accumulation of Modules (as given in the table below)

Table 5-20 Inspection Form of Temporary Accumulation of Modules

Module Type	Module ID No.	No. Of Broken Modules	Date of Damage	Inspection Date	Area where Broken Module is stored

5.10 Standard Operating Procedure on Ambient Noise

Purpose

This SOP establishes ASEPL procedure for protecting employees and nearby communities from high noise level. Key elements of the procedure are:

- Minimize impact of noise in the immediate vicinity
- To comply with the requirements of the Licensing Authority
- The identification of the range of potential noise sources relating to the premises and the acceptable levels of noise arising from all specified events
- A Detailed list of steps taken to manage noise pollution

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Terms & Definitions

- **Ambient Noise**: The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
- **Background Noise**: is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed.
- **Decibels (dB):** are measured objectively using a Sound Level Meter. This instrument has been specifically developed to mimic the operation of the human ear.
- **Loudness:** A 3dB increase represents a doubling of the sound pressure, however an increase of about 10dB is required before the sound will subjectively appear to be twice as loud.
- **Sound Level Meter**: An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
- **Day Time** shall mean from 6.00 a.m. to 10.00 p. m
- **Night Time** shall mean from 10.00 p.m. to 6.00 a. m
- **Silence zone** is an area comprising not less than 100 metres around hospitals, educational institutions, courts, religious places or any other area which is declared as such by the competent Authority.
- **Acoustic Barrier**- Solid walls or partitions, solid fences, earth mounds, earth berms, buildings, etc used to reduce noise, without eliminating

References

- The Environment (Protection) Act of India, 1986, India
- The Noise Pollution (Regulation and Control) Rules,2000, India
- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012
- Performance Standard 3 on Resource Efficiency and Pollution Prevention of IFC Sustainability Framework, 2012

Roles and Responsibilities

- **Plant Head** will be responsible for Compliance of this procedure.
- **Site EHS Manager** will be responsible for Monitoring the Compliance and ensure safe custody of the documents as records for further reference.

Performance Criteria

Noise Management Procedure shall have the following elements:

- Identification of range of potential noise sources
- Management of noise pollution
- Noise Monitoring

Monitoring

- Monitoring of Ambient Noise will be done by the Operations Manager at Site along with EHS Officer at Site.

Reporting

- Reporting will happen from Site EHS Officer to Corporate EHS Manager on Quarterly basis.

Record Keeping

All the records will be controlled documents and will be in the custody of EHS Officer at Site.

- Ambient Noise Report.
- Inventorisation of Noise Sources
- Noise Standards
- Noise Monitoring Report for each noise source identified.

5.11 Standard Operating Procedure on Labour Camp Management

Purpose

The key purpose of this procedure is:

- To minimize the potential impacts associated with influx on the host population and receiving environment;
- To promote safe and healthy working conditions and a comfortable environment for labour;
- To ensure compliance with the IFC PS and national labour laws; ADB's Core Labour Standards and National labour laws.

- To protect the workers and other persons including their family members (if any) at site, provision of adequate Personal Protective Equipments (PPEs), proper time shifts, implementation of work permit system at site and restricted entry inside the construction site;
- To protect the workers and /or their family financially workmen compensation shall be mandated by the contractors

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases. This plan shall be applicable to the construction labourers directly and indirectly employed by ASEPL, if any. It also covers all contractors and sub- contractors engaged during construction phase, and any other third parties associated with the Project related activities.

Terms & Definitions

- **Direct Workers:** Workers engaged directly by ASEPL.
- **Contracted Workers:** Workers engaged through third parties who are performing work or providing services directly related to core business processes of the project for a substantial duration.
- **Migrant Workers:** Workers which have come from far off place in search of work with or without their families

References

- The Contract Labour (Regulation and Abolition) Act, 1970
- The Interstate Migrant Workmen (Regulation of Employment and Conditions of Service) Act, 1979
- The Bonded Labour System (Abolition) Act, 1976
- The Payment of Wages Act, 1936
- The Minimum Wages Act, 1948
- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- ADB's Social Protection Policy, 2001
- Performance Standard 2 on Labour and Working Conditions Prevention of IFC Sustainability Framework, 2012
- IFC's Guidelines for Accommodation

Roles and Responsibilities

- Responsibility of this procedural compliance lies with Corporate EHS Manager and Site EHS Manager.

Standard Operating Procedure

- General Facilities
- Hiring and Recruitment
- Worker's Accommodation
- Sanitation Facilities and Waste Water Management

- Solid Waste Management
- Housekeeping of Camp Facilities
- Health Management
- Labour Camp Monitoring

General Requirement for Labour Camp Facilities

- Detailed Residential Description (including number of residents)
- No Objection Certificate stating allocation of Plot/area for Labour Camp from Client/Developer/associated authority
- Setting out Residential Plan (If Already stated then no need)
- Drainage Layouts (Floor-wise and Setting Out)
- Colour Coded Layout of Potable Water , Washing Area, Cooking Place, Urinals etc
- Fire Protection

a.) EHS Regulations & Requirements: The broad Rules/ Requirements governing EHS Requirements as included in (but not limited to) the following and the same should be adhered in the Design/construction/operational stage of the project:

  - Environmental Control Rules & Requirements
  - Environmental Guidelines
  - Health & Safety Regulations & Standards
  - Health Requirements for Labour Camps Site – General Requirements

b.) The company should be licensed for operating such facilities, should post sign boards on sites with the following information:

  - Company Name
  - Camp Owner
  - Address
  - Telephone Number
  - Contractor License Number and Site Number

c.) All sites used for camps must be adequately drained. They must not be subject to periodic flooding, nor located near swamps, pools, sink holes or other surface collections of water unless such quiescent water surfaces can be subjected to mosquito control measures. The camp must be located so the drainage from and through the camp will not endanger any domestic or public water supply. All sites must be graded, ditched and rendered free from depressions in which water may become a nuisance. All sites must be adequate in size to prevent overcrowding of necessary structures. The grounds and open areas surrounding the shelters must be maintained in a clean and sanitary condition free from rubbish, debris, waste paper, garbage, or other refuse.

d.) EHS – requirements for temporary labour camp facilities: The new accommodation/ porta-cabins/temporary offices provided in the area of Temporary labour camp shall have adequate welfare & sanitary facilities such as toilets, bathrooms, ablution blocks etc and suitable and sufficient potable drinking water facilities. Minimum requirements of sanitary facilities shall include: -

a. Hiring and Recruitment: The hiring of all unskilled, semi-skilled and skilled labour will be undertaken through contractors engaged by ASEPL. However the influx of construction labours needs to be monitored by ASEPL in order to maintain healthy community relations during construction phase. The workforce requirements should be forecasted in a systematic and timely manner to ensure that sufficient time and internal resources are available for managing them, which has been detailed in the prevailing section. Project contractors are required to implement equivalent recruitment procedures and to have all associated documentation in place. The following steps to be implemented by the contractor engaged:

- Non-Discrimination and Equal Opportunity – no employment decisions will be based on personal characteristics unrelated to inherent job requirements
- Protecting the Workforce – No child labour or forced labour will be engaged for any project
- Right to Workers' Organizations – No restriction on formation of workers' organization by labour
- Grievance Redressal Mechanism – provision of a system for raising and addressing concerns of contracted labour
- Occupational Health & Safety – provision of an EHS plan that includes occupational health and safety of labour
- Display of emergency contact numbers within and around the facility at easily accessible locations.
- In case any contractor does not have a HR Policy or recruitment procedures, ASEPL shall provide the contractor with a guiding document outlining the procedures to be followed during hiring of labour. These will be included as part of the work contract signed by ASEPL and the contractors.
- All appointed labour shall be covered under workmen compensation mandated by the respective contractor and medical benefits will be provided there under.
- The contractors and subcontractors shall maintain following documentation pertaining to labour engagement as per forms provided in Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Central Rules, 1998 (BOCWR 1998):
  i. Register of construction workers employed (Form XV)
  ii. Muster Roll (Form XVI)
  iii. Register of Wages (Form XVII)
  iv. Register of advances (Form XXI);
  v. Register of over-time (Form XXII);
  vi. Wage Book (Form XXIII)

b. Worker's Accommodation

- Not more than eight workers shall be accommodated in the same room, with separate beds for each worker, partitions to ensure privacy and a minimum distance of one metre between beds;
- For each worker, a minimum floor surface area of 4 to 5.5 m2 shall be provided with a minimum ceiling height of 2.10 m and about 15-20 % additional area shall be provided for circulation;

- The accommodation will be duly insulated to keep the temperature around 20oC notwithstanding the need for adequate ventilation;
- Both natural and artificial lighting facilities shall be provided and maintained in the accommodation;
- All doors and windows shall be lockable and mobile partitions/curtains shall be provided for privacy. Facilities for the storage of personal belongings and PPEs for workers shall be provided;
- Permanent roofing structures should be provided using Corrugated galvanized iron sheets or Non Asbestos Corrugated Roofing Sheets (preferable) and shall be fixed adequately at the edges over the wall and J-clamps on the intermediary supports (pipe);
- Fire extinguishers shall be provided in each accommodation block and kitchen premises;
- Common recreational facilities such as television, radios, etc. should be provided for the labour.
- Food provided to labour shall have appropriate nutritional value and shall take into account religious/cultural backgrounds.
- Each worker shall be provided with a comfortable mattress, pillow, cover and clean bedding.
- Use of double deck bunks shall be minimized and triple deck bunks shall be prohibited.

c. Sanitation Facilities and Waste Water

- Toilet facilities adequate for the capacity of the camp must be provided. Each toilet room must be located so as to be accessible without any individual passing through any sleeping room.
- Toilet rooms must have a window not less than 6 square feet in area opening directly to the outside area or otherwise be satisfactorily ventilated.
- No fixture, water closet, chemical toilet, or urinal may be located in a room used for other than toilet purposes. Where water under pressure is available, urinals must be provided with an adequate water flush.
- Urinal troughs in privies must drain freely into the pit or vault, and the construction of this drain must be such as to exclude flies and rodents from the pit. Every water closet must be located in a toilet room
- Each toilet room must be lighted naturally or artificially by a safe type of lighting at all hours of the day and night. An adequate supply of toilet paper and foot operated garbage bin must be provided in each privy, water closet or chemical toilet compartment. Privies and toilet rooms must be kept in a sanitary condition.
- They must be cleaned at least daily. In camps where public sewers are available, all sewer lines and floor drains from buildings must be connected to them, with prior approval from EHS. Laundry, Handwashing and Bathing Facilities, Laundry, hand washing and bathing facilities must be provided in the following ratio:
  i. Hand wash basin per 10 persons.
  ii. shower head for every 10 persons.
  iii. laundry tray or tub for every 30 persons.
  iv. soap sink in each building used for laundry, hand washing and bathing.
- Floors must be of smooth finish but not slippery materials; they must be impervious to moisture. Floor drains must be provided in all shower baths, shower rooms or laundry rooms to remove waste water and facilitate cleaning. All junctions of the curbing and the floor must be coved. The walls and partitions of shower rooms must be smooth and impervious to the height of splash.

d. Provision of Drinking Water

- WATER CONTAINER – 200 - 300 LTS for Every 10 persons, 1 urinal & 5 water buckets for every 25 persons. (Only in case of Male labours, in case of female labours provision of 2 Urinals is required)
- Adequate water coolers shall be provided with maximum travel distance of 30 meter interval & placed on concrete floor where spill collection provisions provided.
- Adequate canteen facilities shall be provided to all workers depending upon the number of workers housed within the camp and hygiene standards shall be maintained at all times.
- Floors & Walls of Mess hall should be of easily washable type.
- Floors of kitchen should be made of impervious, water resistant, non-skid & easily washable type.
- Schedule of finishes for toilet shall meet EHS requirements.
- Water storage tank capacity should be large enough to hold “48 hrs reserve supply”
- No soak away is permitted in the camp area. The Contractor / Employer shall provide suitable & adequate size of waste water holding tank for collection of domestic liquid waste. Design of such tank shall be based on the anticipated total occupant load with calculation of 280 liters/person/day & shall hold minimum seven days holding capacity.
- An adequate and convenient water supply, approved by the authority, must be provided in each camp for drinking, cooking, bathing and laundry purposes.
- The distribution lines must be capable of supplying water at normal operating pressures to all fixtures for simultaneous operation.
- Where water under pressure is available, one or more drinking fountains must be provided for each 100 occupants or fraction thereof. The construction, installation and maintenance of drinking fountains must comply with local requirements. Common drinking cups are prohibited.
- Adequate illumination level should be provided & maintained in the entire area of labour camp to avoid glare, irregularity & invisibility.
- Installation of LPG portable cylinders or bulk storage tank for cooking activity in the separate kitchen area shall require to obtain necessary approval from EHS Manager. No cooking is permitted within the rooms.
- Ensure that the area is accessed only by authorized personnel and place relevant safety signs. Proper vents should be provided to prevent accumulation of gases/CO at ground levels. Noise levels and personal protection shall be in compliance with Health & Safety Rules & Regulations. Access to and egress from the camp shall conform to EHS standards.
- The camp shall be fenced and a set back area of 5.5 mtrs shall be maintained from the periphery of the fence. The entire camp area shall be hard paved and road based and the roads within camp shall be minimum 4 mtrs wide and shall be kept unobstructed at all times.
- No cooking shall be allowed in the accommodation areas. Garbage skips facility shall be provided in a designated area with adequate hard surface access for clearance of garbage by designated and proper housekeeping shall be maintained in all areas of the camp at all times. A medical facility shall be provided at the camp with a trained nurse to take-care of sick personnel and records shall be maintained.
- A camp boss shall be appointed to monitor all activities within the camp and maintain the hygiene, safety and fire safety standards. The camp shall have adequate fire protection facilities such as fire extinguishers, fire ring main with hydrants, hose reels, fire pumps & dedicated fire water tanks of adequate capacity. Personnel shall be trained in the use of the first aid fire fighting appliances. An

adequate fire prevention plan shall be in place with the emergency numbers displayed conspicuously at strategic locations on the camp site.

- There shall be an emergency evacuation plan in place and all workers residing within the camp shall be made aware of the same. Any change/modification, addition of new facility/building/porta-cabins, if the camp management intends to carry out within the Approved temporary camp facility, shall necessitate prior approval from relevant authority of EHS.

e. Insect and Rodent Control: Effective measures must be taken to prevent infestation by and harborage of animal or insect vectors or pests. The management should have contract with a Pest Control company to carry out pest control program for the facility.

f. First Aid: Adequate first aid facilities approved by the authority must be maintained and made available in every labor camp for the emergency treatment of injured persons. Such facilities must be in the charge of a person trained to administer first aid and must be readily accessible for use at all times. Reporting Communicable Disease - It is the duty of the camp superintendent to report immediately to EHS, Manager the name and address of any individual in the camp known to have or suspected of having a communicable disease. Whenever there occurs in any camp a case of suspected food poisoning or an unusual prevalence of any illness in which fever, diarrhea, sore throat, vomiting or jaundice is a prominent symptom, it will be the duty of the camp manager to report immediately the existence of the outbreak to the EHS authority by telephone or fax.

g. EHS - Fire & Rescue Requirements for Temporary Labour Camp Facilities

- General Requirement
  i. The site must be organized/ prepared for the easy access of Emergency Vehicle.
  ii. The recommended site set up must be submitted to the Fire Dept. for approval.
  iii. Telephone line for emergency use must be provided.
  iv. These type of buildings / structures shall not be used for storage / warehousing.

- Protection from external Fire Spreading
  i. To prevent the external spread of fire between the buildings/ structures. The buildings/ structures may be separated from each other or by providing fire resistant material (metal or fire retardant treated wood forms)
  ii. The buildings/ structures must be 6 m away separated from kitchens, workshops & stores.
  iii. Combustible materials & vegetation must be removed 3 m away from any building/ structure.
  iv. Kitchens must be away from any building/ structure by 6m and protected internally by fire resistant material & LPG cylinder must be stored outside.
  v. Electrical equipment and installation must be fixed as per the requirement of Electrical Dept.

- Means of Escape

  i. Travel distance should not exceed 15 m one direction & 30 m two-direction from any point to the main road of the site.

- Fire Alarm & Fire Fighting
  i. Fire point(s) for Fire Extinguishers (Dry Chemical Powder) and manual call points must be provided at location where it can be reached within 30 m of travel.
  ii. Hose Reel system/network must be provided according to the Fire Dept. requirement.
  iii. Fire alarm bell to be provided inside each room.

- Fire Training

  i. All supervisory staff must be trained in the use of fire fighting equipment provided.

- Fire Notices/ Instructions

  i. Fire sign must be provided at each fire point and written in local, Hindi, English & the languages that can be read & understood by the employees / occupants/users.
  ii. No Cooking
  iii. No Smoking
  iv. Fire / Emergency Actions i.e. Raise the alarm, Call Fire Brigade (Contact No.), Ambulance (Contact No.) & Police (Contact No.)
  v. Emergency Control Nos. – Site Manager and EHS Manager (Mandatory)

h. Kitchen Facilities

- Every shelter in the camp must be constructed in a manner which will provide protection to its tenants from the elements of nature. The floors of each shelter must be constructed of concrete. All Floors must be of smooth and tight construction. The floors must be kept in good repair.
- All floors must be elevated not less than one foot above the ground level at all points to prevent dampness and to permit free circulation of air beneath. All living quarters must be provided with windows the total of which must be not less than one-tenth of the floor area.
- At least one-half of each window must be so constructed that it can be opened for purposes of ventilation. All screen doors must be equipped with self-closing devices. Each room used for sleeping purposes must contain at least 40 square feet of floor space for each occupant.
- Provision of Beds, cots or bunks, and suitable storage facilities such as wall lockers for clothing and personal articles must be provided in every room used for sleeping purposes.
- Sanitary facilities must be provided for storing and preparing food. In camps where cooking facilities are used, the same may only be carried out in approved kitchens. Sanitary facilities must be provided for storing and preparing food. All heating, cooking and water heating equipment must be installed in accordance to local regulations governing such installations.

i. Lighting

- Where electric service is available, each habitable room in a camp must be provided with at least one ceiling-type light fixture and at least one separate floor-or wall-type convenience outlet. Laundry and toilet rooms and rooms where people congregate must contain at least one ceiling- or wall-type fixture. Garbage containers must be kept clean.

- Garbage containers must be emptied when full but not less than twice a week. Construction and Operation of Kitchens, Dining Halls Facilities In all camps where central dining operations are permitted or provided, the food handling facilities must comply with the requirements of EHS Regulations.
- A properly constructed kitchen and dining hall adequate in size, separate from the sleeping quarters of any of the workers, must be provided in connection with all food handling facilities. There must be no direct opening from living or sleeping quarters into a kitchen or dining hall.
- Hand washing facilities equipped with detergent, hand driers/disposable towels and foot operated garbage bins should be available in the food preparation area.
- No person with any communicable disease may be employed or permitted to work in the preparation, cooking, serving or other handling of food, foodstuffs or materials used in any kitchen or dining room operated in connection with a camp or regularly used by persons living in a camp.
- Liquefied Petroleum Gas (LPG) Cylinders when used should be kept outside the cooking area in a covered, well ventilated and locked area.
- Provide a mop sink or curbed cleaning facility with facilities for hanging wet mops if applicable, garbage can washing area/facility and cabinets or room for storing toxic chemicals.

j. Labour Camp Monitoring

- Assessment of accommodation needs of construction labour engaged at site shall be undertaken by ASEPL. Construction workers living in labour camps provided by contractor may encounter discomfort due to poor living conditions at the site. Work site shall be inspected for emergency preparedness, usage of personal protective equipments by workers and any hazard related to the work place **(Refer Appendix H).** Also, the labour camp shall be inspected for general hygiene and living conditions as per IFC standards and which include, but not limited to the following:

  i. General living conditions;
  ii. Accommodation Requirements;
  iii. Sanitation and toilet facilities;
  iv. Food and canteen facilities;
  v. Drinking water facilities;
  vi. First aid facilities and services;
  vii. Entertainment and recreational facilities;
  viii. Grievance reported by workers;

Reporting

Site EHS Officer will report to Corporate EHS Manager on the compliance every Fifteen (15) days during project execution.

5.12 Standard Operating Procedure on Traffic Management

Purpose

The objective of this procedure is to develop and implement processes and procedures to reduce or eliminate the risk associated with the operation of powered motor vehicles and pedestrian traffic.

This Procedure applies to ASEPL's construction workplaces enclosed by fencing. It provides information for persons conducting a business or undertaking who have management or control of the workplace on how to manage risks of traffic movements at the workplace.

This guide does not provide traffic management guidance for construction work on or near public roads. Persons conducting a business or undertaking should refer to their local road authority for the relevant traffic management requirements and guidelines

Traffic management can help manage risks and communicate information regarding control measures. It may include details of:

- the designated travel paths for vehicles including entry and exit points, haul routes for debris or plant/materials, or traffic crossing another stream of traffic
- pedestrian and traffic routing
- traffic controls for each expected interaction, including illustrations of the layout of barriers, walkways, signs and general arrangements to warn and guide traffic around, past, or through the workplace or temporary hazard
- requirements for special vehicles (e.g. over-dimensional)
- requirements for loading from side of road onto the site
- travel paths on routes remote from the workplace such as places to turn around, dump material, access ramps and side roads
- designated delivery and loading/unloading areas
- the expected frequency of interaction of vehicles and pedestrians
- roles and responsibilities of persons in the workplace for traffic management
- instructions or procedures associated with the control of traffic, including in an emergency.

The traffic management plan should be regularly monitored and reviewed to ensure it is effective and to take into account any changes at the workplace.

All workers should be familiar with the traffic management plan and receive sufficient information, instruction, training, and supervision.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Terms & Definitions

- **Driver** Anyone that holds a license or certificate of competency to operate a light, heavy vehicle or mobile plant.
- **Heavy Vehicle** Any machines / equipment that are **mobile or can** be mobile (e.g. forklift, crane, truck, bus/coaches) greater than 8 Gross Vehicle Tonne (GVT). This includes any mobile plant that may be fixed but has the capacity to move under the drive of an on-board power source.
- **Light Vehicle** Any mobile plant, machine or vehicle less than 8 GVT (i.e. car, motorbike, truck, pushbike).
- **Pedestrian** Any person(s) including (but not limited to) employees, visitors, contractors, licensees, leaseholders, present within the working environment (excluding leased areas).
- **Pedestrian Walkway**: Area identified and clearly marked where walking is permitted by persons who are aware of the surrounding risks, have been inducted (or are being escorted) and are wearing appropriate PPE.

References

- Chapter 8 of Motor Vehicles Act, 1988 and Rules 1989
- Rule 3, 39, 56, 129, 130, 131and 132 of Motor Vehicles Rules 1989
- Rule No. 48,50,88 of The Building and Other Construction Workers'(Regulation of Employment and Condition of Service) Central Rules, 1998
- Policy principles of Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012
- Performance Standard 4 on Community Health Safety Security of IFC Sustainability Framework, 2012

A person conducting a business or undertaking has a duty to ensure, so far as is reasonably practicable, that workers and other persons at the workplace are not exposed to health and safety risks arising from the business or undertaking. This duty includes implementing measures to control the risks of persons being injured due to the movement of powered mobile plant at the workplace. EHS Management cell also has duty to provide any information, training and instruction that is necessary to protect persons from risks to their health and safety.

High risk construction work includes construction work that is carried out in an area at a workplace in which there is any movement of powered mobile plant.

Roles and Responsibilities

- Compliance of this procedure will be the responsibility of the Project Manager and Site EHS Officer.
- **Site Safety Officer** must identify the high risk construction work, specify associated hazards, describe measures to control risks and how these will be implemented. The EHS Management Cell must put in place arrangements for ensuring that high risk construction work is carried out.
- **A principal contractor** for a construction project also has duties that include managing health and safety risks associated with traffic in the vicinity of the workplace that may be affected by construction work carried out in connection with the construction project. This includes preparing a EHS Plan for the workplace.

Standard Operating Procedure

- **Risk Assessment:** The key issues to consider for managing traffic at a construction workplace include:

- keeping pedestrians and vehicles apart, including on site and when vehicles enter and exit the workplace
- minimizing vehicle movements
- the risks of vehicles reversing
- visibility of vehicles and pedestrians
- traffic signs
- developing a traffic management plan.
- Managing traffic is essential to providing a safe construction workplace. Traffic can include cars, utilities, delivery trucks, forklifts, excavators and pedestrians such as workers and visitors.
- Vehicles including moving in and around workplaces, reversing, loading and unloading are activities frequently linked with workplace injuries and fatalities.
- The safest way to protect pedestrians is to eliminate the hazard, which means removing the use of all vehicles removing all pedestrians from traffic areas. This could be achieved by designing the layout of the workplace to eliminate the interaction of pedestrians and vehicles.
- Where this is not reasonably practicable, the risks must be minimized so far as is reasonably practicable. This can be achieved by careful planning and by controlling vehicle operations and pedestrian movements at the workplace. This includes loading/unloading activities.
- The steps involved in conducting risk assessment includes:

    - Conduct a risk assessment on the hazards associated with traffic movement within the site;
    - Develop and maintain a Traffic Management Plan (TMP) for the site;
    - Communicate the TMP to all site personnel;
    - Ensure that any hazards, unsafe acts or incidents involving traffic movement are reported and corrective action(s) are implemented;
    - Ensure that the TMP is reviewed on a regular basis.

- **Traffic Management:** Each facility must implement procedures for traffic management which must cover as a minimum, the following for all motorized transportation:

    - Consideration of one-way systems to reduce or eliminate the need for reversing where possible.
    - Protection for vehicles reversing (i.e., reversing alarms, spotter, etc.).
    - Site speed limits.
    - Use of convex mirrors at blind spots (if the blind spot cannot be eliminated).
    - Installation and maintenance of external lighting.
    - Personal protective equipment (i.e., high visibility jackets, safety shoes etc.).
    - Site driving rules.

- **Information, instruction and Training**

    - EHS Manager from Contractors side must provide workers and others at the workplace with adequate information, training and instruction.
    - EHS Management Cell must also ensure that construction induction training is provided to workers.

- All workers need to know and understand the traffic rules, site safety policies and procedures for the workplace. Instructions should be provided to visitors before their visit, if possible.
- External drivers should be aware of the site's traffic safety procedures, any restrictions on vehicle size or type and where they are to make the delivery prior to attending the workplace.
- Any site-specific health and safety rules and the arrangements for ensuring that all persons at the workplace are informed of these rules must be included in the EHS management plan.
- Other persons at the workplace, so far as they're able, must comply with any reasonable instruction that is given by the EHS Management Cell.
- They must also take reasonable care for their own health and safety and that they do not adversely affect the health and safety of others.

- **Keeping pedestrians and vehicles apart:** The following actions will help keep pedestrians and vehicles apart both on site and when vehicles enter or exit the workplace:

  - provide separate traffic routes for pedestrians and vehicles
  - secure the areas where vehicles and powered mobile plant are being used, for example pedestrian barriers or traffic control barricades
  - provide separate clearly marked pedestrian walkways that take a direct route where possible
  - where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly
  - when exiting the site, make sure drivers driving out onto public roads can see both ways along the footway before they move on to it
  - do not block walkways so that pedestrians have to step onto the vehicle route
  - create 'no go' zones for Trucks (e.g. pedestrian-only areas around tearooms, amenities and entrances)
  - Designate specific parking areas for workers' and visitors' vehicles outside the construction zone'.
  - Consider scheduling work that eliminates vehicles, powered mobile plant and pedestrians being in the same area at the same time.
  - Also consider creating 'no go' zones for pedestrians and implementing safe work distances.
  - Steps should be taken to make sure that all workers have the necessary training, qualifications or licenses to operate the vehicles, plant and attachments they use, for example:

    - checks for licensing, qualifications and health when recruiting drivers/operators or hiring contractors
    - training drivers and operators
    - Managing the activities of visiting drivers.

Incidents can also occur when untrained or inexperienced workers drive construction vehicles. Access to vehicles should be managed and workers alerted to the risk.

- **Minimizing vehicle movements**

  - Good planning can help to minimize vehicle movement around a workplace.
  - To limit the number of vehicles at a workplace:

- provide vehicle parking for workers and visitors away from the work area
- control entry to the work area
- Plan storage areas so that delivery vehicles do not have to cross the site.

o Where multiple items of powered mobile plant are being operated around the workplace, a person with the necessary training or qualifications should direct the plant:

- when operating in close proximity to each other
- when reversing
- where persons are on the ground
- in other situations as indicated by a risk assessment.

- **Vehicles reversing**

o The need for vehicles to reverse should be avoided where possible as reversing is a major cause of fatal accidents. One-way systems can reduce the risk, especially in storage areas. A turning circle could be installed so that vehicles can turn without reversing.

o Where it is necessary for vehicles to reverse:

- Use reversing sensors, reversing cameras and mirrors and warning devices such as reversing alarms
- Ensure drivers have another person to direct them before reversing if they cannot see clearly behind. The driver should maintain visual contact with the person directing them and signallers should wear high visibility clothing
- ensure workers and other people are familiar with reversing areas and reversing areas are clearly marked
- Ensure operational plant movements are alerted to workers including swing radius, articulation points and overhead load movement.

- **Visibility of vehicles and pedestrians**

o The EHS laws require that if there is a possibility of Trucks or Lorries colliding with pedestrians or other powered mobile plant, the EHS Management Cell with management or control of the plant must ensure that it has a warning device that will warn persons who may be at risk from the movement of the plant.

o A EHS Management Cell must also ensure, so far as is reasonably practicable, that lighting enables each worker to carry out work without risk to health and safety. Inclement weather, shadows from plant and blind spots can affect visibility.

o The following measures should be considered:

- mirrors, reversing cameras and sensors that can help drivers see movement all round the vehicle
- visual (flashing lights) warning devices, reversing alarms and high-visibility markings for powered mobile plant
- implement safe systems of work that prevent forward carrying of loads if they prevent clear vision
- a trained person who can be appointed to control manoeuvres

- the use of positive communication, for example hand signals, eye contact and verbal confirmation. When using a radio as your primary form of communication, a back-up communication process should be in place in the event of radio failure. Line of sight communication can include the use hand signals or cap lamp light signals. The person receiving the message must provide acknowledgement that the message has been received and understood
- high-visibility or reflective clothing for workers, pedestrians and plant operators at the workplace.

- **Signs**

  - Prominently display clear warning signs in relevant, well lit areas to remind persons of the traffic management hazards and requirements. Excavations should be clearly signed.
  - Traffic routes should be clearly sign posted to indicate restricted parking, visitor parking, headroom, speed limits, vehicle movement, key site areas and other route hazards. Standard road signs should be used where possible and speed limits should be implemented and enforced.

- **Hazard and Incident Reporting**

  - The management should strive to maintain a hazard and incident free working environment.

    - All personnel should report hazards and incidents, including near misses.
    - All hazards and incidents are to be reported immediately to your designated site contact or Project Manager and the Health & Safety Manager
    - . An incident report must be sent to the Health & Safety Manager within 24 hours. All reported hazards and incidents are thoroughly investigated

Monitoring

- Site EHS Officer and Project Manager will be monitoring the Traffic Movements and in case of any deviations will report the same to Corporate EHS Manager and Head Projects.

Reporting

- Weekly reporting of Traffic Management will be made available to Corporate EHS Manager from Site EHS Officer.

Record Keeping/ Outcome

Vehicle Pre Operation Checklist as given below can be used:

Table 5-21: Pre Operation Checklist

S No	Checkpoints	YES	NO
Fluid Level within Manufacturer's Specification			
1.1	Engine Level Oil		
1.2	Brake Fluid Level		
1.3	Radiator Fluid Level		
1.4	Battery Water Level		
1.5	Fuel Level		
1.6	Window/Windscreen washer Level		
Whether Lights in Working Condition			
2.1	Headlights(High Beam)		
2.2	Headlights(Low Beam)		
2.3	**License Plate**		
2.4	Reverse		
2.5	Indicator Turn Signals		
Ensure the following are adjusted to suit driver's view			
3.1	Driver Seat		
3.2	Rear view Mirror		
3.3	Side mirrors		
Pedals			
4.1	Foot brake – holds, stops vehicle smoothly		
4.2	Clutch and gearshift – shifts smoothly without jerking		
Tyres			
5.1	Inflated and free of excessive wear		
5.2	Nuts are Tight		
5.3	Adequate Thread		
5.4	Check spare tyre-inflated and no visible cracks		
Ensure the following are in working conditions			
6.1	Seat belts-working and free of damage		

S No	Checkpoints	YES	NO
6.2	Mirrors-clean and no visible damage		
6.3	Doors and door locks operate correctly		
6.4	Steering-moves smoothly		
6.5	Horn-Loud and Clear		
6.6	Vehicle Reverse Alarm		
Driver's Signature/Date		Supervisor's Signature/Date	

5.13 Standard Operating Procedure on Air Emission Management

Purpose

The procedure is developed to minimize the increase in ambient particulate levels from fugitive emissions, and from other sources and to avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Terms & Definitions

- **Inventorisation** is a process that list out things at one place.
- **Particulate matter** tiny solid particles present in the air.
- **Air Pollutants** means any solid, liquid or gaseous substance (including noise)present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.
- **Point sources** are discrete, stationary, identifiable sources of emissions that release pollutants to the atmosphere.
- **Pollution control Equipments** are the equipments used to avoid and where avoidance is not possible, minimize pollutants in the environment.
- **Fugitive emissions** The USEPA define fugitive dust as "any solid particulate matter that becomes airborne by natural or man-made activities, excluding particulate matter emitted from an exhaust stack".
- **Emission** means any solid or liquid or gaseous substance coming out of any chimney, duct or flue or any other outlet.

References

- Baseline Assessment in ESIA as detailed in ESMS Appendix D and K
- The Air (prevention and control of pollution) Act 1981;
- National Ambient Air Quality Standards, 2009, India
- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012
- Performance Standard 3 on Resource Efficiency and Pollution Prevention of IFC Sustainability Framework, 2012

Overall accountability for implementing this standard lies with the manager in control of the site. Responsibility for its Implementation can be delegated to a designated person(s) who should clearly understand their role(s) and responsibilities.

Standard Operating Procedures

Assessing Air Quality Impacts

- A baseline assessment must be conducted to assess actual and potential air quality impacts resulting from point and fugitive emission sources operated at the site. This may require the development of an air dispersion model capable of predicting ambient air quality changes both locally (on the fence line) and at a distance (e.g. in nearby communities). Hence to serve the purpose, Inventorisation of point and non-point sources is to be undertaken during the feasibility and planning stage of any upcoming projects of ASEPL. The potential sources should be inventoried as per Air Emission Inventory Checklist provided as Appendix D and K.
- Potential air quality impacts arising from the installation of new processes and the development of new projects must be assessed and the requisite Authorization/s must be obtained in advance of commissioning any equipment that produces air emissions which are controlled by a regulator. The parameters to be assessed must be appropriate to the geographic setting, climate and the nature of activities and may include, but are not limited to:
    - Nitrogen Oxides (NOx).
    - Sulphur Oxides (SOx).
    - Volatile Organic Carbons (VOC).
    - Carbon Oxides (COx).
    - Particulate Matter (SPM and RsPM)
    - Ozone Depleting Substances (ODS).

Defining Applicable Air Quality Performance Standards

- Where air emissions and/or ambient air quality requirements are not stipulated by Indian regulators in permits/licenses or other applicable environmental authorizations, the relevant air quality performance guidelines as stipulated in the Appendix I. In this context, baseline assessment refers to the initial qualitative and/or quantitative assessment conducted at the site. It may be conducted during any phase of the project. It establishes the status quo with respect to impacts generated from site activities. Current version of the IFC Environmental, Health, and Safety General Guidelines must be adopted.

- The monitoring and control points applicable to point source emissions and ambient air quality performance standards should be explicitly identified. At least a sample which will be taken from any source should be analyzed twice a week continuously for 24 hours to maintain the consistency in results obtained. Ambient air quality standards specific to host country to be followed to compare the results obtained after analysis. National Air Quality Standards has been presented in Appendix I.

Abatement of Ambient Air Emissions

- After Inventorisation, the point sources should be identified for the installation of additional pollution control equipment on the basis of their contributions to the overall masses of key substances. This may include wetting down of haul roads, etc., as appropriate. . Adequate dust suppression and control measure shall be provided to control fugitive dust emission

Information Management and Reporting

- Information generated as a result of air quality management activities, including monitoring, shall be maintained for communication to internal and external parties, as may be required.
- A robust monitoring program is to be developed which specifically outlines what substances are being sampled, the frequency of sampling and the methodology being used. The key actions that are required to undertake to ensure quality control of air monitoring programs are summarized below.

Table 5-22: Key Actions to ensure quality control of air monitoring programs

Criteria	Action to be Performed
Sampling	All sampling for regulatory compliance will be conducted by accredited laboratories, where available.
	Sampling will be performed in accordance with the relevant national Standards and methods.
Analysis	Analysis will be performed in accordance with the relevant national methods where possible. When variations to these methods are employed, the variation will be recorded and justified.
Reporting	All reports will include the date and time of sample collection, and any unusual operating conditions at the time of collection.

Record Keeping/ Outcome

- Ambient Air Quality- Baseline Assessment Studies
- Monitoring Programme

5.14 Standard Operating Procedure on Water and Waste Water Management

Purpose

The purpose of this procedure is to develop and implement a process for the management and discharge of water and also to plan a process for the minimization and management of waste water.

ASEPL during establishment, construction and erection of any Site will ensure preservation of Natural sources of water, in form of ponds, pits etc. Moreover, ASEPL will conserve the rain water by constructing artificial pits / wells or reserves so that the same can be used at site level.

ASEPL will also ensure that the project does not disturb the Ground water level and will ensure all possible measures to be taken for ensuring Ground water consumption as per the Regulations.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Terms and Definitions

- **Wastewater Treatment Processes:** Wastewater treatment is closely related to the standards and/or expectations set for the effluent quality. Wastewater treatment processes are designed to achieve improvements in the quality of the wastewater.
- **Suspended solids** (physical particles that can clog rivers or channels as they settle under gravity)
- **Biodegradable organics** (e.g. BOD) which can serve as "food" for microorganisms in the receiving body. Microorganisms combine this matter with oxygen from the water to yield the energy they need to thrive and multiply; unfortunately, this oxygen is also needed by fish and other organisms in the river. Heavy organic pollution can lead to "dead zones" where no fish can be found; sudden releases of heavy organic loads can lead to dramatic "fishkills".
- **Pathogenic bacteria** and other disease causing organisms. These are most relevant where the receiving water is used for drinking, or where people would otherwise be in close contact with it; and
- **Nutrients**, including nitrates and phosphates. These nutrients can lead to high concentrations of unwanted algae, which can themselves become heavy loads of biodegradable organic load. Treatment processes may also neutralize or removing industrial wastes and toxic chemicals. This type of treatment should ideally take place at the industrial plant itself, before discharge of their effluent in municipal sewers or water courses.

References

- Water (Prevention and Control of Pollution) Act of India 1974
- Water Cess Act of India, 1977
- The Environment (Protection) Act of India, 1986
- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012

- Performance Standard 3 on Resource Efficiency and Pollution Prevention of IFC Sustainability Framework, 2012

Roles and Responsibilities

- Site EHS Officer/Manager and Operations Manager will be responsible for Implementation of this procedure.
- Overall accountability for implementing this procedure lies with the **EHS Manager** of the site. Responsibility for its implementation can be delegated to a designated person(s) who should clearly understand their role(s) and responsibilities.
- **EHS Manager** at corporate level shall define roles, responsibilities, and authorities to maintain an effective water and waste water management at every site. The person is responsible for overhauling the functioning of all effluent disposal systems on quarterly basis, and for effective implementation of management plan.
- **EHS Manager** is responsible for maintaining effluent disposal system functional both in construction and operation phase of the project. The person is responsible for development of water balance of the site and to monitor its usage on regular basis.
- **Site EHS Manager** is key person for calculating the water requirement during construction and operation phase of the project, assessing the functioning of water meters and repairs works carried out for effluent disposal system. The person is also responsible for assisting lab persons to carrying out sampling of water.
- **Contractor's Safety Supervisor** for implementation of activities like reporting on water usage on weekly basis and to assist safety Officer of the site in minimization of usage of water.

Standard Operating Procedure

The Water and Waste Water Management Procedure shall have the following elements:

- Water accounting and water balance for the process
- Water use and monitoring of Water and Waste Water
- Water management Opportunities and Treatment of Waste Water

I. **Water Accounting and Water Balance for the process**

- During construction phase of the project, EHS Manager will identify the water requirement for each construction activity and the source from which the water will be met. A water balance for the same will be prepared to estimate the water requirement and its usage as per the Inventorisation of the activities requiring water..
- During operation phase of the project, information about all water and waste water generating utilities will be gathered by interaction with Site Manager of the respective site and mapping the same on the site layout of the project.
- Also, a walk-through audit of the facility will be carried by EHS Manager and Safety Officer to identify all major water-using processes, determine the location and accuracy of water measurement devices and main shut off-valves, and verify operating schedules and occupancy of buildings from time to time.

II. Water use and monitoring of Water and Waste Water

- To meet reporting requirements of water usage during construction phase, EHS Manager of the site will direct respective contractors to monitor the usage of the water on weekly basis.
- Facilities should include a description of actions necessary to improve the accuracy of their water usage data.
- Facility shall install water meters in conformity with the standards laid down by the Indian Standards Institution for the purpose of measuring and recording the quantity of water consumed. These records shall be maintained for verification from time to time.
- Water meter shall be provided at the inlet and outlet of various waste water streams. Records of water meter readings shall be maintained.

III. Water management Opportunities and Treatment of Waste Water

- ASEPL shall take care not to discharge any waste water into any natural stream and surrounding land in any of the phase of the project, Construction and operation.
- It shall be ensured that identified drainage system shall be provided of various types of waste water streams and shall not be allowed to mix. The various streams of waste water shall be domestic sewage water, storm water and industrial waste water.
- Drinking water to be used inside the premises of a facility shall be analysed as per international standards or host country standard (whichever is more stringent);
- Adequate arrangement for treatment and disposal of waste water shall be carried out. Domestic sewage shall be treated through septic tank and a soak pit arrangement. Polluted water shall be collected in an equalization tank and shall be disposed of adequately, if required treatment.
- During Construction phase, sanitary sewage from the accommodation camp and selected work locations will be conveyed by pipelines to a temporary package treatment plant during the construction period. The plant will be an extended aeration, activated sludge process treatment plant with tertiary filtration and disinfection of treated effluent prior to disposal.
- A Rain water harvesting or storage tanks can be constructed with adequate capacity within the premises to store rain water and use it later on.
- The effluent disposal system components will be maintained and necessary repairs undertaken as soon as practicable, with a record kept of failures and repairs for each device.
- In the event of a failure of any components of the effluent disposal system, a review will be conducted to assess the cause of the failure, capacity of the components and efficacy of the effluent disposal program and identify strategies or augmentations required to improve effluent management.
- Sampling must be conducted on a quarterly basis and include sampling locations, sampling method by Safety Officer of the site and the results to be submit to EHS Manager for its review.
- ASEPL should ensure that only recognized laboratories are engaged for carrying out sampling of water and waste water and treated effluents.
- ASEPL should ensure that permission for usage of ground water has been procured from the Central Ground Water Board (if required)

Record Keeping/ Outcome

- Water balance for both construction and operation phase
- Water Inventory has been provided in the following tabular format.

Table 5-23: Water Inventory

S.No	Water Source	Water Usage	Waste Water Discharge	Type of Waste Water (Surface Run Off, Polluted Water or Domestic Sewage)	Monitoring Undertaken or not	Treatment System	Reference Standard

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Monitoring

Site EHS Officer will monitor the records and will send the document report to Corporate EHS Manager on Monthly basis.

Reporting

Site EHS Officer will report on the Procedural Compliance to Corporate EHS Manager.

5.15 Standard Operating Procedure on Hazardous Materials Inventorisation and Hazardous Waste Management

Purpose

The procedure is developed to reduce the risk associated with hazardous Waste and implement a process for the management of hazardous chemical. The objectives of the Plan are:

- To reduce the generation of hazardous waste by industry and society generally.
- To minimize unreported hazardous waste with a view to reducing the environmental impact of this unregulated waste stream.
- To minimize the environmental, social and economic impacts of hazardous waste generation and management.

This procedure provides information on requirements for the management of hazardous materials, including the disposal of hazardous waste, at ASEPL. These requirements are based on state and country regulations. In addition, the management of hazardous materials is necessary to reduce disposal costs. While the disposal of all material as hazardous waste is expensive, there are certain materials that require special attention to minimize the difficulty and expense of their disposal.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Terms & Definitions

- Hazardous Waste is any waste with the potential to cause danger to health or environment whether alone or when in contact with other waste or substance.
- Disposal means any operation which does not lead to recycling, recovery and include physical, chemical, biological treatment, incineration and disposal in secured land.
- Hazardous Waste Site mean a place of collection, reception, treatment, storage of hazardous waste and its disposal to the environment which is approved by the competent authority
- Pollution Prevention and waste minimization are terms that refer to the practices that reduce or eliminate the amount of pollutants which would have entered any waste stream or that would have been released into the environment prior to recycling, treatment, or disposal.

References

- The Environment (Protection) Act of India, 1986, India
- Hazardous waste (Management, Handling and Trans boundary Movement) Rules 2010
- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 4 on Community Health Safety and Security of IFC Sustainability Framework, 2012

Roles and Responsibilities

- EHS Manager at Site is responsible for implementation of hazardous waste management procedure at the site. The person will ensure the proper storage and handling of waste at the site. He will be responsible for Inventorisation of hazardous waste and inspection of accumulated waste areas and reporting the same to the EHS Head at the Corporate Office.
- EHS Officer at Site will be responsible ensuring the secured storage of hazardous waste. The person to ensure that the container in which Hazardous Waste is stored must clearly indicate what type of Waste. He will be responsible for provision of the training, equipment and the information necessary to ensure their safety. The person will maintain the records and disposal options that are adopted for each category of hazardous waste generated.

Standard Operating Procedure for Inventorisation of Hazardous Waste

- ASEPL programs that store hazardous materials are required to submit annual inventories to the Corporate Sustainability Cell. The annual hazardous material inventory audit, will help us deal with certain types of hazardous materials already on hand, monitor on-going usage, and to prevent unnecessary accumulation of hazardous materials. As part of the inventory procedure, ASEPL programs are required to inspect the condition of all hazardous material containers to ensure that hazardous materials are stored in containers which are in

good condition and which are properly labeled. This report can be shared with Project Head at Corporate Office as well. Frequency – Annual. Inventorisation of hazardous waste can be undertaken.

- ASEPL programs that generate hazardous wastes are required to submit monthly inventories to the Corporate Sustainability Cell. Waste inventories shall be submitted to the Corporate Sustainability Cell every month. The hazardous waste inventory will help ASEPL monitor site wide hazardous waste accumulation. As part of the inventory procedure, ASEPL programs are required to inspect the condition of all hazardous material containers to ensure that hazardous materials are stored in containers which are in good condition and which are properly labeled.

- Identification of Hazardous Waste

    - Waste Identification and Classification
    - All waste streams generated throughout the ASEPL must be identified and then classified as hazardous or non-hazardous definitions. If you need assistance in determining whether a waste is hazardous, you should contact the Environmental Health and Safety Officer at Gurgaon.
    - The first step in meeting the requirement is to identify the waste streams. A waste is:
        - A useless by-product of an operation,
        - A material which is to be disposed,
        - Any material which can no longer be used,

- All wastes must be screened to determine whether they are hazardous. A hazardous waste is one which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Hazardous Waste

- A waste which is listed as hazardous in the regulations
- A mixture that includes a listed hazardous waste; or
- A waste which exhibits any of the four following characteristics; ignitability, corrosivity, reactivity, or toxicity.

The following procedures should be used to determine if a waste is hazardous. If it is, the procedures will identify the appropriate hazardous waste number for each waste, which will in turn determine disposal requirements:

- Determine the proper name of the waste and its specific source.
- Ignitability. A waste that exhibits the characteristic of ignitability will be hazardous waste
- Corrosivity. A waste that exhibits the characteristic of corrosivity.
- Reactivity. A waste that exhibits the characteristic of reactivity.
- Toxicity. A waste that exhibits the characteristic of Toxicity & reactivity both.

Hazardous Waste Management and its Disposal

Management of Hazardous Material

Compliance with the following requirements will assist the Site Team in ensuring the proper management of certain types of hazardous chemicals.

- Approval to Purchase Hazardous Chemicals
- ASEPL's Corporate Sustainability Cell approval is required for the purchase or requisition of all hazardous chemicals. If approved, a copy of the form will be provided for attachment to the purchase order or requisition. The purpose of approval is to ensure the safe storage, handling and eventual disposal of the material while minimizing cost to ASEPL.
- Approval to Use Hazardous Materials
- Approval from Site Head is required to use any such Hazardous Materials even for Daily Cleaning Purpose.
- Material Safety Data Sheets
- Material Safety Data Sheets (MSDSs) will help determine whether a product is a hazardous material. MSDSs are prepared by the manufacturer, distributor or importer of products containing hazardous substances. The MSDSs provide the following detailed information about the product:
    - Chemical composition
    - Physical characteristics and chemical properties
    - Fire, explosion and reactivity hazards
    - Health hazard information and symptoms of overexposure
    - Protective equipment recommendations
    - Handling and storage precautions
    - Cleanup and disposal procedures
    - Emergency first aid procedures
- All chemical manufacturers and suppliers of hazardous chemicals must furnish an MSDS with each initial shipment and furnish new MSDS information upon request.
    - Location and Accessibility of MSDS
- Copies of all MSDSs must be kept in proximity to the area where products are stored and must be readily available to all employees at any time. It is the responsibility of the Site EHS Manager in each area to ensure that all MSDSs are kept in an accessible storage area and are updated. Employees are encouraged to refer to the MSDSs for information on products in their work area.
- If an MSDS is missing or incomplete, a letter to the product manufacturer must be made through fax immediately, with a follow-up copy of the letter by mail.

Hazardous Waste Disposal Requirements

The following requirements apply to all generators of hazardous waste.

Waste generators must:

- Become familiar with the hazardous materials in their area and with this procedure on hazardous material and hazardous waste management.
- Provide an annual inventory of all hazardous materials
- Comply with waste requirements. Store and label waste properly.
    - ASEPL programs generating hazardous waste should establish a safe area near the point of generation for the temporary storage of that waste before disposal by a licensed contractor. The Corporate Sustainability Cell will annually or more frequently if necessary, hire a licensed hazardous waste contractor to transport the waste to a permitted hazardous waste treatment, storage and disposal facility.
    - All hazardous waste containers must be labeled with the words “Hazardous Waste,” an accurate description of the contents of the container and marked with the accumulation start date.
    - All hazardous waste containers must remain closed except when waste is being added to them.
    - Waste Containers: Containers used for wastes must be in good condition (i.e. no rusting, cracks or structural defects). If a container is broken or begins to leak, the material must be transferred to a container in good condition. The material composition must be compatible with the material to be stored and incompatible materials must not be stored in proximity to one another. Package materials in sturdy cardboard boxes or plastic waste containers. Cushion the material in the containers to prevent breakage. If cardboard boxes are used which originally held other chemicals, the name of the chemical must be covered over or defaced. Failure to do so constitutes improper marking as to contents and is an EHS regulation violation.
- Drain Disposal Prohibited
- No hazardous materials may be disposed of down the drain. This specifically includes but not limited to:
- Pollutants that create a fire or explosive hazard. Any liquids having a pH less than 6.0 or more than 9.0, or otherwise causing corrosive structural damage.

Emergency Plans for Spills

- A specific spill emergency plan is proposed and provides information and training to individuals working in your area regarding the plan. It is a good idea to post the emergency procedures and emergency phone numbers in the work area. Personnel working with hazardous chemicals should be able to answer the question: "What would I do if this material spilled?"
- Spill kits with instructions, absorbents, reactants, and protective equipment should be available to clean up minor spills. A minor spill is one that does not spread rapidly, does not endanger people or property except by direct contact, does not endanger the environment, and the workers in the area are capable of handling safely without the assistance of safety and emergency personnel. All other chemical spills are considered major.
- The following are the steps for the handling of spills.
    - Attend to anyone who may have been contaminated or hurt, if it can be done without endangering yourself. Ensure protective apparel is resistant to the spilled material. Neutralize acids and bases, if possible using neutralizing agents such as sodium carbonate or sodium bisulfate. Control the spread of liquids by containing the spill. Absorb liquids by adding appropriate absorbent materials, such as vermiculite or sand, from the spill's outer edges toward the center. Paper towels and sponges may also be used as absorbent material, but this should be done cautiously considering the character of the spilled material. Collect and contain the cleanup residue and any materials used to clean up the spill by

scooping them into a plastic bucket or other appropriate container and properly disposing of the waste as hazardous waste. Decontaminate the area and affected equipment. Ventilating the spill area may be necessary. Document what happened, why, what was done, and what was learned. Such documentation can be used to avoid similar instances in the future. Major incidents are almost always preceded by numerous near misses. Inspection for temporary storage area can be undertaken.

- Specific Information on the Disposal of Various Materials

  - BATTERIES: Lithium, nickel/cadmium or mercury batteries shall be stored at the hazardous waste accumulation site for contract disposal. Vehicle batteries are recyclable and arrangements with local vendors can be made.
  - FLUORESCENT LIGHT TUBES: The Operations and Maintenance Department removes and disposes of fluorescent light tubes.
  - HAZARDOUS CHEMICALS AND HAZARDOUS WASTE: The Corporate Sustainability Cell will annually hire a contractor to dispose of hazardous wastes. Efforts should be made to determine if others could use excess hazardous chemicals in the department or facility prior to submitting for contract disposal.
  - MERCURY: Items containing functional mercury (e.g. light switches, barometers and thermometers) shall be stored at a hazardous waste accumulation site for contract disposal.
  - OILS AND TRANSFORMER FLUID: Operations and Maintenance Department will assist with disposal of waste pump oil. Used motor oil is recyclable through local vendors. Operations and Maintenance handle used motor oil. Transformer fluid will be handled on a case by case basis.
  - Used oil may only be stored in containers that are in good condition and not leaking.
  - Containers, aboveground storage tanks, and fill pipes must be labeled or marked clearly with the words “used oil.”
  - Upon detection of a release of used oil, a generator must stop the release, contain the used oil, clean up and manage properly the used oil and other materials, and if necessary, repair or replace any leaking used oil storage containers.
  - PAINT WASTE (Autobody): Paint waste generated will be stored in a marked container labeled, “Paint Waste for Recycling”. On a regular basis, the paint waste will be processed through the paint solvent recycler. After recycling, the remaining paint sludge will be carefully dried out and can be disposed in the municipal sanitary landfill. Thinner solvent extract can be used as product.

    - Minimization of Hazardous Waste
    - Buying Chemicals in Smaller Amounts
    - Recycling and Redistribution
    - Use of Less Hazardous or Non-hazardous Materials
  - Drying Agents: The safest common drying agents are calcium chloride, silica gel, molecular sieves and calcium sulfate (Drierite). These are recommended because of their low toxicity and stability. Drying agents that pose varying degrees of hazard and disposal problems include:

    - Thermometers: Mercury thermometers should be replaced with non-mercury thermometers whenever possible. Broken mercury thermometers create spills which are a potential health hazard, time consuming to clean up, and one of the most expensive hazardous wastes we

handle. Non mercury thermometers with equivalent accuracy are available for temperature ranges of -20 to 250 degrees Centigrade.

- Conversion to non-hazardous material

- As part of instruction or research operations, hazardous materials can be converted into non-hazardous wastes. The neutralization of acids or bases is an example of this. Experiments can be designed to convert residual or produced hazardous materials into non-hazardous wastes. In some cases this can have instructional value as well as reducing the amount of hazardous waste and its disposal cost.

Monitoring

Monitoring of this procedure will be the responsibility of Operations Manager along with Site EHS Officer.

Reporting

Site EHS Officer will report on the procedural compliance to EHS Manager at Corporate Office on Monthly basis.

Record Keeping/ Outcome

- Hazardous Waste Inventory

5.16 Standard Operating Procedure on Lock Out – Tag Out (LOTO)

Purpose

This Procedure applies where any exposure to hazardous energy during service or maintenance work is present or any Hazard pertaining to uncontrolled energy includes potential, kinetic, flammable, chemical, electrical, and thermal sources.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Below is a listing of typical activities in which energy control procedures apply (alternative methods can be used for performing work involving the control of hazardous energy, provided it is consistent with the requirements of this policy:

- Trouble shooting
- Testing
- inspecting
- Servicing
- Repairing
- Dismantling

References

- Section no. 36 of The Factories Act 1948
- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 2 on Labour and Working Conditions of IFC Sustainability Framework, 2012

Procedure

The procedure comprises of three sections:

I. Criteria for Lock out and Tag out Devices
II. Specific Energy Control Procedures
III. Training Required & Auditing Required

I. Criteria for Lock out and Tag out Devices

- Lockout and tagout devices must meet the following criteria to ensure that they are effective and not removed inadvertently:
- Lockout devices must work under the environmental conditions in which they are used. Tag out device warnings must remain legible even when they are used in wet, damp, or corrosive conditions.

Energy Control Procedures

Specific Energy-Control Procedures:

- Lockout and tagout devices must be designated by color, shape, or size. Tagout devices must have a standardized print and warning format.
- Lockout devices and tagout devices must be strong enough that they can't be removed inadvertently. Tagout devices must be attached with a single-use, self-locking material such as a nylon cable tie.
- Any employee who sees a lockout or tagout device must be able to recognize who attached it and its purpose.
- Each lock must have a unique key or combination.
- Electrical energy sources. Lockout or tagout of electrical energy sources must occur at the circuit disconnect switch. Electrical control circuitry does not effectively isolate hazardous energy.
- Energy-isolating devices are the primary means for protecting ASEPL employees who service equipment and must be designed to accept a lockout device. Energy isolating devices must clearly identify function.
- Authorized employees who lockout or tagout equipment or do service and maintenance must follow specific written energy-control procedures. The procedures must include the following information:
    - The intended use of the procedure
    - Steps for shutting down, isolating, blocking, and securing equipment
    - Steps for placing, removing, and transferring lockout devices
    - Equipment-testing requirements to verify the effectiveness of the energy-control procedures

- When re-energizing equipment is necessary — when power is needed to test or position the equipment, for example — temporary removal of lockout or tagout devices is allowed. This applies only for the time required to perform the task and the procedure must be documented.
- Employees must do the following before they begin service or maintenance work:
    - Inform all affected employees of equipment shutdown.
    - Shut down equipment.
    - Isolate or block hazardous energy.
    - Remove any potential (stored) energy.
    - Lockout or tagout the energy sources.
    - Verify the equipment is isolated from hazardous energy and de-energized.
    - Employees must do the following they remove lockout or tagout devices and re-energize equipment:
        - Remove tools and replace machine or equipment components.
        - Inform co-workers about energy-control device removal.
        - Ensure all workers are clear of the work area.
        - Verify machine or equipment power controls are off or in a neutral position.
        - Remove the lockout or tagout device.
        - Re-energize equipment.
    - The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down which could endanger employees;
    - the machine or equipment has a single energy source which can be readily identified and isolated;
    - the isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment;
    - the machine or equipment is isolated from that energy source and locked out during servicing or maintenance;
    - a single lockout device will achieve a locked-out condition;
    - the lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance;
    - the servicing or maintenance does not create hazards for other employees; and
    - the employer, in utilizing this exception, has had no accidents involving the unexpected activation or reenergization of the machine or equipment during servicing or maintenance.
- Zero Energy State:
    - Zero Energy State is a point at which the equipment has been safely isolated from any chances of reenegization or release of internal contained energy. Said more plainly – It's when you've shut everything off and nothing can hurt you.
    - Special lockout/tagout situations - Energized testing
- Alternative methods
    - When an energy-isolating device is locked or tagged and it is necessary to test or position equipment, do the following:
    - Remove unnecessary tools and materials.
    - Ensure that all other employees are out of the area.
    - Remove locks or tags from energy isolating devices.
    - Proceed with test.
    - De energize equipment and lockout or tagout energy-isolating devices.
    - Operate equipment controls to verify that the equipment is de-energized.

- Contract service and maintenance
    - ASEPL and contractors must be aware of their respective lockout/tagout procedures before the contractor does onsite work. ASEPL employees must understand and comply with the contractor's energy-control procedures.
    - Group lockout
    - When authorized employees must service equipment that has several energy sources and several energy-isolating devices, the employees must follow group lockout procedures. The following machines and equipment require group lockout: (Transformer, Switch Yard, and Transmission Point).
    - Shift changes and long-term shutdowns
    - Employees must follow specific written procedures when it is necessary to continue lockout/tagout when work shifts change and during long-term shutdown
    - When lockout or tagout is not used for tasks that are routine, repetitive, and integral to the production process, or prohibits the completion of those tasks, then an alternative method must be used to control hazardous energy.
    - Selection of an alternative control method must be based on a risk assessment of the machine, equipment, or process. The risk assessment must consider existing safeguards provided with the machine, equipment or process that may need to be removed or modified to perform a given task.
    - For example, when control circuits are used as part of the safeguarding system, the system must be designed to ensure protection as effective as a mechanical disconnect switch or master shut-off valve. A control-reliable dual channel hardwired circuit of industrially-rated components that satisfies the design features as specified with a safety relay or safety Programmable Logic Controller to ensure integrity and performance of the safeguarding system, must be used.
    - Under all circumstances, the individual must have exclusive personal control over the means to maintain the state of the control circuit in a protective mode.
    - Employees who may be exposed to hazardous energy will receive training before assignment to ensure that they understand ASEPL's energy-control Procedure and have skills to apply, use, and remove energy controls. Training will be conducted at site for the employees at a frequency of Three Months, this will include refresher trainings as well.
    - The training will include the requirements and the following:
    - Employee uses equipment that is being serviced under lockout or tagout procedures or works in an area where equipment is being serviced.
    - Authorized employees will be trained to recognize hazardous energy sources, the type and magnitude of energy in the workplace, the methods and means necessary for isolating and controlling energy, and the means to verify that the energy is controlled. An authorized employee locks out or tags out equipment to do service work. An affected employee becomes an authorized employee when that employee's duties include service or maintenance work on equipment.
    - Employees whose jobs are in areas where energy-control procedures are used will be trained about the procedures and the prohibition against starting machines that are locked or tagged out.
    - Employees will be retrained annually to ensure they understand energy-control Procedure and procedures.
    - Authorized and affected employees will be retrained whenever their job assignments change, energy-control procedures change, equipment or work processes present new hazards, or when they don't follow energy-control procedures.
- Documentation will include the following:

  - Current training records will be maintained for each authorized and affected employee including the employee's name and the training date.
- ASEPL will perform and document annual inspections of energy-control
  - The equipment on which the procedure is used.
  - The date of the inspection.
  - The employees included in the inspection.
  - The inspector.
  - If an inspector finds that employees are not following an energy-control procedure or that the procedure is not protecting them, employees must be retrained and the procedure's deficiencies corrected.
  - The inspector must understand the procedure and must be someone other than those following the procedure at the time of the inspection. Each procedure's accuracy, completeness, and effectiveness must be verified.
  - If the inspection covers a procedure for equipment with an energy-isolating device that can be locked out, the inspector must review the procedure with the employees who use it to service the equipment. The inspector can review the procedure with the employees individually or in a group. If the inspection covers a procedure for equipment with an energy-isolating device that can only be tagged out, the inspector must review the procedure with the authorized employees who service the equipment and with affected employees who may work in the area when the equipment is serviced. The inspector can review the procedure with the employees individually or in a group.
  - There are five steps to lockout tagout compliance:
    - Develop and document a written lockout tagout Procedure
    - Create lockout procedures
    - Identify energy control points
    - Lockout tagout employee training and communication
    - Use proper lockout tools and warning devices
- Roles and Responsibility
  - Lock Out and Tag Out compliance is the responsibility of the concerned Operator / Site Engineer (Both Relieving and Joining at the time of Shift Handover). Designation will be shift engineer
  - Operator must do the following before he begins service or maintenance work:
    - Inform all affected employees of equipment shutdown.
    - Shut down equipment.
    - Isolate or block hazardous energy.
    - Remove any potential (stored) energy.
    - Lockout or tagout the energy sources.
    - Verify the equipment is isolated from hazardous energy and de-energized.
  - Operator must do the following if they remove lockout or tagout devices and re-energize equipment:
    - Remove tools and replace machine or equipment components.
    - Inform coworkers about energy-control device removal.
    - Ensure all workers are clear of the work area.
    - Verify machine or equipment power controls are off or in a neutral position.
    - Remove the lockout or tagout device.
    - Re-energize equipment.
- Monitoring of Lock Out – Tag Out

- Monitoring of the Procedure will be the assigned responsibility of the EHS Manager at Corporate Level and EHS Officer at Site level on Quarterly basis. All the records, checklist, Training Records and Procedural Compliance will form the part of this monitoring. Any deviations if found needs to be accordingly reported to EHS Manager along with actions taken at Site level.

Reporting

Reporting will happen from Site EHS Officer to Corporate EHS Manager on Quarterly basis.

Record Keeping

- All the records will be controlled documents and will be in the custody of EHS Officer at Site.
- Documentation will include the following:
- The equipment on which the procedure is used.
- Inspection Record.
- Training Records.

If an inspector/ EHS Manager finds that employees are not following an energy-control procedure or that the procedure is not protecting them, employees must be retrained and the procedure's deficiencies corrected. The inspector must understand the procedure and must be someone other than those following the procedure at the time of the inspection. Each procedure's accuracy, completeness, and effectiveness must be verified.

If the inspection covers a procedure for equipment with an energy-isolating device that can be locked out, the inspector must review the procedure with the employees who use it to service the equipment. The inspector can review the procedure with the employees individually or in a group. If the inspection covers a procedure for equipment with an energy-isolating device that can only be tagged out, the inspector must review the procedure with the authorized employees who service the equipment and with affected employees who may work in the area when the equipment is serviced. The inspector can review the procedure with the employees individually or in a group.

5.17Standard Operating Procedure on Work Permit (WP)

Purpose

This Procedure establishes for protecting employees/contractors who are allocated service or maintenance on machines or equipment where probable cause of Injury / accident can happen and needs strict invigilation.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

References

- Section no. 36 of The Factories Act 1948
- Chapter XIII of The Building and Other Construction Workers'(Regulation of Employment and Condition
- of Service) Central Rules, 1998

- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009, Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012, Performance Standard 2 on Labour and Working Conditions of IFC Sustainability Framework, 2012

Procedure

The permit issuer and other responsible persons involved in raising the permit should indicate on the permit those precautions which will be necessary to allow the work to proceed. This may take the form of a statement, or may be by means of a checklist. The person in charge of the work should ensure that all the precautions are put into operation.

The type of precautions will be dictated by the nature of the work to be undertaken. In broad terms they will be concerned with the following:

• The safety of personnel in terms of protective equipment to be worn or used
• The safety of the plant or equipment associated with the work (eg - isolations)
• The safety of the actual task – e.g. (spark containment during welding).

Display of permits: It is important that permits are displayed so the persons, who need to be aware of them, or to refer to them, are able to do so.

Copies to be normally are distributed as follows:

1. At the worksite. Where this is not practicable (eg - at an exposed location), the person in charge of the job should retain the copy on his person, having ensured that the work party members are familiar with its content
2. At the main control/co-ordination room, where they should be displayed in a systematic arrangement
3. Where the permit issuer is remote from the main control/co-ordination centre, he should have a copy of the permit.

Revalidation Process: Permits should be revalidated in order that the permit issuer can satisfy himself that the conditions under which the permit was originally issued remain unchanged to allow work to continue. Revalidation is normally done at the completion of a shift.

Suspension: Work being carried out under a Permit to Work Systems (PTW system) may have to be stopped before the work is completed. Typical circumstances where this may arise are:

• In the event of an emergency
• For operational reasons to prevent interaction with another activity
• Work carried out during single shift only
• waiting for materials or services.

In certain circumstances it may be appropriate to cancel the permit and to implement a secure long term isolation procedure.

Roles and Responsibilities

Issuer of the Work Permit: is the person who issues the work permit and is the approving authority who acts as a supervening authority to ensure that acceptor is capable of handling the assigned job with complete safety norms in place. He is the person responsible for ensuring all the safety precautions are taken and issues the work permit for prescribed timelines.

Acceptor of the Work Permit: is the person who accepts the terms and conditions pertaining to safety and undertakes to complete the assigned job within prescribed time frame keeping in view all the safety precautions.

Process - Shift hand-over: Shift changeovers can be one of the most vulnerable times for the PTW system. The failure to pass on information or the correct information has been shown to be the cause of many accidents. Installation owners should take into account, when developing PTW systems, the importance of planning the shift change such that there is sufficient overlap to allow proper review and discussion of the status of all permits to work.

Written means of communicating information:

• Permit Log Book • Permit Files & Display Boards • Computer Screen/Print Out, Or a combination of any of the above.

Whichever arrangements are adopted, the shift handover arrangement should be monitored regularly to ensure its continued effectiveness.

Action in an emergency

The PTW system should make provision for actions in an emergency. Normally this will consist of an instruction that all work is to cease in the event of an emergency. It is likely that time will not allow formal suspension of permits by way of their return to a central control/co-ordination point. Post-emergency actions should however include a re-assessment of work subject to permits to ensure that conditions have not altered as a result of the emergency, and that the permit remains valid.

Monitoring

The monitoring of a PTW system should be a continuous activity. The intent of such monitoring is to ensure that the conditions under which the permit was issued remain unaltered, and that the precautions specified on the permit are being complied with. Monitoring is the key responsibility of issuer and accountability of the acceptor. Documentation and records are to be monitored by EHS Site Officer, and will be quarterly monitored by EHS Corporate Manager. Prior to signing off the permit, the permit issuer or a delegated representative should conduct an inspection of the worksite to confirm that it has been left in a satisfactory condition. The person in charge of the work in signing completion is making a statement that the worksite has been left in a safe condition, and the permit issuer has to be satisfied of this before he signs his acceptance of the completed permit. On completion of work, the issued copies of the permit should be re-united and returned to the point of issue. The copies should then be signed off by the permit issuer and the Task Supervisor to indicate completion, subject to a satisfactory inspection of the worksite.

Other parties to the permits, i.e. those made aware of the work who may have been signatory to the permit, should also be informed of its completion.

Return to service

There is a formal procedure for returning equipment to service which has been subject to work under the PTW system. This procedure should consider the following:

- That work on the equipment has been completed
- That the plant or equipment has been left in a safe condition, and that this has been verified by the person finally signing off the permit
- That all isolations/overrides pertaining to the plant or equipment have been removed/cancelled, or that the status of any remaining isolations is known to Operations personnel
- That the Operations person responsible for that area formally acknowledges his acceptance of the plant or equipment.

Reporting

Reporting will happen from Site EHS Officer to Corporate EHS Manager on Quarterly basis.

Record Keeping

All the records will be controlled documents and will be in the custody of EHS Officer at Site. Permit to Work (PTW) Records, Training Records

The P.T.W. system should call for a record to be kept of permits issued over a specified period. Such a system may consist of a permit log book itemizing issued permits, or of permit copies being retained for the specified period.

5.18 Standard Operating Procedure on Confined Space Entry (CSE)

Purpose

The procedure is developed to reduce or eliminate risk associated with entry into confined spaces and maintain regulatory compliances

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

References

- The Factories Act 1948
- Chapter XIII of The Building and Other Construction Workers'(Regulation of Employment and Condition
- of Service) Central Rules, 1998
- Policy principles of Environmental Safeguards of ADB's Safeguard Policy Statement, 2009,
- ADB. 2001. *Social Protection Strategy.* Manila.

- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012, Performance Standard 2 on Labour and Working Conditions of IFC Sustainability Framework, 2012

Procedure

- Appointment of Supervisor to ensure the adherence of Safety Norms during any operation in Confined Space Entries.
- Necessary safe system to be in place.
- Specific Trainings are required on CSE for the personnel involved to work in these areas.
- Awareness of the Confined Space Regulations and avoidance to enter where ever possible.
- Ventilation to be improved where ever possible, with continuous monitoring and invigilation. Facility of Fresh Air must be ensured wherever possible.
- Decontamination before Entry.
- Isolation of Mechanical and Electrical Equipments. Use of Suitable Equipments during operations.
- Usage of PPE is required.
- Size of entrance; the access / egress point must be big enough to allow workers wearing all the necessary PPE.
- Fire Prevention; Control on Ignition sources along with Ventilation arrangement is required.
- Proper Lighting must be ensured.
- Mentally & Physically fit persons are only allowed to enter in Confined Space Areas.
- Training of employees/supervisors and contractors on CSE.

Roles and Responsibility

Issuer of the Permission for CSE: is the person who issues the work permit is the approving authority who acts as a supervening authority to ensure that acceptor is capable of handling the assigned job with complete safety norms in place. He is the person responsible for ensuring all the safety precautions are taken and issues the work permit for prescribed timelines.

Acceptor of the Permission for CSE: is the person who accepts the terms and conditions pertaining to safety and undertakes to complete the assigned job within prescribed time frame keeping in view all the safety precautions.

Monitoring

The monitoring of CSE system should be a continuous activity. The intent of such monitoring is to ensure that the conditions under which the permit was issued remain unaltered, and that the precautions specified on the permit are being complied with. Monitoring is the key responsibility of issuer and accountability of the acceptor. Documentation and records are to be monitored by EHS Site Officer and will be quarterly monitored by EHS Corporate Manager.

Site inspection

Prior to signing off the permit, the permit issuer or a delegated representative should conduct an inspection of the worksite to confirm that it has been left in a satisfactory condition. The person in charge of the work in signing completion is making a statement that the worksite has been left in a safe condition, and the permit issuer has to be satisfied of this before he signs his acceptance of the completed permit.

Reporting

Reporting will happen from Site EHS Officer to Corporate EHS Manager on Quarterly basis.

Record Keeping

- All the records will be controlled documents and will be in the custody of EHS Officer at Site.
- CSE Permit Records
- Training Records

5.19 Standard Operating Procedure on Personal Protective Equipment (PPE) Compliance

Purpose

This procedure is established for all employees, contractors, labours and workers, visitors etc for ensuring safe and healthy work place during their presence in the site premises. The purpose of this procedure is to provide a mechanism for identifying and selecting PPE and its correct usage. This will minimize the risk of injury to employees and contractors. Moreover safe system of working will be established while working with PPE.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

References

- Section no. 36 of The Factories Act 1948
- Chapter XIII of The Building and Other Construction Workers'(Regulation of Employment and Condition
- of Service) Central Rules, 1998,
- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009,
- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012,
- Performance Standard 2 on Labour and Working Conditions of IFC Sustainability Framework, 2012

Procedure

ASEPL must ensure that high level risk controls are considered before PPE is selected as a Risk control measure. Managers must ensure that employees, contractors, labours and workers are issued appropriate PPEs before they enter Site Premises and are deposited back once the desired job is completed to Site Premises at Security Control / Site Gate.

Risk Management: EHS Manager must identify and assess potential risks that may arise at workplace or whilst undertaking work activities. Once Risks are being identified appropriate methods must be taken to eliminate risk exposure or minimize the risks. High level risk control should be considered before PPE is selected. PPE is considered the lowest level of risk control and should be in conjunction with High levels of Risk Control. Whenever lower level risk controls are used review of effectiveness of controls must be increased.

Access Control System: Any person in whatever capacity entering the plant must comply with wearing Safety PPE (Safety Helmet, Safety Shoes, Safety Goggles, Safety Jacket primarily). EHS Site Officer is the issuing authority of PPE's. PPE's are made available at Plant Gate and are in the custody of Security Officer/Supervisor. Once PPEs are issued, a manual entry in the register is to be made and the PPEs are required to be worn and henceforth entry is permitted. No Unknown visitor is allowed inside the Plant premises without written approval from Plant Manager. Once the desired job is completed before exit from the Plant premises the employee/contractor/ visitor needs to deposit the same to Security Officer/Supervisor and needs to sign off by the person depositing the PPEs.

Supply Of PPE: ASEPL will ensure supply of PPE for employees depending upon the work activity and risk exposure. Stores will maintain a stock of PPE as approved. In the event that PPE Items are not available with the approved supplier and is unable to provide the required PPE, ASEPL may have to source the required items from alternate supplier.

List Of PPEs

1. Safety Shoes
2. Safety Helmets
3. Safety Jackets
4. Safety Gloves
5. Nitrile Gloves
6. Ear Muffs
7. Safety Goggles

Roles and Responsibility

EHS Officer

- Ensure that this procedure is fully implemented
- Ensure that employees are trained in the use of PPE.
- Maintain stocks of PPE On site for the use of Visitor.
- Ensure Contractors/Labours/ Workers adhere to compliance and are aware on the Hazards of not wearing the PPEs.
- Ensure quality check of PPEs supplied by Vendors.

Stores and Admin Officer

- Maintain stocks of PPES Including spare parts. Assist in systematically replacing PPE inconsistent within time frames and life cycles as advised in the Color Coding & Replacement stock and disposal of Replaced items. Assist employees in the selection of PPE.

Monitoring

Monitoring of PPE s will be done by the EHS Officer at Site along with Stock Inspection which is to be done by Stores Officer. Quality Check of PPEs will be done by EHS Officer and will take necessary action for returning the PPEs to

supplier in case PPEs are found in damaged condition. Procurement of PPEs from assigned vendors will be the responsibility of Corporate Procurement team.

Reporting

Reporting will happen from Site EHS Officer to Corporate EHS Manager on Quarterly basis.

Record Keeping

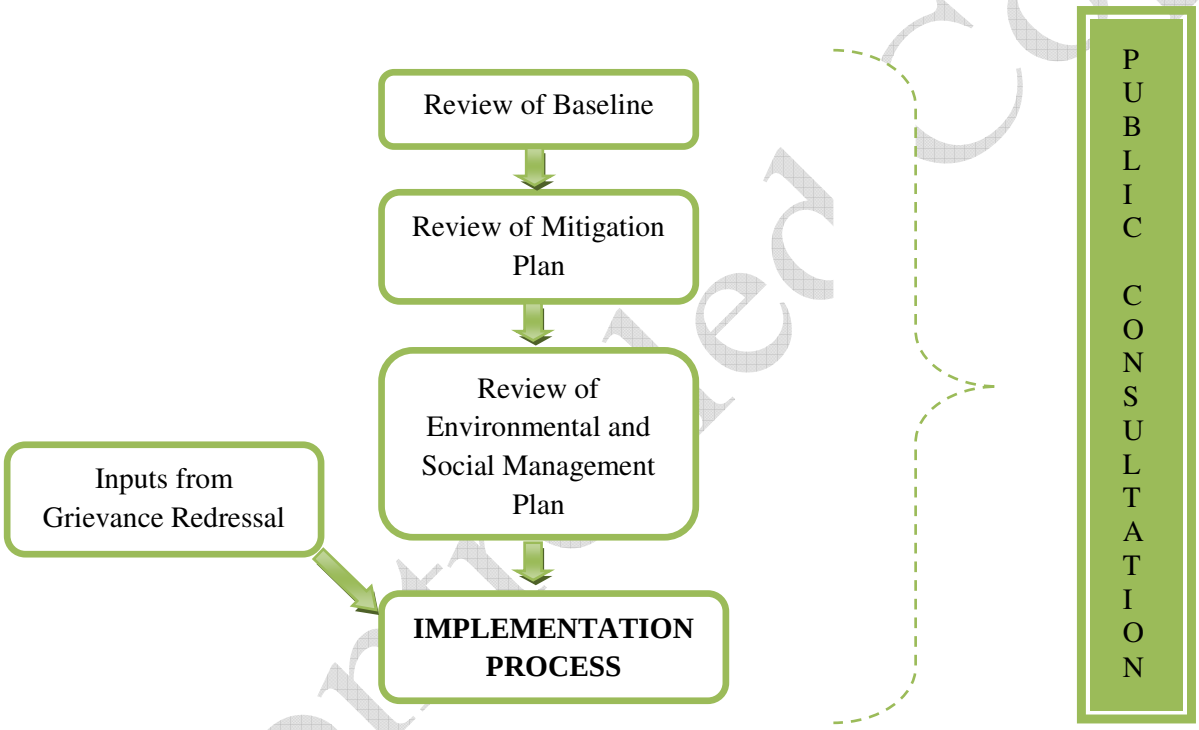
- All the records will be controlled documents and will be in the custody of EHS Officer at Site.
- PPE Records
- Training Records

6. Implementation

ASEPL understands that for effective and efficient realization of the Corporate EHS & Social Policy, intelligent planning should be corroborated with diligent implementation mechanism. Because no matter how much pre-planning is done, weak implementation procedures will result in non-realization of business goal and often taken as a sign of critical management failure.

The implementation process shall take inputs from planning and review of the same (if required). And hence, this process shall be conducted as follows –

Figure 6-1: Implementation Process



Implementation shall be ensured through the following:

- Institutional Framework
- Competence training and awareness
- Communication
- Documentation
- Control of Documents
- Operational Control
- Emergency Preparedness

6.1 Institutional Framework

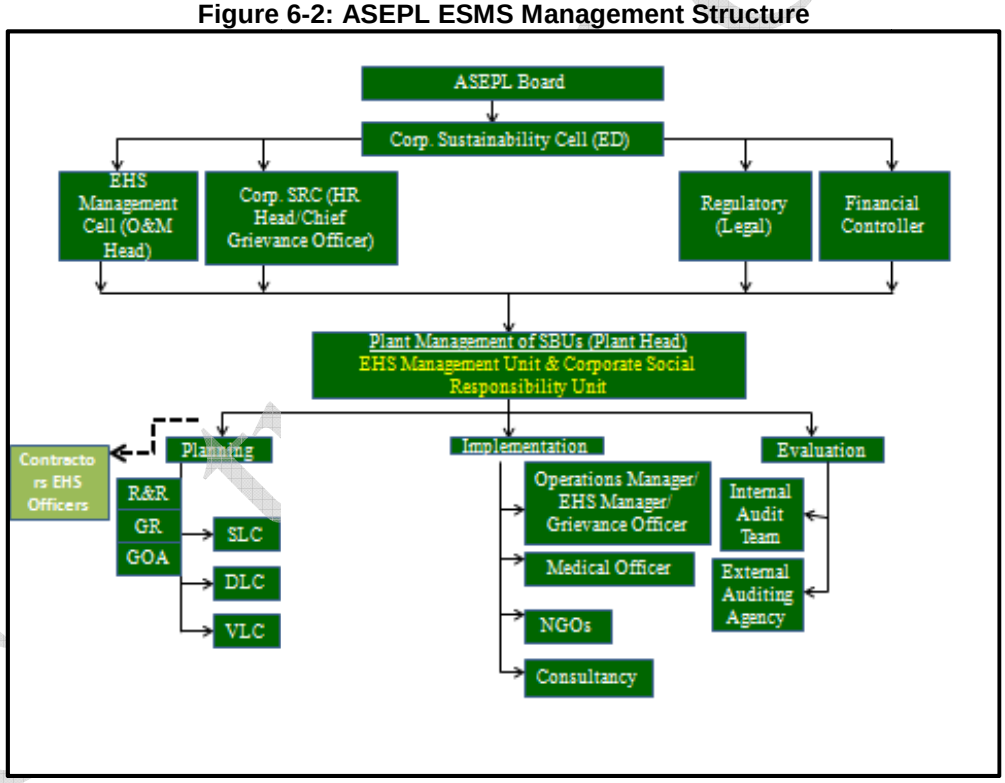
Every project finds itself in the middle of different stakeholders, individuals and organizations who are actively involved in the project, or whose interest may be affected in a positive or negative manner as a result of project execution or successful project completion. The institutional framework of a project usually consists of –

- Project beneficiaries
- Project owner
- Contracting authority
- Implementing agency
- Funding agency

6.2 ESMS Organisation Structure

The following will be the broad structure for management of ESMS,

Figure 6-2: ASEPL ESMS Management Structure



6.1.1 Roles & Responsibilities

ASEPL shall define, document and communicate the environmental and social management roles and responsibilities of all the people involved in the project, including contractors and others working on behalf of the company. Personnel with specific roles and responsibilities will have the authority, and be held accountable for, carrying out these responsibilities.

The basic roles required to implement the requirements of ESMS, and establish and maintain the ESMS, are shown in Table 4-1 below. These roles shall be reviewed and incorporated into the organizational structures for the C, O&M phases of the project.

Table 6-1: Roles and Responsibilities for Environmental and Social Management

ROLES/ POSITION	RELEVANT RESPONSIBILITIES
ASEPL Board	• Endorse the environmental and social management system and communicate it to the public • Allocate adequate human and financial resources to enable effective functioning and continual improvement of the ESMS • Establish and maintain a management review and governance system
EHS Management Cell	• Establish the ESMS, with assistance from the senior management (ASEPL Board), Financial Controller, Regulatory Head and HR Head. • Liaise with specific Plant Heads regarding EHS and Social management roles, responsibilities and authorities throughout the life cycle of the project(s). • Coordinate monitoring and evaluation activities and confirm that corrective actions (an action taken to address a non-conformance) are taken to address incidents and non-conformances (a failure to comply with the Project(s)' ESMS) Report progress in implementation and functioning of the ESMS to senior management, development financiers, regulatory authorities and stakeholders
Corporate Social Responsibility Cell	• Assist the EHS Management team with ongoing reporting to stakeholders on EHS and Social Management Plans and supporting management plans, and progress with implementation of management measures • Assist Operations' and Maintenance Head and specific Plant Heads, with stakeholder communication where awareness and/ or co-operation of stakeholders are required to implement management measures • Manage the Grievance Redressal Mechanism by discharging the duty of a Chief Grievance Officer.
Plant Heads/Operations Manager/Project Manager	The project head or Project manager is appointed for project construction, contractor management and other project related requirements. The Project Manager or project head is given the position of Plant Head or Operations Manager. Project Manager/Plant Head/Operations Manager term has been interchangeably used in the ESMS. The following are the responsibilities of Plant Head/Operations Manager/Project Manager: • Communication and reporting • Confirm there is adequate ongoing stakeholder engagement • Confirm obligations for reporting to regulatory authorities, development financiers and affected communities are met • Management review • Provide leadership in the pursuit of environmental and social management • Examine and review the ESMS periodically to determine its suitability, adequacy and effectiveness, Support action to enhance the ESMS and make improvements in EHS and Social management performance • Prepare on-site workers and other local people for Emergency Preparedness Plans
All personnel and contractors	• Comply with ASEPL policies, site standards, contract conditions and applicable legal

	requirements • Work in accordance with the Environmental and Social Management Plan and supporting documents • Report problems or deviations from the ESMS to specific Plant Heads or Operations Managers, as instructed.

Existing Organisation Structure

ASEPL has established an organisation structure both at the Corporate and Site levels for its operations. The structure at the Corporate level comprises of a Corporate Sustainability Cell comprising of four sub divisional departments, namely, EHS Management Cell, Corporate Social Responsibility Cell, Regulatory (Legal) and Financial Controller. All these departments report directly to the ASEPL Board.

Below these divisions is the Plant Head at the Site level. The EHS Manager/ Grievance Officer and others Officers comprise the team at the site and they report directly to the Plant Head. As the size of the operations at a solar plant is minimal and owing to the manpower deployed at various stages of the project life cycle for management of Environment and Social issues at the site, the Plant Head will be responsible for management of EHS and Social issues at site in close association with Corporate Sustainability Cell. Additional personnel can be deployed with multiple responsibilities to assist the Plant Head for managing EHS and social issues. The EHS Manager will look after both the EHS and Social related issues with assistance from the HR Head. It shall be noted that, corporate level the Corporate Sustainability Cell shall ensure that adequate training is provided to the concerned employees for management of E&S issues associated with the site. Deployment of specific EHS Officer and Social Officer is not envisaged in the present system; however, responsibilities sharing are suggested at the Plant level.

Environmental and Social Management Unit (ESMU)

In order to ensure an effective implementation of the ESMS, ASEPL shall establish an Environmental and Social Management Unit (ESMU) which will implement the Environment and Social Management System Manual as documented at each operating or upcoming facility of ASEPL. To align the proposed members of ESMU with existing organisation structure of ASEPL, additional responsibilities will be allocated to current designated officers in the existing organisation structure. The ESMU will comprise of EHS Management Cell and Corporate Social Responsibility Cell at corporate level who will report to ASEPL Board. The respective Heads will be assisted by the Managers like EHS Manager/Officer and Plant Head from the project level.

The Managers shall meet on weekly basis and undertake the role of providing resources, manpower and provisions as required for effective implementation and operation of ESMS Manual through appropriate decision making. The existing organization structure of ASEPL has not assigned dedicated position for matters pertaining to social aspects. Henceforth, the Human Resource (HR) Head who is responsible for the Corporate Social Responsibility Cell shall be allotted additional responsibility of overseeing activities pertaining to the social aspects. The EHS Head looking after the EHS Management Cell along with other members of the implementation unit shall be responsible for:

- Identification of time bound milestones, engage objective driven mechanism and assess them at periodic intervals;
- Compliance with laws, regulations, permits and other standards as committed;

- Incorporating environment and social elements into new and existing projects after considering the technical and financial aspects;
- Monitor the ESMS Manual through review of audits and other assessments programs;
- Review the feedbacks on various project through different channels; and
- Communicate the shortcomings and improvement mechanism to all project (existing and proposed ones)

The ESMU will be responsible for implementing and overseeing project facility specific environmental regulatory compliance, safeguards implementation management, performance and review at all ASEPL's project, periodical monitoring, review and preparation of annual environmental performance report for submission of National and State regulatory bodies as well as to IFC and ADB.

ASEPL Board: The additional responsibilities handled by ASEPL's senior management are as follows:

- The Board will work closely with the members of ESMU to ensure that adequate resources have been committed for effective implementation of the ESMS and procedures;
- They will be responsible for maintaining a pool of qualified environmental and social consultants, who can be engaged on requirement basis to assist in conducting environmental and social reviews as appropriate;
- They will implement EHSS management system at all operating and upcoming operations through the respective project EHS officer after prior customization as required; and
- Act as a corporate guidance cell for all issues related to Environment, Health and Safety and Social.

EHS Management Cell: The EHS Management Cell comprises of the EHS Head at the Corporate level. Besides the above mentioned roles and responsibilities, he is required to undertake the following responsibilities as well,

- Dissemination of information about the aspects of environment, health and safety as per IFC Sustainability Framework and ADB Safeguard Policy Statement applicable to the projects to EHS officers stationed at respective site;
- Organize capacity building workshops and training programs for the main contractors and employees of ASEPL pertaining to subjects like construction labour such as mock drills and emergency response procedures;
- Work in association with EHS Officers stationed at different project sites of ASEPL for addressing issues related to working environment and safety of the labours and site;
- Periodically review the EHS performance of the project during construction phase and operation phase;
- Assess the ESMS performance of all operating company and develop an annual report.

Corporate Social Responsibility Cell: The Corporate Social Responsibility Cell is headed by the Human Resource (HR) Head of ASEPL based at the Corporate Office. Besides the responsibilities mentioned above, he is required to perform additional responsibilities as HR Head, Social Head and Chief Grievance Officer.

- Responsible for formulating Grievance Redressal Committee (GRC) at corporate level and will conduct meetings for grievance closure at project site on a quarterly basis;
- Playing a crucial role in formulation of Corporate Social Responsibility (CSR) team and preparation and allocation of budget on the basis of requirements;

- Process and prepare a budget on quarterly basis from feedback, complaints and comments received from other team members for financial inputs required;
- Evaluate the performance feedback of corporate and operational site staff and subcontractors on issues and include it in decision making at all stages as required;
- Assess the staff for awareness and competencies at regular frequency;
- Develop and organize training programs for staff and contractors regarding ESMS Manual;
- Effectively monitor all shortcomings and improvements required for the ESMS Manual and update the ESMS Manual periodically.

Executive Director**:** The Executive Director shall approve and sign all documents, include the EHS Policy, Social Policy, CSR Policy, ESMS Manual, ESMS Procedures, Instructions, Objectives, Targets and Programmes, Register of EHSS Aspects and Impacts and Registers of Legal and Other Requirements.

Solar Financial Controller (SFC): The SFC shall work together with the EHS Management Cell, HR Department and Regulatory Department to prepare and revise all ESMS documents.

Administration Department (AD): The AD is responsible for the ESMS document control system. The AD shall ensure that only controlled and current copies of documents are used, and distribute the controlled ESMS documents to relevant personnel whenever updated versions are available. The AD shall also maintain and update the Master List of Documents.

Project / Function / Departmental Manager: The Project / Function / Departmental Manager shall review relevant ESMS documents and procedures; ensure that their subordinates are familiar with the updated ESMS documents related to them; and report any proposed changes to the ESMS documents and forms to the SFC.

Project Level EHS Structure

ASEPL project level operations comprises of an EHS Manager and other Officers who will be overall responsible for establishing and maintaining ASEPL's ESMS Manual at project level. These designated personnels will act as the primary interface between the ESMU and all the contractors working at site.

These designated individuals will be constantly in touch with the EHS Head and HR Head for acquainting them about EHSS issues, milestones achieved, financial requirements and receive from them regular guidance on improving the performance of Environment, Health Safety and Social Aspects at different project sites of ASEPL. These persons shall be responsible for ensuring that the policies and procedures of ASEPL are integrated into the overall operations, plans and programmes in relation with management of the facility. The EHS Manager at site will handle EHS issues while the other Officers will be instrumental in interacting with labours and addressing their day to day concerns. The contractors will be controlled by the EHS Manager at the respective project site. In relation to community engagement and aspects related to grievance redressal at the community level the EHS and other Officers, shall report directly to the HR Head based at the Corporate level.

Sub-contractors at Site and EHS compliance

Every contractor engaged by ASEPL management for construction of new project site or to manage operation phase of a facility shall appoint a representative (preferably EHS Officer) who will be responsible for supervising the implementation of ESMS Manual at site.

To manage EHS and social issue related to activities of the sub-contractors, ASEPL's project level EHS Manager in conjunction with EHS Head and HR Head of ESMU will be responsible to check the capability of the contractors to manage EHS and Social risks, their legal compliances, licenses, their implementing procedures etc. ASEPL's EHS team will ensure that the SOPs which the contractor implements are consistent with the documented ASEPL's ESMS Manual, IFC Sustainability Framework and ADB Safeguard Policy Statement.

6.3 Competence, Training and Awareness

The institutional personnel within ASEPL with direct responsibility for the project's environmental and social performance should have the knowledge, skills, and experience necessary to carry out the smooth functioning throughout the life cycle of the project based on the environmental and social parameters. The competence requirements for the institutional people are as follows –

- They should have current knowledge of the regulatory requirements as per the Indian and State Specific Rules and Regulations.
- They should have thorough knowledge of the requirements of IFC PS 1 to 8 and ADB Safeguard Policy Statement. And should be trained and/ or tested internally for the applicability of the same.
- They should also possess the knowledge, skills, and experience to implement the specific measures and actions required under this ESMS and the methods required to perform the actions in a competent and efficient manner throughout the life cycle of the project.

Any external personnel employed for any specific project should also have comprehensive understanding of this Corporate ESMS Manual along with its requirements and applications. The external personnel/ contractors shall also be binding to the Contractors' Policy of ASEPL.

6.3.1 Communication

Communication related to EHS and Social aspects of each project is very critical because of the involvement of a lot of stakeholders and the various issues linked to each of them.

6.3.2 Stakeholder Consultation

Stakeholders Consultation plays a critical role in raising awareness of projects' impacts and gaining agreement on management and technical approaches in order to maximize benefits and reduce negative consequences. Furthermore, consulting and collaborating with the public makes good business sense. Stakeholders Consultation can lead to reduced financial risk (from delays, legal disputes, and negative publicity), direct cost savings, increased market share (through good public image), and enhanced social benefits to local communities.

6.3.3 Stakeholder Disclosure

Stakeholders Disclosure is vital as information is very critical to the effective participation of affected citizens near the project. An informed public will better understand the trade-offs between project benefits and disadvantages; be able to contribute meaningfully to project design; and have greater trust in its new corporate neighbors.

Process Adopted for Stakeholders Consultation & Disclosure

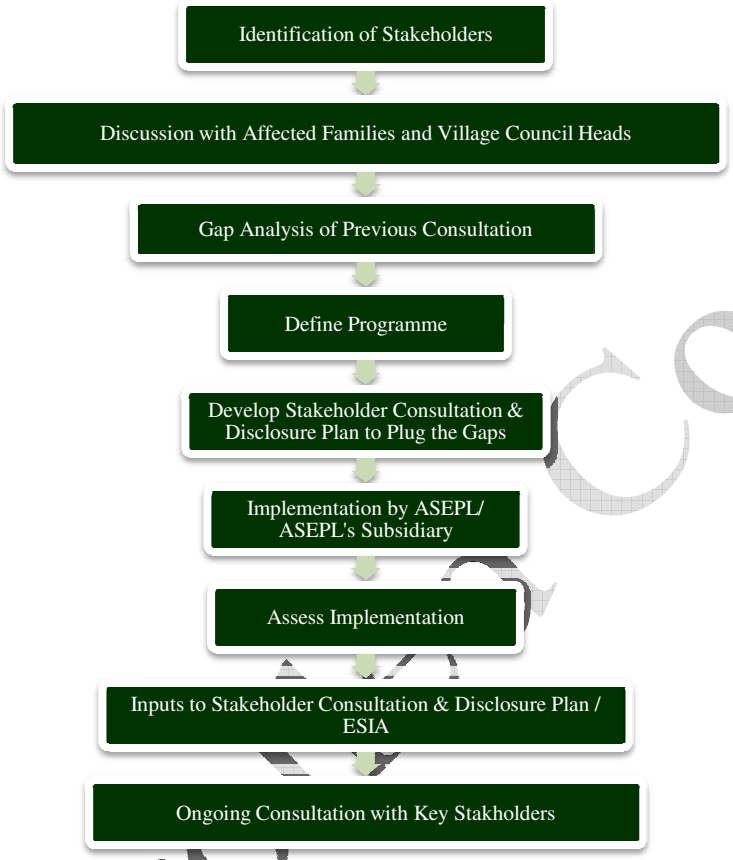
As discussed above, public consultation and disclosure in environmental decision-making is an important element of the Environmental & Social Impact Assessment (ESIA) Process. In line with this, consultation should be an integral and on-going part of the ESIA process for any solar plant established under ASEPL.
Stakeholder Engagement is a process where the concerns of various stakeholders are understood and adequately and appropriately addressed. It should be noted that stakeholder identification and involvement are often context-specific, i.e; what works with one project may not be appropriate for another[56]. With these principles in mind the project used the following methods for stakeholder identification –

- Formal and informal Stakeholder Consultation meetings;
- Document and literature review;
- Household surveys;
- Informal unscheduled discussions

A general process of conducting Stakeholder Consultation & Disclosure has been shown in figure below –

[56] IFC – Doing Better Business Through Effective Public Consultation and Disclosure: A Good Practice Manual (1998)

Figure 6.3 – Process of Developing Stakeholder Consultation & Disclosure



Stakeholder Consultation and Disclosure is an ongoing activity. Therefore, regular consultations will be continued with the concerned stakeholders throughout the life of the project. A list of proposed activities and the schedule to be followed with different stakeholders in general i.e; Gram Panchayats, Affected Families, Community, Contractors, Employees, Construction Workers, Government and Local Media & NGO is provided in the table below –

Table 6.2 – Consultation & Disclosure with Affected Gram Panchayat Members

Event/ Tasks	Mode of Communication	Target Group	Status / Action Plan	Schedule/ Frequency
Commissioning Phase				
Consultation with Stakeholders and Preliminary Information Dissemination	General Meeting of Gram Sabha	Affected villagers and Gram Panchayat members from project affected		

		villages		
Disclosure of Environmental and Social Impacts of the Project through the Non-technical Executive Summary of the Project in local language.	General Meeting of Gram Sabha	Affected villagers and Gram Panchayat members from project affected villages		
Consultation and dissemination of information on the employment opportunities and income generation programs	General Meeting of Gram Sabha	Affected villagers and Gram Panchayat members from project affected villages		
Prepare handouts/ pamphlets on Project Information and Impacts, in local language (if possible) and set up an arrangement for dissemination of project related information/ planning to the stakeholders prior to the commencement of all major activities	General Meeting of Gram Sabha	Gram Sabha, key members of affected Panchayats and Project Affected Families, Affected Villagers		Continuous Process to be undertaken in each phase of the project.
Develop and use alternate media Eg; video films etc to disseminate about project features using the local dialect to ensure that all members of the affected community gain understanding of project design, its layout, the likely social and environmental impacts and the proposed mitigation measures.	General Meeting of Gram Sabha and/ or other meetings	All members of the affected community		It will be an ongoing process.
Dissemination of information on EHS requirements and benefits of the same by conducting Focused Group Discussions (FGDs) and distributing leaflets in local language and display of information boards with do's and don'ts at all the labor establishments. An audio-visual presentation	General Meeting of Gram Sabha and/ or other meetings	All the contractors, labors and service provider related with project.		It will be an ongoing activity to be repeated whenever new contractor/ laborer are inducted into the project.

pertaining to the site specific activities including environment, health and safety concerns to be prepared a presented to the contractors and labor force as part of their induction as a good practice.				
Information and consultation on grievance redressal and dispute settlement mechanism set up by the project	General Meeting of Gram Sabha and/ or other meetings	All the project laborers, contractors, employees, and affected villagers including Gram Sabhas		This will be an ongoing process
Consultations for addressing Environmental and Social aspects of the plant operation	General Meeting of Gram Sabha and/ or other meetings	Gram Sabha, key members of affected Panchayats and Project affected families.		
Dissemination of information on Emergency Preparedness and Disaster Management Plan	General Meeting of Gram Sabha and/ or other meetings	Gram Sabha, key members of affected Panchayats and Project affected families.		
Consultation for opening of Project Road for public use. Evaluation will be conducted with respective increase in traffic movement due to project vehicles and mitigation measures.	General Meeting of Gram Sabha and/ or other meetings	Villagers and Gram Sabhas from project affected villages		
Operation & Maintenance Phase				
General consultation about project status and current matter of concern with respect to the project operation	General Meeting of Gram Sabha and/ or other meetings	Gram Sabha, key members of affected Panchayats and		

and maintenance.		Project affected families.		
Decommissioning Phase				
General Consultation to work out plans and methods that could help in maintaining the socio-economic status of the locals even in the absence of the project.	General Meeting of Gram Sabha	Local people, mainly those employed because of the project, directly or indirectly.		ASEPL shall conduct an aspect-impact study 6 months prior to completion of project (during the decommissioning phase

Table 6.3 – Consultation and Disclosure with Affected Families and Local Community

Event/ Tasks	Mode of Communication	Target Group	Status / Action Plan	Schedule/ Frequency
Commissioning Phase				
Consultation and Dissemination of information on the employment opportunities income generation programs	Face to face meetings, group meetings	Project affected people		Continuous process, to be undertaken prior to commencement of all new activities requiring new workers.
Information and Consultation on Grievance Redressal and dispute settlement mechanism set up by the project	Face to face meetings	Project affected people		Once; on establishing the mechanism
Consultations for addressing Environmental and Social aspects of the plant operations	Face to face meetings	Project affected people		Before the Commissioning of the Project
Operation & Maintenance Phase				
General consultation about project status and current matter of concern with respect to the project execution or	Face to face meetings	Project affected people		During the Operation & Maintenance phase of the Project (at frequent intervals of around 2 years as per the specific project requirements and concerns raised

operation.				by the project affected people).

Table 6.4 – Consultation and Disclosure with Employees

Event/ Tasks	Mode of Communication	Target Group	Status / Action Plan	Schedule/ Frequency
Commissioning Phase				
Consultation on general employment conditions, company's code of conduct and EHS Concerns	Letter and face to face meeting	All employees		On every new recruitment
Disclosure of employers HR Policies and Procedures in practice	Display of Abstract	All employees		Once, on release of policies and procedures and once on induction/ appointment of every new employee thereafter.
Information and consultation on grievance redressal and dispute settlement mechanism established by the company	Face to face discussion and display of general notice in the office.	All employees		On induction/ appointment of every new employee
Consultation before retrenchment (if required)	Letter and face to face discussion	Affected employees		15 days before retrenchment (if required)
Dissemination of information on Emergency preparedness and Disaster Management Plan	General Meeting, emails, training in groups and display boards in working areas and staff colonies	All employees (including Project Manager and their families)		Before Commissioning of the Project

Table 6.5 – Consultation and Disclosure with Construction Workers

Event/ Tasks	Mode of Communication	Target Group	Status / Action Plan	Schedule/ Frequency
Commissioning Phase				
Consultation on general employment conditions, company's code of conduct for work site, labor camps and EHS Concerns	Meeting with group of workers	Batch of construction workers to be inducted for the project construction works		During the induction of every worker
Induction to project activities and various requirements of project such as code of conduct for work site, labor camps and EHS Concerns	Meeting with group of workers	Batch of construction workers to be inducted for the project construction works		During the induction of every worker
Information and awareness about requirements of labor laws and minimum wages, working hours etc. is a key input.	Face to face discussion and display of general notice in the office.	All workers		Continuous activity
Information and consultation on grievance Redressal and dispute settlement mechanism	Meeting with Groups of workers	All the project laborers		On induction of every worker
Consultation before retrenchment (if applicable)		All the project laborers		30 days before retrenchment when particular construction activity is about to complete.

Table 6.6 – Consultation and Disclosure with Government

Events/ Tasks	Mode of Communication	Target group	Status/ Action Plan	Schedule/ Frequency
Commissioning Phase				
Regulatory Clearance for the project such as Implementation Agreement, Consent to Establish, Forest Clearance, DPR Clearance, Electrical Clearance, MoU with State Government, District Administration	Meetings with the concerned government official and record the minutes of the meeting. Letters by post or delivery by hand	Department of Power – State Government State Specific Pollution Control Board, Ministry of Environment and Forests, Government of India, Central Electricity Authority, Government of India		Before starting the construction activities on site
Compliance reports towards the conditions stipulated in the regulatory clearances obtained from Government Departments, such as compliance status of the different clearances and consents.	Letter by post or delivery by hand	Department of Power – State Government State Specific Pollution Control Board, Ministry of Environment and Forests, Government of India, Central Electricity Authority, Government of India	Ongoing activity as periodic submission on the compliance status is required to be submitted to respective government department.	As defined in the particular clearance letter.
Obtain Consent to Operate	Letter along with required application form	State Specific Pollution Control Board	Before Commissioning of the project	Once before the Commissioning of the Project

Table 6.7 – Consultation and Disclosure with Local Media and NGOs

Events/ Tasks	Mode of Communication	Target Group	Status/Action Plan	Schedule/ Frequency
Commissioning Phase				
Disclosure of Environmental Impacts of the project through the non-technical Executive Summary of the ESIA Report	Letters, face to face meetings, email etc.	Local Media and Non Governmental		Before the Commissioning phase/ before the construction

in local language/ Hindi		Organizations		activities.
Prepare hand-outs on Project information and impacts, in local language/ Hindi and setup an arrangement for dissemination of project related information/ planning to the stakeholders prior to the commencement of all major project activities. Develop and use alternate media, Eg: video films etc. to disseminate about project features using the local dialect to ensure that all members of the affected community gain understanding of the project design, its layout, the likely environmental and social impacts and the proposed mitigation measures.	Letters, face to face meetings, email etc.	Local Media and Non Governmental Organizations		Before the Commissioning phase/ before the construction activities
Consultation for addressing environmental and social aspects of the plant operation	Letters, face to face meetings, email etc.	Local Media and Non-Governmental Organizations		Before the Commissioning of the Project
Operation & Maintenance Phase				
General Consultation about the Project Status and current matter of concern with respect to the project execution or operation	Letters, face to face meetings,	Local Media and Non Governmental Organizations		

Table 5.8 below presents the format in which the stakeholder concerns/responses should be reported –

Table 6.8 – Stakeholder Responses

Stakeholder	Profile	Opinion
Local Community		
Government Departments		
Other Institutions (if any)		

6.3.4 FPIC

Before the Project

In case of projects that cause adverse impacts to Indigenous People, ASEPL should engage them in a process of ICP and should obtain FPIC. FPIC applies to project design, implementation and expected outcomes related to impacts affecting the communities of Indigenous People. FPIC does not necessarily require unanimity and may be achieved even when individuals or groups within the community explicitly disagree.

The process of obtaining FPIC as per the IFC PS 7 2012 is as follows –

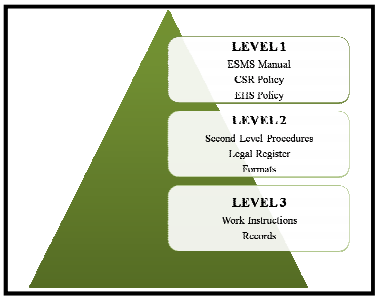
Where a project proposes to use the cultural heritage including knowledge, innovations, or practices of Indigenous Peoples for commercial purposes, the client (in this case ASEPL) will inform the affected Communities of Indigenous Peoples of (i) their rights under national law; (ii) the scope and nature of the proposed commercial development; (iii) the potential consequences of such development; and (iv) obtain their FPIC. The client will also ensure fair and equitable sharing of benefits from commercialization of such knowledge, innovation, or practice, consistent with the customs and traditions of the Indigenous Peoples.

ASEPL shall undertake an engagement process with the Affected Communities of Indigenous People. This engagement process includes stakeholder analysis and engagement planning, disclosure of information, consultation, and participation, in a culturally appropriate manner. In addition, this process shall –

- Involve Indigenous Peoples' representative bodies and organizations (e.g., councils of elders or village councils), as well as members of the Affected Communities of Indigenous Peoples; and
- Provide sufficient time for Indigenous Peoples' decision-making processes[57].

[57] Internal decision making processes are generally but not always collective in nature. There may be internal dissent, and decisions may be challenged by some in the community. The consultation process should be sensitive to such dynamics and allow sufficient time for internal decision making processes to reach conclusions that are considered legitimate by the majority of the concerned participants.

Figure 6.4: List of Documents at Each Level



6.1.2 Control of Documents

Objective

This procedure describes the control system for preparing, approving, distributing, revising and updating documents that are required under the ESMS Manual of ASEPL. The general elements of Document Control includes issue/ revision/ effective date, approval (signature), revision number, document number, copy number, cross references.

This procedure ensures that each person associated with ASEPL, directly or indirectly should work with proper ESMS documents (as per the requirements of ISO 14001:2004). The procedure presents the instructions to be followed on –

- Reviewing of existing document control system and modifying it to adapt to the relevant and applicable elements (For example elements of ISO 14001:2004) for easier development.
- Numbering of the documents and assigning designated personnel for approval and review (some specific documents should be revised under the company's corporate policy in accordance with the future requirements).
- Highlighting of changes in revised documents for easier and quicker understanding of other readers.

Definitions

- **Controlled Copy** – controlled documents shall be posted on the ASEPL server for read-only access or the hard copy shall be stamped "CONTROLLED COPY" in red. Controlled copy shall be subjected to automatic update when a new revision is released.
- **Uncontrolled Copy** - uncontrolled document is hard copy of the document that shall not bear the stamp "CONTROLLED COPY" in red. Uncontrolled copy shall not subject to automatic update when a new revision is released. It is for reference purpose only.
- **Master Copy** – the original hard copy of the document that shall be approved and signed by authorized personnel.

Master List

This procedure applies to all documents established under the ESMS Manual of ASEPL. The master list of documents under the ESMS Manual includes but is not limited to –

- ESMS Manual
- ESMS Procedures
- Instructions
- Forms, Checklists and Guidelines
- Objectives, Targets and Programmes
- Register of EHSS Aspects and Impacts
- Registers of Legal and Other Requirements
- External documents including legislation, professional guides and code of practices, etc.
-

Table 6-9 Master List of Documents/ Forms/ External Documents

Updated On -..... Date -.....
Prepared By -.....

Document/ Form No.	Document/ Form Name	Revision No.	Date

Table 6-10: Document Distribution Record

Document/ Form No.	Document/ Form Name	Revision No.	Distributed to

Labeling and Numbering System of ESMS Documentation

To indicate the status of each document, and to prevent the use of obsolete or outdated documents, the following information shall be stated on each document or procedure:

- Title (subject)
- Document number
- Revision number (which starts from 1, 2, 3……)
- Date
- Document originator
- Authorized person and his/her signature

The indicative numbering system of the documentation shall be as follows –

- ESMS Manual : EM-01
- ESMS Procedures : EP-xx
- Instructions : I-xx
- Objectives, Targets and Programmes: O&T-yyyy

- Register of EHSS Aspects & Impacts: EAI-xx
- Register of Legal and Other Requirements : LR-xx
- ESMS Form / Checklist : EF-zzzz-xx
  (xx – document number by numerical order; yyyy – year
  zzzz – procedure or instruction number (forms / checklists arise from that EP or EI)
  r – revision number for Forms (which starts from 1, 2, 3……)

Document Review and Approval

All internal ESMS documents shall be reviewed and approved by authorized personnel prior to release. This shall be carried out in accordance with the following:

Table 6-11: Document Review and Approval

Document Type	Prepared/ Reviewed by	Approved by
ESMS Manual	Solar Financial Controller	Executive Director
ESMS Procedures	HR Head	Solar Financial Controller
ESMS Instructions	Plant Head	O&M Head

Distribution and Control of Controlled Documents

The original hard copies of controlled documents shall be signed by the authorized person, and maintained by the ASEPL Server.

All controlled documents, and the Master List showing the documents and forms issued with the latest revision number and date shall be maintained and updated by the ASEPL Server. The ASEPL Server shall inform the most recent documentation status and announce the release of new versions of controlled documents to staff through intranet.

If there is a need to distribute of hardcopies of document, the ASEPL Server shall maintain document distribution records that record the number of copies and their recipients. Hardcopies of controlled documents shall be stamped with "CONTROLLED COPY" in red and be subjected to update.

Control of External Documents

External reference documents not available on the ASEPL server (e.g. Regulations, Technical Memorandums, Code of Practice, Professional Guidelines / Notes) shall be properly collected and maintained by the ASEPL Server. The ASEPL Server shall maintain and update a master list of external documents for control purposes and make it accessible to staff. Controlled copies of reference documents shall be marked with a red chop of "controlled document". The ASEPL Server shall maintain records for document distribution.

Computer Backup, Security and Control

Responsible personnel shall back up the server data bimonthly.

For the control of access rights to the ESMS documents on the company server, it shall be ensured that only the ASEPL

Server and the SFC are able to change documents on the server. All other staff shall be able to read and print the documents only.

Version Control

All documents shall be constantly reviewed and revised as necessary by relevant personnel. Project / Function / Departmental Managers shall report any proposed changes to the SFC.

All revised controlled documents shall be reviewed and approved by the authorized person.

Retention Time (Any Requirement)

The ASEPL Server shall file the superseded Master Copy of the documents, marked with a red chop of "Obsolete Document", in the Obsolete Document File for at least 3 years for reference and traceability.

Operational Controls

ASEPL shall establish, implement and maintain operation control procedures to manage its significant environmental and social aspects.

ASEPL shall ensure that all operations and activities, carried out by ASEPL's employees or contractors that are associated with the significant aspects are properly controlled, and that appropriate operational control procedures, are communicated to personnel whose tasks may result in significant environmental and social aspects. ASEPL shall influence its staff and contractors by communicating its EHS Policy and Social Policy to them.

7. Checking

While implementing the ESMS Manual, ASEPL shall monitor and measure the key characteristics of its operations and activities on a regular basis. These results shall be recorded together with nonconformity and the corrective action and preventive action. As part of the checking process, a periodic audit on the ESMS Manual shall provide a basis for management review.

7.1 Monitoring and Measurement

ASEPL shall establish, implement and maintain procedures to monitor and measure, on a regular basis, the key characteristics of its operations and activities that have significant impacts on EHSS aspects linked to the C, O, M and D phases of the various plants of ASEPL and its subsidiaries. This shall include procedures for tracking of performance, applicable operational controls and conformity with the company's objectives and targets, as well as the calibration and maintenance of monitoring equipment. The information of environmental and social monitoring shall be documented.

ASEPL shall develop controls on the basis of existing procedures/ instructions. Proper controls shall be considered on the suppliers and contractors of ASEPL and their effects on environmental and social performance.

ASEPL shall identify indicators for EHSS against C, O, M and D. E.g.: Biodiversity, Habitat Fracturing etc. and for this it shall take inputs from –

- Policy
- Objectives and targets
- Legal and other requirements
- Need assessment/ Baseline Assessment discussed in the previous sections of this ESMS manual.

Table 7-1: Monitoring Plan/ Monitoring Matrix

	Significant Aspect	Parameter to be Monitored	Frequency	Method/ Equipment
Environment	Air[58]	Sulphur Dioxide (SO_2) µg/m^3	Annual*[59] 24 hours**[60]	• Improved West and Gaeke • Ultraviolet Fluorescence
		Nitrogen Dioxide (NO_2) µg/m^3	Annual* 24 hours**	• Modified Jacob & Hochheiser (Na-Arsenite) • Chemiluminescence
		Particulate Matter (size less than 10µm) or PM_{10} µg/m^3	Annual* 24 hours**	• Gravimetric • TOEM • Beta attenuation

[58] As per National Ambient Air Quality Standards (http://www.cpcb.nic.in/National_Ambient_Air_Quality_Standards.php)
[59] * Annual Arithmetic Mean of minimum 104 measurements in a year at a particular site taken twice a week 24-hourly at uniform intervals.
[60] ** 24-hourly or 8-hourly or 1-hourly monitored values, as applicable, shall be complied with 98% of the time in a year, 2% of the time, they may exceed the limits but not on two consecutive days of monitoring.

	Significant Aspect	Parameter to be Monitored	Frequency	Method/ Equipment
		Particulate Matter (size less than 2.5µm or $PM_{2.5}$ $\mu g/m^3$	Annual* 24 hours**	• Gravimetric • TOEM • Beta attenuation
		Ozone (O_3) $\mu g/m^3$	8 hours** 1 hour**	• UV photometric • Chemiluminescence • Chemical Method
		Lead (Pb) µg/m3	Annual* 24 hours**	• AAS/ICP method after sampling on EPM 2000 or equivalent filter paper • ED-XRF using Teflon filter
		Carbon Monoxide (CO) mg/m^3	8 hours** 1 hour**	• Non-dispersive Infra Red (NDIR) Spectroscopy
		Ammonia (NH_3) $\mu g/m^3$	Annual* 24 hours**	• Chemiluminescence • Indophenol blue method
		Benzene (C_6H_6) $\mu g/m^3$	Annual*	• Gas chromatography based continuous analyzer • Adsorption & Desorption followed by GC analysis
		Benzo (a) Pyrene (BaP)-Particulate phase only ng/m^3	Annual*	• Solvent extraction followed by HPLC/GC analysis
		Arsenic (As) ng/m^3	Annual*	• AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
		Nickel (Ni) ng/m^3	Annual*	• AAS/ICP method after sampling on EPM 2000 or equivalent filter paper
	Water[61]	***Drinking Water Source without conventional treatment but after disinfection (Class A)*** • Total Coliforms Organism MPN/100ml shall be 50 or less • pH between	NA	NA

[61]Water Quality Criteria (http://www.cpcb.nic.in/Water_Quality_Criteria.php)

	Significant Aspect	Parameter to be Monitored	Frequency	Method/ Equipment
		6.5 and 8.5 • Dissolved Oxygen 6mg/l or more • Biochemical Oxygen Demand 5 days 20℃ 2mg/l or less		
		Outdoor bathing (Organized) (Class B) • Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/l or more Biochemical Oxygen Demand 5 days 20℃ 3mg/l or less	NA	NA
		Drinking water source after conventional treatment and disinfection (Class C) • Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved	NA	NA

	Significant Aspect	Parameter to be Monitored	Frequency	Method/ Equipment
		Oxygen 4mg/l or more Biochemical Oxygen Demand 5 days 20℃ 3mg/l or less		
		Propagation of Wild life and Fisheries (Class D) • pH between 6.5 to 8.5 Dissolved Oxygen 4mg/l or more Free Ammonia (as N) 1.2 mg/l or less	NA	NA
		Irrigation, Industrial Cooling, Controlled Waste disposal (Class E) • pH between 6.0 to 8.5 • Electrical Conductivity at 25℃ micro mhos/cm Max.2250 • Sodium absorption Ratio Max. 26 • Boron Max. 2mg/l	NA	NA
	Noise	• Ambient Noise Standards[62] in dB(A)	NA (as per the Regulations); but	Sound Level Meter

[62]

	Significant Aspect	Parameter to be Monitored	Frequency	Method/ Equipment
			advised to do it monthly	
		• For DG Sets >1000 KVA and manufactured before 1st January 2005, minimum insertion loss – 25 dB(A)	NA	Sound Level to be measured at different points at 0.5 m from the acoustic enclosure surface and then averaged.
		• For DG Sets <= 1000 KVA and manufactured on or after 1st January 2005, minimum insertion loss – 25 dB(A)	NA	Sound Level to be measured at different points at 1.0 m from the acoustic enclosure surface and then averaged.
	Soil	Nutrient Availability • Nitrogen • Phosphorous • Potassium • Micronutrients	Annual	NA
		Water Holding Capacity	Annual	Tension Tables
		Bulk Density	Annual	Gamma Probe

Area Code	Category of Area/ Zone	Limits in dB(A) Leq	
		Day Time 6.00 AM - 10.00 PM	Night Time 10.00 PM – 6.00 AM
(A)	Industrial area	75	70
(B)	Commercial Area	65	55
(C)	Residential Area	55	45
(D)	Silence Zone[62]	50	40

	Significant Aspect	Parameter to be Monitored	Frequency	Method/ Equipment
		Water Infiltration Rate	Annual	Double Ring Infiltrometer
		Soil Compaction	Annual	Conventional Penetrometer
		Soil Structural Stability	Annual	Aggregate Stability Method
		Visual Assessment	Annual	NA
		Earthworms	NA	NA
		pH		pH Meter
	Biodiversity	Number of rare, endangered species		NA
	Energy loss during Transmission	As per best industry practice, reported annually	Annual	NA
	Electrical Hazards due to Transmission Lines	Actual Number of incidents reported	Annual	NA
	Chemical Hazards due to storage and use of hazardous chemicals	Actual Number of incidents reported	Annual	NA
	Accidents because of Traffic Congestion	Actual Number of Accidents reported	Annual	NA
Social	R&R Issues	Number of people displaced because of the project.	At the beginning of the Construction Phase of the project	NA
	Land Rates	Market Rates; Circle Rates	Annual or as per the latest revision	NA
	Habitat Fracturing	Actual number of cases reported	Annual	NA
	Labor Influence – Influx of Population	Difference in the population before and during the different phases of the project		NA
	Labor issues (Child Labor,	Actual number of incidents reported	Annual	NA

	Significant Aspect	Parameter to be Monitored	Frequency	Method/ Equipment
	Forced Labor, Bonded Labor, Equal Remuneration for men and women for equal work)			
	Cultural Heritage (mainly in case of tribal population)	Number of tribal families/ people displaced	Annual	NA
	Overburden on Local Transportation	Number of accidents reported	Annual	NA
	Public Utilities and General Socio-economics of the project area	Difference in the standard of living of the local people, by means of the assets (fixed and mobile) owned by the people.	Annual	NA

7.2 Procedure on Monitoring and Review

Purpose

- Establish & Monitor the progress of Implementation of ESMS as per requirements of ADB (SPS) 2009 and IFC Performance Standards.
- Verify the compliance of Safeguard Measures and their progress towards intended outcome. Documentation and disclosure of Monitoring results and Identify necessary corrective and preventive actions in the periodic monitoring report. Follow-up upon these actions to ensure progress towards the desired outcome. Retain, Qualify and experienced external expert of qualified NGO's (Non Government Organisation). To verify and monitoring information for Project with significant impacts and risks. Use independent advisory panel to monitor Project Implementation for highly complex and sensitive projects and submit periodic monitoring report on Safe Guard measures of ADB as agreed with ADB.

Scope

Applies to all Sub Projects of ASEPL in the constructional, operational & maintenance and decommissioning phases.

Roles and Responsibility

Head Human Resource will be responsible for reviewing the Procedural Compliance. Corporate EHS Manager will be responsible for sharing the Monthly Reports and Compliance status to Head HR. EHS Officer at Site level will be sharing the Monthly compliance report to Corporate EHS Manager.

References

- Policy principles Environmental Safeguards of ADB's Safeguard Policy Statement, 2009
- Performance Standard 1 on Assessment and Management of Environmental and Social Risks and Impacts of IFC Sustainability Framework, 2012

Standard Operating Procedure

- After a subproject is approved for financing by ADB, the ASEPL ESMS Unit shall (i) ensure that obligations of compliance with all applicable environmental and social safeguards requirements are planned and implemented the subproject; and ASEPL will promptly report to ADB any actual or potential breach of the compliance requirements after becoming aware of it.
- For category B or C subprojects, the Corporate Sustainability Cell representative (assisted by environment and HR Head, or consultant) will visit the site to monitor the implementation of ESMP, RAP, and/or IPP, as applicable. ASEPL will submit a semi-annual monitoring report for each Category B subproject covering the implementation of the ESMP, RAP and IPP, as may be required. The report will also cover the status of compliance with the applicable safeguard requirements.
- The ESMS Unit Manager will prepare an annual environmental and social performance report (AESPR) covering all subprojects, financed by ADB and the status of implementing the ESMS. ASEPL will submit the AESPR to ADB as well as to regulatory bodies as per regulatory compliance requirements. These monitoring reports will be posted on ADB website upon receipt. An outline of an AESPR is presented in Appendix L.
- The ESMS Unit, through ASEPL management should ensure that ADB is notified if and when there is a material environmental or social safeguards non-compliance as well as ADB is notified if and when the responsible ESMS Unit staff has been changed or replaced with new staff.
- The monitoring and reporting requirements in the ESMP should also state that the ASEPL will provide an annual report on its compliance with the measures identified above. ASEPL should monitor the compliance of the ASEPL's SPV companies and include this in the Annual Environmental and Social Performance Report.

Reporting

Reporting of ESMS Review is to be done by Corporate Sustainability Cell to ASEPL Board.

Records

- Six Monthly Environment Assessments to SPCB.
- Six Monthly Environment Monitoring Report.

7.3 Updation of Legal Register and Compliance

To meet the company's commitment to compliance, ASEPL shall regularly monitor and evaluate the compliance status of the applicable environmental legal requirements and other requirements that the company subscribes to. The records of the results of the periodic evaluations shall be retained.

Table 7-2: Evaluation of Compliance – Legal Requirements

S. No.	Act/ Rules/ Any Other Legal Requirement	Compliance Requirement	Responsible Department	Compliance Status	Remarks
National Level Legislations					
1	The Wildlife Protection Act 1972	Protection of listed endangered species of flora and fauna and; Establishment of a Network of Ecologically Important Protected Areas. This Act also requires control on poaching, smuggling and illegal trade in wildlife and its derivatives. The Act empowers the Central and State Governments to declare any area to be Wildlife Sanctuary, National Park or a closed area. There is a blanket ban on carrying out any industrial process or activity inside any of these protected areas.			
2	The Water (Prevention and Control of Pollution) Act 1974	Need to obtain Consent to Establish (CTE) and Consent to Operate (CTO) from the respective SPCB of the state in which the project(s) is/ are being established			
3	The Water(Prevention and Control of Pollution) Cess Act 1977	Need to submit Water Cess Return every year as per the provisions of this Act			
4	The Air (Prevention and	CTE and CTO from the respective SPCBs if the project(s) is/ are located			

S. No.	Act/ Rules/ Any Other Legal Requirement	Compliance Requirement	Responsible Department	Compliance Status	Remarks
	Control of Pollution) Act 1981	in an Air Pollution Control Area (APCA)[63] and if there are identified sources of air emissions at the facility.			
5	The Environment Protection Act, 1986, Rules there under (with amendments)	Need to submit Environmental Statement as per the provisions of this Act.			
6	The Forest (Conservation) Act,1980 as amended in 1988	The Act strictly restricts and regulates the de-reservation of forests and use of forest land for non-forest purposes without the prior approval of Central Government. To this end the Act lays down the pre-requisites for the diversion of forest land for non-forest purposes.			
7	The Noise Pollution(Regulation and Control)Rules 2000	Need to ensure that the existing noise levels do not exceed the ambient air quality standards specified under these rules.			
8	Batteries (Management and Handling) Rules 2001	Need to file a return to the respective SPCB for usage of lead acid batteries, as per the requirements of these rules.			
9	The Biodiversity Act 2002	Need to ensure no or minimal impact to the local Biodiversity because of the project activities as well as work for the conservation of the same by integrating conservation measures in project specific Environmental Management Plan.			
10	Hazardous Waste (Management, Handling and Tran boundary Movement) Rules 2008	Need to ensure safe and environmentally sound handling, storage, transportation as well as disposal of hazardous waste (if any) generated in the project area because of the various project activities. Also need to obtain authorization from the respective SPCB for handling of hazardous waste. Provide TREM card in Form - 11 to transporter of hazardous waste and mark the hazardous waste containers as per Form - 12.			

[63] Most of the SPCBs have declared the whole states as APCA, for the purposes of implementing the *Air Act, 1981*.

S. No.	Act/ Rules/ Any Other Legal Requirement	Compliance Requirement	Responsible Department	Compliance Status	Remarks
		Prepare six copies of Manifest in Form 13 and distribute as per requirement to HSPCB & Transporter. Maintain record in Form 3 & send Annual return in Form 4.			
11	National Green Tribunal Act 2010				
12	E-waste Rules 2011	Need to fulfill the responsibilities of consumer/ bulk consumer (as the case may be) as per the provisions of this Act.			
13	The Factory's Act 1948				
14	Convention on International Trade in Endangered Species of Wild Fauna & flora (CITES)				
15	Ramsar Convention				
16	EIA Notification 2006	Environmental Clearance and Public Consultation – not required for Solar Projects at present			
Social & Labor Welfare					
1	The Factories Act 1948 & State Factories Rules	Need to follow the laws regulating the activities at workplaces to ensure health, safety and welfare of workers as per the requirements of the Factories' Act (latest amendment) and other state factories rules.			
2	The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	Need to take care of the socio-economic issues mainly related to R&R as per the requirements of the New Land Act, 2013 and particular State Rules for the same.			
3	Electricity Act 2003	Need to comply with the laws related to the generation, transmission, distribution, trading and use of electricity as per the requirements of this Act			
4	The Workmen Compensation Act 1923	Need to provide compensation to the workman who dies or suffers from an occupational disease because of the activities of the project, as per the			

S. No.	Act/ Rules/ Any Other Legal Requirement	Compliance Requirement	Responsible Department	Compliance Status	Remarks
		provisions of this Act			
5	The Employee State Insurance Act 1948	Need to envisage an integrated need based social insurance scheme that would protect the interest of workers in contingencies such as sickness, maternity, temporary or permanent physical disablement, death due to employment injury resulting in loss of wages or earning capacity.			
6	The Child Labor (Prohibition and Regulation) Act 1986 As amended through 25th September 2008	Need to ensure prevention of Child Labor in activities related to the project, as per the various provisions of this Act			
7	The Public Liability Insurance Act 1991	Need to provide immediate relief to the general public, those who live in the vicinity of hazardous industries and consequently were likely to suffer death, injury or loss of property due to accidents occurring in it.			
8	The Building and Other Construction Workers (Regulation Of Employment and Conditions Of Service) Act 1996	Need to ensure employment and conditions of service of building and other construction workers and provide for their safety, health, and welfare measures along with registration of each establishment within sixty (60) days from the commencement of work, as per the provisions of this Act.			
9	The Minimum Wages Act 1948	Need to bind by the provisions of this Act in deciding the minimum wages of the laborers engaged in project activities.			
10	The Employees' Provident Fund Act 1948	Need to ensure PF benefits to the employees as per the provisions of this Act.			
11	The Payment of Gratuity Act 1972	Need to fulfill the requirements of this social security enactment which provides a scheme for the *Payment of Gratuity* to employees recognizing need of compensation for loss of income due to unemployment arising either out of incapacity to work due to invalidity, old age etc.			
12	The Maternity Benefit Act 1961	Need to provide maternity and certain other benefits as per the requirements			

S. No.	Act/ Rules/ Any Other Legal Requirement	Compliance Requirement	Responsible Department	Compliance Status	Remarks
		of this Act.			
13	The Contract Labor Act 1970				
14	Constitutional Provisions Protecting Tribes and Extending Special Status	Need to comply with the regulations framed under the Fifth Schedule of the Constitution to prevent the exploitation of tribals by non-tribals and alienation of agricultural land of tribal being passed on to non-tribals.			
15	The Bonded Labor (Abolition) Act 1976				
16	The Equal Remuneration Act 1976				
17	The Inter-State Migrant Workmen (Regulation of Employment And Condition of Service) Act 1978				
State Specific Social Aspects					
1	State specific Land Acquisition Act				
2	State specific Panchayati Raj Act				
3	CERC, SERC and CEA Regulations				
4	State specific Electricity Regulatory Commission (compliance audit) Regulations				
Archaeology and cultural heritage related regulations					
1	Indian Treasure Trove Act 1878				
2	The Antiquities and Art Treasures Act 1972				
3	The Ancient Monuments and Archaeological Sites and Remains (Amendment and				

S. No.	Act/ Rules/ Any Other Legal Requirement	Compliance Requirement	Responsible Department	Compliance Status	Remarks
	Validation) Act, 2010				
Other Requirements					
1	IFC PS Requirements				
2	ADB SPS 2009 Requirements				
3	Requirements under Equator Principles				
4	Other(s)				

Table 7-3: Evaluation of Compliance – Other Requirements

OTHER REQUIREMENTS		
IFC AND ADB REQUIREMENTS		
Aspect	**Requirement**	**Compliance**
Identification of Risks and Impacts		
Conduct an Environmental and Social Impact Assessment (ESIA or EIA) of the project, appropriate to the nature of the project's environmental and social risks and potential impacts, to include issues identified in Performance Standards 2 to 5.	• IFC Performance Standard 1 • ADB Environmental Safeguards	
Establish Environmental and Social Management Plans commensurate with the findings of the ESIA and consultation with affected communities.	• IFC Performance Standard 1 • ADB Environmental Safeguards	
Establish Action Plans where specific mitigation measures and actions are required for the project to comply with applicable laws, regulations and the requirements of these Performance Standards	• IFC Performance Standard 1 • ADB Environmental Safeguards	
Provide organizational capacity and contractor/ employee training to enable project to achieve continuous environmental and social performance	• IFC Performance Standard 1 • ADB Environmental Safeguards	
Establish and maintain a timely process of community engagement, including a grievance mechanism, focusing on disclosure of information and consultation with local communities affected by project risks or adverse impacts that is free from external manipulation, interference or coercion to ensure relevant and understandable access to project information.	• IFC Performance Standard 1 • ADB Environmental Safeguards • ADB Involuntary Resettlement Safeguards	
Establish procedures to monitor and measure the effectiveness of the environmental and social management	• IFC Performance Standard 1	

OTHER REQUIREMENTS		
IFC AND ADB REQUIREMENTS		
program, including internal reporting of the program's effectiveness to the project's senior management, disclosure of Action Plans (including material changes to such Plans) to affected communities, and external reporting to affected communities on the results of Action Plans, commensurate with the concerns of the affected communities	• ADB Environmental Safeguards	
Labour and Working Conditions		
Establishment of a Human Resources Policy consistent with the requirements of this Standard that informs employees of their rights under national labor and employment laws	• IFC Performance Standard 2 • ADB Social Protection Requirements	
Document and communicate to all employees' conditions and terms of employment.	• IFC Performance Standard 2 • ADB Social Protection Requirements	
Respect collective bargaining agreements with worker organizations and provide reasonable conditions and terms of employment that, at a minimum, comply with national law, and enable alternative means for worker expression of grievances where national law restricts worker organizations	• IFC Performance Standard 2 • ADB Social Protection Requirements	
Practice non-discrimination and equal opportunity in making employment decisions	• IFC Performance Standard 2 • ADB Social Protection Requirements	
Provide a mechanism for workers to raise workplace concerns.	• IFC Performance Standard 2 • ADB Social Protection Requirements	
Protect the workforce from forced labor and illegal or economically exploitative child labor	• IFC Performance Standard 2 • ADB Social Protection Requirements	
Provide workers with a safe and healthy work environment, taking into account risks inherent to the particular project sector	• IFC Performance Standard 2 • ADB Social Protection Requirements	
Resource Efficiency and Pollution Prevention		
Consideration of ambient conditions and application of technically and financially feasible, resource efficiency and pollution prevention principles and techniques that are best suited to avoid, or where avoidance is not possible, minimize adverse impacts on human health and the environment	• IFC Performance Standard 3 • ADB Environmental Safeguards	
Implementation of technically and financially feasible and cost effective measures for improving efficiency in its consumption of energy, water, as well as other resources	• IFC Performance Standard 3 • ADB Environmental	

OTHER REQUIREMENTS		
IFC AND ADB REQUIREMENTS		
and material inputs, with a focus on areas that are considered core business activities.	Safeguards	
Consideration of alternatives and implementing technically and financially feasible and cost-effective options to reduce project-related GHG emissions during the design and operation of the project.	• IFC Performance Standard 3 • ADB Environmental Safeguards	
Community Health & Safety		
Evaluation of risks and impacts of the project on health & safety of the affected community during the project lifecycle and establish preventive/mitigation measures to reduce/minimize the impacts. Disclosure of action plans to affected community and the government agency.	• IFC Performance Standard 4 • ADB Environmental Safeguards	
Design, construct, operate and decommission of Structural elements or components in accordance with good industrial practice to reduce impact on community health & safety.	• IFC Performance Standard 4 • ADB Environmental Safeguards	
Minimization of impacts on the health and safety of the community caused by natural hazards that could arise from the land use changes due to project activities.	• IFC Performance Standard 4 • ADB Environmental Safeguards	
Prevent or minimize the potentials for community exposure to communicable diseases during project activities.	• IFC Performance Standard 4 • ADB Environmental Safeguards	
Land Acquisition and Involuntary Resettlement		
Avoidance or at least minimization of involuntary resettlement by exploring alternative project designs balancing environmental, social and economic costs and benefits; and by acquiring land through negotiated Settlements.	• IFC Performance Standard 5 • ADB Involuntary Resettlement Safeguards	
Compensation and benefits for displaced person as per Performance Standard	• IFC Performance Standard 5 • ADB Involuntary Resettlement Safeguards	
Disclosure of all relevant information and consultation with affected persons and communities in decision making process related to resettlement.	• IFC Performance Standard 5 • ADB Involuntary Resettlement Safeguards	
Establish a grievance mechanism to record and resolve communities' concerns and grievances about the relocation and compensation	• IFC Performance Standard 5 • ADB Involuntary Resettlement Safeguards	
Resettlement planning and implementation of the displaced persons/communities.	• IFC Performance Standard 5 • ADB Involuntary	

OTHER REQUIREMENTS		
IFC AND ADB REQUIREMENTS		
	Resettlement Safeguards	
Biodiversity Conservation and Sustainable Management of Living Natural Resources		
The risks and impacts identification process as set out in Performance Standard 1 should consider direct and indirect project-related impacts on biodiversity and ecosystem services and identify any significant residual impacts	• IFC Performance Standard 6 • ADB Environmental Safeguards	
Screen and assess the risks to and potential impacts on biodiversity and ecosystem services in the project area of influence, taking into account the following: (i) the location and scale of project activities, including those of associated facilities; (ii) its supply chains(iii) the project's proximity to areas of known biodiversity (iv) the types of technology that will be used.	• IFC Performance Standard 6 • ADB Environmental Safeguards	
The ESIA or any follow-up Biodiversity/ecosystem services-related assessment will be expected to take into account the differing values attached to biodiversity and ecosystem services by Affected Communities.	• IFC Performance Standard 6 • ADB Environmental Safeguards	
Indigenous People		
Check if there are Communities of Indigenous Peoples who are resident upon the lands affected by the project as well as those who are nomadic or who seasonally migrate over relatively short distances, and whose attachment to ancestral territories may be periodic or seasonal in nature;	• IFC Performance Standard 7 • ADB Indigenous People Safeguards	
Communities of Indigenous Peoples who do not live on the lands affected by the project, but who retain ties to those lands through traditional ownership and/or customary usage, including seasonal or cyclical use	• IFC Performance Standard 7 • ADB Indigenous People Safeguards	
Communities of Indigenous Peoples who have lost collective attachment to lands and territories in the project area of influence, occurring within the concerned group members' lifetime, as a result of forced severance, conflict, involuntary resettlement programs by governments, dispossession from their lands, natural calamities or incorporation into an urban area but who retain ties to lands affected by a project;	• IFC Performance Standard 7 • ADB Indigenous People Safeguards	
Groups of Indigenous Peoples who reside in mixed settlements, such that the Affected Indigenous Peoples only form one part of the more broadly defined community	• IFC Performance Standard 7 • ADB Indigenous People Safeguards	
Communities of Indigenous Peoples with collective attachment to ancestral lands located in urban areas.	• IFC Performance Standard 7 • ADB Indigenous People Safeguards	
Cultural Heritage		
The screening phase of the risks and impacts identification process should identify the extent and complexity of potential	• IFC Performance Standard 8	

OTHER REQUIREMENTS		
IFC AND ADB REQUIREMENTS		
cultural heritage risks and impacts in the project's area of influence	• ADB Environmental Safeguards	
The assessment should generally address potential adverse impacts to cultural heritage and, where possible, opportunities for its enhancement.	• IFC Performance Standard 8 • ADB Environmental Safeguards	
Data collection and other assessment studies should be undertaken to avoid, minimize, and mitigate potential project impacts to cultural heritage resources.	• IFC Performance Standard 8 • ADB Environmental Safeguards	
The client may undertake measures for the protection of already-disturbed cultural heritage that are different from measures for the protection of untouched cultural heritage.	• IFC Performance Standard 8 • ADB Environmental Safeguards	

7.4 Non-conformity, Corrective and Preventive Action

Continual improvement of the ESMS can be achieved by identifying nonconformity, correcting nonconformity and preventing nonconformity from re-occurring. Regarding non-conformity and its subsequent corrective / preventive action, ASEPL shall establish, implement and maintain a procedure which defines the responsibilities and authorities to –

- Handle and investigate nonconformity;
- Take action to mitigate the impacts caused;
- Initiate and complete corrective and preventive actions;
- Ensure that the corrective or preventive actions taken to eliminate the causes of actual and potential nonconformity are appropriate to the magnitude of problems and commensurate with the environmental impacts encountered;
- Record the results of corrective and prevention actions taken;
- Review the effectiveness of corrective action and preventive action taken; and
- Implement and record any changes in the documented procedures resulting from corrective and preventive action.

ASEPL shall also ensure that any necessary changes are made to the documentation.

- Also includes views of interested parties
- Any grievances and how they will be assessed

7.5 Control of Records

The appointed person/ committee in ASEPL shall maintain all EHSS records for C, O, M and D phases. ASEPL shall establish, implement and maintain a procedure to denote the identification, storage, protection, retrieval, retention and

disposition of EHSS records, to ensure that such records are legible, identifiable, and traceable to the activity, product or service involved, and that they are stored and maintained in such a way that they are readily retrievable and protected against damage, deterioration or loss. Records should be maintained at least during the duration of the project (C, O, M, and D) as a minimum. Where records need to be maintained longer than the length of the project, their retention times should be established and recorded. The Master List of documents that should be on file at ASEPL is as follows –

- Project specific ESIA
- EHSS Team Meeting Minutes
- Non-conformance – submitted in hard copy
- Field Inspection records
- External Communication (including Local Media – Print and otherwise)
- Training Records
- Audit Reports
- Management Review Minutes
- Lender Group Correspondence

EHSS record keeping maintained by the appointed person/ committee should comply with the ISO 14001:2004 requirements.

Records shall be maintained to keep track of ASEPL's EHSS performance, to demonstrate conformity to the requirements of the ESMS, legal compliance, and to maintain audit trails in accordance with the requirements of 14001:2004, and the results achieved.

Table 7-4: Control of Records

Record Description	Record Location/ Retention Responsibility	Minimum Retention Time
Master List of Documents	ASEPL Server/ AD	Keep update version
Master List of Forms	ASEPL Server/ AD	Keep update version
Master List of External Documents	ASEPL Server/ AD	Keep update version
Document Distribution Records	AD	3 years

7.6 Internal Audit

ASEPL shall plan, establish, implement and maintain a programme and procedures to carry out periodic EHSS audits to:

- Determine whether or not the ESMS Manual –
  - conforms to planned arrangements for environmental management including the requirements of ISO 14001:2004; and
  - has been properly implemented and maintained;
- Provide audit results and information for management review for environmental and social improvement.

The audit programme, including the schedule, shall be based on the EHSS importance of the activities concerned and results from previous audits. The audit procedures cover the audit criteria, scope, frequency and methods, as well as responsibilities and requirements for conducting audits and reporting results and retaining associated records.

ASEPL shall conduct EHSS audits on a regular basis. Timely site EHSS audits are required to ensure appropriate preventive actions being taken as planned and corrective actions being carried out on a timely basis.

7.7 Audit

There are a number of components to the Audit Programme –

- Contractor self-audit
- ASEPL audit of the contractor
- ASEPL self audit of ESMS performance

The construction contractor is required to implement an auditing programme, which is to be approved by ASEPL prior to implementation and should be complaint with the requirements of ISO 14001:2004.

ASEPL will conduct audits and field inspections of the contractor during the life of the project in the construction phase. Field inspections should be used a mechanism to more regularly check critical commitments, verify corrective actions are implemented and effective and follow-up on partial non-compliances and issues identified in previous audits.

ASEPL should also conduct internal audit as against this ESMS made as per the guidelines of ISO 14001:2004, every six (6) months.

Scope

The scope will include the audit of the environmental and social impacts identified during the impact analysis.

7.8 Procedure on Identification & Evaluation of Environmental Aspects and Associated Impacts/ Health & Safety Hazards & Associated Risks

Purpose

To establish a procedure for identification of environmental and social aspects and associated impacts, occupational health & safety hazards and associated risks. To identify significant environmental and social aspects & occupational health & safety hazards and associated risk of its activities, products & services.

Scope

All activities, products and services of ASEPL.

Responsibility and Authority

A Core Group consisting of EHS Management Cell, HR Department, Regulatory Department and Solar Financial Controller is responsible for identifying aspects–impacts, hazards-risks and evaluating its significance and risk assessment.

Solar Financial Controller is responsible for updating the list of aspects-impacts, hazards-risks for all new activities, products or services that might be added from time to time.

7.9 Legal & Other Requirements

Purpose

To establish a procedure to ensure that all applicable legal and other EHSS requirements are identified and maintained up to date, understood and compiled with.

Scope

Legal and other requirements related to EHSS.

Responsibility and Authority

Regulatory Head is responsible for implementation of this procedure.

Table 7-5: Description – Legal & Other Requirements

S. No	Activity	Responsibility	References / Records
A	***Identification of Legal and Other Requirements***		
1	Identify applicable legal and other EHSS requirements through rules and notifications of (MOEF, CPCB, various SPCBs)	Regulatory Head	---
2	Prepare the register of regulation for all applicable legal and other EHSS requirements. The register should contain the following details. • Act and applicable rules • Obligatory requirements • Applicable area • Frequency of checks / inspections • Responsible department • Statutory body	Regulatory Head	
3	Prepare legal requirement monitoring sheet as per the procedure of performance measurement and monitoring.	Regulatory Head	

B	***Tracking of Legal & Other Requirements***		
1	Identify the amendments through subscription of legal news. from websites for environment related matters.	Regulatory Head	
2	Receive /collect the information about amendments - If existing copy is latest, retain the same - If amendments take place in existing copy, procure the latest edition and record the details.	Regulatory Head	---
3	If there is some amendments, a core group which will consists of one person each from Regulatory Head, will discuss the same and find how these amendments are applicable to organisation.	Regulatory Head	
4	Prepare the minutes of decision and communicate a copy of the same to DPM (QS).	Regulatory Head	
5	Make necessary changes in procedures if required.	Regulatory Head	---
C	***Issuance of Legal & Other Requirements***		
1	Issue the register of regulations at the place of use and enter the issue details in the distribution list of legal and requirements.	Regulatory Head	
2	Whenever amendment in legal and other requirements takes place, issue amended copy to functionaries who are having the old issue of requirements and destroy the old issue. Keep original old copy of legal and other requirements after marking by stamp “Obsolete”.	Regulatory Head	
3	Incorporate the amendments in legal requirements monitoring sheet.	Regulatory Head	
D	***Consent Application & Renewal***		
1	Identify the requirements for application / renewal of consent from “check list of consent application”	Regulatory Head	
2	All the requirements as per ‘Register of Regulations’ to be followed by the concerned departments as mentioned in ROR itself.	Regulatory Head	
3	Apply to regulatory authorities for certificate of compliance / renewal of consents along with all relevant records as mentioned in “check list for consent application” as per specified frequency considering the lead time for processing.	Regulatory Head	
4	Keep regulars follow up with regulatory authorities for renewal of consents.	Regulatory Head	

7.10 Consultation & Communication related to EHSS

Purpose

To establish a documented system for receiving, documenting and responding to the information and data related to EHS to employees and interested parties.

Scope

EHSS communication and consultation with all employees and all interested parties.

Responsibility and Authority

HR Head is responsible for effective implementation of this procedure.

Table 7-6: Description – Consultation & Communication related to EHSS

S. No	Activity	Responsibility	References/ Records
A	*Communication of EHSS Policy*		
1	Arrange display boards of EHSS policy of appropriate sizes in Hindi & English and provide to all location of shop floor / offices and other areas of the Company to facilitate easy readability. Distribute pocket cards containing EHSS policy in Hindi to workers. Review and update the above policy boards as and when the policy reviewed as per checklist.	HR Head	EHSS Policy
2	Provide EHSS policy on entrance gate by painting on big board for easy accessibility to visitors and other interested parties.	HR Head	EHSS Policy
3	Issue EHSS policy to other interested parties on their request.	HR Head	EHSS Policy
4	Provide training on EHSS policy to all employees.	HR Head	
B	*External Communication*		
1	Receive the verbal / written information regarding environmental, health & safety issues from external interested parties and forward the information to ESMU	ESMU	Letter / e-mail
2	Keep a register at main security gate for register the concerns.	ESMU	Register
3	Immediately forward the information as and when received to ESMU	EHS officer/manager	----

S. No	Activity	Responsibility	References/ Records
4	Receive the information and analyses the details, • If the information pertain to EHSS in ASEPL, necessary action to be taken. • If the information pertains to environmental, health & safety queries, prepare reply letter, validate the reply with the EHSS system and send to originator. • If the information or the third party concern received needs addition / deletion to the present identified list of aspects and hazards, revise the list	ESMU	
5	Inform the ESMU who are responsible for implementation of corrective / preventive action.	Corporate Sustainability Cell	
6	Implement the corrective / preventive action and inform to management representative after implementation of corrective / preventative actions.	ESMU	
7	Maintain the record of communication as per the procedure of control of records.	ESMU	
8	Review and updated the Board of Hazardous material outside the plant gate at frequent decided intervals and record it in to monitoring and measurement sheet.	ESMU	
9	In consultation with Executive Director, the organisation will decide when not to communicate significant confidential EHSS aspects to external interested parties.	Corporate Sustainability Cell	
C	*Internal Communication & Consultation*		
1	Issue the relevant documents at the all the work places of use and maintain the distribution list for future references as per procedure for document control.	HR Head	
2	Communicate to security officer in case of emergencies and follow the procedure of emergency preparedness and response.	HR Head	
3	Safety Committee is formed with management and worker's representation from each area.	HR Head	
4	Safety Committee meets at predetermined intervals to discuss EHSS issues and recommend corrective / preventive actions to concerned people.	HR Head	
5	Work permit to be raised with specific work instruction for contractual activities and get approved from Safety Officer. A copy of the approved work permit should be retained by the Safety Officer.	HR Head	
6	If significant rating is changed after implementation of any ESMP, same will be communicated to the other departments.	HR Head	

S. No	Activity	Responsibility	References/ Records
7	While shifting any process / utility equipment affecting EHSS concern, consult the person of relevant department for any impact on EHSS	HR Head	
8	Communicate the EHSS concerns (i.e. aspect-associated impact, hazard-associated risk, EHSS policy, etc.) to the employees of the concerned departments.	HR Head	

7.11 Operational Control (EHSS)

Purpose

To establish and maintain a documented Procedure to ensure that all activities with can have significant aspect, and significant risks are executed in controlled condition.

Scope

Activities, product and services of ASEPL.

Responsibility and Authority:

O&M Head are responsible for formulation and implementation of operational control Procedures.

Table 7-7: Description – Operational Controls (EHSS)

S. No	Activity	Responsibility	References/ Records
A	Identify the activities / products and services from the list of significant aspects and significant risk for which operational control procedures need to be developed in order to prevent or manage the environmental Aspects & Health Hazard during formulation.	O&M Head	
B	Operating criteria is stipulated in the control procedures.	O&M Head	
C	Maintain and establish control procedure related to the identifiable significant environmental Aspects / significant Health Risk of Goods and Services used in the Organization.	O&M Head	
D	Review and revise the operational control procedure if required.	O&M Head	
E	Ensure effective implementation of operational control procedure.	O&M Head	
F	Communicate relevant procedures and requirements to suppliers and contractors based on the identifiable significant environmental Aspects and Health Hazard.	O&M Head	

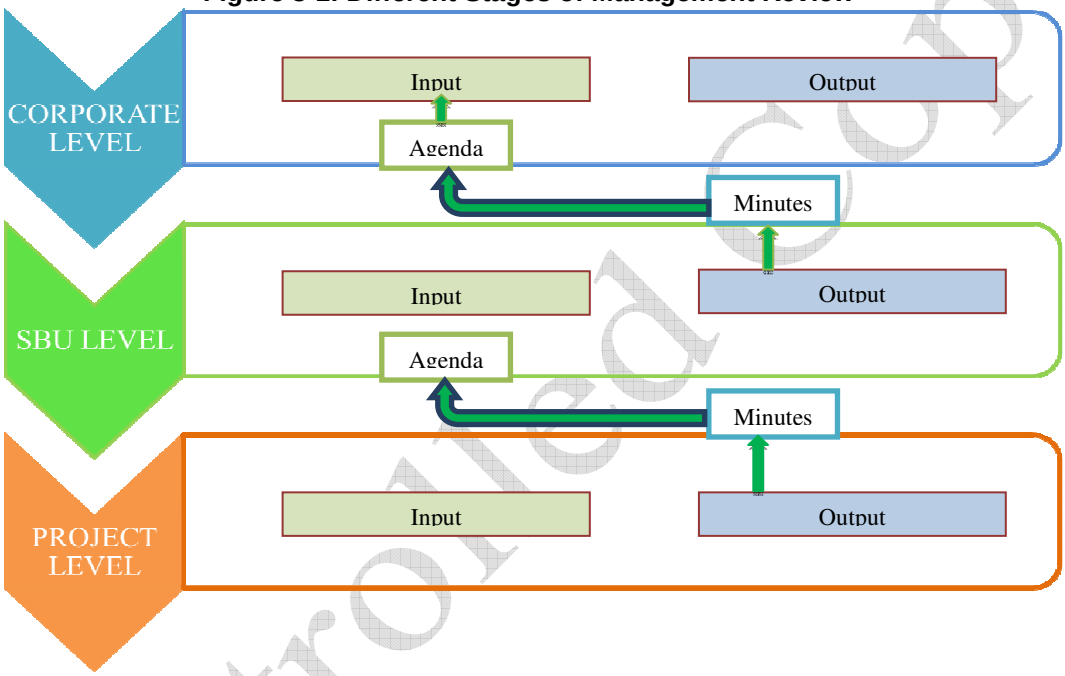
S. No	Activity	Responsibility	References/ Records
G	To ensure efficient and safe design of workplace, processes, equipments and operating procedures, a cross functional team approach (Core Group) is used involving representatives from Engineering, Manufacturing and Quality.	O&M Head	
H	During the initial stages of 'Process development' the cross functional team takes into the consideration of applicable environment and safety legal requirement and also the associated risks with the new processes.	O&M Head	
I	Whenever there is an activity involving new equipment installation, relocation, relay outing, new fabrication and improvement project implementation, EHSS risks shall be considered and addressed by the Department Head under whom the activity is taking place.	O&M Head	

8. Management Review

The management review shall be performed by the ASEPL Board, in consultation with the Corporate Sustainability Cell, headed by the Executive Director and consisting of Operations and Management Head, HR Head, Regulatory Head and Solar Financial Controller altogether called as Management Review Team.

The different stages of Management Review are as follows –

Figure 8-1: Different Stages of Management Review



It shall be the continuous effort from ASEPL' side to incorporate "Bottom-up" approach in every phase of any project(s) including C, O, M and D as well as within the Management Systems' structure itself.

The "plan-do-check-act" cycle shall require the top management of ASEPL to act and review the ESMS periodically to ensure its suitability, adequacy and effectiveness.

Before the management review, the HR Head shall schedule for the same; inform all the participants, and gather all relevant records/requirements (such as change in legal requirements, grievance redressal policy) and prepare a summary report (if necessary) for discussion.

The proposed frequency of the management review should be as follows –

Table 8-1: Frequency of Management Review

LEVEL	PHASES	
	Commissioning Phase	Operation & Maintenance Phase
Corporate Level	6 months	2 years
SBU Level	4 months	1 year
Project Level	2 months	6 months

The Management Review Team shall assess the work done during the review period in environmental and social management and evaluate the existing ESMS with respect to changes in legislation, concerns of interested parties, business activities, technology and product requirements, and lessons gained from previous experience, etc.

Topics to be discussed in the management review shall include but not be limited to:

- Review of the EHS and Social policy, Objectives, Targets and Programmes;
- Review of Legal Compliance and Compliance with Other Requirements (including contractor compliance on ASEPL's activities);
- Environmental and Social Aspects of project activities and their Disclosure;
- Findings of the Internal Audits;
- Review of nonconformities and the status of corrective/preventive actions;
- Areas for improvement with respect to environmental and social performance;
- Adequacy of Emergency Preparedness and Response Plan;
- Changing circumstances, including developments in legal and other requirements related to its environmental and social aspects,
- Identify the need for modification of the existing ESMS in light of the above items, and
- Follow-up action from previous management reviews.

The review shall initiate a new "plan-do-check-act" cycle with improvements in ASEPL's environmental and social performance and further enhancement of the ESMS.

Findings from the management review shall be recorded in the meeting minutes and the HR Head shall retain it as an ESMS record.

As with the ESMS itself, the key objectives of the management review are to ensure that the ESMS continues to result in continual improvement in environmental, social performance along with fulfilling of economic targets. The provision of financial, technological and human resources to facilitate an effective ESMS is also considered as part of the management review process.