



# Environmental and Social Management System (ESMS)

**July 2018**

*g*

*gpm*

## Table of Contents

---

<b>CHAPTER 01: INTRODUCTION</b>	<b>1</b>
<b>CHAPTER 02: ESMS PRINCIPLES</b>	<b>3</b>
2.1. PRINCIPAL ON ENVIRONMENTAL AND SOCIAL RISKS & IMPACTS ASSESSMENT AND MANAGEMENT PROCEDURES	4
2.2. PRINCIPLE ON ENVIRONMENTAL HEALTH & SAFETY	4
2.3. PRINCIPLE ON BIODIVERSITY CONSERVATION	5
2.4. PRINCIPLE ON CONSERVATION OF WORLD HERITAGE	7
2.5. PRINCIPLE ON RESETTLEMENT	8
2.6. PRINCIPLE ON GENDER EQUALITY & SOCIAL INCLUSION	9
2.7. PRINCIPLE ON ETHNIC MINORITIES COMMUNITIES	10
2.8. PRINCIPLE ON STAKEHOLDER ENGAGEMENT	13
2.9. GRIEVANCE REDRESS SYSTEM	15
<b>CHAPTER 03: LAWS &amp; POLICIES</b>	<b>16</b>
3.1. THE BANGLADESH ENVIRONMENTAL CONSERVATION ACT (ECA), 1995	16
3.2. ENVIRONMENT CONSERVATION RULES (ECR), 1997	16
3.3. THE BANGLADESH ENVIRONMENTAL CONSERVATION ACT (AMENDMENT 2010)	17
3.4. DOE ENVIRONMENTAL CLEARANCE PROCESS	18
3.5. NATIONALLY DESIGNATED ECOLOGICALLY CRITICAL AREAS	19
3.6. RENEWABLE ENERGY POLICY OF BANGLADESH, 2008	19
3.7. GUIDELINES FOR THE IMPLEMENTATION OF SOLAR POWER DEVELOPMENT PROGRAM, 2013	20
3.8. REMOTE AREA POWER SUPPLY SYSTEMS (RAPSS) GUIDELINE, 2007	20
3.9. BANGLADESH LABOR ACT, 2006	20
3.10. BANGLADESH FACTORIES ACT, 1965	21
3.11. THE BUILDING CONSTRUCTION ACT 1952	22
3.12. THE ACQUISITION AND REQUISITION OF IMMOVABLE PROPERTY ORDINANCE, 1982	23
3.13. SOCIAL REGULATORY FRAMEWORK IN BANGLADESH	23
3.14. THE WORLD BANK'S SAFEGUARDS POLICIES	26
A. OP 4.01 ENVIRONMENTAL ASSESSMENT (WORLD BANK)	26
B. OP 4.04 NATURAL HABITATS	30
C. OP 4.10 INDIGENOUS PEOPLE	31
D. OP 4.12 INVOLUNTARY RESETTLEMENT	32
3.15. THE WORLD BANK'S (WB'S) ENVIRONMENTAL HEALTH AND SAFETY (EHS) GUIDELINES	32
<b>CHAPTER 04: ORGANIZATIONAL CAPACITY &amp; COMPETENCY</b>	<b>35</b>
<b>CHAPTER 05: SPECIFIC PROJECTS &amp; IMPLEMENTATION PROCEDURES</b>	<b>39</b>
5.1. SOLAR ROOFTOP	39
5.1.1. IMPACT IDENTIFICATION PROCESS AND METHODOLOGY	40

5.1.2.	AIR EMISSIONS	40
5.1.3.	NOISE EMISSIONS	40
5.1.4.	CHEMICALS	41
5.1.5.	HEAT OR LIGHT REFLECTION	41
5.1.6.	IMPACTS ON BIODIVERSITY	41
5.1.7.	CULTURAL HERITAGE	41
5.1.8.	EMPLOYMENT	41
5.1.9.	SOCIAL RESETTLEMENT/TRIBAL PEOPLES' IMPACT:	42
5.1.10.	ENVIRONMENTAL HEALTH AND SAFETY COMPLIANCES	42
5.1.11.	ENVIRONMENTAL & SOCIAL SCREENING AND MEASURES	42
5.2.	GRID TIED SOLAR PARK	43
5.2.1.	DESCRIPTION OF THE SUB-PROJECT	43
5.2.2.	TECHNICAL DETAILS	44
5.2.3.	IMPACT IDENTIFICATION PROCESS AND METHODOLOGY	45
5.2.4.	SCREENING PROCESS	47
5.2.5.	IMPACT IDENTIFICATION	48
5.2.5.1	ENVIRONMENTAL AND SOCIAL IMPACTS	48
5.2.5.2	IMPACTS ON BIOLOGICAL ENVIRONMENT	48
5.2.5.3	IMPACTS ON PHYSICAL ENVIRONMENT (AIR, WATER & NOISE)	49
5.2.6.	ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN	50
5.2.7.	RESETTLEMENT POLICY FRAMEWORK	51
5.2.8.	GENDER EQUALITY AND SOCIAL INCLUSION	53
5.2.9.	TRIBAL PEOPLE/SMALL ETHNIC COMMUNITY	54
5.2.10.	CONSULTATION AND PUBLIC DISCLOSURE	55
5.2.11.	CONSULTATION PROCESS:	55
5.2.12.	GRIEVANCE REDRESS MECHANISM	58
5.2.13.	MONITORING AND REPORTING	59
<b>CHAPTER 06: RISK AND IMPACT ASSESSMENT &amp; STRATEGIES TO MITIGATE RISKS</b>		<b>61</b>
6.1.	SCOPE OF THE RISK	61
6.2.	AREAS OF RISK	61
6.3.	RISK MANAGEMENT	62
<b>CHAPTER 07: MONITORING, REPORTING AND SAFEGUARDS CAPACITY BUILDING FOR ESMS IMPLEMENTATION</b>		<b>64</b>
<b>ANNEX 1: ENVIRONMENTAL &amp; SOCIAL POLICY STATEMENT OF IDCOL.</b>		<b>67</b>
<b>ANNEX 2: DEPARTMENT OF ENVIRONMENT CATEGORIZATION</b>		<b>68</b>
<b>ANNEX 3: GUIDELINES FOR SELECTING NEW PV PANEL SUPPLIER</b>		<b>70</b>
<b>ANNEX 4: ENVIRONMENTAL AND SOCIAL CHECKLIST FOR SOLAR ROOFTOP</b>		<b>72</b>
<b>ANNEX 5: PRELIMINARY ENVIRONMENTAL AND SOCIAL SAFEGUARD SCREENING FORMAT FOR GRID TIED SOLAR PARK</b>		<b>74</b>

<b>ANNEX 6: GENERIC ENVIRONMENTAL &amp; SOCIAL MANAGEMENT PLAN</b>	<b>77</b>
<b>ANNEX 7: SAMPLE TERMS OF REFERENCE (TOR) FOR ENVIRONMENTAL &amp; SOCIAL ASSESSMENT (ESA) OF ROOFTOP PROJECTS</b>	<b>84</b>
<b>ANNEX 8: SAMPLE TOR FOR CONDUCTING AN ESIA OF A GRID TIED SOLAR POWER PROJECT</b>	<b>94</b>
<b>ANNEX 9: WORLD BANK GROUP EXCLUSION LIST</b>	<b>100</b>



**List of Tables:**

Table 1: Environmental & Social Statement Policy of IDCOL ..... 3  
Table 2: Identification and Mitigation of Biodiversity-Related Risks and Impacts ..... 6  
Table 3: UNESCO World Heritage Sites in Bangladesh ..... 7  
Table 4: Key Requirements for Critical Cultural Heritage ..... 8  
Table 5: Key Requirements for Managing Issues Related to Impacts on Small Ethnic Communities . 12  
Table 6: Levels of Stakeholder Engagement and Responsibilities ..... 144  
Table 7: Responsibilities of ESMS at different levels of IDCOL ..... 37  
Table 8: Monitoring and Reporting schedule of IDCOL under ESMS..... 656  
Table 9: Proposed Capacity-Building Activities ..... 667

**List of Figures:**

Figure 1: GOB process for obtaining EC Certificate from DoE..... 19  
Figure 2: The organizational structure of IDCOL..... 36  
Figure 3: Block diagram of a utility scale solar power plant ..... 45  
Figure 4: ESMS Process ..... 45  
Figure 5: Basic Risk Management Strategy of IDCOL ..... 64

## **PREAMBLE**

---

Infrastructure Development Company Limited (IDCOL) was established on 14 May 1997 by the Government of Bangladesh. The Company was licensed by the Bangladesh Bank as a non-bank financial institution (NBFI) on 5 January 1998. Since its inception, IDCOL is playing a major role in bridging the financing gap for developing medium to large-scale infrastructure and renewable energy projects in Bangladesh. The company now stands as the market leader in private sector energy and infrastructure financing in Bangladesh.

IDCOL recognizes Environmental and Social Risk Management as serious issues that require systems to monitor and control in line with legal requirements in the sector. IDCOL practices Environmental and Social Management System (ESSF) and Environmental and Social Management Framework (ESMF) to constitute IDCOL's Environmental & Social (E & S) Policy. ESSF is applicable for infrastructure projects and ESMF is applicable for renewable energy projects and programs. Currently, IDCOL is preparing the Environmental and Social Management System (ESMS) in order to improve the management of the environmental and social implications of its solar rooftop & grid-tied solar power projects. The IDCOL Environmental and Social Management System (ESMS) will provide a systematic procedure to assess whether these projects will lead to any potential adverse environmental and social impacts. As such, the ESMS aims to ensure that negative impacts are avoided or minimized or compensated to the extent possible while positive impacts are stimulated.

## ABBREVIATIONS

---

IDCOL	Infrastructure Development Company Limited
NREP	National Renewable Energy Policy 2008
RE	Renewable Energy
SREDA	Sustainable and Renewable Energy Development Agency
MSW	Municipal Solid Waste
ESSF	Environmental and Social Safeguards Framework
FI	Financial Intermediaries
ESMS	Environmental and Social Management System
ESPP	Environmental and Social Policies and Procedures
WB	World Bank
REFF	Renewable Energy Financing Facility
ESIAs	Social Impact Assessments
ECA	Environmental Conservation Act
DoE	Department of Environment
ECC	Environmental Clearance Certificate
ECR	Environment Conservation Rules
EMP	Environmental Management Plan
RAPSS	Remote Area Power Supply Systems
BNBC	Bangladesh National Building Code
PAPs	Project Affected Persons
CHT	Chittagong Hill Tracts
DC	Deputy Commissioner
MoL	Ministry of Land
MoEF	Ministry of Environment and Forestry
PRSP	Poverty Reduction Strategic Paper
SESA	Strategic Environmental and Social Assessment
EMP	Environmental Management Plan
GIIP	Good International Industry Practice
EHS	Environmental, Health and Safety
ESIA	Environmental and Social Impact Assessment
FPIC	Free, Prior, and Informed Consent

CBD	Convention on Biological Diversity
NBSAPs	National Biodiversity Strategies and Action Plans
BMP	Biodiversity Management Plan
GFN	Good Faith Negotiation
ICP	Informed Consultation and Participation
GRC	Grievance Redress Committee
LAP	Land Acquisition Plan
DC	District Commissioner
GHG	Green House Gases
IPP	Independent Power Producer
ESMP	Environmental and Social Management Plan
ToR	Term of Reference
IUCN	International Union for Conservation of Nature
EQS	Environmental Quality Standards
GOB	Government of Bangladesh
R&R	Resettlement and Rehabilitation
RAP	Rehabilitation Action Plan
CAP	Corrective Action Plan
SCC	Site Clearance Certificate
IEE	Initial Environmental Examination
AIAO	American International Accreditation Organization
CSR	Corporate Social Responsibility
PPE	Personal Protective Equipment
VECs	Valued Environment Components

## CHAPTER 01: INTRODUCTION

1. Infrastructure Development Company Limited (IDCOL) was established in 1997 by the Government of Bangladesh to encourage private sector investment in infrastructure and energy sector. It is mandated to finance renewable energy and infrastructure projects listed in Government's priority list and implemented by the private sector. Accordingly, the organization was equipped with appropriate policies, procedures, and manpower to develop capacity to identify investment opportunities and assess small, medium and large infrastructure as well as renewable energy projects.
2. The Vision of the company is to assist in ensuring economic development of the country and improve the living standard of the people through sustainable and eco-friendly investments. The mission of the company is to work as both a catalyst and an optimizer of private sector participation in promotion, development and financing of infrastructure as well as renewable energy. The organization has three core values: (1) the company is committed to delivering global standard services and competency to its clients; (2) the company maintains transparency and integrity in all its services; and finally, (3) it performs as a socially responsible development financing institution.
3. In case of renewable energy projects, IDCOL, apart from extending financial supports, closely monitors the market for compliance of renewable energy technologies and maintains the required technical standards to ensure the quality and sustainability of its programs and projects. At present, IDCOL is financing a diverse portfolio of renewable energy initiatives such as solar home system, solar irrigation, solar mini-grid, biogas plant and improved cook-stove. These renewable energy initiatives have transformed the lives of rural households with reliable and affordable source of energy. The energy poverty of the country has been successfully reduced as rural households have now replaced their inefficient, unhealthy and polluting kerosene lamps, cooking stoves and diesel run irrigation pumps with highly efficient and environment friendly technologies, hence, brought a radical change in their everyday life.
4. Making a positive difference in the community has been possible for IDCOL by choosing the best projects to help them achieve what they want for their community and this is done through an in-depth project appraisal. IDCOL follows a standard procedure and process to conduct project appraisal. During the appraisal phase, the financial, economic, technical, market, legal, environmental and social aspects of projects are

assessed as well as detail review on sponsors is conducted as part of project appraisal and due diligence requirements.

5. IDCOL has long and praiseworthy history of energy-based development financing. The Environmental and Social Management System (ESMS) is the system developed by IDCOL as an attempt to ensure continuity of its social and environmental commitments in the designing and implementation of all its projects and programs. The ESMS has been developed particularly for grid connected solar and rooftop solar projects in line with the environmental and social risks associated with those projects.
6. This document outlines the principles upon which the ESMS is based on, the law and policies to be followed, the organizational framework and capabilities of IDCOL, specific projects and their implementation procedures (where the solar rooftop and grid based solar power project has been discussed in details as it is the latest one to be designed and implemented) and lastly, the risk assessment and ways to mitigate them. All the sections stated above are discussed in each of the next five chapters.

## CHAPTER 02: ESMS PRINCIPLES

7. The ESMS is guided by five principles rooted in IDCOL policy statement that provides high-level governance and necessary directions for implementation of the operational framework of IDCOL projects. The statements are mentioned in the table below:

**Table 1: ENVIRONMENTAL & SOCIAL POLICY STATEMENT OF IDCOL**

<b>Environmental and Social Policy Statement of IDCOL</b>
<p>IDCOL has a mandate of financing private sector for developing medium to large-scale infrastructure and renewable energy projects in Bangladesh.</p> <p>IDCOL recognizes the significance of environmental, health/ safety and social considerations in infrastructure development and believes in sustainable development</p> <p>In order to achieve the above, IDCOL is committed to:</p> <ul style="list-style-type: none"><li>(a) Mainstream environmental, health / safety and social (E&amp;S) considerations in appraising and financing infrastructure projects to avoid / minimize adverse impacts and risks to the environment and people that may be affected</li><li>(b) Ensure compliance with all relevant E&amp;S policy and legislative requirements and laws of the lands with which it engages and remain responsive to the E&amp;S requirements of international best practices</li><li>(c) Avoid / minimize land acquisition and resettlement through selection of appropriate locations and design of projects</li><li>(d) Where land acquisition is unavoidable, compensatory replacement value of such acquired land/property will be paid before displacement or replace with land having equal value and quality together with other facilities such as housing and basic infrastructure facilities.</li><li>(e) Ensure protection of vulnerable groups, such as the economically and socially disadvantaged, women, children, physically handicapped and ethnic communities and take appropriate measures to restore their livelihood as relevant</li></ul>

(Source: <http://idcol.org/download/1d8514287c3e7cda76423b33a781f79c.pdf> )

8. The role of the ESMS is to assess the adherence of the design of IDCOL projects to these principles. The principles also guide the implementation of ESMS activities such as the impact assessment processes. Several of the principles are: Environmental and Social Risks & Impacts Assessment and Management; Environmental Health & Safety; Biodiversity Conservation; Conservation of World Heritage; Resettlement; Gender Equality and Social Inclusion; Vulnerable and Ethnic Communities and Stakeholder Engagement. These are described in the sections below:

## **2.1. Principles on Environmental and Social Risks & Impacts Assessment and Management Procedures**

9. Risks and impacts assessment and management is one of the prime principles of the ESMS. The principal entails:

- To identify and evaluate environmental and social risks and impacts of the project;
- To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment;
- To promote improved environmental and social performance of project sponsors through the effective use of management systems;
- To ensure that grievances from affected communities and external communications from other stakeholders are responded to and managed appropriately;
- To promote and provide means for adequate engagement with affected communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.

## **2.2. Principle on Environmental Health & Safety**

10. Environmental health and safety is one of the most important principles of the ESMS. The organization highly emphasizes on maintaining compliance to the relevant environment laws and acts of the Peoples' Republic of Bangladesh and also rules set by the donors including the following:

- a) Any environmental degradation is to be avoided and/or (if not avoided) minimized to the minimal extent;
- b) The availability and use of personal protective equipment is to be ensured and be closely monitored continuously;
- c) Personal protective equipment is to be made readily available and all defective equipment is to be replaced promptly;
- d) Presence of safety equipment and training to the building users on fire safety plan is to be ensured;
- e) ISO 14001:2004 (Environmental Management Standard) and OHSAS 18001:2007 (Occupational Health Safety Standard) compliances for all battery & solar PV

panel suppliers (national and international level) and expired battery recyclers to be duly followed;

- f) Environmental Health & Safety (EHS) compliance is to be monitored regularly;
- g) Awareness raising programs and training for the staff of the projects are to be arranged.

### **2.3. Principle on Biodiversity Conservation**

11. The ESMS is guided by the Convention on Biological Diversity (CBD) including the CBD's Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets.<sup>1</sup> As emphasized by the Biodiversity for Development Program of the CBD, biodiversity loss can result in critical reductions in the goods and services provided by the earth's ecosystems all of which contribute to economic prosperity and human development. This is especially relevant in developing countries with rich natural resource base like Bangladesh. National Biodiversity Strategies and Action Plans (NBSAPs) are the principal instruments for implementing the Convention at the national level. As of September 2016, a total of 185 out of 196 (94%) parties have developed NBSAPs whereas NBSAP was still in preparation for Bangladesh.<sup>2</sup>
12. Currently, about 3.41 % of the land area is protected in Bangladesh compared to about a tenth of the world's land surface globally. There are 47 wildlife sanctuaries in Bangladesh. Three of these protected areas are also Ramsar sites (i.e., the Sundarbans Reserve Forest (42-44), Hakaluki Haor (18) and Tanguar Haor (45)) which cover an area of 611,200 hectares. Ramsar Convention (Ramsar sites) is concerned with Wetlands of International Importance and covers fresh water, estuarine and coastal marine habitats. The convention was signed in Ramsar (Iran) in 1971 and came into force in December 1975. The convention came into force in Bangladesh on 21 September 1992.
13. The application of OP4.04 on biodiversity conservation and sustainable management of living natural resources of the World Bank is established during the social and environmental risks and impacts identification process and therefore, a detailed assessment of relevant risks and impacts must be included in the ESIA, including alternative options for project design and addressed through the ESMS. The key requirements that must be met during ESIA process are outlined in Table 1.

---

<sup>1</sup><https://www.cbd.int/sp/>

<sup>2</sup><https://www.cbd.int/doc/meetings/mar/cbwsai-seasi-01/other/cbwsai-seasi-01-bangladesh-en.pdf>

**Table 2: Identification and Mitigation of Biodiversity-Related Risks and Impacts**

Issue	Description
Scoping for biodiversity impacts	The risks and impacts identification process should include scoping of potential issues relating to biodiversity and ecosystem services. Scoping may take the form of an initial desktop analysis and literature review, including a review of regional studies and assessments, the use of global or regional screening tools, and field reconnaissance.
Scoping for impacts on ecosystem services	Scoping for ecosystem services may also take place through consultation with Affected Communities as part of stakeholder engagement.
Application of the mitigation hierarchy	As a matter of priority, impacts on biodiversity and ecosystem services should be avoided. When avoidance of impacts is not possible, measures to minimize impacts and restore biodiversity and ecosystem services should be implemented. For biodiversity, the mitigation hierarchy may include offsets.
Determination of habitat type	ESIA must clearly define habitat type of the subproject area and support it with adequate data and analysis. Habitat types may be natural/ modified and critical / non-critical. <sup>3</sup>
Legally protected and internationally recognized <sup>4</sup> areas <sup>5</sup>	<p>In circumstances where a proposed project is located within a legally protected area or an internationally recognized area, requirements of OP4.04 for either natural or critical habitat must be fulfilled, as applicable<sup>5</sup>. In addition, the project sponsor will:</p> <ul style="list-style-type: none"> <li>- Demonstrate that the proposed development in such areas is legally permitted;</li> <li>- Act in a manner consistent with any government recognized management plans for such areas;</li> <li>- Consult protected area sponsors and managers, Affected Communities, tribal peoples and/ or small ethnic communities (if present), and other stakeholders on the proposed project, as appropriate; and</li> <li>- Implement additional programs, as appropriate, to promote and enhance the conservation aims and effective management of the area.</li> </ul>
Biodiversity Offsets	<p>When development of an offset is considered as part of subproject design, as included in the mitigation hierarchy, external experts with knowledge of offset design and implementation must be involved.</p> <p>Biodiversity offsets may be considered only after appropriate avoidance, minimization and restoration measures have been applied. The decision to undertake a biodiversity offset therefore would never be a substitute for the implementation of good management practices on the actual project site.</p> <p>Biodiversity offsets are only to be undertaken if significant residual impacts remain after all prior steps in the mitigation hierarchy have been fully assessed and implemented.</p>
Biodiversity Action Plan (BAP)/ Biodiversity Management Plan (BMP)	For critical habitats, a Biodiversity Action Plan and/or Biodiversity Management Plan are required.

<sup>3</sup> Both natural and modified habitats can be, at the same, time, critical habitats should they meet the criteria of OP4.04.

<sup>4</sup> Exclusively defined as UNESCO Natural World Heritage Sites, UNESCO Man and the Biosphere Reserves, Key Biodiversity Areas, and wetlands designated under the Convention on Wetlands of International Importance (the Ramsar Convention).

<sup>5</sup> OP4.04 recognizes legally protected areas that meet the IUCN definition: "A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values." For the purposes of OP4.04, this includes areas proposed by governments for such designation.

## 2.4. Principle on Conservation of World Heritage

14. Critical cultural heritage consists of (i) the internationally recognized heritage of communities who use, or have used within living memory the cultural heritage for long-standing cultural purposes and (ii) legally protected cultural heritage areas including those proposed by host governments for such designation. Examples include world heritage sites and nationally protected areas. The following is the list of UNESCO World Heritage Sites in Bangladesh:

**Table 3: UNESCO World Heritage Sites in Bangladesh<sup>4</sup>**

Properties inscribed on the World Heritage List	Properties submitted on the Tentative List
A. Historic Mosque City of Bagerhat (1985) B. Ruins of the Buddhist Vihara at Paharpur (1985) C. The Sundarbans (1997)	A. Mahansthargarh and its Environs (1999) B. The Lalmai-Mainamati Group of monuments (1999) C. Lalbagh Fort (1999) D. Halud Vihara (1999) E. Jaggadala Vihara (1999)

15. In Bangladesh, impacts on cultural heritage are usually avoided when selecting project sites. Similarly, according to the applicable World Bank policies, the projects should not be designed in a way that would envision removal, significantly alter, or damage critical cultural heritage. In exceptional circumstances when impacts on critical cultural heritage are unavoidable, the project sponsors have to meet key requirements presented in Table 4. During environmental and social due diligence process, the project sponsors must be responsible for:

- (a) Verifying the conclusions of the ESIA on whether or not critical cultural heritage is present in the proposed project area and, if so, promptly notify IDCOL;
- (b) IDCOL will determine – in exceptional circumstances - that a project involving impacts on critical cultural heritage (based on IDCOL’s internal E&S risk management capacity), ascertaining that adequate risk and impact management measures are included in project sponsors’ action plans and incorporated in legal documentation for project financing;
- (c) Implementation monitoring of the projects will be done by IDCOL.

**Table 4: Key Requirements for Critical Cultural Heritage**

Issues	Description
Consultation	Project sponsor will use a process of informed consultation and participation of the Affected Communities, which uses a good faith negotiation process that results in a documented outcome.
External expertise	The project sponsor will retain external experts to assist in the assessment and protection of critical cultural heritage.
Legally protected areas	<p>Legally protected cultural heritage areas are important for the protection and conservation of cultural heritage and additional measures are needed for any project that would be permitted under the applicable national law in these areas. In circumstances where a proposed project is located within a legally protected area or a legally defined buffer zone, the project sponsor, in addition to the requirements for critical cultural heritage cited above, will have to meet the following requirements:</p> <ul style="list-style-type: none"> <li>• Comply with defined national or local cultural heritage regulations or the protected area management plans;</li> <li>• Consult the protected area sponsors and managers, local communities and other key stakeholders on the proposed project; and</li> <li>• Implement additional programs, as appropriate, to promote and enhance the conservation aims of the protected area.</li> </ul>

## 2.5. Principle on Resettlement

16. Principles on Resettlement aim to resettle and rehabilitate the affected persons on account of its projects in a manner that they do not suffer from adverse impacts and shall improve or at the minimum retain their previous standard of living, earning capacity and production levels. The resettlement issues shall minimize dependency and be sustainable socially, economically and institutionally. Special attention will be paid to the improvement of living standards of marginalized and vulnerable groups. The rules of the Resettlement and Rehabilitation which are to be followed, are given below:

- a) All negative impacts including displacement should be avoided or minimized wherever feasible by exploring all viable alternative project designs;
- b) Where negative impacts are unavoidable, efforts should be made either to improve the standard of living of the affected persons or at least assist them in restoring their previous standard of living at no cost to them;
- c) All information related to resettlement preparation and implementation will be disclosed to all concerned and community participation will be ensured in planning and implementation;
- d) The principles of mutual consent and negotiated settlement will also be used for land acquisition as required;
- e) The persons affected by the project who do not own land or other properties but who have an economic interest or lost their livelihoods will be assisted;

- f) Before taking possession of the acquired lands and properties, compensation and R&R assistance will be made to those who are available and willing to receive the entitlements;
- g) There would be no/minimum adverse social, economic and environmental effects of displacement on the host communities but if needed specific measures would be provided;
- h) Broad entitlement framework of different categories of project-affected people has been assessed and is given in the entitlement matrix. Provision will be kept in the budget. However, anyone moving into the project area after the cut-off date will not be entitled to assistance;
- i) Grievance redress mechanism has been established at the project level to ensure speedy resolution of disputes;
- j) All activities related to resettlement planning, implementation, and monitoring would ensure involvement of women. Efforts will also be made to ensure that vulnerable groups are included;
- k) All consultations with projects affected persons (PAPs) shall be documented. Consultations will continue during the implementation of resettlement and rehabilitation works;
- l) A Resettlement Action Plan will be prepared including a fully itemized budget and an implementation schedule;
- m) Ensure people's participation during the course of the project cycle;
- n) Effort should be made towards the enhancement of the positive impact of the projects.

## **2.6. Principle on Gender Equality & Social Inclusion**

17. Mainstreaming gender equity and empowerment is always a focus area for IDCOL. In the activities related to livelihood and restoration, women's needs are to be especially addressed. Gender analysis is to be a part of the social assessment and the basis of the analysis will be findings from gender specific queries during the primary data collection process and available secondary data in the ESIA preparation. The quantitative and qualitative analysis are supposed to bring out sex disaggregated data and issues related to gender disparity, needs, constraints, and priorities as well as understanding whether there is potential for gender based inequitable risks, benefits and opportunities. Based on

the analysis, the specific interventions are to be designed and if required, gender action plan need to be prepared. The overall monitoring needs inclusion of sex disaggregated indicators and gender relevant indicators. The participation of beneficiaries and focus on poverty reduction are two other key determinants of the effectiveness and sustainability of any project. Any project must address the constraints on women's participation in project design, construction and monitoring and evaluation (M & E).

18. Three major tools are to be used to identify and deal with gender issues in the project cycle: gender analysis, project design, and policy dialogue. Gender analysis must be an integral part of the initial social assessment at the screening stage itself. The issues identified need to be scaled up during the feasibility and detailed analysis should be carried out during the project preparation stage. The project designs should be gender responsive based on the gender analysis and should be included in the ESIA. The findings and recommendations from the gender analysis during project planning and feedback from beneficiaries during implementation must be discussed thoroughly to determine the need for further action.

## **2.7. Principle on Ethnic Minorities Communities**

19. In Bangladesh "ethnic communities" (may also be referred to as "tribal people" in this section) describe native ethnic minorities in south-eastern, north-western, north-central and north-eastern regions of the country. These regions include the Chittagong Hill Tracts, Sylhet Division, Rajshahi Division and Mymensingh District. The total population of ethnic minorities in Bangladesh was estimated to be over 2 million in 2010. A vast number of indigenous tribes of Bangladesh are Buddhists and Hindus by religion while the remaining few are Christians and animists. In general, some key ethnic communities are Khasi, Garos, Jaintia, Chakma, Marma, Santal, Manipuri, Tripuri, Tanchangya, Mro etc. The primary census report of 2011 gives the number of ethnic population groups of Bangladesh as 27. These tribal groups differ in their social organization, marriage customs, foods, birth and death and other social customs from the people of the rest of the country. They have somehow managed to resist centuries of colonization and in the process, they have retained their own customs, traditions and life.
20. Private sector projects can create opportunities for these groups to participate in and benefit from project-related activities that may help them fulfill their objective for economic and social development. Furthermore, these groups may play a role in

sustainable development by promoting and managing activities and enterprises as partners in development. Project sponsors have to meet key requirements presented in Table 5. During environment and social due diligence process:

- (a) the project proponents will be responsible for verifying the conclusions of the ESIA on whether or not tribal peoples and/or small ethnic communities are present in the proposed project area;
- (b) the project proponents will be responsible for promptly notifying IDCOL when these communities are present in the proposed project area;
- (c) IDCOL will determine that a project involving impacts on tribal peoples and/or small ethnic communities can be financed (based on IDCOL's internal environmental and social risk management capacity), ascertaining that adequate risks and impacts management measures are included in project sponsors' Action Plans and incorporated in the legal documentation for project financing. More specifically:
  - (i) Verifying broad community support of these groups to the project that should be the outcome of Good Faith Negotiations and Informed Consultation and Participation (ICP) as conducted by project sponsors and stakeholder engagement.
  - (ii) In specific circumstances requiring Free, Prior and Informed Consent (FPIC), verifying the due process and adequate outcome, as conducted/achieved by the project sponsor and stakeholder engagement.
  - (iii) Monitoring implementation (with assistance/recommendation from IDCOL).

**Table 5: Key Requirements for Managing Issues Related to Impacts on Small Ethnic Communities**

Issue	Description
Identification of relevant groups in sub-project area	Project sponsors may be required to seek inputs from competent professionals to ascertain whether a particular group is considered small ethnic communities. In making this determination, the project sponsor may undertake a number of activities, including investigation of the applicable national laws and regulations (including laws reflecting the country's obligations under international law), archival research, ethnographic research (including documentation of culture, customs, institutions, customary laws, etc.), and participatory appraisal approaches
FPIC: Definition	There is no universally accepted definition of FPIC. FPIC builds on and expands the process of informed consultation and participation described in OP4.01 and will be established through good faith negotiation between the project sponsor and these communities. The project sponsor will document: (i) the mutually accepted process, and (ii) evidence of an agreement between the parties as the outcome of the negotiations. FPIC does not necessarily require unanimity and may be achieved even when individuals or groups within the community explicitly disagree.
Participation	The Project sponsor will undertake an engagement process with the Affected small ethnic communities as per the requirements for stakeholder engagement and grievance mechanisms described. This engagement process includes stakeholder analysis and engagement planning, disclosure of information, consultation, and participation, in a culturally appropriate manner.
Tribal people's plan	The project sponsor's proposed actions will be developed with the informed consultation and participation of the Affected Communities of small ethnic communities and contained in a time-bound plan, such as a Tribal Peoples Plan, or a broader community/stakeholder development plan with separate components for small ethnic communities.
Development benefits	The Project sponsor will ensure opportunities for culturally appropriate and sustainable development benefits. The determination, delivery, and distribution of compensation and other benefit sharing measures to the Affected Communities of small ethnic communities will take account of the laws, institutions, and customs of these communities as well as their level of interaction with mainstream society.
Private sector responsibilities where Government is responsible for managing tribal people's issues	Where the government has a defined role in the management of small ethnic communities' issues in relation to the project, the project sponsor will collaborate with the responsible government agency, to the extent feasible and permitted by the agency, to achieve outcomes that are consistent with the objectives of World Bank's policies. The project sponsors will prepare a plan that, together with the documents prepared by the responsible government agency, will address the relevant requirements of this policy. The project sponsor may need to include (i) the plan, implementation, and documentation of the process of informed consultation and engagement and FPIC where relevant; (ii) a description of the government-provided entitlements of affected Indigenous Peoples; (iii) the measures proposed to bridge any gaps between such entitlements, and the requirements; and (iv) the financial and implementation responsibilities of the government agency and/or the project sponsor.

## 2.8. Principle on Stakeholder Engagement

21. Stakeholder engagement is a cross-cutting issue. In particular, it is required for project sponsors to identify and engage with the range of stakeholders from those directly affected by the actions to those having interest in projects and programs. The nature, frequency and level of effort of stakeholder engagement are to be commensurate with risks and impacts. Table 6 summarizes various levels of stakeholder engagement and responsibilities depending on project risks and impacts. The sponsor has to make a determination as to whether the process conducted and its outcomes are consistent with the requirements of IFC Performance Standard and/or World Bank's operational policies (OP) which may determine if any corrective actions are feasible to address the situation. If corrective actions are feasible, the sponsor should implement them as soon as possible. Such corrective actions may range from conducting additional engagement activities to facilitating access to and ensuring cultural appropriateness of relevant environmental and social information. Implementation of the principle must adhere to the following guidance:

- a) Information must be relevant to stakeholders and reveal not only general information about the project (e.g., purpose, duration, scale, proposed activities), but also potential risks for communities and planned mitigation measures.
- b) Disclosure of information must occur in a reasonable timeframe to allow stakeholders to process this information and – if applicable – raise concerns.
- c) The form of disclosure must be targeted to the audience (particularly to affected groups) in the appropriate language and channels of communication.
- d) Consultation must be carried out in a culturally appropriate, non-discriminatory and gender-sensitive manner, free of external manipulation, intimidation or coercion.

**Table 6: Levels of Stakeholder Engagement and Responsibilities**

Level of Risk/Impact		Stakeholders	Project Sponsor's Responsibilities*	PFI's Responsibilities	
Increasing Levels of Risk / Impact	High, Significant	Tribal peoples and/ or small ethnic communities under these circumstances: 1) Impact on Lands/Natural Resources; 2) Resettlement of IPs; 3) Impacts on critical cultural heritage, including commercial use of cultural heritage.	<b>Free, Prior and Informed Consent (FPIC)</b> , Good Faith Negotiation whereby mutually accepted process and evidence of agreement are documented. Includes; disclosure; grievance mechanism; stakeholder Engagement Plan; ongoing reporting to communities on Action Plan.*	Verification	Ongoing Supervision of Community Engagement. Update of E&S Action Plan, as needed
		Impacts on critical cultural heritage, including use for commercial purposes involving Affected Communities (other than on tribal peoples and/ or small ethnic communities)	<b>ICP + Good Faith Negotiation (GFN)</b> : process that builds on ICP but also employs good faith negotiations resulting in a documented outcome. Includes: disclosure; grievance mechanism; stakeholder engagement plan; ongoing reporting to communities on Action Plan.*	Ascertain that communities broadly support the project**	
		1) Adversely affected on tribal peoples and/ or small ethnic communities; 2) Potentially significantly adversely affected communities.	<b>Informed Consultation and Participation (ICP)</b> : More in-depth process leading to incorporating views of affected communities into decision-making and documenting process. Includes: disclosure; two-way dialogue; grievance mechanism; stakeholder engagement plan; ongoing reporting to communities on Action Plan.*	Ascertain that communities broadly support the project**	
	Moderate	Adversely affected communities and stakeholders.	<b>Consultation</b> : Disclosure. Two-way dialogue. Grievance Mechanism. Stakeholder Engagement Plan. Ongoing reporting to communities on project Action Plan.*	Verification	
	All Investment Activities	General Public	<b>External communication</b> : Project sponsor implements and maintains procedure to receive, register, screen and address communications from the public, document responses, and adjust management program.	Verification	

*Notes:*

\*It is expected that responsibilities regarding stakeholder engagement activities are additive at each stage from bottom to top.

\*\*Even if some individuals or groups object to the project, the project still may be broadly supported.

## 2.9. Grievance Redress System

22. Grievance redress mechanism is an integral part of stakeholder engagement process. The projects must have a multi-level process for addressing grievances from project-affected communities.
23. It requires sponsors to establish a grievance mechanism to receive and facilitate resolution of Affected Communities' concerns and grievances about the sponsor's environmental and social performance.<sup>6</sup> The grievance mechanism is to be scaled to risks and adverse impacts of the project, address concerns promptly, use an understandable and transparent process that is culturally appropriate and readily accessible to all segments of the affected communities and do so at no cost to communities and without retribution. The mechanism must not hamper access to judicial and administrative remedies. The sponsor will inform the affected communities about the mechanism in the course of its community engagement process.
24. Grievance mechanism is to respond to project needs better as they must be established early as a measure to pre-empt rather than react to the escalation of tensions. The project proponents must constitute a three-member Grievance Redress Committee (GRC) comprising of an officer representing the project proponent, not below the rank of the implementing officer, the elected member (local body) of the project area/location and one member of the public who is known to be a person of integrity, good judgment and commands respect among the community. The existence of the GRC should be disseminated to the affected persons through printed handouts providing details of the structure and process in redressing grievances.
25. The project proponents must document all complaints received, the actions taken on each of them and send a report of the same quarterly. The GRC is to address local public grievances regarding environmental impacts during construction and operation. The project proponents must address issues through GRC to receive and facilitate the resolution of affected persons' concerns and grievances about physical and economic displacement and other projects' impacts, paying particular attention to the impacts on vulnerable groups.

---

<sup>6</sup> Grievance mechanisms for workers are separate and are addressed under the requirements of The World Bank Policy.

## CHAPTER 03: LAWS & POLICIES

26. Relevant laws, regulations and policies of Bangladesh Government as well as requirements of major development partners of IDCOL were reviewed during development of the ESMS guideline to ensure its consistency with requirements of both the Government and the development partners. This section summarizes such references.

### 3.1. The Bangladesh Environmental Conservation Act (ECA), 1995

27. The Environmental Conservation Act (ECA) of 1995 is the main legislative document related to environmental protection in Bangladesh. This umbrella Act includes laws for conservation of the environment, improvement of environmental standards, and control and mitigation of environmental pollution. This Act justifies the establishment of the DoE and empowers its Director General to take necessary measures. The measures by the Director General (DG, the head of DoE) includes conducting inquiries, probable accidents, advising the Government, coordinating with other authorities or agencies and collecting & publishing information about environmental pollution. According to this act (Section 12), no industrial unit or project shall be established or undertaken without obtaining, in a manner prescribed by the accompanying Rules, an (ECC) from the Director General of the DOE.

28. The Act was amended in 2006 (SRO No. 175-Act/2006 dated August 29, 2006) on collection and recycling of used/non-functional batteries for the conservation of the environment, improving environmental standard and controlling and preventing environmental pollution. According to this amendment, no recycling of battery will be permitted without environmental clearance of DoE. This also restricts the improper disposal of used batteries or any parts of used battery in open place, water bodies, waste bins etc. All cast-off batteries must be sent to the DoE approved battery recycling industry at the earliest convenience and no financial transaction is allowed for used/non-functional batteries. However, the act has been amended on the same issue again in 2008 (SRO No. 29-Act/2008 dated February 11, 2008) to allow financial transaction on mutually agreed fixed cost.

### 3.2. Environment Conservation Rules (ECR), 1997

29. The Environment Conservation Rules, 1997 (details in Annex 1) were issued by the the Government in 1997 as an exercise of the power conferred under the Environment

Conservation Act (Section 20). Under these Rules, the following aspects, among others, are covered:

- a) Declaration of ecologically critical areas;
- b) Classification of industries and projects into four categories;
- c) Procedures for issuing the Environmental Clearance Certificate.
- d) Determination of environmental standards.

30. Rule 3 defines the factors to be considered in declaring an area 'ecologically critical I area' (ECA) as per Section 5 of ECA''-95. It empowers the Government to declare an area 'ECA' when the ecosystem of the area has reached or is threatened to reach a critical state or condition due to environmental degradation. The Government is also empowered to specify which of the operations or processes shall be carried out or shall not be initiated in the ecologically critical area. Under this mandate, MoEF has declared Sundarban, Cox's Bazar-Tekhnaf Sea Shore, Saint Martin Island, Sonadia Island, Hakaluki Haor, Tanguar Haor, Marzat Baor and Gulshan-Baridhara Lake as ecologically critical areas and prohibited certain activities in those areas.

31. ECR''-97 (Rule 7) classifies industrial units and projects into four categories depending on environmental impact and location for the purpose of issuance of ECC as are:



All existing and proposed industrial units and projects which are considered to be low polluting are categorized under "Green" and shall be granted Environmental Clearance. For proposed industrial units and projects falling in the Orange- A, Orange- B and Red Categories, issuance of site clearance certificate followed by environmental clearance certificate are required. A detailed description of those four categories of industries has been given in Schedule-1 of ECR'97.

32. There is no clear and specific guidance about the application of renewable energy technologies in both ECA'95 and ECR'97.

### **3.3. The Bangladesh Environmental Conservation ACT (Amendment 2010)**

33. This amendment of the act introduces new rules and restrictions on:

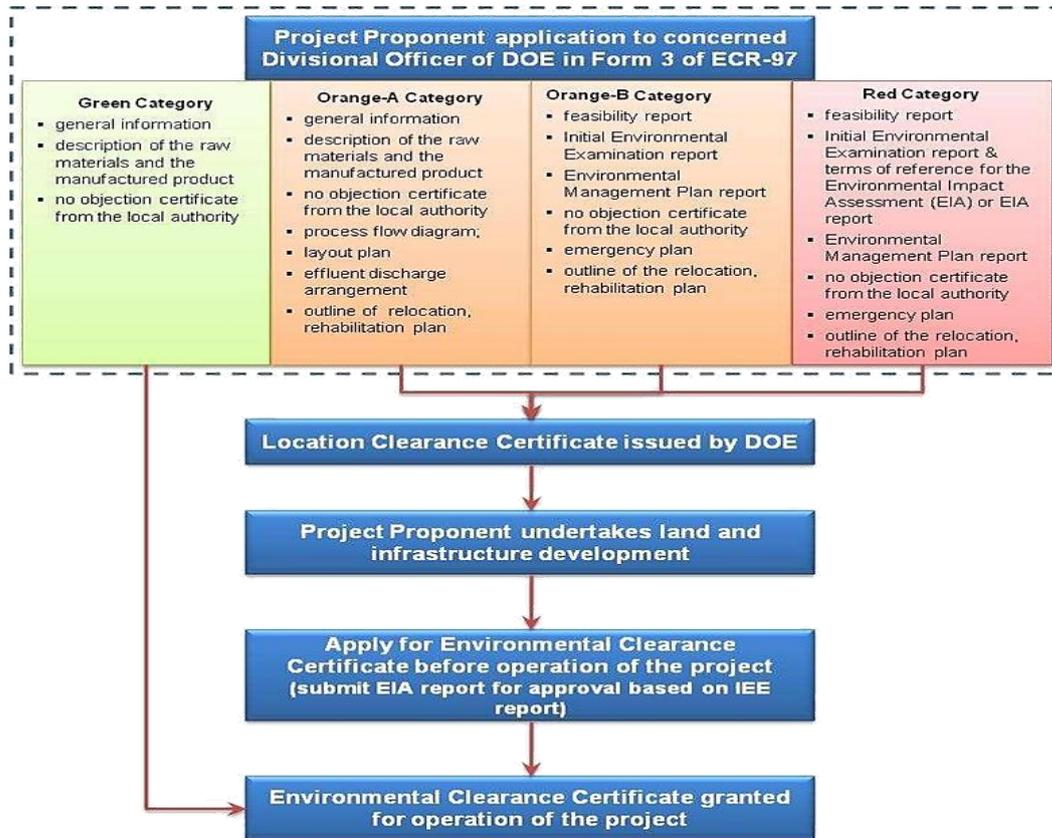
- a) Ensuring proper management of hazardous wastes to prevent environmental pollution and health risk;
- b) No remarked water body cannot be filled up/changed; in case of national interest; it can be done after getting clearance from the respective department; and

c) Emitter of any activities/incident will be bound to control emission of environmental pollutants that exceed the existing emission standards.

### **3.4. DoE Environmental Clearance Process**

34. For the each category of industries, there are different sets of required documents to be provided at the time of seeking the Environmental Clearance Certificate (ECC) is mandatory for the existing industries as per clause 7(3) of the ECA'95 and the ECR'97 and for the proposed projects as per Rule 7 and Schedule 1 of ECR'97. All existing and proposed industrial units and projects which are considered to be low polluting are categorized under "Green" and shall be granted Environmental Clearance. For proposed industrial units and projects falling in Orange- A, Orange- B and Red Categories, issuance of site clearance certificate followed by environmental clearance certificate are required. However, the rules provide the Director General (DG, the head of DoE) a discretionary authority to grant 'Environmental Clearance' to an applicant, exempting the requirement of site/location clearance, provided that the DG considers it to be appropriate. More details on the DoE environmental clearance process is illustrated in Annex 1 and The GOB process for obtaining EC certificate from DOE is given in Figure 1.

Figure 1: GOB process for obtaining EC Certificate from DoE



### 3.5. Nationally Designated Ecologically Critical Areas

35. Ecologically Critical Areas can be defined as areas that may contain unique features, cultural or historical sites, maintain key natural processes, support endangered, endemic or threatened plant or animal species and their habitats, or provide important breeding areas for wildlife. If the Government is satisfied that the ecosystem of an area is in an environmentally critical situation or is threatened to be in such situation, the Government may, by notification in the official Gazette declare such area as an Ecologically Critical Area. Activities that may degrade the environment further are prohibited in the declared Ecologically Critical Areas by the Amendment of Environmental Conservation Act 1995 (5 October, 2010).

### 3.6. Renewable Energy Policy of Bangladesh, 2008

36. The renewable energy policy of Bangladesh approved on December 18, 2008 has the target of developing renewable energy resources. This Policy lays out the target of meeting 5 percent of total power demand from renewable energy sources by 2015 and 10 percent by 2020. The policy provides an overall guidance for institutional

arrangements, resource, technology and program development, investment and fiscal incentives and regulatory policy. The policy promotes the appropriate, efficient and environment-friendly use of renewable energy. It also suggests that for large biomass electricity projects (i.e., greater than 1 MW) the project developer must demonstrate that the biomass is being sustainably harvested and no adverse social impact will result from that development. It also restricts the larger scale production and use of biofuels which may jeopardize the existing crops.

### **3.7. Guidelines for the Implementation of Solar Power Development Program, 2013**

37. As per section 3.8 of guidelines for the implementation of Solar Power Development Program (2013) that according to the Renewable Energy Policy, to establish solar mini grid projects with a capacity up to 250 MW, the entrepreneur will be exempted to get a waiver certificate. However, for Mini grid projects with a capacity more than 5 MW the entrepreneur will have to inform the Commission in writing through a letter. For implementation and operation of solar mini-grid projects, license for a period of minimum 20 years may be issued subject to yearly renewal.

### **3.8. Remote Area Power Supply Systems (RAPSS) Guideline, 2007**

38. The Remote Area Power Supply Systems (RAPSS) guideline of 2007 allowed private sector participation in development, operation and maintenance of electricity generation system and distribution networks in remote rural areas including isolated islands to supplement Government's efforts at achieving universal access by 2020. Bangladesh Government established Sustainable and Renewable Energy Development Authority (SREDA) as an autonomous body to lead its efforts in promoting renewable energy and energy efficiency in the country.

### **3.9. Bangladesh Labor Act, 2006**

39. Labor relations in Bangladesh are governed according to Bangladesh Labor Act of 2006 (Amended in 2013) and Labor Rules of 2015. The amendments to the 2006 Labor Act made it more consistent with the International Labor Standards. The new labor law has 87 sections of amendments to strengthen workers' rights including better protections related to freedom of association (i.e. to form trade unions) and improving occupational health and safety conditions. The Bangladesh Labor Act and the Labor Rules of 2015

(made under the Act) are consistent with ILO's core conventions ratified by Bangladesh except ILO 138 (Minimum Age Convention). However, consistently with ILO 138, the Bangladesh Labor Act provides that the minimum age to work is 14 (although a special clause states that children between the ages of 12 and 14 may be employed to do "light work" that does not endanger their health, development, and education).<sup>7</sup>

40. The Act pertains to the occupational rights and safety of factory workers and the provision of a comfortable work environment and reasonable working conditions. In chapter VI of this law safety precaution regarding explosive or inflammable dust/gas, protection of eyes, protection against fire, works with cranes and other lifting machinery, lifting of excessive weights are described whereas in the Chapter VIII provision safety measures like appliances of first aid, maintenance of safety record book, rooms for children, housing facilities, medical care, group insurance, etc. are illustrated.

### **3.10. Bangladesh Factories Act, 1965**

41. The Act pertains to the occupational rights and safety of factory workers and the provision of a comfortable work environment and reasonable working conditions. This Act provides for inspection of factories and regulates matters related to hygiene, ventilation, overcrowding, night work, safety, dangerous machinery, leave, overtime, canteens and child care facilities. The Act prohibits employment of children under the age of 14 years in factories. Children over the age of 14 shall be registered and subject to provisions regarding hours of work. Factories Act 1965 (originally East Pakistan Factories Act 1965) was adopted by the then Government with the objective of regulating the appointment of workers, their wages and the working conditions in factories including health and hygiene, safety, welfare, working hours, leave and holidays and also punishments and penalties for both the owners and workers for non-compliance of the requirements. The Act has 11 chapters and 116 main sections. It incorporates the provisions for obtaining approval of factory plans, including the construction or extension, class or description of factories from the chief inspector. According to the Act, every factory is to be maintained clean and free from effluents arising from any drain, privy or other nuisance. Effective arrangements are to be made in every factory for the disposal of wastes and effluents, prevention of accumulation of

---

<sup>7</sup>One of the most effective methods of ensuring that children do not start working too young is to set the age at which children can legally be employed or otherwise work. The main principles of the ILO's Convention concerning the minimum age of admission to employment and work can be found here: <http://www.ilo.org/jpec/facts/ILOconventionsonchildlabour/lang--en/index.htm>

dust and fume, and proper ventilation and maintenance of room temperature. The Act requires that factory must ensure adequate fire safety measures, appropriate means of escaping in case of fire, and protection against dangerous and accident-prone parts of machinery, electric and mechanical devices, self-acting machines, etc. Workers are to be given proper training before they are employed on dangerous machines. Controlling appliances of cranes and other lifting machines, hoists and lifts must be of good construction, sound material, and adequate strength. Other sources of dangers, such as pits, sumps, openings in floors etc., should be securely covered or fenced and effective screens or suitable goggles should be provided to workers to protect their eyes. Every factory is to have adequate and suitable facilities for washing and bathing and provide first-aid medicines and appliances.

### **3.11. The Building Construction Act 1952**

42. The Act provides regulations regarding setbacks, building heights etc in urban areas. The act also provides restrictions on haphazard construction of buildings and excavation of tanks which are likely to interfere with the planning of certain areas in Bangladesh and enables government (section 16) to make any substantial rules for carrying out the purposes of this Act.

#### **A. Building Construction Rules, 2008:**

43. These rules superseded the previous Building Construction (BC) rules of 1984. These rules seek to control development plot-by-plot and case-by-case. It controls development by imposing conditions on setbacks, site coverage, construction of garages, access to the plot, provisions of lift, land use of that particular plot and height of the building. Restricting the height of a building in BC Rules 1996 helps to control the density of an area and manage the growth of the city in some way. The Dhaka Metropolitan Building Construction Rules 2008 superseded the earlier set of rules issued in 1996 for the Dhaka Metropolitan Area and provided more authority to RAJUK in the following way:

- a) Clear-cut responsibility to monitor the development of the city;
- b) Spread out the responsibilities to various actors;
- c) Spelled out responsibilities of building designers, structural engineers, site supervisors and their penalties etc.;

#### **B. Bangladesh National Building Code (BNBC) 2014:**

44. Bangladesh National Building Code widely known as BNBC Code is the ultimate code that is followed in Bangladesh to build safe houses and buildings. Earthquakes and wind effect of different building systems are incorporated in this code. Moreover, this code is almost similar to ACI code which is recognized as one of the most practiced building code of the world. However, there are some differences in that as it incorporates modifications by keeping in view the biological, environmental and geological factors in Bangladesh. Moreover, socio-economic factors have also been taken into consideration while preparing this code.

### **3.12. The Acquisition and Requisition of Immovable Property Ordinance, 1982**

45. In 1982, the Acquisition and Requisition of Immovable Property Ordinance came in force. This law is the major basis for all the present actions regarding acquisition, resettlement and rehabilitation issues. The relevant and salient features of the law include the matters to be considered in determining compensation: a) the market value of the property; b) damage to standing crops or trees due to the acquisition; c) damage due to severance of acquired property from other property at the time of the actual taking of permission by concerned authorities; d) damage to other properties or earnings; e) expenses for relocation of residence; and f) damage due to lowering of profit of the property to be acquired between the serving of acquisition notice and the actual acquisition.

46. The present laws, acts, regulations and rules are not very explicit regarding resettlement and rehabilitation of project-affected persons (PAPs). Here entitlement means the rights of the persons adversely affected by the project to receive certain benefits from the project authorities to compensate for their losses which may include land and other immovable property, income, standing crops, occupation etc. The compensation is often in terms of cash grants but also includes training and credit facilities and other necessary facilities for resettlement and rehabilitation.

### **3.13. Social Regulatory Framework in Bangladesh**

47. Social regulatory frameworks in Bangladesh related to social safeguards are lined with several legislative enactments established in last several decades and some enactments are already amended according to the national interests.

48. Land Acquisition: Whenever it appears to the Government that any property in any locality is needed or is likely to be needed for any public purpose or in the public interest,

the property is acquired using eminent domain. Land acquisition by eminent domain for infrastructure projects is governed by the Government of Bangladesh's Acquisition and Requisition of Immovable Property Act (ARIPA) 2017. The Act supersedes earlier laws including the Land Acquisition Law of 1894 and the Acquisition and Requisition of Immovable Property Ordinance 1982. In addition to the Act, acquisition of any land or forest area in Chittagong Hill-Tracts (CHT) districts requires consent under the Chittagong Hill-Tracts (Land Acquisition) Regulation (1958), the CHT Regional Council Act 1998 and the Forest Act (1927). Forest reserves, natural water-bodies, archeological sites and historical places are not acquired for development projects. Under the Ordinance, the Deputy Commissioner (DC) is entrusted to acquire land for any public infrastructure project. The requiring body, after getting the approval of the administrative ministry, requests DC to undertake the acquisition of the required land as per its proposal.

49. The fundamental rights under the Constitution indicate the general guidelines for a policy on resettlement/rehabilitation of citizens adversely affected (whatever be the mechanism) due to any activity of the State. Article 40 of the constitution states categorically that every citizen has the right to practice any lawful occupation which implies anything that impedes the right (a) should not be done or (b) there should be supplementary measures to make good the losses incurred by the citizen. Resettlement and rehabilitation of adversely affected people due to infrastructure projects very clearly falls within this requirement for supplementary measures. However, as per Article 42, sub-clause 2, no law with the provision of compensation for acquisition of land can be challenged in a court on the ground that such compensation has been inadequate.
50. The Acquisition and Requisition of Immovable Property Ordinance II (1982) is the basic instrument governing land acquisition in Bangladesh. It is restricted to "legal" owners of the property as supported by records of ownership such as deeds, title or agreements to compensate for land as well as any business, structure, trees and crops on the land. The Ministry of Land (MoL) is authorized to deal with land acquisition. The MoL delegates some of its authority to the Commissioner at Divisional level and to the Deputy Commissioner at the District level. The Deputy Commissioners (DCs) are empowered by the MOL to process land acquisition under the Ordinance and pay compensation to the legal owners of the acquired property.
51. The East Bengal State Acquisition and Tenancy Act, 1950, revised in 1994, (Sections 86 & 87) also define the ownership and use right of alluvion (payosti or reformation in situ

or original site) and diluvion land (nadisikosti) in the country. In legal terms, eroded lands (sikosti) inside the alluvion-diluvion (AD) line (i.e. including submerged land or underwater land) are considered khas land once declared by demarcating the AD Line. However, the "original" owner(s) can claim the land if it reappears through the natural process within 30 years.

52. The Government has recently prepared a draft national policy on involuntary resettlement and rehabilitation in 2008 which is consistent with the general policy of the Government that the rights of those displaced by development projects, river erosion and bastee eviction, shall be fully respected and that those displaced shall be treated with dignity and assisted in such a manner that safeguards their welfare and livelihoods irrespective of title, gender, and ethnicity.
53. Laws and Policies on Small Ethnic Community: In the context of the People's Republic of Bangladesh, the Constitution of Bangladesh does not mention the existence of the cultural and ethnic minorities in Bangladesh. The only protective provision for the Small Ethnic Community that the policy makers often refer to in the context is Article 28 (4) which states that nothing shall prevent the state from making special provision in favor of women and children or for the advancement of any backward section of the citizens. The above provision is an ambiguous one and it does not define who or what constitutes 'backward'.
54. However, the Government recognizes the existence of 'tribal communities' and the need for special attention and in general, tribal people are essentially viewed as backward, poor and socio-economically & culturally inferior. Towards this end, a special program was initiated in 1996-97 by the Prime Minister's Secretariat aiming at improving the socio-economic situation of the indigenous people of Bangladesh, residents outside the Chittagong Hill Tracts.
55. The Chittagong Hill Tracts Regulation, 1900 (Regulation I of 1900) is the regulatory Framework for State sovereignty over the traditional rights of the adibasis living in the CHT region. They are governed through Revenue Circle Chiefs who are local revenue collectors vide an amalnama (authorization by the Government). The Deputy Commissioner and the Commissioner from the central government reserve the authority to settle land to the hill-men or non-hill residents or lease out land (non-transferable) for rubber plantation or establishing industries in the CHTs.

56. The Forest Act, 1927 (Act XVI of 1927) revised as of 2000 deals with reserved forest, village forest, protected forest, control over forests on lands not being the property of government.
57. On 24 May, 1998, The National Parliament of Bangladesh passed the Peace Accord 1997 as the Chittagong Hill Tracts Regional Council Act, 1998 (Act 12 of 1998). In addition to re-establishing peace, the Accord recognized the ethnic people's right to land, culture, language, and religion. The Accord set out detailed provisions for strengthening the system of self-governance in the CHT and redressing the most urgent land-related problems. A ministry on CHT Affairs was established by appointing a Minister from among the adibasis of hill districts. An Advisory Council from the CHT region assists this ministry. However, there is a demand for extending the scope of the CHT Affairs Ministry to include the adibasis in other areas of the country.
58. Small Ethnic Community rights in Poverty Reduction Strategic Paper (PRSP), 2005 includes strategic suggestions to preserve the cultural, social and economic identity and interests of the ethnic populations in and outside CHT.

### **3.14. The World Bank's Safeguards Policies**

#### **A. OP 4.01 Environmental Assessment (World Bank)**

##### *Objective*

59. World Bank's Safeguard Policies, OP/BP 4.01 Environmental Assessment (EA) is considered as the umbrella Safeguard Policy. The objective of OP/BP 4.01 Environmental Assessment policy is to ensure that World Bank-financed projects are environmentally and socially sound and sustainable as well as the decision-making is improved.

##### *Definition*

60. EA is a tool to evaluate a project's potential environmental risks and impacts in its area of influence, examine project alternatives, identify ways of improving project selection, siting planning, design, and implementation by preventing, minimizing, mitigating or compensating for adverse environmental impacts and enhancing positive impacts and includes the process for mitigating and managing adverse environmental impacts throughout project implementation.

## ***Scope***

61. The scope of EA covers the natural environment (air, water [surface & ground water] and land), human health and safety, social aspects (involuntary resettlement, indigenous peoples, and physical cultural resource) as well as trans-boundary and global environmental aspects. EA also includes the findings of country environmental studies, national environmental action plans, the country's overall policies framework, national legislation and institutional capabilities related to the environment and social aspects and finally, obligations of the country, pertaining to project activities, under relevant international environmental treaties and agreements.

## ***EA Instruments***

62. Depending on the project, different instruments can be used to fulfill the World Bank's EA requirement including: EIA, regional or sectoral EA, strategic environmental and social assessment (SESA), environmental audit, risk assessment, environmental management plan (EMP) and environmental and social management framework (ESMF).

## ***Environmental Screening***

63. Environmental screening is used by the World Bank to determine the extent and type of EA. Depending on the type, location, sensitivity and scale of the project and the nature and magnitude of its potential environmental impacts, the Bank's project screening criteria classifies projects into four categories:

- I. *Category A: Full Environmental Assessment* – A proposed project is classified as category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented.
- II. *Category B: Partial Environmental Assessment* – if proposed project has potential adverse environmental impacts on human populations or environmentally important areas including wetlands, forests, grasslands, and other habitats-that 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 can be designed more readily than for Category A projects.
- III. *Category C: Minimal or no adverse impacts* - A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project.

- IV. *Category F1*: A proposed project is classified as category F1 if it involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental aspects.
64. Following application of OP/BP 4.01, as indicated above, any potential impact on the Bank's other safeguard policies, would be carefully reviewed. Where a sub-project is likely to have impacts, the relevant policy provisions applies.
65. OP/BP 4.01, among its other provisions, stipulates the requirements for Bank-supported projects involving Financial Intermediaries (FIs) as follows:
- (a) Develop and operate an Environmental & Social Management System(ESMS) that is commensurate with the level of social and environmental risks in its portfolio and prospective business activities; and
  - (b) Ensure that all subprojects supported by the Bank comply with applicable national and local laws and regulations.
66. OP 4.01 sets the circumstances under which the WB policies or principles may be applied and defines the roles and responsibilities of the private entity implementing the project and of the Bank in supporting environmental and social sustainability aspects of the project, which are given below:
- I. To identify and evaluate environmental and social risks and impacts of the project;
  - II. To adopt a mitigation hierarchy to anticipate and avoid or minimize (where avoidance is not possible) and where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities and the environment;
  - III. To promote improved environmental and social activities of project sponsors through the effective use of management systems;
  - IV. To ensure that grievances from affected communities and external communications from other stakeholders are responded to and managed appropriately;
  - V. To promote and provide means for adequate engagement with affected communities throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.
  - VI. To promote the fair treatment, non-discrimination and equal opportunity of workers.

- VII. To establish, maintain and improve the worker-management relationship.
- VIII. To promote compliance with national employment and labor laws.
- IX. To protect workers including vulnerable categories of workers such as children, migrant workers, workers engaged by third parties and workers in the project sponsor's supply chain;
- X. To promote safe and healthy working conditions and the health of workers and avoid the use of forced labor;
- XI. To avoid or minimize adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities;
- XII. To promote more sustainable use of resources including energy and water and reduce project-related GHG emissions;
- XIII. To anticipate and avoid adverse impacts on the health and safety of the affected community during the project life from both routine and non-routine circumstances;
- XIV. To ensure that the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimizes risks to the affected communities;
- XV. To avoid and when avoidance is not possible, minimize displacement by exploring alternative project designs;
- XVI. To avoid forced eviction;
- XVII. To anticipate and avoid /or minimize (where avoidance is not possible) adverse social and economic impacts from land acquisition or restrictions on land use by (i) providing compensation for loss of assets at replacement cost<sup>8</sup> and (ii) ensuring that resettlement activities are implemented with appropriate disclosure of information, consultation and the informed participation of those affected;
- XVIII. To improve or restore the livelihoods and standards of living of displaced persons;
- XIX. To improve living conditions among physically displaced persons through the provision of adequate housing with security of tenure<sup>9</sup> at resettlement sites;
- XX. To protect and conserve biodiversity and maintain the benefits from ecosystem services;

---

<sup>8</sup>Replacement cost is defined as the market value of the assets plus transaction costs. In applying this method of valuation, depreciation of structures and assets should not be taken into account. Market value is defined as the value required to allow Affected Communities and persons to replace lost assets with assets of similar value. The valuation method for determining replacement cost should be documented and included in applicable Resettlement and/or Livelihood Restoration plans.

<sup>9</sup>Security of tenure means that resettled individuals or communities are resettled to a site that they can legally occupy and where they are protected from the risk of eviction.

- XXI. To promote the sustainable management of living natural resources through the adoption of practices those integrate conservation needs and development priorities;
- XXII. To ensure that the development process fosters full respect for the human rights, dignity, aspirations, culture and natural resource-based livelihoods of Indigenous Peoples;
- XXIII. To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples and/or to minimize (when avoidance is not possible) and/or compensate for such impacts;
- XXIV. To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner;
- XXV. To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) with the Indigenous Peoples affected by a project throughout the project's life-cycle;
- XXVI. To ensure the Free, Prior and Informed Consent (FPIC) of the Affected Communities of Indigenous Peoples when the circumstances described in this policies are present;
- XXVII. To respect and preserve the culture, knowledge, and practices of Indigenous Peoples;
- XXVIII. To protect cultural heritage from the adverse impacts of project activities and support its preservation;
- XXIX. To promote the equitable sharing of benefits from the use of cultural heritage.

67. The applicability of these policies are established during the environmental and social risk and impact identification process. If any environmental or social risks and impacts are identified, the project sponsor is required to manage them through its conformance with ESMS.

***B. OP 4.04 Natural Habitats***

68. The Policy describes the conservation of natural habitats like other measures that protect and enhance the environment to be essential for long term sustainable development. Therefore, the Bank supports the protection, maintenance and rehabilitation of natural habitats and their functions in its economic and sector work, project financing and policy

dialogue. The Bank also supports and expects borrowers to apply a precautionary approach to natural resource management to ensure opportunities for environmentally sustainable development. The Bank promotes and supports natural habitat conservation and improved land use by financing projects designed to integrate into national and regional development the conservation of natural habitats and the maintenance of ecological functions. Furthermore, the Bank promotes the rehabilitation of degraded natural habitats. The Bank does not support projects that involve the significant conversion or degradation of critical natural habitats.

69. When the activities under the proposed project could potentially alter the natural habitat, this policy is triggered. Habitat restoration and enhancement measures have been included in the project design to mitigate and/or compensate any adverse impacts on the natural habitat.

### ***C. OP 4.10 Indigenous People***

70. For purposes of this Policy, the term ‘Indigenous Peoples’ is used in a generic sense to refer to a distinct, vulnerable, 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 dominant society and culture; and
- An indigenous language, often different from the official language of the country or region.

71. The OP defines the process to be followed if the project affects the indigenous people. The social impact assessment of the project indicates that there are no indigenous communities residing in the project influence area and therefore, no impacts on them are expected under the project. This has been confirmed in the priority reach where investments will be carried out under the proposed project. Therefore this OP is not triggered for the priority reach.

#### ***D. OP 4.12 Involuntary Resettlement***

72. The WB's experience indicates that involuntary resettlement under development projects, if unmitigated, often gives rise to severe economic, social, and environmental risks: production systems are dismantled; people face impoverishment when their productive assets or income sources are lost; people are relocated to environments where their productive skills may be less applicable and the competition for resources greater; community institutions and social networks are weakened; kin groups are dispersed; and cultural identity, traditional authority, and the potential for mutual help are diminished or lost. This policy includes safeguards to address and mitigate this impoverishment risks.

73. The overall objectives of the Policy are given below:

- Involuntary resettlement should be avoided where feasible, or minimized, exploring all viable alternative project designs.
- Where it is not feasible to avoid resettlement, resettlement activities should be conceived and executed as sustainable development programs, providing sufficient investment resources to enable the persons displaced by the project to share in project benefits.
- Displaced persons should be meaningfully consulted and should have opportunities to participate in planning and implementing resettlement programs.
- Displaced persons should be supported in their efforts to improve their livelihoods and standards of living or at least to restore them, in real terms, to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher.

74. No land acquisition is required for this project and this OP is not triggered for the project.

#### **3.15. The World Bank's (WB's) Environmental Health and Safety (EHS) Guidelines**

75. The Environmental Health and Safety Guidelines (also known as "EHS Guidelines")<sup>10</sup> are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). These GIIP are considered to be achievable in new facilities at reasonable costs by existing technology. For existing facilities,

---

<sup>10</sup>[http://www.ifc.org/wps/wcm/connect/topics\\_ext\\_content/ifc\\_external\\_corporate\\_site/ifc+sustainability/our+approach/risk+management/ehsguidelines](http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/ifc+sustainability/our+approach/risk+management/ehsguidelines). In 2013, IFC launched a consultative process to revise the EHS Guidelines. This process is still ongoing as of the date of this document.

achieving these may involve establishment of site-specific targets with an appropriate timetable to achieve these.

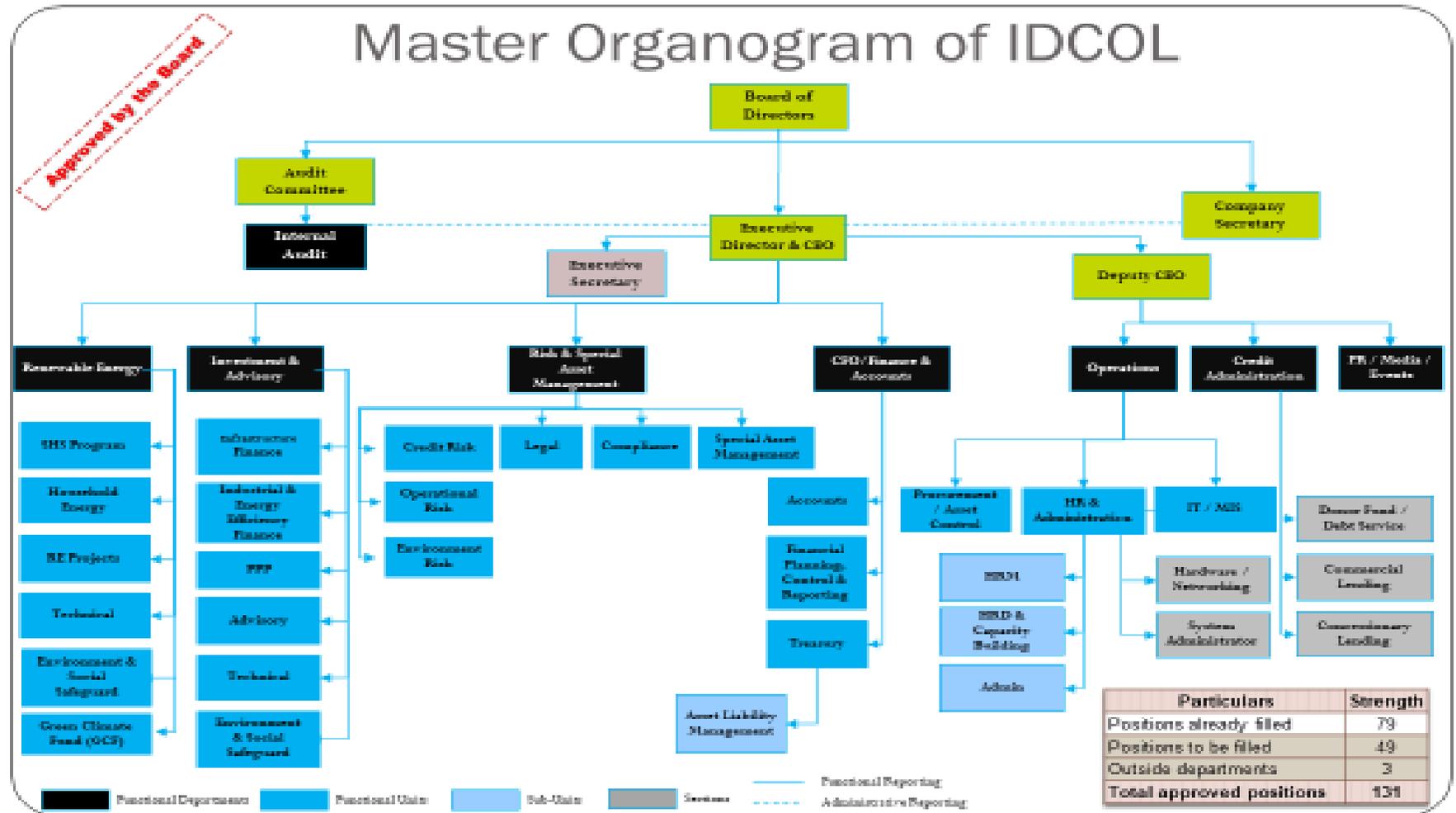
76. When host country regulations differ from the levels and measures presented in the EHS Guidelines, projects will be required to achieve whatever is more stringent. If less stringent levels or measures than those provided in the EHS Guidelines are appropriate in view of specific project circumstances, a full and detailed justification must be provided for any proposed alternatives through the environmental and social risk and impact identification and assessment process.
77. The EHS Guidelines consist of guidelines for various industrial sectors as well as General Environmental, Health & Safety Guidelines which cover a wide range of issues and is applicable to all industrial and also the sector-specific guidelines. The General EHS Guidelines contain information on cross-cutting environmental, health and safety issues potentially applicable to all industry sectors. They are designed to be used together with the relevant industry sector guideline(s).
- a) Environmental (air emissions and ambient air quality, energy conservation, wastewater and ambient water quality, water conservation, hazardous materials management, waste management, noise and contaminated land);
  - b) Occupational Health and Safety (general facility design & operation, communications & training, physical hazards, chemical hazards, biological hazards, radiological hazards, personal protective equipment, special hazard environments and monitoring etc.);
  - c) Community Health and Safety (water quality and availability, structural safety of project's infrastructure, life and fire safety, traffic safety, transport of hazardous materials, disease prevention, emergency preparedness & response etc); and
  - d) Construction and Decommissioning (environment, occupational health & safety, community health & safety).
78. It should be noted that these Industry Sectors' EHS Guidelines and the General EHS Guideline are intended to identify recognized good practice, particularly in the absence of comparable national or local legislation. Moreover, they are designed to cover a wide range of topics, especially in the case of the General EHS Guideline, some or many of which specific topics may not be relevant or applicable to the project enterprise seeking a loan. The EHS Guidelines will be used by the financial institutions as useful tools in the screening and reviewing process to determine whether environmental and social risks associated with the project enterprise have been appropriately identified and managed.

79. The GoB and the World Bank have their own policies and guidelines which are triggered by the environmental and social issues of projects. The ESMS by IDCOL is assessed with these policies being considered as a benchmark.
80. Environmental and Social Exclusion List defines activities that cannot be financed under REFF. IDCOL will commit to applying the World Bank Group Exclusion List, to the extent it may be applicable to the subprojects. These exclusions are provided in **Annex 9**.

## CHAPTER 04: ORGANIZATIONAL CAPACITY & COMPETENCY

81. IDCOL has carried out several programs and projects which complied with the laws and regulations of the country as well as with requirements of several development partners such as the World Bank, ADB, KfW, JAICA. Those experience helped IDCOL to generate adequate expertise to meet different safeguard requirements. IDCOL management is committed towards environmental and social safeguards. IDCOL has a well-defined organizational structure and system in place that ensures that the relevant environmental and social safeguard guidelines are duly complied with. IDCOL has an independent Environment and Social Safeguards Management Unit (ESSMU) to institutionalize the environmental and social management is in its operation.
82. This Chapter discusses the organizational capacity committed to ensure proper implementation of ESMS through ESMMU.
83. The unit works on three core principles, which are: (1) developing general awareness among the stakeholders about the ESMS, its goals and actions needed to implement the ESMS; (2) communicating importance of the ESMS at all levels of the company; and (3) establishing effective monitoring and review of the ESMS so that it remains up-to-date.

Figure 2: The organizational structure of IDCOL



*AM*

*G*

84. Major responsibilities of IDCOL’s ESMS team are described in the table 7 below:

**Table 7: Responsibilities of ESMS at different levels of IDCOL**

Position/Designation	Responsibilities
Core Team Leader (ED & CEO)	<ul style="list-style-type: none"> <li>a) Assigning a specific ESMS management representative with sufficient authority, awareness, competence and resources to oversee the ESMS responsibilities;</li> <li>b) Providing necessary resources for implementation and control of ESMS; and</li> <li>c) Monitoring implementation of special ESMS tasks from time to time.</li> </ul>
Executive Management (Head of Department)	<ul style="list-style-type: none"> <li>a) Providing a structured approach for the environmental and social considerations;</li> <li>b) Supporting and promoting improvement of ESMS; and</li> <li>c) Participating in ESMS review meetings.</li> </ul>
ESMS management representative (Specialist)	<ul style="list-style-type: none"> <li>a) Leading and implementing ESMS;</li> <li>b) Defining, documenting and communicating ESMS roles and responsibilities with the respective clients;</li> <li>c) Keeping management informed about the activities of ESMS implementation; and</li> <li>d) Ensuring actions of feedbacks.</li> </ul>

85. Monitoring the EHS compliance of solar rooftop and grid tied solar power projects:

IDCOL will quarterly monitor the implementation of Environmental & Social Management Plan (ESMP) and relevant environmental, health and social compliances of at least 2 (two) construction/operational solar rooftop and grid tied (including the transmission line) power projects.

86. In case of new project, IDCOL will visit the project site and assess the suitability of site considering basic environmental and social aspects during the project appraisal stage.

87. Monitoring of land purchase: IDCOL will regularly monitor the land purchasing processes and application of screening mechanisms to rule out any displacement. In this regard, the respective officials of IDCOL will visit the project site and conduct focus group discussions with both male and female groups, if needed. In addition, the officials will consult with the representatives of civil society, relevant

local government authority to ensure that there is no dispute on land procurement process, gender impact and displacement of tribal/ethnic communities.

88. IDCOL's ESSMU-RE team may require further capacity development training or workshop to have better understanding of the World Bank ESMS compliance requirements.

## CHAPTER 05: SPECIFIC PROJECTS & IMPLEMENTATION PROCEDURES

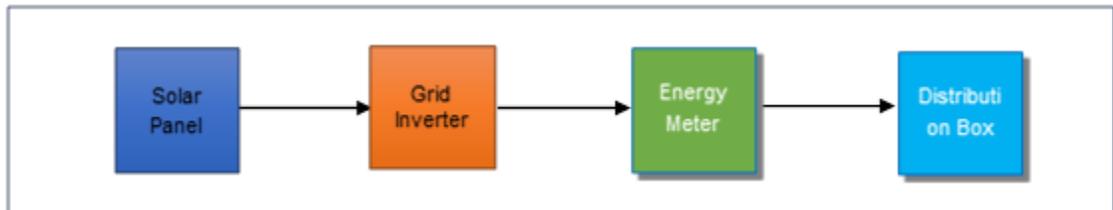
---

89. The solar rooftop and grid based solar power projects are discussed in detail in this chapter. The projects along with their ESMS implementation procedures are discussed in this chapter.

### 5.1. Solar Rooftop

90. Roof-top solar system is designed for captive consumption of industries to substitute electricity supplied by (bought from) the grid, in combination with (i) grid electricity supply as needed, i.e. during normal operation when solar PV generation serves a part of the electricity demand on site; (ii) combination of diesel/gas generator power with solar PV generation during the period when the grid electricity supply is not available; and (iii) export of surpluses into the grid, if this option is feasible (once the net metering policy is effective). The integration of the solar PV System with the grid and existing power backup set during grid outage shall be explored with due regard to the relevant grid code in Bangladesh.

91. The basic process flow diagram of the proposed solar mini-grid project is shown below:



92. Major equipment used in these projects are solar panels and inverters (No Battery will be used as part of the system). Solar panels will use sunlight to generate DC electricity. DC electricity produced from the solar panel will be converted to 440V 3-phase AC using the inverters. Then, the energy will be fed into the existing distribution box of the industry to reduce its energy consumption from the national grid and diesel generator.

### **5.1.1. Impact Identification Process and Methodology**

93. The manufacturing of PV panel, more specifically, PV cell manufacturing process involves significant environmental and health safety impacts. Therefore, IDCOL will require ISO 14001:2004 and OHSAS 18001:2007 certifications for PV panel manufacturing plants. The detail of the PV panel supplier enlistment criteria has been provided in Annex 3 (A & B) and covers the requirements applicable to local and imported PV panel suppliers for the said enlistment.
94. The ESMS establishes a mechanism to determine, assess, mitigate and manage future potential environmental and social impacts from the activities of the proposed projects during implementation as well as operation. In this regard, IDCOL will follow the safeguards policies and disclosure policy as per the ESMS.
95. The solar roof-top project will not impact any building of heritage significance (for example, mosque, heritage sites or cultural sites) in Bangladesh or cause any loss to biodiversity or natural habitats. However, there may be situations where a neighboring property's tree (including protected species) may hinder the solar panel operation which needs to be cut down. Besides, these projects do not create any impact on the physical environment like air, water (surface & ground water) and noise.

### **5.1.2. Air Emissions**

96. The solar roof-top project is a cleaner energy generation option than the diesel powered generators used for electricity production as a backup or during the load-shedding time in the industries.
97. Although solar roof-top projects will be emission free, it must be noted that some greenhouse gas (GHG) emissions are embodied in renewable technologies caused by the fossil fuel sources used in the production and manufacturing of equipment, waste disposal and recycling. However, these life-cycle emissions are significantly lower than those coming from diesel generated electricity and the project will have little control over the process as already manufactured materials imported will be used in the project.

### **5.1.3. Noise Emissions**

98. Compared with wind and other forms of renewable energy, there will be no noise emissions from roof top solar PV. However, the construction stage may involve some noise and disturbances to surrounding project areas.

#### **5.1.4. Chemicals**

99. Apart from GHG emissions, mercury and cadmium emissions are associated with solar energy. These elements are used in making solar modules. However, there is no evidence that these elements get released from solar panels except during disposal at the end of their life or breakage.

#### **5.1.5. Heat or Light Reflection**

100. Neighboring properties may be affected due to sunlight reflection from the panels - if the panels are angled towards windows, doors or a balcony. If the reflection affects the neighbors for a prolonged period of the year, it may become a source of grievance.

#### **5.1.6. Impacts on Bio-diversity**

101. Roof top solar PV will generally not have any adverse impacts on terrestrial or marine bio-diversity. Furthermore, the proposed projects will be implemented in the industrial roof where there are very few, if any, recorded fauna. However, if the adjoining properties have trees that obstruct the use of solar panels on the target building, it may need to be cut down. There are also possible impacts on bio-diversity from improper disposal of PV materials unless appropriate national guidelines and processes are put in place for the safe disposal of PV material at the time of decommissioning.

#### **5.1.7. Cultural Heritage**

102. It will be important to ensure that the proposed projects do not have an effect on a place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical or social significance or other special value for present and future generations.

#### **5.1.8. Employment**

103. The roof top solar PV project is a source of temporary and permanent employment. Roof top solar PV will generate both technical and unskilled jobs.

Solar PV will generate jobs in design, installation, operations and maintenance, project development and marketing.

#### **5.1.9. Social Resettlement/Tribal People**

104. Under these projects, solar PV panels will be installed on the roof of the different industries. Therefore, there will be no land acquisition resulting in involuntary resettlement. As such, there will be no problems faced by the tribal people, if any, and thus, will not create any social conflicts.

#### **5.1.10. Environmental Health and Safety Compliances**

105. The availability and use of personal protective equipment would need to be closely monitored continuously during both the constructional and operational phases. In order to ensure that personal protective equipment is always readily available, all defective equipment will be promptly replaced. During the operational phase, risks such as fires are possible. Therefore, presence of safety equipment and training to the building users on fire safety plan is to be ensured.

106. Solar PV panels are one of the main hazardous components under these projects but the panels have twenty years life time, which need to be disposed properly after this specified timeline is over. According to the ‘Study on the Impact of Photovoltaic Panels (PV panel)’ by European Commission in 2011, PV Panels associated with Lead and Cadmium leaching have potential risk to contaminate soil and water. Moreover, there are also hazards associated with glass and aluminum. So, there is a dire need of a PV Panel Disposal Policy. This is because due to natural calamities like storm or cyclones; significant numbers of the panels are assumed to be affected and need immediate disposal in an environmentally friendly manner. Moreover, there is informal concern that quality of some of the PV panels may not be good enough to survive up to the anticipated warranty period. As a result, an Action Plan needs to be formulated to determine a course of action to ensure proper disposal of PV Panel.

#### **5.1.11. Environmental & Social Screening and Measures**

107. An initial environmental and social screening will be carried out in accordance with the provisions of the funding partners’ safeguard policy and EHS Guidelines by using the Environmental and Social checklist enclosed in Annex 4.

108. Most of the projects will be implemented on different types of industrial roof-tops. Based on scale and intensity of the potential environmental impacts, the roof-top solar system is expected to be an 'Orange- A' type intervention according to ECR 1997 of DoE which is equivalent to WB's category B. Therefore, the project components require the Environmental Social Assessment (ESA). Terms of references (ToRs) will be prepared for the ESA reports based on the respective projects/ industries category (DOE category; based on ECR 1997). A specific ToR (Annex 7) has been prepared based on the screening outputs highlighting environmental and social components that require an environmental assessment report.

109. The ESA report is expected to meet the requirement of WB's OP 4.01 and the project proponents will duly inform the DoE the nature of business associated with the concerned roof-top facility to DoE.

## **5.2. Grid Tied Solar Park**

### **5.2.1. Description of the Project**

110. As the ever-increasing demand for energy continues to squeeze fossil fuel reserves, Bangladesh is looking at fossil fuel-rich countries around the world. Consequently, Bangladesh has emerged as a major importer of energy and this has seriously sensitized the GoB to look for meeting the energy requirements by lowering the demand-supply gap and strategically developing energy security of the country, concerned over the erosion of fossil fuel reserves.

111. The GoB has set a target to ensure 10% of its electricity generation from renewable sources by 2021. The Government is now focused on the development of utility scale solar power generation and has targeted to award grid-tied solar power projects to the private sector with capacities of 2000 MW by 31 December 2018 under Speedy Supply of Power and Energy (Special Provision) Act 2010.

112. Therefore, grid-tied solar power projects having a capacity of 5 to 200 MW or above have been planned in Bangladesh. The Independent Power Producers (IPPs) will be eligible to enjoy incentives under Private Sector Power Generation Policy 1996. IDCOL targets to finance solar grid-tied projects with combined

capacities of 300 MW by 2021. Large chunks of land are required for solar park development. There are some developers/sponsors who are keen to individually take up very large projects in different places in Bangladesh where barren lands are available.

113. The Government is now following three models for investment in grid-tied solar power projects: Government's investment on government owned land; independent power producer (IPP) investment on government land; and private investment on private land. The Government recognizes that land has high value for agricultural use. Therefore, for all aforesaid cases, the Government has stipulated that grid-tied solar projects should only be developed on government-owned non-agricultural land or privately-owned uncultivable land. Before providing approval to projects to be implemented on private land, the project land is ascertained to be uncultivable land by the representative of the Government.

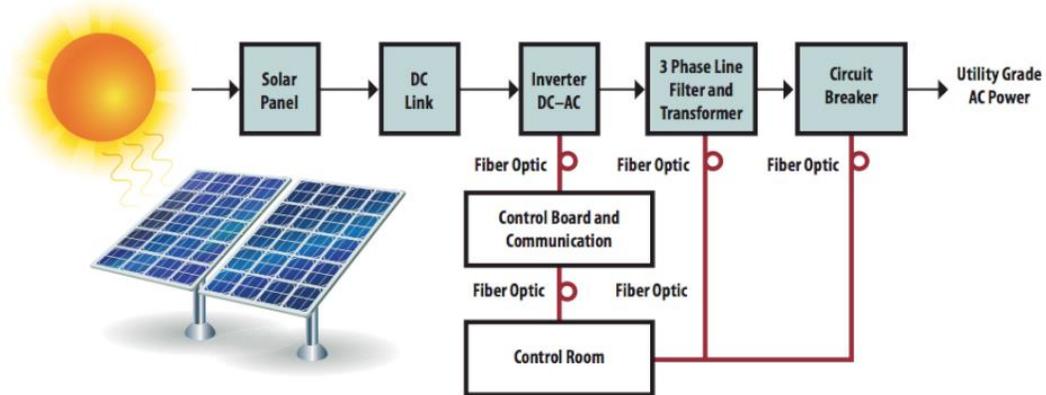
114. The grid-tied solar power project will provide a huge impetus to solar energy generation by acting as a flagship demonstration facility to encourage project developers/sponsors, prompting additional projects of similar nature, triggering economies of scale for cost reductions, technical improvements and achieving large scale reductions in GHG emissions.

#### **5.2.2. Technical Details**

115. Using solar PV modules, solar power generates in DC form which is converted into AC power and then using a power transformer, the generated and modified AC power will be fed to the grid.

116. No battery storage will be used under the project and the generated power will be sold to the grid through a transmission line.

Figure 3: Block diagram of a utility scale solar power plant

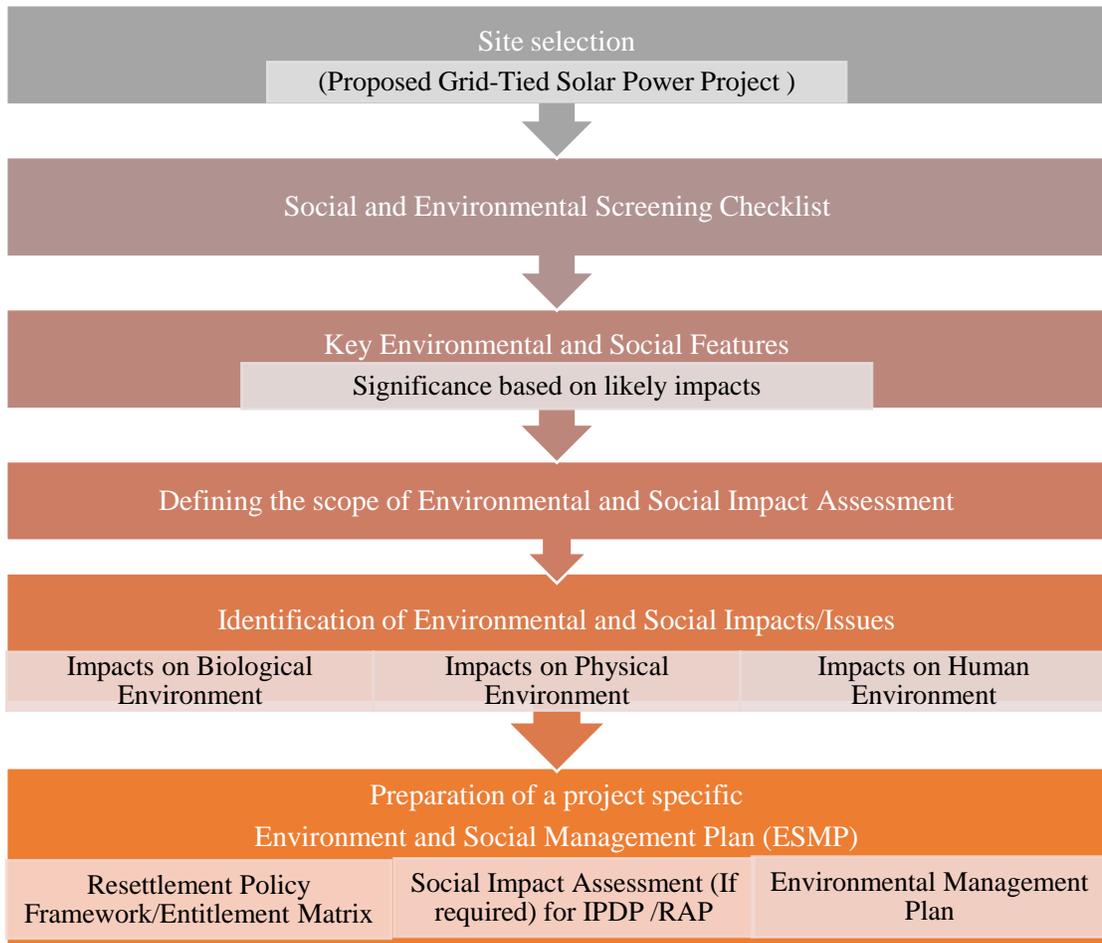


### 5.2.3. Impact Identification Process and Methodology

117. Grid-tied solar power projects shall be appraised based on a step-by-step process beginning with a primary environmental and social screening which will assess the impacts requiring appropriate mitigation measures (Annex 5). On the other hand, it will help to identify the significant environmental and social consequences and the environmental review process.

118. The project will use a structured approach to environmental and social management to allow the project development process, follow the hierarchy of avoidance, minimization, compensation/mitigation for negative impacts and enhancement of positive impacts that are practically feasible and advantageous. The overall process is illustrated in a flow chart below:

Figure 4: The ESMS Process



119. This grid-tied solar power project is a renewable energy-based electrification connected to the national grid in Bangladesh. Power generated from the grid-tied solar power project will be evacuated in the national grid through transmission line to the grid sub-station. An ESIA will be carried out after a project is identified and screened by IDCOL. The main purpose of this ESIA is to evaluate the impact of project location from the environmental and social point of view along with possible measures to be included in an ESMP to minimize the potential impacts resulting from project activities during the implementation and operation phase of the project. The ESIA is a part of the process of compliance with the guidelines and legal requirement of GoB and funding partner's guidelines in relation to grid-tied solar power project which illustrates environmental and social issues in connection with the planning, design and implementation of the project. The ESIA provides a road map to the environmental and social measures needed to prevent

and/or mitigate negative environmental and social effects associated with the project development. The ESIA also provides a detailed description of the direct and indirect environmental effects associated with the proposed project during different stages. In order to mitigate the potential impacts, appropriate measures have also been proposed in the ESMP (Annex 6). Extensive public consultations need to be undertaken as part of the ESIA development during the identification of the mitigation measures.

120. A sample Term of Reference (ToR) has been prepared (Annex 8), to conduct the ESIA, which will be carried out after a project is identified and screened by IDCOL. The ToR consists of the following features:

- a) A review of the environmental and social legislative, regulatory and policy guidelines and considerations relating to the implementation of the project;
- b) A general description of the project and existing physical, biological and socio-economic conditions;
- c) Consultation with the locals/stakeholder involving concerned people in order to identify and act on any undocumented or perceived environmental issues;
- d) Identification and assessment of the potential impacts on the natural, human and social environment in the project area of the construction of the grid-tied solar power project;
- e) Identification of mitigation measures and monitoring actions in the form of an ESMP; and recommendations and conclusions in order to operate the project in an environmentally and socially safe and sound manner.

#### **5.2.4. Screening Process**

121. The project component and its different aspects in the surrounding areas related to environmental and social aspects will primarily be reviewed in the screening process. A checklist has been prepared and attached in Annex 5 which will help to identify the screening components that are needed to be investigated in detail during the preliminary stages of evaluation or to conclude the insignificant adverse impacts that are anticipated.

122. The checklist will help to identify issues which can be verified during the investigation and also provide a preliminary idea regarding the nature, extent and timing of environmental issues that would need to be handled during the subsequent stages. It will also help to identify opportunities for avoidance or minimization early in the project cycle so that the design process can be informed appropriately.

123. The checklist will help to identify the scope of the ESIA and timeframe required for obtaining the regulatory clearances (if any). The environmental and social safeguard screening will occur during the project preparation stage as soon as the project site is identified and selected.

### **5.2.5. Impact Identification**

#### **5.2.5.1 Environmental and Social Impacts**

124. Environmental and social impact analysis of a project (or project options) consists of comparing the expected changes in the bio-physical and socio-economic environment with and without the project. For each potential environmental or social impact, the analysis should predict the nature and significance of the expected impacts or explain why no significant impact is anticipated. For the development of ESMS, key environmental issues/impacts identified would be duly investigated in detail during the ESIA stage.

#### **5.2.5.2 Impacts on Biological Environment**

125. The countries of South and Southeast Asia are recognized by the International Union for Conservation of Nature (IUCN) to be regions of high species diversity. A large number of native plants including 3,000-4,000 species of woody flora have been recorded from Bangladesh. The flood plains of Bangladesh have long been subject to cultivation, the most dominant land use within the project area, with only scattered patches of native trees, wetlands and associated fauna habitat remaining in isolated locations within the terrestrial environment (IUCN, 2002).

126. The projects would be completely fenced with controlled access and so, minimizes the risks of wild animals getting wounded. The ESIA shall establish the

wildlife species paths/habitat, if any, applicable in and around the proposed site. The ESIA shall establish the status of wildlife in the vicinity (approximately 1 km buffer zone) of the proposed site and adequate mitigation measures to ensure no conflicts/poaching occurs during the various stages of project development.

### **5.2.5.3 Impacts on Physical Environment (Air, Water & Noise)**

127. Unlike the fossil fuels that still provide the bulk of the Bangladesh power supply, solar panels generate electricity with no air or carbon pollution, no ash or other waste products and no inputs other than sunlight. While the manufacturing of solar panels, like all other energy devices, involves emissions, PV electricity generation itself:

- (a) Generates no carbon dioxide or other heat-trapping gases that contribute to climate change;
- (b) Produces none of the other harmful emissions or wastes associated with coal power, such as mercury, sulfur dioxide, nitrogen oxides, lead, and arsenic;
- (c) Creates none of the long-lasting waste or environmental risks associated with nuclear power; and
- (d) Avoids the environmental risks associated with natural gas including potential water pollution during extraction.

128. Impact on Water: Excavation, run-off from stockpiled materials and chemical contamination from fuels and lubricants may result to silt-laden runoff during rainfall which may cause siltation and reduction in the quality of adjacent bodies of water. The impacts are negative but short term, site-specific within a relatively small area and reversible by mitigation measures.

129. Impact on Air: As with the development of any large-scale industrial facility, the construction of the project can pose hazards to air quality. Such threats include the release of soil-carried pathogens and results in an increase in air particulate matter which has the effect of contaminating water reservoirs.

130. Impact on Noise: During construction of the project, noise might be generated from construction work. Movement of construction materials, handling of equipment can cause significant noise which has an impact on the environment.

### 5.2.6. Environmental and Social Management Plan

131. An ESMP is the key document focused on implementation after the potential impacts have been identified. It ensures that the project impacts are reduced to an acceptable level during the implementation stage. Thus, ESMP becomes the document for ensuring that all the preceding analysis is used to preserve or improve overall environmental quality within the influence area of the proposed project.

132. The ESMP should be specific, clearly and concisely describing adverse impacts, selected management measures to bring it to an acceptable level and timelines for implementing these measures. The ESMP aims to ensure the compliance of all activities undertaken during the implementation and the operation of the proposed project with the environmental safeguard requirements of the WB and GoB. The structures of an ESMP are based on:

- I. Potential adverse impacts identified and mitigation measures to be adopted, together with conditions within which one or other measure would apply and their integration with phases – pre-construction, construction/ implementation and operation;
- II. Enhancement plans for positive impacts;
- III. Monitoring Plan with indicators, mechanisms, frequency, locations;
- IV. Budgetary allocations for all the above activities;
- V. Institutional arrangements for each activity and mitigation measures;
- VI. Implementation schedules for each activity and its integration with the sub-project implementation timelines; and
- VII. Reporting procedures, including for redressing grievances related to environmental and social issues.

133. The generic ESMP is only a guideline document and would require to addressing the mitigation measure which will be considered as successful when it complies with the Environmental Quality Standards (EQS), policies, legal requirements set by the WB and DoE environmental guidelines and other relevant GoB legal requirements. In absence of DoE's own EQS, other relevant international or other recognized organization's quality standards will be applied.

### 5.2.7. Resettlement Policy Framework

134. A guideline is prepared for addressing the issues limited to the project for resettlement and rehabilitation of the project affected person's (PAPs). The project specific policy shall be developed based on the Right to Fair Compensation and transparency in land Acquisition, Rehabilitation and Resettlement, subject to subsequent supplements by GoB and the GB's guideline or policy on involuntary resettlement

135. Principles of the policy aims to resettle and rehabilitate the affected persons on account of the project in a manner that they do not suffer from adverse impacts and shall improve or at the minimum retain their previous standard of living, earning capacity and production levels. The resettlement issues shall minimize dependency and be sustainable socially, economically and institutionally. Special attention will be paid to the improvement of living standards of marginalized and vulnerable groups. Those are;

- (a) All information related to resettlement preparation and implementation will be disclosed to all concerned, and community participation will be ensured in planning and implementation.
- (b) The principles of mutual consent and negotiated settlement will also be used for land acquisition as required.
- (c) The persons affected by the project who do not own land or other properties but who have an economic interest or lose their livelihoods will be assisted.
- (d) Before taking possession of the acquired land and properties, compensation and Resettlement and Rehabilitation (R&R) assistance will be made to those who are available and willing to receive the entitlements.
- (e) There would be no/minimum adverse social, economic and environmental effects of displacement on the host communities but if needed specific measures would be provided.
- (f) Broad entitlement framework of different categories of project-affected people has been assessed and is given in the entitlement matrix. Provision will be kept in the budget. However, anyone moving into the project area after the cut-off date will not be entitled to assistance.

- (g) Grievance redress mechanism has been established at the project level to ensure speedy resolution of disputes.
- (h) All activities related to resettlement planning, implementation, and monitoring would ensure involvement of women. Efforts will also be made to ensure that vulnerable groups are included.
- (i) All consultations with PAPs shall be documented. Consultations will continue during the implementation of resettlement and rehabilitation works.
- (j) A Resettlement Action Plan (RAP) will be prepared including a fully itemized budget and an implementation schedule.

136. The principles of the Resettlement and Rehabilitation (R&R) policy are as given below;

- (a) All negative impacts including displacement should be avoided or minimized wherever feasible by exploring all viable alternative project designs.
- (b) Where negative impacts are unavoidable, efforts should be made either to improve the standard of living of the affected persons or at least assist them in restoring their previous standard of living at no cost to them.
- (c) Ensure people's participation during the course of the project cycle.
- (d) Effort should be made towards the enhancement of the positive impact of the projects.

137. The grid-tied solar power project will have three main impacts that require mitigation measures. These are:

- (a) Loss of immovable assets, like; land, house and ponds etc.
- (b) Loss of livelihood or income opportunities, like; for agriculture labors, helping hands in commercial establishments etc.
- (c) Impact on the community in terms of loss of common property resources.

138. The first two categories represent direct impacts on an identified population. The people likely to be affected will be surveyed and registered, and project monitoring and evaluation will compare long term impacts against baseline socio-economic data.

139. The third category represents a group impact, where gains and losses of a group-oriented nature are not quantifiable in terms of impact on the individual. Mitigation and support mechanism will be collectively-oriented, and the monitoring will focus on the impact on such groups.
140. The provisions of Rights to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act of GoB has specific policies for mutual consent and negotiated settlement, the provisions of such policy could be used subject to their adherence to the provisions are within the broad framework of the Act and the policies of the WB, as follows:
- (a) Support will be extended under the broad principles of this policy to meet the replacement value of the assets and loss of livelihood.
  - (b) The policy further recognizes the extension of support to non-titleholders for the loss of livelihood and replacement value for assets other than land.
  - (c) The common property resources will be replaced as far as feasible and if not then assistance will be provided at replacement value to the group.
141. The grid-tied solar power projects would involve transportation of equipment during the installation phase and all efforts will be made during implementation to minimize any disturbance in the daily activities of the local people. Before taking possession of the acquired lands and properties, all compensation, resettlement, and rehabilitation would be made in accordance with the policy. In case of displacement, resettlement sites will be developed as part of the project. In such circumstances care should be taken so that there are no/or minimum adverse social, economic and environmental effects of displacement on the communities. Moreover, specific measures would be provided in the Resettlement and Rehabilitation Action Plan (RAP) to mitigate any such impacts so that the project will ensure that no civil works are initiated before compensation and assistance to affected population has been provided in accordance with this policy.

#### **5.2.8. Gender equality and Social Inclusion**

142. Mainstreaming gender equity and empowerment is already a focus area in the project. In the activities related to livelihood, restoration will address women's needs. A Gender Development Framework is being designed under the project as

part of ESMS which will help analyze gender issues during the preparation stage of sub project and design interventions. At the project component's level, gender analysis will be part of the social assessment and the analysis will be based on findings from gender specific queries during the primary data collection process and available secondary data in the ESIA preparation. The quantitative and qualitative analysis will bring out sex disaggregated data and issues related to gender disparity, needs, constraints, and priorities; as well as understanding whether there is a potential for gender based inequitable risks, benefits and opportunities. Based on the analysis, the specific interventions will be designed and if required gender action plan will be prepared. The overall monitoring framework of the project will include sex disaggregated indicator and gender relevant indicator.

143. The participation of beneficiaries and focus on poverty reduction are two other key determinants of the effectiveness and sustainability of any project. Furthermore, any project must address the constraints on women's participation in project design, construction, and monitoring and evaluation (M & E). Three major tools are used to identify and deal with gender issues in the project cycle: gender analysis, project design, and policy dialogue.

144. Gender analysis should be an integral part of the initial social assessment at the screening stage itself. The issues identified can be scaled up during the feasibility and detailed analysis can be carried out during the project preparation stage. The project designs should be gender responsive based on the gender analysis and should be included in the ESIA document. The findings and recommendations from the gender analysis during project planning and feedback from beneficiaries during implementation must be discussed thoroughly to determine the need for further action.

#### **5.2.9. Tribal People/Small Ethnic Community**

145. Private sector projects like grid-tied solar power can create opportunities for these groups to participate in and benefit from project-related activities that may help them fulfill their objective for economic and social development.

Furthermore, these groups may play a role in sustainable development by promoting and managing activities and enterprises as partners in development.

146. During E&S due diligence process, project proponent will be responsible for:

- (a) Verifying the conclusions of the ESIA on whether or not tribal people and/ or small ethnic communities are present in the proposed project area;
- (b) Promptly notifying IDCOL should these communities are present in the proposed project area;
- (c) IDCOL should determine that a project involving impacts on tribal people and/ or small ethnic communities can be financed (based on IDCOL's internal E&S risk management capacity), ascertaining that adequate risks and impacts management measures are included in project sponsors' Action Plans and incorporated in the legal documentation for project financing.
- (d) Verifying broad community support of these groups to the project that should be the outcome of Good Faith Negotiations and ICP as conducted by project sponsors and described on stakeholder engagement.
- (e) In specific circumstances requiring FPIC, verifying the due process and adequate outcome, as conducted/ achieved by the project sponsor and described on stakeholder engagement.
- (f) Monitoring implementation (with assistance / recommendation from IDCOL).

#### **5.2.10. Consultation and Public Disclosure**

147. Once the screening and documentation requirements are agreed by the project sponsor, the project proponent will develop detailed documents/ plans and impact mitigation measures as required by IDCOL's policy and procedures, and obtain the environmental clearances for each project before starting the construction. Sound environmental and social practices have to be incorporated into the project design and implementation and potential negative impacts will have to be mitigated to acceptable levels/standards of DoE.

#### **5.2.11. Consultation Process**

148. Consultation during Environmental Assessment: Public consultation is a mandatory requirement as per GoB environmental regulations and the WB;

***New Projects*** - For a new project, public consultation shall be conducted at the scoping stage of the environmental assessment process to identify environmental impacts of the project as well as before appraisal after preparation of the draft ESIA before receipt of Location Clearance Certificate from DOE.

***Refinance/Existing projects at an advanced stage-*** For grid-tied solar power projects that are sensitive, public consultations shall be carried out during the implementation of ESMP and the conclusions and recommendations should be incorporated into a revised ESMP.

***Consultation for Involuntary Resettlement:*** For grid-tied solar power projects, the project proponent will conduct meaningful consultation with affected persons, their host communities, and civil society for the project and subproject identified as having resettlement impacts. In the process of consultation, the project proponent or specific consultants who are conducting the consultation process should follow qualitative methods (FGDs, KIIs, and observation) while carrying out other methods. Notably, meaningful consultation is a process that ensures the following

- (a) Begins early in the project preparation stage and is carried out on an ongoing basis throughout the project cycle;
- (b) Provides timely disclosure of relevant and adequate information that is understandable and readily accessible to affected people;
- (c) Undertaken in an atmosphere free of intimidation or coercion;
- (d) Gender inclusive and responsive, and tailored to the needs of disadvantaged and vulnerable groups; and
- (e) Enables the incorporation of all relevant views of affected people and other stakeholders into decision makings, such as project design, mitigation measures, the sharing of development benefits and opportunities, and implementation issues.

149. The consultation will be carried out in a manner commensurate with the impacts on affected communities. The project proponent will pay particular attention to the need of disadvantaged or vulnerable groups, especially those below the poverty line, the landless, the elderly, female headed households, women and children and those without legal title to land.

150. Consultations with Tribal Peoples and/ or Small Ethnic Communities: The project proponent will prepare a Rehabilitation Action Plan (RAP) in the context of the ESIA and through meaningful consultation with the affected tribal communities. The RAP will set out the measures whereby the Project proponent will ensure;

- (a). that affected tribal communities receive culturally appropriate social and economic benefits; and
- (b). that when potential adverse impacts on tribal communities are identified, these will be avoided to the maximum extent possible. Where this avoidance is proven to be impossible, based on meaningful consultation with tribal communities, the RAP will outline measures to minimize, mitigate, and compensate for the adverse impacts.

151. In the process of consultation, the project proponent or specific consultants who are conducting the consultation process should follow qualitative methods (FGDs and observation) while carrying out other methods.

152. Public consultation may be combined if found relevant and more effective for environmental assessment as well as Tribal Communities, especially when there are inter linkages between E&S issues.

### **Information Disclosure**

153. For new projects, the IDCOL environmental unit will submit the ESIA and RAP (if required) to funded partners for disclosure on their website and the same will be disclosed on IDCOL's website.

- I. A draft ESIA including ESMP & RAP at least 120 days with additional time required for incorporating comments on the draft ESIA/ESMP prior to funded partners;

- II. Updated ESIA or IEE and Corrective Action Plan (CAP) prepared during project implementation, if any; and
- III. The environmental monitoring reports generated periodically (annually) during monitoring of project in implementation and operation phase of the project.

154. All relevant documents will be disclosed at a public place accessible to affected groups and other stakeholders prior to consultation to establish the basis for meaningful consultation and participation (ICP). Disclosure should be done in a culturally appropriate form and language. At a minimum, the ESIA document and RAP (if required) should be accessible in the Sponsor's and IDCOL's website. Disclosure and consultation mechanisms will be planned and detailed in the relevant documents.

#### **5.2.12. Grievance Redress Mechanism**

155. Grievance mechanisms will respond to the grid-tied solar power project needs better if they are established early as a measure to pre-empt rather than react to the escalation of tensions with surrounding communities. As with other pillars of stakeholder engagement, an adequate social and environmental impact assessment process for the project is essential to the success of a grievance mechanism, because it helps determine how project scale and impact, stakeholder composition, and other project factors will influence the design of the grievance mechanism and resources allocated for implementation.
156. The project proponent shall constitute a three-member Grievance Redress Committee (GRC) comprising of an officer representing the project proponent, not below the rank of the implementing officer, the elected member (local body) of the project area/location and one member of the public who is known to be a person of integrity, good judgment and commands respect among the community. The existence of the GRC will be disseminated to the affected persons through printed handouts providing details of the structure and process in redressing grievances.
157. The project proponent will document all complaints received, the action was taken on each of them and send a report of the same every quarter.

158. The GRC will address local public grievances regarding environmental impacts of the project during construction and operation. The project proponent will address issues through GRC to receive and facilitate the resolution of affected persons' concerns and grievances about physical and economic displacement and other project impacts, paying particular attention to the impacts on vulnerable groups. The GRC should be scaled to the risks and adverse impacts of the project.

### **5.2.13. Monitoring and Reporting**

159. The objectives for monitoring are: (i) to alert project authorities by providing timely information about the success or otherwise of the ESIA process as outlined in the ESMS in such a manner that changes to the system can be timely made, if required; (ii) to make a final evaluation in order to determine whether the mitigation measures designed into the sub-projects have been restored, improved upon or are worse than before.

160. Environmental monitoring needs to be carried out during the construction as well as operation and maintenance of the grid-tied solar power project in order to measure the success of the mitigation measures implemented earlier. A number of indicators would be used. Indicators may include: how many people are employed than before; have the biophysical environmental conditions of the area improved?

161. It may be useful to institute monitoring milestones and provide resources, as necessary, in order to carry out the monitoring activities. Also, the proposed indicators may be further elaborated and validated to accommodate any significant site-specific needs.

#### **Monitoring indicators**

162. The following are some of the relevant parameters and indicators that can be used to measure ESMS process, mitigation plans and performance:

- a) Have project resulted in better living standards for the community?
- b) How has the adoption of the ESMS requirements improved the environmental health and biophysical state of the proposed area?
- c) Has ESMS adoption resulted in sustainable use of energy and improved efficiency?

- d) Are periodic monitoring reports being completed and sent to DoE & Funded Partners?
- e) Are processes defined in the ESMS working well?
- f) How many complain/grievances have been received regarding the project?
- g) Based on the results of monitoring, what (if any) changes to the ESMS are needed? Should there be additional training/capacity building resources to increase performance?

## **CHAPTER 06: RISK AND IMPACT ASSESSMENT & STRATEGIES TO MITIGATE RISKS**

163. The ESMS defines environmental or social risks of proposed projects as potential negative impacts on communities and peoples' rights, livelihoods and well-being and/or on the physical, natural, socioeconomic or cultural environment.

### **6.1. Scope of the Risk**

164. Negative impacts may be caused directly by the activities of a proposed project or indirectly as knock-on effects or cumulative impacts that materialize through interaction with other developments. Further, the ESMS considers not only impacts occurring at the project site but also impacts exerted within the project's wider area of influence, including trans-boundary impacts and impacts that may be triggered after project implementation as a succession of effects.

### **6.2. Areas of Risk**

165. The identification of potential impacts is guided by the ESMS principles. However, the thematic coverage of the ESMS is wider than the issues covered in the principles and includes other negative environmental and social impact and risk issues. Examples of social risks are the potential of project benefits leading to discrimination or marginalization of certain groups; increase in vulnerability due to economic losses of people's or community assets such as crops, livestock or infrastructure (i.e. through damages from wildlife); disturbances to patterns of social relations and social cohesion; child or forced labor; community health and safety issues including risks of diseases, injuries or death (i.e. through human-wildlife conflicts) and/or adverse impacts on public infrastructure essential for basic needs. The screening for risks also considers environmental risks not covered in the Standard on Biodiversity Conservation and Sustainable Use of Natural Resources such as pollution, hazardous waste and greenhouse gas emissions.

166. For example, in case of solar rooftop and grid-tied solar power project, PV Panels are one of the main hazardous components which need to be disposed of properly after the expiration of their lifetimes. According to the 'Study on the Impact of Photovoltaic Panels (PV panel)' by European Commission in 2011, PV

panels associated with Lead and Cadmium leaching having potential risk to contaminate soil and water. Moreover, there are also hazards associated with glass and aluminum. So, there is a dire need for a PV Panel Disposal Policy. Because due to natural calamities like storm or cyclones; significant numbers of the panel are assumed to be affected and need immediate disposal in an environmentally friendly manner. Moreover, there is informal concern that quality of some of the PV panels may not be good enough to survive up to the anticipated warranty period. As a result, an Action Plan needs to be formulated to determine the actual course of actions in case of proper disposal of PV Panel.

### **6.3. Risk Management**

167. The ESMS risk management approach requires a pre-assessment of potential negative impacts (referred to as ESMS screening) at an early stage of project design. This is followed by a more in-depth Environmental and Social Impact Assessment (ESIA), if potential issues were identified. The pre-assessment assures that the scope and quality of the ESIA process is proportionate to the complexity of the project and the nature and scale of risks: the level of effort is highest for projects that are identified during screening as high-risk projects and lesser for projects classified as moderate-risk projects; for low-risk projects, development can precede without further assessments.

168. IDCOL has a long history of energy-based development financing. The company's high experience enables it to comply with its E&S commitments. Besides, the company follows avoid-minimize-compensate management strategy. Lack of adequate and efficient man power might cause some problem. However, proper trainings and consultancy can help solve the problem.

**Figure 5: Basic Risk Management Strategy of IDCOL**



## **CHAPTER 07: MONITORING, REPORTING AND SAFEGUARDS CAPACITY BUILDING FOR ESMS IMPLEMENTATION**

169. IDCOL has gained experience in implementing environmental and social management framework by complying with the safeguards requirement of the WB, ADB and the Department of Environment (DOE). IDCOL has established an independent Environment and Social Safeguards Management Unit (ESSMU) to institutionalize the environmental and social management in its operation. It has already deployed a full-time Environmental Specialist to look after the renewable energy department.
170. Monitoring the EHS compliance of solar rooftop and grid tied solar power project: IDCOL will quarterly monitor the implementation of EMP and relevant environmental, health and social compliances of at least 2 (two) construction/operational solar rooftop and grid tied (including the transmission line) power projects. But in case of new project, IDCOL will visit the project site and assess the suitability of site in respect of basic environmental and social aspects, which is to be duly submitted to the relevant stakeholders with the attachment of ESA or ESIA report as is to be prepared by the project sponsor.
171. Monitoring of land purchase: IDCOL will regularly monitor the land purchase processes and application of screening mechanism to rule out any displacement. In this regard, the respective official of IDCOL will visit the project site in case of solar rooftop and grid tied solar power project and will have focus group discussion with male and female group, in case of necessity. In addition, s/he needs to have consultation with the representatives of civil society, relevant local government authority to ensure that there is no dispute with land, gender impact and valuation issue.
172. IDCOL will report to the development partners on the project progress on a routine basis. The reporting shall present the status of ESMS compliance associated with the disbursements under the respected project.
173. Reporting by IDCOL: The reporting and monitoring schedule with disclosure arrangement is provided in the following table.

**Table 8: Monitoring and Reporting schedule of IDCOL under ESMS**

<b>Sl. no</b>	<b>Project component</b>	<b>Monitoring and Reporting Issue</b>	<b>Frequency of Monitoring</b>	<b>Reporting Schedule</b>	<b>Disclosure</b>
<b>01</b>	<b>Solar Roof-Top</b>	Assessment of the suitability of project site in respect of basic environmental and social aspects for each new rooftop project.	<b>Once</b> for each project during appraisal process	<b>Once</b> during appraisal process	Email to respective stakeholders or during contract signing.
		Basic environmental, social and health safety compliance assessment including implementation of EMP of solar rooftop project under construction/operation	Half-yearly (At least two operational projects in each six months)	<b>Half-yearly</b> (based on the observation of monitoring)	IDCOL website
<b>02</b>	<b>Solar Grid Tied Power</b>	Assessment of the suitability of project site in respect of basic environmental and social aspects for each new commercial grid tied project.	<b>Once</b> for each project during appraisal process	<b>Once</b> during appraisal process	Email to respective stakeholders or during contract signing.
		Basic environmental, social and health safety compliance assessment including implementation of EMP of commercial solar grid tied power project under operation	<b>Half-yearly</b> (at least two operational projects in each six months)	<b>Half-yearly</b>	IDCOL website

174. Training activities will be developed to ensure IDCOL staff and other involved FIs for subprojects implementation can confidently and effectively screen projects, implement the ESMS and the Codes of Practice, monitor effectiveness of implementation, supervise consultants and contractors, identify risks and issues, and report on safeguards to donors.

175. The training and capacity building activities will take into consideration during their development, the integration and fulfillment of the requirements of the WB safeguards policies and guidelines, as well as those of the GoB Law on Environmental Protection (including relevant policies, regulations and guidelines). A series of training workshops on implementation of the ESMS will take place as part of the project launch workshop and during the initial year of implementation. The proposed training activities is presented in Table 9 below:

**Table 9: Proposed Capacity-Building Activities**

Activity
Environmental and social aspects of the ESMS and It's implementation process (Screening, reporting, monitoring EHS with handling procedures and rules & regulations) through the project cycle
ESIA procedures, Environmental Management policies & guidelines, WB and other developments partners safeguards, implementation and enforcement

## ANNEXURES

### **ANNEX 1: ENVIRONMENTAL & SOCIAL POLICY STATEMENT OF IDCOL.**

#### **Environmental and Social Policy Statement of IDCOL**

IDCOL has a mandate of financing private sector for developing medium to large-scale infrastructure and renewable energy projects in Bangladesh.

IDCOL recognizes the significance of environmental, health / safety and social considerations in infrastructure development and believes in sustainable development

In order to achieve the above, IDCOL is committed to:

- (a). Mainstream environmental, health / safety and social (E&S) considerations in appraising and financing infrastructure projects to avoid / minimize adverse impacts and risks to the environment and people that may be affected
- (b). Ensure compliance with all relevant E&S policy and legislative requirements and laws of the lands with which it engages and remain responsive to the E&S requirements of international best practices
- (c). Avoid / minimize land acquisition and resettlement through selection of appropriate locations and design of projects
- (d). Where land acquisition is unavoidable, compensate replacement value of such acquired land/property will be paid before displacement or replace with land having equal value and quality together with other facilities such as housing and basic infrastructure facilities.
- (e). Ensure protection of vulnerable groups, such as the economically and socially disadvantaged, women, children, physically handicapped and the tribal people and/ or small ethnic communities and take appropriate measures to restore their livelihood as relevant

(Source: <http://idcol.org/download/1d8514287c3e7cda76423b33a781f79c.pdf> )

## **ANNEX 2: DEPARTMENT OF ENVIRONMENT CATEGORIZATION**

Depending on the extent of impact on the environment, industries and projects are classified in four different categories under the ECR 1997. The four categories are:

- (1). Green;
- (2). Orange – A and ;
- (3). Orange- B;
- (4). Red

While DoE categories, as described below, determine GoB requirements for EIA/ ESIA, it should be noted that where ESIA is not required by the national law but required by the World Bank, the latter requirement will prevail.

### **Green Category**

Projects, which do not have any negative impact on the environment, belong to Green category.

### **Orange A Category**

Orange category includes those projects that produce such wastes that can produce moderate or significant impacts on the environment but the impacts could be mitigated easily if proper action is undertaken. Depending on the nature and extent of impacts the projects under Orange category has been sub-divided into two sub-categories-Orange A and Orange B. The projects/industries categorized under “Orange-A” are likely to produce some wastes but those are not harmful to surrounding environment and can be managed easily.

### **Orange B Category**

The “Orange-B” category projects/industries are those likely to produce adverse environmental impacts but not to any significant level and that the impacts can be mitigated with no residual adverse impacts.

Orange B category projects need to conduct IEE which help in understanding the potential extent of environmental impacts. IEE of the project or industry reveals that further investigation is needed, the sponsors will have to carry out a detailed EIA.

### **Red Category**

This category includes industries, first requiring IEE for the purpose of obtaining site clearance, and then EIA, for obtaining ECC. In this case, also an application has to be made in a prescribed format along with an IEE report, on the basis of which site clearance may be granted with suitable conditions or the project may be rejected, on grounds of unsuitable location. If the site clearance is granted, the project proponent can go ahead with implementation of the project subject to the conditions as may be stipulated while granting

the site clearance.

List of Different Categories of Industrial units or projects are shown in Annex- A

DoE issues the following clearances to the sponsors depending on the category of the project (Table A1.1):

- (a) Issuing SCC for Orange-A, Orange-B, and Red category projects, on basis of Initial IEE.
- (b) Approving TOR for EIA, and completed EIA, for Red category projects, and
- (c) Issuing Environmental Clearance Certificate (ECC) for all category projects.



## **ANNEX 3: GUIDELINES FOR SELECTING NEW PV PANEL SUPPLIER**

### **A. Local PV Panel Supplier**

The supplier, who will apply to supply PV panel made in Bangladesh, has to comply with the following procedure to be enlisted in IDCOL's renewable program:

1. Compliance with Department of Environment: The respective PV Panel supplier has to submit the Environmental Clearance Certificate as is issued by the Department of Environment. And they have to submit sufficient evidence that the requirements/terms and conditions of the DOE are sufficiently implemented.
2. ISO14001:2004 and OHSAS 18001:2007 certified from a certification body as is approved by International Accreditation Forum (IAF) or American International Accreditation Organization (AIAO).
3. Practicing Experience: The supplier has to prove the record of practicing the aforesaid two compliances at least six months individually. In this case of the two compliance certificates, six (6) months will be counted from the date of issuing of latter one.
4. Technical Standard: The PV panel has to meet the compliances and standards required by Technical Standard Committee of IDCOL.
5. Baseline EHS Assessment Report: The PV panel supplier has to submit an EHS Assessment Report by mentioning how he is complying with the environmental and occupational health safety aspects.
6. Disclosure of EHS Assessment Report: The EHS Assessment Report, irrespective of being prepared by an independent third party or IDCOL representative is to be duly disclosed to all relevant development partners.

### **B. Imported PV Panel Supplier**

If a PV panel supplier approaches to supply imported PV Panel in IDCOL renewable program, he has to comply the following requirements in addition to the technical requirement of IDCOL:

1. Statutory requirement: The respective panel supplier has to submit Environmental Clearance Certificate as is issued by the respective entity of the respective country;
2. ISO 14001 and OHSAS requirement: The respective PV panel supplier has to submit ISO 14001 and OHSAS 18001 compliance certificate of the respective PV panel

manufacturing plant.

3. **Baseline EHS Assessment Report:** The PV panel supplier has to submit an EHS Assessment Report by mentioning how he is complying with the environmental and occupational health safety aspects.
4. **Disclosure of EHS Assessment Report:** The EHS Assessment Report, irrespective of being prepared by an independent third party or IDCOL representative, is to be duly disclosed to all relevant development partners.

## ANNEX 4: ENVIRONMENTAL AND SOCIAL CHECKLIST FOR SOLAR ROOFTOP

Name of the Sponsors:

Proposed capacity:

Date:

		Yes	No
<b>1. Type of the Industry:</b>			
<b>2. DOE category; based on ECR 1997:</b>			
<b>A: Type of Project-</b>			
1	Buildings type?		
2	Be located in or near an area where there is an important historical, archaeological or cultural heritage site?		
3	Be located within or adjacent to any areas that are or may be protected by government (e.g. protected tree, heritage site, protected area)?		
4	Be located on a water harvesting roof?		
5	Be located in an area where plans for future roof uses may affect the project?		
6	Produce solid wastes during construction, operation or decommissioning?		
If the answer to any of questions 1-6 is ``yes'', the process required for IEE must be followed.			
<b>B: Environment-</b>			
7	Risk causing contamination of drinking water?		
8	Need to cut down any trees?		
9	Be located within or adjacent to environmentally sensitive areas (e.g. mangroves, wetlands), threatened species or protected tree?		
10	Require freshwater during operations?		
11	Release any pollutants or any hazardous, toxic or noxious substances to the air during construction or operation?		
12	Will there be any liquid discharge to ground water aquifer or the lagoon during construction or operations?		
13	Involve use, storage, transport, handling or production of substances or material that can be harmful health or raise concerns about the actual or perceived risks to human health?		
If the answer to any of questions is ``yes'', the process required for IEE must be followed.			

*GA*

*CPM*

<b>C: Social-</b>			
14	Will the proposed roof require additional improvement works before installation of solar panels?		
15	Would this project create new and additional jobs?		
16	Are there health impacts during implementation stage?		
17	Will this project affect livelihood adversely? (If answer is yes and livelihoods will be affected adversely please attach details of how it will be impacted and type, magnitude and severity of impact)		
18	If livelihood will be impacted, are there adequate alternatives or compensations considered? (If yes, please provide details)		
19	Are there any disputes/complaints from the neighboring properties?		
If the answer to any of questions is ``yes'', the process required for IEE must be followed.			

*g*

*AM*

## ANNEX 5: PRELIMINARY ENVIRONMENTAL AND SOCIAL SAFEGUARD SCREENING FORMAT FOR GRID TIED SOLAR PARK

S. No.	Environmental & Social Features	Status / Availability in & around site (2-kms)	Significance (based on likely impact)	Remarks / Description
<b>Name and Address:</b>				
<b>GPS Coordination:</b>				
<b>Description of project site:</b>				
<b>Official due diligence required :</b>				
<b>Physical Environment</b>				
	Type of Land (Purchased/leased land, low/level from road, requirements of landfill)			
	Soil Erosion Prone stretches			
	Topography			
	Air & Noise Quality			
	Surface Water Resources			

*G*

*AM*

S. No.	Environmental & Social Features	Status / Availability in & around site (2-kms)	Significance (based on likely impact)	Remarks / Description
	Drinking Water sources			
<b>Biological Environment</b>				
	National Park / Wildlife Sanctuary			
	Ecologically sensitive areas			
	Birds Migratory routes			
	Reserved / Protected Forests			
	Large Trees / Woodland			
	Presence of endangered species/habitat areas			
	Name of the Flora			
	Name of the Fauna			
<b>Human Environment</b>				
	Presence of Indigenous or vulnerable communities			
	Prone to flooding or not			
	Hot Spot/Sensitive Zones			
	Physical Cultural Resources – Religious			
	Settlements / Built-up Environment			
	Underground utility lines like electricity lines, pipelines for gas, etc			

*GA*

*AM*

S. No.	Environmental & Social Features	Status / Availability in & around site (2-kms)	Significance (based on likely impact)	Remarks / Description
	Agricultural land fertility levels			
	Damage to existing infrastructure, public utilities, amenities etc.			
<b>Social Environment</b>				
	Any local conflicts of interest in the project site			
	Land acquisition of private land leading to loss of shelter and livelihood (Plant and Transmission Tower implementation)			
	Any loss/reduction of access to traditional dependent communities (to areas where they earn for their primary or substantial livelihood). [Plant and Transmission Tower implementation]			
	Involuntary land taking resulting in loss of income; livelihood; sources of livelihood; loss of access to common property resources and/or private residential and/or property resources. [Plant and Transmission Tower implementation]			
	Any specific gender issues			
	Possible conflicts with and/or disruption to local community			
	Significant issues raised by the stakeholders during consultation			

GA

APM

## ANNEX 6: GENERIC ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN

No	Activity	Potential Environmental & Social Impacts	Proposed Mitigation	Institutional Responsibilities
	Pre-Construction Stage	Loss of land / and other physical assets	<ul style="list-style-type: none"> <li>Carrying out analysis of alternatives to avoid/minimize involuntary taking of land and other physical assets.</li> <li>Compensation at replacement value</li> </ul>	Client
		Loss of livelihood	<ul style="list-style-type: none"> <li>Preferable employment with developer</li> <li>Alternative livelihood options and training for skill enhancement</li> <li>Corporate Social Responsibility (CSR) activities to be undertaken by developer will ensure alternative livelihood opportunities</li> </ul>	Client / Developer
		Loss of Access rights	<ul style="list-style-type: none"> <li>Project to ensure thorough analysis of alternatives that access enjoyed by the community remains intact.</li> <li>In case of unavoidable circumstances, alternative access will be provided.</li> </ul>	Client
	Site Preparation	Soil Erosion; Alteration of natural drainage;	<ul style="list-style-type: none"> <li>Construction facilities to be placed 500 meters from water bodies, natural flow paths;</li> <li>Minimize cut &amp; fill operations, the site clearing and grubbing operations should be limited to specific locations only.</li> <li>Any disruption of socially sensitive areas with regard to human habitation and areas of cultural significance will be avoided.</li> <li>The existing slope and natural drainage pattern on the site should not be altered.</li> <li>Trees on private lands are felled or damaged during construction operations, compensation shall be paid to the owner as determined by the forest/horticulture departments.</li> <li>The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents.</li> </ul>	Client /Developer
	Construction Activity	Noise from construction works	<ul style="list-style-type: none"> <li>Construction activity shall be restricted to daytime as far as possible to avoid disturbance to surrounding areas.</li> <li>Wherever required, personal protective equipment (PPE) such as ear plugs, earmuffs, helmets etc. should be</li> </ul>	Client /Developer

*GA*

*AM*

No	Activity	Potential Environmental & Social Impacts	Proposed Mitigation	Institutional Responsibilities
			provided to the persons working in high-risk areas.	
	Construction Activity	Dust	<ul style="list-style-type: none"> <li>Construction machinery shall be properly maintained to minimize exhaust emissions of CO, SPM, PM<sub>2.5, 10</sub> and Hydrocarbons.</li> <li>Dust generated as a result of clearing, leveling and site grading operations shall be suppressed using water sprinklers.</li> <li>Dust generation due to vehicle movement on haul roads/access roads shall be controlled through regular water sprinkling.</li> </ul>	Client /Developer
	Construction Activity	Safety Issues	<ul style="list-style-type: none"> <li>Prevent entry of unauthorized personnel and proper storage and control of hazardous materials on site.</li> <li>The site shall be secured by fencing and manned at entry points</li> </ul>	Developer
	Laying of transmission lines	Exposure to safety related risks	<ul style="list-style-type: none"> <li>Setback of dwellings to overhead line route designed in accordance with permitted level of power frequency and the regulation of supervision at sites</li> </ul>	Client and Developer
	Water for Construction	Conflicts with existing users due to the scarcity of resource base.	<ul style="list-style-type: none"> <li>A detailed assessment of the available resources and consent of the local representative for withdrawal of water from existing surface water sources shall be taken.</li> <li>If ground water is withdrawn, adequate approvals from the appropriate department need to be undertaken before setting up bore wells.</li> </ul>	Client / Developer
	Road safety and traffic management plan	Increase in road accidents	<ul style="list-style-type: none"> <li>The movement of heavy machinery and equipment's shall be restricted to defined routes.</li> <li>Proper signage's to be displayed at major junctions.</li> <li>Road diversions and closures to be informed well in advance to the local residents.</li> <li>The vehicular movement to be controlled near sensitive locations viz. schools, colleges, hospitals identified along designated vehicular transportation routes.</li> </ul>	Client / Developer
	Base Camp Construction Activity – Labour Camp Management	Conflicts with the local residents	<ul style="list-style-type: none"> <li>Alternate arrangement for fuel wood, heating and cooking should be made to meet fuel wood requirement of the labor</li> <li>Work force should be prohibited from disturbing the</li> </ul>	Client / Developer

No	Activity	Potential Environmental & Social Impacts	Proposed Mitigation	Institutional Responsibilities
			flora, fauna including hunting of animals, Wildlife hunting, poaching and tree felling. <ul style="list-style-type: none"> <li>• Adequate facilities ensuring sanitation for labour camps.</li> <li>• Treated Water will be made available at Site for Labour drinking purpose.</li> <li>• Adequate accommodation arrangements for labour</li> </ul>	
	Waste Management	Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects <ul style="list-style-type: none"> <li>• Construction and commissioning of Grid-Tied Solar Power Project</li> <li>• Temporary accommodation facilities for labor</li> <li>• Waste generation from equipment maintenance/vehicles on-site.</li> <li>• The scrap material generated from the erection of structures and related construction activities will be collected and stored separately in a stack yard and sold to local recyclers.</li> <li>• Hazardous waste viz. waste oil etc will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.</li> <li>• Applicability of the Hazardous Waste Management Rules</li> </ul>	Client / Developer
	Health and Safety risks	<ul style="list-style-type: none"> <li>▪ Potential for exposure to safety events such as tripping, working at height activities, fire from hot works, smoking, failure in electrical installation, mobile plant and vehicles, and electrical shocks.</li> <li>▪ Exposure to health events during construction activities such as manual handling and musculoskeletal disorders, hand-arm vibration, temporary or permanent hearing loss, heat stress, and dermatitis.</li> </ul>	<ul style="list-style-type: none"> <li>▪ All construction equipment used for the execution of the project works shall be fit for purpose and carry valid inspection certificates and insurance requirements.</li> <li>▪ The risk assessment shall be prepared and communicated prior to the commencement of work for all types of work activities on site.</li> <li>▪ Provide walkways that are clearly designated as a walkway; all walkways shall be provided with good conditions underfoot; signposted and with adequate lighting.</li> <li>▪ Signpost any slippery areas, ensure proper footwear with a good grip is worn for personnel working within slippery areas.</li> <li>▪ Carry out fire risk assessment for the construction areas, identify sources of fuel and ignition and establish general fire</li> </ul>	Client / Developer

No	Activity	Potential Environmental & Social Impacts	Proposed Mitigation	Institutional Responsibilities
			<p>precautions including, means of escape, warning, and fighting fire.</p> <ul style="list-style-type: none"> <li>▪ Set up a system to alert workers on site. This may be temporary or permanent mains operated fire alarm.</li> <li>▪ Fire extinguishers should be located at identified fire points around the site. The extinguishers shall be appropriate to the nature of the potential fire.</li> <li>▪ Establish and communicate emergency response plan (ERP) with all parties, the ERP to consider such things as specific foreseeable emergency situations, organizational roles and authorities, responsibilities and expertise, emergency response and evacuation procedure, in addition to training for personnel and drills to test the plan</li> <li>▪ Electrical equipment must be safe and properly maintained; works shall not be carried out on live systems.</li> <li>▪ Only competent authorized persons shall carry out maintenance on electrical equipment, adequate Personal Protective Equipment (PPE) for electrical works must be provided to all personnel involved in the tasks.</li> <li>▪ An adequate number of staff and first aiders shall be on site in accordance with Bangladesh Labor Law requirements.</li> <li>▪ First aid kit with adhesive bandages, antibiotic ointment, antiseptic wipes, aspirin, non-latex gloves, scissors, thermometer, etc. shall be made available by the contractor on site.</li> <li>▪ Emergency evacuation response shall be prepared by the contractor and relevant staff shall be trained through mock-up drills.</li> <li>▪ Ensure all equipment is suitable for jobs (safety, size, power, efficiency, ergonomics, cost, user acceptability etc.), provide the lowest vibration tools that are suitable and can do the works.</li> <li>▪ Ensure all tools and other work equipment are serviced and maintained in accordance with maintenance schedules and manufacturer's instructions.</li> </ul>	

*G*

*AM*

No	Activity	Potential Environmental & Social Impacts	Proposed Mitigation	Institutional Responsibilities
			<ul style="list-style-type: none"> <li>▪ Regular noise exposure assessments and noise level surveys of noisy areas, processes and equipment shall be carried out in order to form basis for remedial actions when necessary</li> <li>▪ Awareness training sessions should be established and provided to all personnel involved during the construction phase in order to highlight the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, dehydration.</li> <li>▪ Ensure adequate quantities of drinking water are available at different locations within the site,</li> <li>▪ Eliminate the risk of exposure whenever possible, provide proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities.</li> </ul> <p>Ensure that all workers exposed to a risk are aware of the possible dangers. They should be given thorough training in how to protect themselves and there should be effective supervision to ensure that the correct methods are being used</p>	
	<b>Decommissioning Phase</b>	<ul style="list-style-type: none"> <li>▪ The solar power plant facility is considered a large scale long-term investment that will contribute to economic benefits to the country through the provision of the power supply, designed in accordance with best practice, taking into account all relevant national and internal codes and legislation.</li> <li>▪ The design life of the facility will be approximately 20 years. Therefore, the post-design life is expected to involve rehabilitation, upgrading and modernization of the facility, with a possible expansion (retrofitting and the addition of new technology).</li> </ul> <p>As a result, impacts from decommissioning are not expected to arise in the near future unless retrofitting and upgrade of the facility was not feasible. However, this, ESIA Study has considered potential decommissioning impacts in case there was a need for the facility to be dismantled and end operations.</p> <ul style="list-style-type: none"> <li>▪ No impacts with high significance are anticipated to take place during decommissioning of the project since all facilities will be removed, solar power plant decommissioned, and PV panels will be dismantled and sent for recycling or disposal.</li> <li>▪ The main mitigation and monitoring measures to minimize or reduce the environmental and social impacts during decommissioning are anticipated to be similar to those identified for the construction phase.</li> <li>▪ The solar PV panels that will be used in the project will have a life span of 25 years. Disposal of wasted solar PV modules is very important because if not properly decommissioned, the greatest health risk</li> </ul>		Client / Developer

No	Activity	Potential Environmental & Social Impacts	Proposed Mitigation	Institutional Responsibilities
		<p>from end-of-life crystalline solar modules arises from lead containing solders. Under the right conditions, it is possible for the lead to leach into landfill soils and eventually into water bodies.</p> <ul style="list-style-type: none"> <li>▪ While the solar cell is the heart of a photovoltaic system, on a mass basis it accounts for only a small fraction of the total materials required to produce a solar panel. The outer glass cover constitutes the largest share of the total mass of a finished crystalline photovoltaic module (approximately 65%), followed by the aluminum frame (~20%), the ethylene vinyl acetate encapsulant (~7.5%), the polyvinyl fluoride substrate (~2.5%), and the junction box (1%). The solar cells themselves only represent about four percent (4%) of the mass of a finished module.</li> </ul> <p>Proper decommissioning and recycling of solar panels both ensure that potentially harmful materials are not released into the environment and reduces the need for virgin raw materials. In recognition of these facts, the photovoltaic industry is acting voluntarily to implement product take-back and recycling programs at the manufacturing level.</p>		

G

AM

The site specific ESMP would need to be prepared for the project component. An ESMP document should include:

- 1) Lists of all project related activities and impacts, for each stage of the development of Projects, i.e., for the design, construction and maintenance stages
- 2) A list of regulatory agencies involved and their responsibilities
- 3) Specific remedial and monitoring measures proposed for each stage
- 4) A clear reporting schedule, including discussion of what to submit, to whom, and when
- 5) Cost estimates and sources of funding for both one-off costs and recurring expenses for implementation of the EMPs.

ESMP shall deal with the construction and operations stage of the project. The extent and timing of mitigation actions should be based on the significance of the predicted impacts. Some mitigation measures can be incorporated into the design of the project and can largely resolve the potential impacts of a project, e.g., drainage, access roads. Other measures require an ongoing implementation plan to ensure that proposed actions are carried out at the correct times, that environmental measures such as slope protection are maintained, and that prompt remedial actions are taken when the initial measures are not fully effective.

## **ANNEX 7: SAMPLE TERMS OF REFERENCE (TOR) FOR ENVIRONMENTAL & SOCIAL ASSESSMENT (ESA) OF ROOFTOP PROJECTS**

### **BACKGROUND**

Load shedding is a frequent phenomenon in the locality, which happens for almost 2 hours on average per day. This translates into approximately **Tk. XXX** of fuel expenditure and **Tk. AA** of maintenance cost in a year. For this reason, the client has now planned to install a roof top solar power system that now envisages to fully replacing the diesel generators.

Electricity tariff in Bangladesh is currently subsidized which keeps electricity cost affordable to general public of the country. However, given government's aspiration to become a middle-income country by 2041, gap between electricity generation cost and tariff needs to be eliminated gradually. Thus, it can be anticipated that, electricity tariff for generated power from traditional sources will continue to soar in future to eliminate the gap.

With the advent of solar based technologies and the current global trend of reduction in solar panel costs, electricity generated using solar based technologies is expected to become cheaper than electricity generated from traditional sources. Thus, different industries are being encouraged to install solar PV based power plants to save electricity expenses in future.

Current electricity cost from solar plant is almost similar to grid tariff which is expected to be cheaper than grid tariff in future due to the constant fall in price in solar based technologies vs. expected rise in grid tariff to minimize gap between generation cost and tariff. Thus, financing such kind of projects makes financial sense apart from achieving country's target to promote renewable energy based technologies in the country to ensure access to electricity for all.

**AAA Limited** proposed a project of a **000 KWp** rooftop solar project on the rooftop of **AAA**. In the proposed system two main equipment will be used which are solar panels and inverters. Sun shines on the solar panels to generate DC electricity. The DC electricity produced from the solar panel will be converted to 000V 3-phase AC using the inverters. Then, the energy will be fed into the bus bars of industry. A Zero Export Controller will be used to ensure "net zero export". The aggregated installed capacity of the project will be **000 KWp**.

This TOR is prepared to carryout detailed Environmental and Social Assessment (ESA) study for the rooftop solar project on the rooftop of **AAA**. As part of the ESA the project proponent will prepare an Environmental and Social Management Plan (ESMP) that addresses the potential impacts and risks identified by the environmental and social assessment. The ESMP will include the proposed mitigation measures, environmental and social monitoring and reporting requirements, emergency response procedures, related institutional or organizational arrangements, capacity development and training measures, implementation schedule, and

performance indicators. Where impacts and risks cannot be avoided or prevented, mitigation measures and actions will be identified so that the project is designed, constructed, and operated in compliance with applicable laws and regulations and meets the requirements specified in this document.

## LEGISLATIVE REQUIREMENTS

The solar roof top project itself does not require any site clearance or environmental clearance from DoE. The sponsor will notify DoE regarding the rooftop project and will obtain a written NOC regarding this.

## PROJECT DESCRIPTION

The project site is located at ..... There are two buildings in the factory premises. The main factory building is four storied with .....Structured roof. There is another 1 storied building with color coated corrugated sheet made roof. The client will utilize the roof of this second building. It has roof space of ...square feet. This building is currently being used as a warehouse. Soon it will be used as Linking, Winding and storage unit of the factory.

Present minimum load is 00 KWp and the maximum load is 00 KWp. The factory is expecting an increase a load of 00 KWp very shortly. The total installed load will be 00 MW with a base load of 0000 KW.

There is a... KVA transformer installed in the factory. But the factory is going to install a ... MVA transformer shortly.

To ensure net zero export and considering the available roof space, the plant capacity was calculated to be ... KWp.

## OBJECTIVES

The main objective of the Environmental and Social Assessment (ESA) study is to assess both positive and negative environmental impacts due to the project activities. Assess the impacts and recommend appropriate mitigation measures during preconstruction, construction, and operation phases to minimize negative impacts of the project to acceptable levels. The ESA will be used as a decision-making tool to ensure that the project design and implementation activities are environmentally sound and sustainable. During the implementation phase, the prepared Environmental and Social Management Plan (ESMP) shall serve as a framework for strengthening the mitigation, enhancement and environmental monitoring measures and system of the rooftop solar project. In the preparation phase, the ESA shall achieve the following objectives:

3. To establish the environmental and social baseline in the study area, and to identify any significant environmental issue;

4. To assess these impacts and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures;
5. To integrate the environmental and social issues in the project planning and design;
6. To develop appropriate management plans for implementing, monitoring and reporting of the environmental and social mitigation and enhancement measures suggested.

## SCOPE OF WORK

### Legal and Administrative Procedure

- Collection and review of relevant information regarding environmental legislation, statutory orders, by-laws, etc. connected to preparation and approval of the ESA report by the Infrastructure Development Company Limited (IDCOL), and draft the memo. The memo will also consider the requirements of donor agencies' guidelines.
- Conduction of meetings with the Department of Environment, the Ministry of Environment and Forest (MoEF). During these meetings appropriate legal and administrative procedures will be discussed. Review of other relevant environmental laws, regulations, Norms, and Standards on Air, Noise, Water, Waste, Wildlife, and etc.
- Conduction of discussion meeting with the Department of Environment particularly for "Environmental Clearance Certificate" in accordance with the Environment Conservation Act, 1995 and Bangladesh Environment Conservation Rules, 1997.

### Project Description

A comprehensive description of the project in the construction and operational phases will be analyzed and summarized. The information provided will cover broader and more in depth details of project activities, including information on the surrounding environment and project infrastructure necessary to identify and assess the environmental impacts of the project.

This will include history and background of the project, project objectives and information on the nature, site location/existing setting, timing, duration, frequency, general site layout, pre-construction activities, construction methods, works and duration, and post construction plans. A description of raw material inputs and system components, technologies designed for project components and processes to be used as well as products and by-products generated, will be provided. Additionally an overview of proposed project infrastructure, including structural components of the wind turbines will be described in detail. Other areas to be covered include:

- Methods to be employed In the offloading and transportation of equipment to the proposed site and any associated works that may be required to facilitate these activities
- Any physical measures to be employed during the operational phase to ensure the security of the infrastructure
- Proposed modifications to slopes, both on temporary and permanent bases
- Proposed land clearances and modification to shelterbelts; and

- Proposed modification to existing roads (physical and/or functional)
- Areas to be reserved for construction and areas to be preserved in the preexisting state will be noted as well as activities and features which will introduce risks or generate impacts (negative and positive) on the environment.
- Schematic plans and essential maps, including, map showing project location, project area, including project boundaries, aerial map of project areas, land use map of the study area, site layout plan and an area drainage contour map.

### **Baseline Studies**

An inventory and assessment of baseline conditions will be done via the collection of primary and secondary baseline data within the project area. The baseline data will be generated in order to give an overall evaluation of the existing environmental conditions, values and functions of the area, as follows:

- physical environment
- biological environment
- socio-economic and cultural constraints

Primary data collection will be undertaken within a 1km radius of the project area/boundary, while secondary data collection will extend within a 5km radius of the project area/boundary. The methodologies employed to obtain baseline and other data will be clearly detailed, with all limitations and assumptions clearly stated. Data gathered will be presented in both written and graphical form. This will be standard throughout the ESA.

A comprehensive baseline survey will be conducted as part of the ESA in alignment with the requirements of local permitting authority (i.e. DOE), IDCOL and funding agencies. The impact assessment will rely on these data and it is necessary to ensure sufficient data are collected to enable a robust assessment.

Collection of general baseline information on existing environmental condition in the project influence area and environmental quality baseline monitoring along the project corridor and identification of the environmental components that need detailed study. Baseline assessment will be done based on the available secondary information, field visits, sampling and environmental monitoring including but not limited to the following for the Project Site and Area of Influence:

- **Physical Environment:**

- A description of the existing **soil and geology, landscape, aesthetic values and hydrology**, with special emphasis on storm water run-off, drainage patterns and aquifer characteristics will be provided. Any slope stability issues that could arise will be explored based on any proposed modifications to slopes. The description will focus on the geology of the proposed site, the distribution of soil types in the proposed study area as using appropriate soil survey procedures and the implications of environmental effects on ecosystems' insatiability. Where

applicable the paleontological, architectural, archeological and cultural features will also be examined.

- **Water quality** of any existing wells, rivers, ponds or streams in the vicinity of the proposed development and study area will be described. This will include a description of potential changes in water quality over the life of the Project. Consideration will be given to the magnitude, extent, timing, duration, significance and seasonal variation. Consideration will also be given to the analysis and testing of appropriate water quality parameters (e.g. temperature, pH, conductivity, dissolved oxygen, suspended sediment, dissolved solids, nutrients etc.) if necessary.
- Obvious **sources of existing pollution** and extent of contamination affecting the physical environment will be described.
- **Noise** levels of undeveloped sites and the ambient noise in the area of influence will be assessed by:
  - ✓ Providing representative baseline noise levels and a description of the measurement/prediction methods used
  - ✓ Identifying components of the Project that have the potential for creating increased noise levels at sensitive receptors and discuss the implications and measures to mitigate
  - ✓ Presenting the results of a noise assessment, which will include:
    - ❖ Potentially-affected people and wildlife;
    - ❖ An estimate of the potential for increased noise resulting from the development;
    - ❖ The implications of any increased noise levels; and
    - ❖ Proposed mitigation measures and their anticipated effectiveness.
- A description of the natural **hazards** affecting the project area will be described. Meteorological data covering the following will be incorporated in the ESA report. The data for at least a 10 year period will be presented from the nearest meteorological station
  - ✓ Wind speed and direction
  - ✓ Rainfall
  - ✓ Relative humidity
  - ✓ Temperature
  - ✓ History of hurricanes

- **Biological Environment:**

A detailed description of the flora and fauna (terrestrial and aquatic) of the area, with special emphasis on rare, endemic, protected or endangered species will be presented. Migratory species will also be considered.

- Information on existing vegetation, proposed vegetation loss and resulting loss and/or fragmentation of habitat for fauna will be presented. Generally, species dependence, niche specificity, community structure and diversity will be considered.
- The presence of bats will also be determined. A description will be given of:
  - ✓ Different ecosystem types including cave and sinkholes and their species, if present.
  - ✓ Nocturnal species within the project site.
  - ✓ Flight and behavioral patterns of bat species identified (Attention will be paid to the species of treed dwelling bats (*Ariteus flavescens*) inhabiting areas in close proximity to the proposed alignment)
  - ✓ Habitat of flora
  - ✓ Biological diversity importance of the area
  - ✓ Invasive and economically important species
  - ✓ Mitigation measures to avoid or minimize negative impacts on wildlife, wildlife habitat and vegetation communities/ecosystems.
  - ✓ Anticipated changes to wildlife and vegetation within the study area will also be examined and documented.

A map(s) illustrating the location of all ecosystem types will be included.

- **Socio-economic and Cultural:**

The section on socio-economic and cultural environment will provide a detailed description of:

- Population Demographics: population size, age distribution, gender composition
- Community structure: community groups, community programmes and projects
- Social infrastructure and facilities: education, health and welfare facilities and infrastructure
- Infrastructure: water, electricity, telecommunications
- Economic structure: Employment and income, economic opportunities, programme and projects
- Cultural traditions/customs
- All existing resource users (including traditional users) ranging from subsistence utilization of the natural resources to commercial activities
- Archaeological features: The historical importance (heritage, archaeological sites and feature) and other material assets of the area will be examined If applicable.
- Land Use: Present and proposed land use (including settlements, commercial, tourism, bauxite mining and other uses. Details including nature and magnitude, proximity to site etc. will be included.);

- Transportation and traffic considerations: transportation of heavy equipment, road construction and modification and associated traffic considerations (particularly in the construction phase), planned development activities; issues relating to squatting and relocation and public health and safety will be covered;
- Public Perception: An assessment of public perception of the proposed development will be conducted using appropriate methods and tools such as public meetings and/or questionnaires/surveys.

### **Analysis of Alternatives**

An examination and evaluation of the project and potential alternative of not proceeding with it will be taken into consideration in the ESA. The evaluation will include:

- An analysis is of the alternative means of carrying out the Project, including need for the project, alternative sites, alternate projects and variations to the scope of the project (major components included and excluded) and if any of the alternatives could result in a minimization of adverse impacts. For the project components, a comparison of their environmental and technical performance potential and other relevant variables will be included.
- A discussion on the status of any ongoing analyses, including a discussion of the options not chosen and the rationale for their exclusion.
- Contingency plans if major project components or methods prove infeasible or do not perform as expected; and
- The implications of a delay in proceeding with the Project, or any phase of the Project.
- Examination of the 'do nothing' alternative

### **Risk Assessment and Emergency Response**

It is understood that the Project Engineer will consider a hazard risk mitigation plan (such as cyclones, tornadoes, droughts, floods, earthquakes, road accidents, etc.) during the initial planning and design stage. Depending on the timing, the results of this will be summarized in the ESA and used to inform the Emergency Response Plan which will be coordinated with the surrounding community and resources.

### **Impact Assessment and Mitigation Measures**

The approach to the assessment of environmental and social impacts will be based upon the changes in the receiving environment caused by the Project, followed by an assessment of the overall significance of these changes, compared with the baseline condition. This section will predict and assess the project's likely positive and negative direct and indirect impacts on physical, biological, socioeconomic environment in the project's area of influence, in quantitative terms as far as possible; identify mitigation measures and any residual negative impacts that cannot be

mitigated; explore opportunities for enhancement; identify and estimate the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics; and examine trans boundary, and cumulative impacts as appropriate. Wherever possible, impacts will be quantified and/or represented via GIS mapping. Where such assessment is not possible or practicable, impact assessment will be based on expert professional judgment and informed by the results of consultation. The environmental significance will be judged in relation to applicable national/international environmental standards. The impact assessment exercise will cover all related project activities and the full project lifecycle (i.e. construction, operations, etc.). Mitigation measures will be coordinated with the Project Engineer to identify the embedded mitigations and determine the need for any additional mitigation measures.

### **Environmental Management and Monitoring Plan**

In this section the set of mitigation and management measures to be adopted during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans, sub plans and actions. It will include the following key components:

(i) Mitigation: Under mitigation the ESMP will:

(a) Identify and summarize anticipated significant adverse environmental impacts and risks;

(b) describe each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and

(c) Provide links to any other mitigation plans (for example, for involuntary resettlement) required for the project.

(ii) Monitoring: Under monitoring the ESMP will:

(a) describe monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and

(b) Describe monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

(iii) Implementation arrangements: Under the implementation arrangements the ESMP will:

(a) Specify the implementation schedule showing phasing and coordination with overall project implementation;

(b) describe institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and

(c) Estimate capital and recurrent costs and describe sources of funds for implementing the environmental and social management plan.

(iv) Performance indicators: Here the desired outcomes as measurable events will be described to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

### **Institutional Arrangement, Capacity building and Grievance Redress Mechanism**

Assessment of institutional capacity of the implementing agencies will be conducted for effective implementation of environmental and social management and monitoring plan. To identify the responsible institutes for implementation and supervision of the environmental and social management and monitoring plan (ESMMP). Assess training needs of these agencies and propose capacity building measures and institutional arrangements to strengthen these agencies along with the cost estimates.

In this section the grievance redress framework (both informal and formal channels) will be described, prepared for the power plant project, setting out the time frame and mechanisms for resolving complaints about environmental and social performance.

### **Information Disclosure, Consultation, and Participation**

This section will:

(i) Describe the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders;

(ii) summarize comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and

(iii) Describe the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

### **Conclusion and Recommendation**

This section will provide the conclusions drawn from the assessment and present the recommendations.

*G*

*Am*

## **ANNEX 8: SAMPLE TOR FOR CONDUCTING AN ESIA OF A GRID TIED SOLAR POWER PROJECT**

Environment and Social Impact Assessment (ESIA) is a decision support mechanism to ensure that the project design and implementation are environmentally sound and sustainable. During the preparation phase, the objective of the ESIA is to provide inputs to the selection of subprojects, feasibility study; preliminary and detailed design as well as assist development of a holistic development of the project package. During the implementation phase, environmental management plans (developed as a part of the ESIA during the preparation phase) are to be used for executing the environmental mitigation, enhancement, and monitoring measures.

### **Objectives of ESIA**

In the preparation phase, the ESIA shall achieve the following objectives:

- i. Identify and analyze upstream environmental issues that may affect the project and the sector.
- ii. Establish the environmental and social baseline in the study area, and identify any significant environmental, social, health and safety issues (direct/indirect/induced/cumulative).
- iii. Assess impacts of the project, and provide for measures to address the adverse impacts by the provision of the requisite avoidance, mitigation and compensation measures.
- iv. Integrate the environmental issues in the project planning and design; and
- v. Develop appropriate management plans for implementing, monitoring and reporting of the suggested environmental mitigation and enhancement measures.

The ESIA studies and reporting requirements to be undertaken under these TOR must conform to the GoB regulations and the IDCOL's guidelines.

### **Description of the Project**

Include a description of the project; covering geographical location, type of development envisaged, including a description of project activities. Also include the current status of the project. Provide brief information on any other study already completed/ongoing or proposed) to be added by Client.

## **Scope of Work**

The ESIA comprises the following 3 components: (i) Environmental screening / Inception Report for the entire project; (ii) Environmental and Social Impact Assessment (ESIA) for the individual project/subprojects, as required; and (c) Environmental and Social Management Plans (ESMPs) for the individual project/sub-projects.

The following section gives the detailed scope of work in each of these stages.

## **Inception**

The Consultants shall use the inception period to familiarize with the project details. The Consultants shall recognize that the remaining aspects of the project, such as engineering and social, would be studied in parallel, and it is important for all these aspects are integrated into the final project design to facilitate their successful project implementation. The Consultants should also recognize that due care and diligence planned during the inception stage helps in improving the timing and quality of the ESIA reports.

During the inception period the Consultants shall: (a) study the project information to appreciate the context within which the ESIA has to be carried out; (b) identify the sources of secondary information on the project, on similar projects and in the project area; (c) carry out a reconnaissance survey and (d) undertake preliminary consultations with selected stakeholders.

Following the site visits and stakeholder consultations, as well as a review of the conditions of the contract with the Client, the consultant shall analyse the adequacy of the allocated manpower, time and budget and shall clearly bring out deviations, if any. The Consultant shall study the various available surveys, techniques, models, and software in order to determine what would be the most appropriate in the context of this project.

The Consultant shall interact with the engineering and social consultants to determine how the ESIA work fits into the overall project preparation cycle; how overlapping areas are to be jointly addressed; and to appropriately plan the timing of the deliverables of the ESIA process. These shall be succinctly documented in the Inception Report.

## **Environmental Screening**

Consultants shall summarize the potential environmental impacts. During such categorization, consideration shall be paid to (i) location of the project with respect to environmentally sensitive areas; and (ii) volume, nature, and technology of construction. The screening parameters should be such that their identification and measurement is easy, and does not involve detailed studies.

## **Environmental Scoping**

Based on the result of the environmental screening exercise, consultants shall suggest the scope of Environmental and Social Impact Assessment to be undertaken. It shall include a listing of other environmental issues that do not deserve a detailed examination in the project ESIA (covering, for example, induced impacts that may be outside the purview of the client) along with a justification. The scoping needs to identify and describe the specific deviations of the EA ToR provided, if any, along with a justification; modify this TOR for the project ESIA, if required; and recommend studies that need to be conducted in parallel but are outside the ESIA process.

- i. ***Baseline:*** All regionally or nationally recognized environmental resources and features within the project's influence area shall be clearly identified, and studied in relation to activities proposed under the project. These will include all protected areas (such as national parks, wildlife sanctuaries, reserved forests, biosphere reserves, wilderness zones), unprotected and community forests and forest patches, wetlands of local/regional importance not yet notified, rivers, rivulets and other surface water bodies and sensitive environmental features such as wildlife corridors, biodiversity hotspots, meandering rivers, flood prone areas, areas of severe river erosion, flood embankments (some of which are also used as roads). Consultants shall consolidate all this information in a map of adequate scale.
- ii. ***Stakeholder Identification and Consultation:*** Consultation with the stakeholders shall be used to improve the plan and design of the project rather than merely having project information dissemination sessions. The consultants shall carry out consultations with Experts, NGOs, concerned Government Agencies and other stakeholders to (a) collect baseline information; (b) obtain a better understanding of the potential impacts; (c) appreciate the perspectives/concerns of the stakeholders; and (d) secure their active involvement during subsequent stages of the project.

Consultations shall be preceded by a systematic stakeholder analysis, which would: (a) identify the individual or stakeholder groups relevant to the project and to environmental issues; (b) include expert opinion and inputs; (c) determine the nature and scope of consultation with each type of stakeholders; and (d) determine the tools to be used in contacting and consulting each type of stakeholder group. A systematic consultation plan with attendant schedules will be prepared for subsequent stages of project preparation as well as implementation and operation, as required.

- iii. **Identification of Relevant Macro/Regional Level Environmental Issues:** Consultants shall determine the Valued Environment Components (VECs) considering the baseline information (from both secondary and primary sources), the preliminary understanding of the activities proposed in the project and, most importantly, the stakeholder (and expert) consultations, which would need to be carefully documented. Use of iterative Delphi techniques is recommended.

Based on the identification of VECs, consultants shall identify information gaps to be filled, and conduct additional baseline surveys, including primary surveys. The consultants shall conduct a preliminary analysis of the nature, scale, and magnitude of the impacts that the project is likely to cause on the environment, especially on the identified VECs, and classify the same using established methods. For the negative impacts identified, alternative mitigation/management options shall be examined, and the most appropriate strategy/technique should be suggested. The preliminary assessment should clearly identify aspects where the consultants shall also analysed indirect and cumulative impacts of all phases and activities of the project. For the positive measures identified, alternative and preferred enhancement measures shall be proposed.

- iv. **Environmental Assessment:** The Consultants shall undertake necessary impact analysis on the basis of primary and secondary information and outputs from the stakeholder consultation process. In the cases of very significant environmental losses or benefits, the consultants shall estimate the economic/financial costs of environmental damage and the economic/financial benefits the project is likely to cause. In the cases, the impacts or benefits are not too significant, qualitative methods could be used. In addition, wherever economic and financial costs of the environmental impacts cannot be satisfactorily estimated, or in the cases of

significant irreversible environmental impacts, the consultants shall make recommendations to avoid generating such impacts.

- v. ***Environmental and Social Management Plan:*** The consultants shall prepare an ESMP to address identified planning, design, construction, and operation stage issues. For each issue, the consultants shall prepare a menu of alternative avoidance, mitigation, compensation, enhancement and/or mitigation measures, as required/necessary. Consultants shall provide robust estimates of costs for environmental management measures. These costs shall be verified for common works items in line with the rate analysis for other works. The consultants shall organize consultations with line departments and will finalize the ESMP.
- vi. ***Environmental Inputs to Feasibility Study and Preliminary Project Design:*** The ESIA consultants shall make design recommendations, related to alignment, cross-sections, construction material use, mitigation and enhancement measures. The ESIA consultants shall interact regularly with the Client and familiarize themselves with the project's overall feasibility analyses models so that the ESIA inputs are in conformity to the needs of the overall feasibility study.
- vii. ***Capacity Building Preparation:*** Based on the preliminary findings of the environmental screening, stakeholder consultations, and analysis of the project sponsor's capacity to manage environmental issues, the consultants shall prepare a Capacity Building Plan (including the requirement of additional technical staff and facilities) to ensure effective implementation of the ESMP. Earmarking staff for environmental and social management and improving their skill-sets would be simultaneously pursued during project preparation and implementation.  
  
The consultants shall interact regularly with the project sponsor throughout project preparation to ensure that the knowledge, skills, and perspectives gained during the ESIA assignment are transferred to the sponsor and are utilized effectively during project implementation (if required).
- viii. ***Coordination among Engineering, Social, Environment, and Other Studies:*** The consultants, with assistance from the project sponsor, shall establish a strong coordination with the other project-preparation studies – engineering, social and/or institutional development. The consultants shall keep in mind the specific requirements of the project in general, and the

engineering/design studies in particular, and shall plan their outputs accordingly. It is recommended that some of the consultation sessions may be organized in coordination with the social and engineering consultants, as feasible, and when the stakeholders consulted are the same.

The consultant shall review the contract documents – technical specifications, and rate analysis, to ensure that there are minimal conflicts between the ESMP stipulations and specifications governing the execution of works under the project.

- ix. **Public Disclosure:** The consultants shall prepare a non-technical ESA summary report for public disclosure and will provide support to the project sponsor in meeting the disclosure requirements, which at the minimum shall meet the financial partners on Public Disclosure.
- x. **Consultant's Inputs:** The Consultants are free to employ resources as they see fit. Additional expertise shall be provided as demanded by the context of the project. The consultants are encouraged to visit the project area and familiarize themselves, at their own cost, before submitting the proposal; and propose an adequate number and skill-set for the senior specialists and technical support staff for the ESIA assignment. Further, the consultant will allocate an adequate number of field surveyors, distinct from the technical support staff, to complete the study in time. Timing is an important essence for any ESIA study, which shall be closely coordinated with the works of the engineering and social teams, simultaneously involved in the preparation of the project.

The consultants shall provide for all tools, models, software, hardware, and supplies, as required to complete the assignment satisfactorily. These should be widely recognized or accepted. Any new model or tool or software employed should be field-tested before use or the purpose of this ESIA.

- xi. **Consultant's Outputs:** The consultant is expected to provide the outputs, as per the schedule is given in the ToR. The Consultants are expected to allocate resources, such as for surveys, keeping this output schedule in mind.

## **ANNEX 9: WORLD BANK GROUP EXCLUSION LIST**

All participating financial intermediaries (PFIs) must apply the following exclusion list of activities:

- Production or trade in any product or activity deemed illegal under host country laws or regulations or
- International conventions and agreements, or subject to international bans, such as pharmaceuticals,
- Pesticides/herbicides, ozone depleting substances, PCBs, wildlife or products regulated under CITES.
- Production or trade in weapons and munitions.
- Production or trade in alcoholic beverages (excluding beer and wine).
- Production or trade in tobacco.
- Gambling, casinos and equivalent enterprises.
- Production or trade in radioactive materials. This does not apply to the purchase of medical equipment,
- Quality control (measurement) equipment and any equipment where IFC considers the radioactive source to be trivial and/or adequately shielded.
- Production or trade in unbonded asbestos fibers. This does not apply to purchase and use of bonded asbestos
- Cement sheeting where the asbestos content is less than 20%.
- Drift net fishing in the marine environment using nets in excess of 2.5 km in length.
- Production or activities involving harmful or exploitative forms of forced labor/harmful child labor.
- Commercial logging operations for use in primary tropical moist forest.
- Production or trade in wood or other forestry products other than from sustainably managed forests.