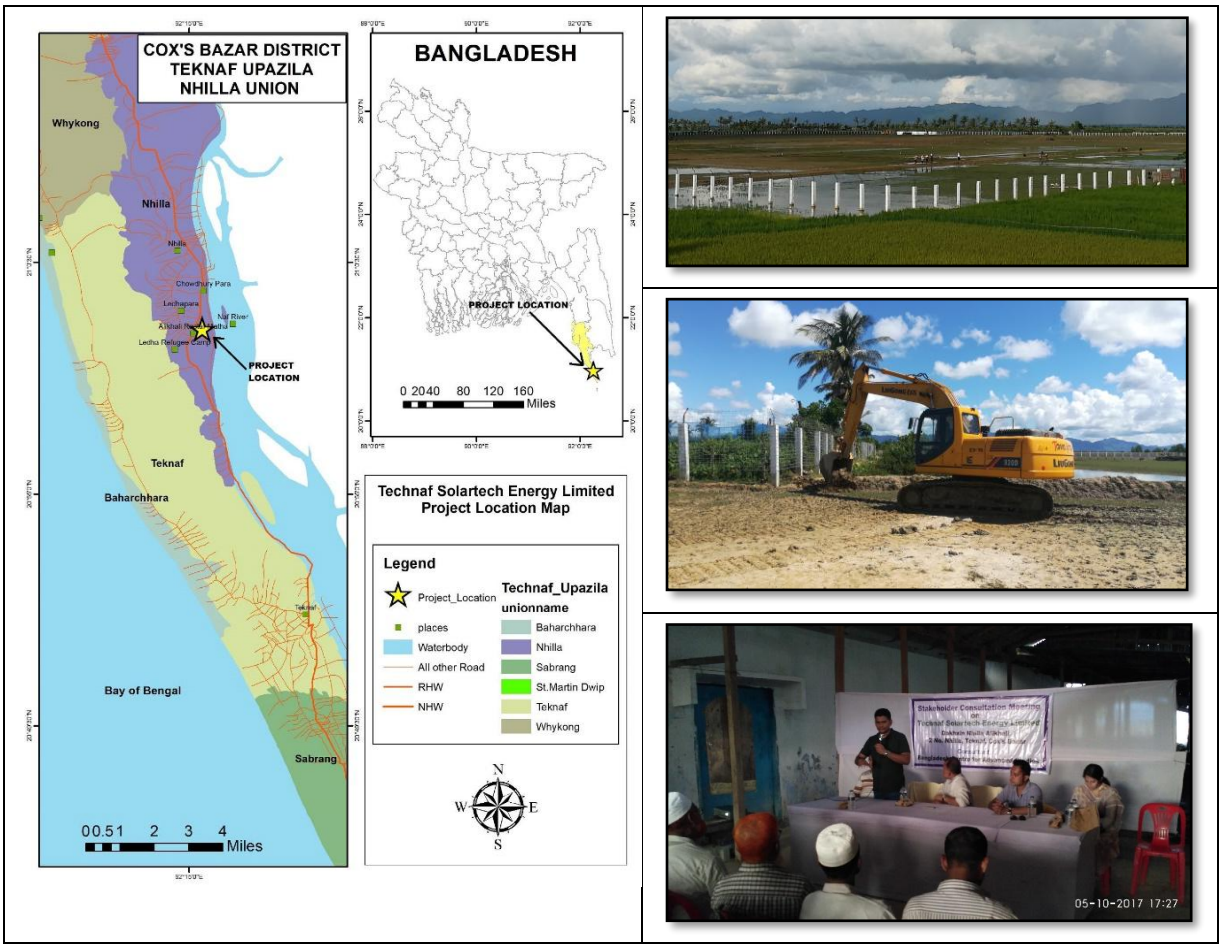
Environmental Management and Monitoring Plan

Technaf Solartech Energy Limited, Teknaf, Cox's Bazar



Submission to

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TABLE OF CONTENTS

List of Abbreviations

ADB – Asian Development Bank
BBS – Bangladesh Bureau of Statistics
BMD – Bangladesh Meteorological Department
BWDB – Bangladesh Water Development Board
DoE – Department of Environment
DoF – Department of Fisheries
ECA – Environmental Conservation Act
ECC – Environmental Clearance Certificate
ESIA – Initial Environmental Examinations
EIA – Environmental Impact Assessment
EMP – Environmental Management Plan
EU – European Unions
HAT – Highest Astronomical Tide
IFC – International Finance Corporation
L/C – Letter of credit
MEAs – Multilateral Environmental Agreements
MoEF – Ministry of Environment and Forest
MoPEMR – Ministry of Power, Energy and Mineral Resources
MW – Mega Watt
NGO – Nongovernmental Organization
NOC – No Objection Certificate
O&M – Operation and Maintenance
OM – Operations Manual
PAP – Project Affected Person
PCM – Public Consultation Meeting
RF – Resettlement Framework
SESIA – Summary Initial Environmental Examinations
SO – Safety Officer
SRDI – Soil Resources Development Institute
TSEL – Technaf Solartech Energy Limited
ToR – Terms of Reference

UNCED – United Nations Conference on Environment and Development

UNDP – United Nations Development Programme

USEPA – United States Environmental Protection Agency

WB – World Bank

Units

dB – Decibel

PPM – Parts Per Million

Hr – Hour

Kg – Kilogram

Km – Kilometer

KW – Kilowatt

M – Meter

Mg – Milligram

Ton/year – Ton per Year

MT/year – Metric Ton per Year

Executive Summary

Power generation and supply is one of the vital issues in Bangladesh to enhance its ongoing development efforts. Having 149.8 million people, electricity demand is increasing day by day but the generation of electricity is not increasing as expected. The industrial production which is the driven force of economy is being hampered due to inadequate power supply. Thus foreign and local investment are being discouraged and impeded. The Sixth Five Year Plan contains information on demand-supply gap for electricity, source of electricity supply, use of different types of energy, electricity generation program and strategy for power generation.

The Renewable Energy Policy envisions that 5% of total energy production will have to be achieved by 2015 and 10% by 2020. To achieve this target, GOB is looking for various options preferably Renewable Energy resources. Government has already launched '500MW Solar Power Mission' to promote the use of Renewable Energy to meet the increasing demand of electricity. Considering the immense opportunities, Technaf Solartech Energy Limited (TSEL) is striving to establish a solar based power plant at Alikhali, South Nhilla, Cox's Bazar with 20 MW capacities as a 20 years facility to BPDB.

As per Environment Conservation Rules '1997 (amended 2002) this type of industry has been categorized as Red category. An Initial Environmental Examination (IEE) was carried out for this power plant as per regulation of Department of Environment under Ministry of Environment and Forest for getting site clearance. And the Site Clearance is issued on 17/09/2017. An Environmental Impact Assessment (ESIA) is a formal requirement for the power plant according to the Bangladesh Environment Conservation Act'1995 (Amended 2010) and the Environment Conservation Rules '1997 (Amended 2002). The ESIA has been undertaken to meet the Terms of Reference provided by the DOE and IDCOL.

The ESIA primarily comprises of a detailed baseline analysis through measurements of different environmental parameters like air quality, noise level and the quality of ground and surface water in the vicinity of the project site. Based on the baseline data the impact the project's impact has been analyzed through predictive models. Identification of the potential impacts has been made and the mitigation measures have been suggested which if undertaken will meet the regulatory standards of the DOE as per Environmental Conservation Rules of 1997 and later amendments. The anticipated impacts have been analyzed for the construction phase, operation phase and decommissioning phase.

As the proposed project is Solar PV Project, the impact during construction of is expected to be minimal as a Greenfield Project plant. Particulate matter in the form of dust would be the predominant pollutant affecting the air quality during the construction phase. Dust will be generated mainly during excavation, back filling and hauling operations along with transportation activities. The main source of gaseous emission during the construction phase is movement of equipment and vehicles at site. Equipment deployed during the construction phase is also likely to result in marginal increase in the levels of SO2, NOX, and particulate matter. The impact is reversible, marginal and temporary in nature.

No ground water due to plant operation will be drawn during operation phase but there will be

usage of ground water for cleaning it and its amount is very low. So lowering of groundwater table will not be an issue. There shall be minimal discharge of wastewater from cleaning of Solar PV modules. The wastewater emanating from cleaning operations shall be recycled for plantation and greenbelt development around the plant.

No overburden on the local transportation system is envisaged due to the proposed Project. During construction activities, there will be a sizeable influx of population and labor colony is being constructed with basic amenities for the laborers working on the project. The peak labor population shall be 300 but on an average. This will have an effect on social fabrics of the areas surrounding the project.

TSEL is committed to constructing and operating the power plant in an environmentally responsible manner and in compliance with relevant environmental laws, regulations, and guidelines in force in the country and also those prescribed by lending agencies, including the IFC and other financing agencies. TSEL will implement an Environmental Management System (EMS), including an environmental policy that states the principles and intentions of the enterprise in relation to its overall environmental performance. Such principles and intentions will be communicated to each employee as well as the nature of their individual environmental responsibilities. Where appropriate, staff training will be undertaken to ensure their continued environmental performance. In addition, TSEL will aim to obtain International Organization for Standardization (ISO) 14001 accreditation for the EMS within the first three years of operation. TSEL is also committed to the creation and implementation of programs to reduce the probability of occurrence of adverse impacts upon the environment. As required, contingency plans will be developed for mitigating potential adverse incidents. TSEL will expect the same level of environmental performance from its agents, suppliers, and contractors and will stipulate this in any legally binding agreements it enters with these parties. TSEL will also ensure that appropriate corporate resources, personnel and reporting and accountability systems, are in place for the successful implementation of the ESMMP. They will, on a continuing basis, review the objectives of the ESMMP as well as the company's success in achieving them. Where objectives are not being achieved, corrective action will be taken. The ESMMP objectives will also be modified over the life of the TSEL Power Plant, as appropriate, to reflect changing environmental laws, regulations, standards, and technologies.

An extensive stakeholder’s consultation process was undertaken through FGDs, KIIs and one large general consultation meeting. In general there were no negative notions about the project in the area. However, there were certain queries about the opportunity they will got in the future in the project. The consultants and technical management of TSEL explained the mitigation measures that are being taken to mitigate the problem.

There was no resettlement issue as the land for the project was leased from the willing owners. There was no resettlement or livelihood restoration requires as the land for the leased from willing owners. There were no agricultural workers or sharecroppers in the land leased by TSEL.

CHAPTER 1: INTRODUCTION

1.1 Background

Government of Bangladesh has set up the goal of providing electricity to all by 2020 and to ensure reliable and quality supply of electricity at a reasonable and affordable price. Sustainable social and economic development depends on adequate power generation capacity of a country. There is no other way for accelerating development except to increase the power generation by fuel diversification. Development of Renewable Energy is one of the important strategies adopted as part of fuel diversification program. In line with the Renewable Energy policy 2009, the government is committed to facilitate both public and private sector investment in renewable energy projects to substitute indigenous non-renewable energy supplies and scale up contributions of existing renewable energy based electricity productions. The Renewable Energy Policy envisions that 5% of total energy production will have to be achieved by 2015 and 10% by 2020. To achieve this target, GOB is looking for various options preferably Renewable Energy resources. Under the existing generation scenario of Bangladesh, Renewable Energy has a very small share to the total generation. The share of Renewable Energy exceeds more than 1% till now. The present government is placing priority on developing Renewable Energy resources to improve energy security and to establish a sustainable energy regime alongside of conventional energy sources. Government has already launched '500MW Solar Power Mission' to promote the use of Renewable Energy to meet the increasing demand of electricity. Considering the immense opportunities, Technaf Solartech Energy Limited (TSEL) is striving to establish a solar based power plant at Alikhali, South Nhilla, Cox's Bazar with 20 MW capacities as a 20 years facility to BPDB.

As per Environment Conservation Rules '1997 (amended 2002) this type of industry is fallen into Red category. An Initial Environmental Examination (IEE) is to be carried out for this power plant as per regulation of Department of Environment under Ministry of Environment and Forest for getting site clearance. And after site clearance, an Environmental Impact Assessment (EIA) is a formal requirement for the power plant according to the Bangladesh Environment Conservation Act'1995 (Amended 2010) and the Environment Conservation Rules '1997 (Amended 2002). Bangladesh Centre for Advanced Studies (BCAS) has been engaged by Technaf Solartech Energy Limited (TSEL) to conduct the IEE and ESIA study for this proposed project. After submitting the IEE to DoE, TSEL has already got site clearance for the project. Bangladesh Centre for Advanced Studies (BCAS) has carried out detailed Environmental and Social Impact Assessment (ESIA) to comply with DoE Guidelines as well as the WB Operational Policies (OPs), IFC Guidelines and ADB Safeguard Policy 2009, JICA Safe Guards Policy for the proposed power plant.

Technaf Solartech Energy Limited (TSEL) is in the process to establish and operate a grid-tied solar power plant at Alikhali, South Nhilla, Teknaf, Cox's Bazar beside Arakan Road, around 0.5 km from the bank of Naf River, 2 km from Teknaf PBS-2, 33/11 kV sub-station at Ledha, Teknaf. The total area of the project site is about 116 acres – whole land has been taken lease from the concerned landowners for the project period. Because TSEL has been approved to

implement and operate a 20 MW Solar Power Plant for supplying power to Bangladesh Power Development Board (BPDB) on an off-take basis for a contracted period of 20 years. TSEL has qualified for the bid on an unsolicited basis. The required commercial operation date for the project is 12 months from date of signing of project agreements i.e., Power Purchase Agreement and Implementation Agreement. For financing TSEL is expected to source fund from One Bank Limited, Infrastructure Development Company Limited (IDCOL) and other financial institutions having strong commitment on sustainable development.

1.2 Power Purchase Agreement

The Power Purchase Agreement (PPA) for 20 MW net of TSEL was signed on February 9, 2017 between BPDB and TSEL. Under the terms of the PPAs, TSEL agreed to maintain the power plants and deliver electric energy produced at the power plants exclusively to BPDB. In turn, BPDB agrees to purchase from TSEL the Net Energy Output.

1.3 Project Implementation Agreement

The Implementation Agreement (IA) of the project was executed on February 13, 2017. Parties to the IA had been (i) the Project Company(s), i.e. the TSEL in relation to the 20 MW Power plant project (ii) the Government of Bangladesh (GoB); and (iii) the Bangladesh Power Development Board (BPDB). The IA became effective from the date of signing and will continue in full force and effect until the last day of the Power Purchase Agreement unless extended or terminated earlier as per the provisions of IA.

1.4 Land Lease

The Land lease activities of TSEL were started from January, 2017 and about 116.87 acres of land was taken lease for the period of 24 years at Alikhali, South Nhilla, Teknaf, Cox's Bazar. The whole land was taken as lease from willing land owners at a negotiated rate. Details of the land lease have been provided in chapter 11 of the ESIA report.

1.5 Extent of the Study

Bangladesh Environmental Conservation Rules (ECR, 1997) and ADB Safeguard Policy require that the environmental and social impacts of development projects are identified and assessed as part of the planning and design process. Based on the magnitude of potential adverse impacts, mitigation measures are to be planned before starting the implementation of the project. This is done through the environmental assessment process, which has become an integral part of lending operations and project development and implementation worldwide.

Bangladesh Centre for Advanced Studies (BCAS) has been carrying out the detailed Environmental and Social Impact Assessment (ESIA) to comply with DoE and IDCOL/FINANCIER for the proposed TSEL (20 MW Power Plant Project). BCAS undertook to carry out the ESIA which included baseline survey, anticipated environmental and social impacts and other aspects to comply with the TOR provided by IDCOL in 2016.

1.6 Project Area

It is already mentioned that the project site is located at Alikhali, South Nhilla, Cox's Bazar,

District- Cox's Bazar, Bangladesh.

1.7 Scope of the Study

Specific Scope of the ESIA report covers to:

The area falling within 5 km distance from the proposed site has been considered as the study area for conducting detailed studies. The scope of the Environmental and Social Impact Assessment (ESIA) as the following:

- a brief description of the project;
- a detailed characterization of the existing environment within the area of 1 km radius from the project site for environmental components viz. air, noise, water, land, soil, biological and socio-economic aspects;
- prediction and evaluation of positive and negative impacts that may result from the proposed power plant project;
- consideration of alternatives;
- undertaking public consultation and disclosure of project-related information;
- grievance redress mechanism;
- formulation of an environmental management plan (EMP) to eliminate or minimize the adverse impacts of the project on the surrounding environment and affected communities;
- preparing occupational health and safety as well as Disaster Management Plan (DMP) to minimize any accident or emergency situation; and
- to propose plans for post project monitoring, ongoing consultation and disclosure, EMP implementation, and institutional arrangement/organizational arrangement.
- Obtaining approval of the lending financial institutions, viz., the Asian Development Bank, IDCOL/FINANCIER;
- Suggestion recommended abatement/mitigation/management measures to ensure environmental, biological, health and social compatibilities and also to comply with the National Environmental legal requirements and national Environmental Quality standards.

1.8 Study Methodology

Based on the above Scope of Work, the study built upon the baseline survey carried out by BCAS as Environment and Social Consultant for the Environmental and Social Impact Assessment (ESIA) during March 2017 to September 2017. The ESIA was carried out to comply with the TOR provided by IDCOL to TSEL as well as to comply with the conditions of the Site Clearance by DoE.

This ESIA have been carried out as a follow up study of IEE and is based on the primary data generated during the period from March 2017 to September 2017. Secondary data was obtained from various sources and field visits. Several field visits had been undertaken to the project location with a view to update the findings of the baseline study carried out by BCAS. During the study period the following steps were followed:

1. Baseline Survey/monitoring data acquisition of the baseline both environmental and social to carry out the ESIA;
2. Understanding the technical aspects of the proposed power plant through primary field data, secondary literature and stakeholder consultations;
3. Identification of potential environmental impacts and evaluating the consequences through using a checklist method has been carried out;
4. Identification of impacts was undertaken using Checklist Matrix and Issues forecasting tabular methods;
5. Discuss with the people living in the plant area about the mitigation measures suggested in the ESIA through stakeholder's consultations and general public consultation;
6. Development of an Environmental Management Plan (EMP) for possible mitigation/ enhancing measures, respectively, for negative and beneficial impacts;
7. Suggestion of mitigation measures for residual impacts;
8. Completion of a comprehensive social impact assessment through primary data collection;
9. Primary data collection from 30% of the total households within 1 km radius of the project area included in the baseline study carried out by BCAS. The criteria for choosing 30% of households within 1 km radius of the project site was judgmental based on the expected picture required for the specific study. Additionally, the area is in a mixed rural cum industrial zone. A power plant and few brick fields are situated within close vicinity of the proposed power plant. In choosing the households only the nearby rural households were chosen, as they are going to be affected mostly during construction and operation. A number of Focus Group Discussions (FGDs) with the different categories of stakeholders were held including women;
10. Detailed environmental and socio-economic baseline survey was undertaken throughout the high impact zone (0.4km radius), and low impact zone (0.6km radius) of the project air-shed. The basis was that the impact of the project was not expected to exceed the considered radius both from the environmental and social economic impacts due to the project. This is evident from the findings in the anticipated environmental impacts of this study which shows that they are well within the DOE standards. During the mapping exercise, in-depth consultations with local stakeholders were carried out to aid accurate identification of suitable plots. Use of maps and also utilization of the historic maps was undertaken for identifying the plots and

ground level. Field verification was undertaken by the team leader after the field data collection. Updated GIS version was applied to finalize the land use map; and

The following primary data was obtained during the ESIA processes:

- Socio-Economic survey data;
- Baseline air quality data;
- Baseline noise data (day and night time);
- Groundwater data from deep and shallow tube wells; and
- Surface Water data

This ESIA report has been prepared in compliance with the following documents:

- Asian Development Bank (ADB), *Safeguard Policy Statement*, June 2009;
- Department of Environment (DoE), Ministry of Environment and Forest, Government of the People's Republic of Bangladesh, *ESIA Guidelines for Mix Zone Industrial and residential*, June 1997.
- IFC Performance Standards 2008
- EHS guidelines for thermal power plants IFC.

1.9 Limitation of the Study

The data collected for inclusion in the ESIA study has been conducted within a limited time frame. More time was required to carry out a more detailed Social Impact Assessment (SIA) of the PAPs who are directly affected by the project which would involve a 100% censes of the PAPs and suggest a Livelihood Restoration Frame work leading to an assessment of additional benefits to be given to the PAPs by TSEL. However, the EIA has been prepared with an emphasis to cover all important environmental impacts and formulate pragmatic recommendations for mitigating any adverse environmental impacts.

1.10 The ESIA Team-The Qualification and Competencies of Team Members

The ESIA Team comprises of the following:

1.	Dr. Moinul Islam Sharif, EIA Expert	Team Leader
2.	Mohammad Imtiaz Sharif, Social & Environmental Expert	Project Coordinator
3.	Mr. Shaker Ali, Modeling Expert	Member
4.	Mr. Ikbal Hossain, EIA Expert	Member
5.	Md. Saifullahil Azom, GIS and Land Use Expert	Member
6.	Mr. Sadman K. Monsur. Socio-economist	Member
7.	Mr. Moniruzzaman, Field Surveyor	Member
8.	Mr. ZH Khan, Field Surveyor	Member
9.	Mr. Kawser Ahmed, Field Surveyor	Member
10.	Mr. Imam Hossain, Field Surveyor	Member

11. Mr. Sohel, Data Analyst and SPSS expert	Member
12. Ms. Dil Meher Banu, DTP Incharge	Member
13. Dr. Monirul Islam, Biodiversity Expert	Member

1.11 Acknowledgement

In preparing the ESIA, various stakeholders were consulted. It comprises a number of government agencies, NGOs, Financing Organizations, Bangladesh Power Development Board (BPDB), Bangladesh Meteorological Department (BMD), Soil Resource Development Institute (SRDI), Bangladesh Bureau of Statistics (BBS), Bangladesh Water Development Board (BWDB), Department of Environment (DOE), Department of Agriculture Extension (DAE), Department of Roads and Highways, Fire Service and Civil Defense Office, etc. The ESIA Team is grateful to these stakeholders for their contributions.

CHAPTER 2: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

2.1 Introduction

This chapter deals at length with the measures that TSEL will take in response to the need for sound environmental management throughout the various phases of the proposed project. The chapter also outlines measures that will be taken in relation to the management of social impacts and the need to address grievances that the various project stakeholders might have, in respect of various stages of project implementation, throughout the life of the proposed project.

The mitigation measures proposed in another chapter of this ESIA Report, which are designed to avoid or minimize impacts during pre-construction, construction, operational and decommissioning phases of the project form the basis of this Chapter. This Chapter presents the specific plan for implementing the mitigation and monitoring requirements and addressing community grievances within the framework of an Environmental and Social Management and Monitoring Plan (ESMMP). The following principles were used to guide the preparation of the ESMMP:

- Focus on occupational health, safety, and environment risk prevention;
- Affordable, safe technologies are used wherever failure of equipment would have a significant effect on safety, health, or the environment;
- Conformance with relevant standards, codes, and practices will be considered in the application of the safe technologies;
- All activities will be performed in a safe and effective manner and all equipment will be maintained in good operating conditions for the protection of health and safety of all persons and the conservation of the environment and property;
- All necessary precautions are carried out to control, remove, or otherwise correct any hazardous materials leaks and/or spills, or other health and safety hazards;
- All activities and components related to construction of the power station will meet relevant international standards which ensure sufficient technical levels of safety; and
- Necessary measures will be ensured to redress grievances that the communities within and in the proximity of the Project Site might experience.

This Chapter describes the ESMMP of the TSEL Power Plant project and addresses the following key components:

- Management activities and systems;
- Plans, procedures, and programs;
- Monitoring activities;

- Implementation schedule; and
- Plans for integrating the ESMMP within the overall development plan for the TSEL Power Plant project.

2.2 Environmental Management

TSEL is committed to constructing and operating the power plant in an environmentally responsible manner and in compliance with relevant environmental laws, regulations, and guidelines in force in the country and also those prescribed by lending agencies, including the IFC and other financing agencies. TSEL will implement an Environmental Management System (EMS), including an environmental policy that states the principles and intentions of the enterprise in relation to its overall environmental performance. Such principles and intentions will be communicated to each employee as well as the nature of their individual environmental responsibilities. Where appropriate, staff training will be undertaken to ensure their continued environmental performance. In addition, TSEL will aim to obtain International Organization for Standardization (ISO) 14001 accreditation for the EMS within the first three years of operation.

TSEL is also committed to the creation and implementation of programs to reduce the probability of occurrence of adverse impacts upon the environment. As required, contingency plans will be developed for mitigating potential adverse incidents. TSEL will expect the same level of environmental performance from its agents, suppliers, and contractors and will stipulate this in any legally binding agreements it enters with these parties.

TSEL will also ensure that appropriate corporate resources, personnel and reporting and accountability systems, are in place for the successful implementation of the ESMMP. They will, on a continuing basis, review the objectives of the ESMMP as well as the company's success in achieving them.

Where objectives are not being achieved, corrective action will be taken. The ESMMP objectives will also be modified over the life of the TSEL Power Plant, as appropriate, to reflect changing environmental laws, regulations, standards, and technologies.

2.3 Plans, Procedures and Programs

As part of the ESMMP objectives, several plans, procedures, and programs have been developed to guide every stage of project construction, operation, and decommissioning so that the environmental performance of the power plant is optimized. While formulating a detailed ESMMP for the proposed TSEL Power Plant project, the pertinent impacts during the three phases, (i.e. construction, operation and decommissioning) have been taken into consideration. The pertinent impact aspects during the three project stages, as applicable, have been as under the following major headings:

1. Air Quality (dust and other particulate matter generation, stack emissions);
2. Noise and Vibration;
3. Hydrology and Surface Water Quality;
4. Drainage and Flood Control;

5. Terrestrial Ecology;
6. Aquatic Ecology;
7. Land Use;
8. Water Use;
9. Traffic and Transportation;
10. Solid Wastes;
11. Occupational Health and Safety;
12. Emergency Response;
13. Socio-Economics; and
14. Public Relations.

The following sections present an overview of the plans, procedures, and programs that will be developed for the TSEL Power Plant.

2.4 Environmental and Social Management and Monitoring Plan (ESMMP)

The ESMMP is sub-divided into the following phases of development:

- Table 2.4.1: Construction Phase;
- Table 2.4.2: Operational Phase; and
- Table2.4.3: Decommissioning Phase.

2.4.1 The Construction Phase

Table 2.1: EMP for the Construction Phase

Project Activity	Potential	Mitigation Action	Parameters to	Standards	Institutional	Implementation
Removal or disturbance to other public utilities	Public inconvenience	Advance notice to the public about the time and the duration of the utility disruption	Disruption to other commercial and public activities / Public complaints	Technical specification	TSEL	Throughout the construction period
		Use of well trained and experienced machinery operators to reduce accidental damage to the public utilities				
		Restore the utilities immediately to overcome public inconvenience				
Equipment layout and installation	Noise and vibrations	Selection of construction techniques and machinery to minimise ground disturbance.	Construction techniques and machinery	Minimal ground disturbance	TSEL	Construction period
Construction schedules	Noise nuisance to neighbouring properties	Minimize construction activities undertaken during the night and local communities informed of the construction schedule.	Timing of construction (noise emissions, [dB(a)])	Construction as per Scheduled timings only	TSEL, Contractor through contract provisions	Construction period
Provision of facilities for Construction workers	Contamination of receptors (land, water, air)	Construction workforce facilities to include proper sanitation, water supply and waste disposal facilities.	Amenities for Workforce facilities	Presence of proper sanitation, water supply and waste	TSEL, Contractor Through contract	Construction period

Project Activity	Potential	Mitigation Action	Parameters to	Standards	Institutional	Implementation
Provision of facilities for Construction workers : Labor Camp	Contamination of receptors (land, water, air)	Construction work force facilities to include: a. proper sanitation, b. water supply c. Waste and waste water disposal in soak pits.	Amenities for Workforce facilities	Presence of proper sanitation, water supply ,waste management, Health care centers	TSEL, Contractor Through contract	Construction period
Wood/ vegetation loss, harm to animals	Insignificant loss of vegetation as the of land was basically salt field	Construction workers prohibited from harvesting wood in the project area during their employment. Prevent work force from disturbing the flora, fauna including hunting of animal Proper awareness programs regarding conservation of flora, fauna including ground vegetation to all drivers, operators and other workers. Greenery development to be ensured over 33% area of the project site with plantation of fruit and other trees. This shall be done after completion of major construction works, preferably before starting of the operation phase.	Illegal wood /vegetation harvesting (area in m^2, number of incidents reported) Habitat loss Tree plantation	Complaints by local people or other evidence of illegal harvesting Greenery development over 33% area of the project site as required by DoE	TSEL, Contractor through contract provisions	Construction period

Project Activity	Potential	Mitigation Action	Parameters to	Standards	Institutional	Implementation
Site clearance	Loss of trees	Marking of trees to be removed prior to clearance, and ensure replantation of trees within the project area where feasible.	Vegetation marking and replantation	Replantation	TSEL, Contractor through contract provisions	Construction period
Removal of Plot Boundary Isles	Loss of plot identification	Each corner of each plot to be physically marked with marking pillars and digital map to be prepared showing exact land plots for each land owners. There should be adequate arrangements to ensure proper handing over of the leased lands on the same location to the landowners after the end of the project	Proper land parcel marking Digital mapping of plots	Land marking pillars	TSEL, Contractor through contract provisions	Construction period
Mechanized construction	Noise, vibration and operator safety, efficient operation	Construction equipment to be well maintained.	Construction equipment - estimated noise emissions and operating schedules	Technical specifications, safety regulations,	TSEL, Contractor through contract provisions	Construction period
	Noise, vibration, equipment wear and tear	Proper maintenance and turning off plant not in use.		Noise control regulations		

Project Activity	Potential	Mitigation Action	Parameters to	Standards	Institutional	Implementation
Construction of internal roads for accessibility	Increase in airborne dust particles	Existing roads and tracks used for construction and maintenance access to the site wherever possible	Access roads, routes (length and width of access roads)	Use of established roads wherever possible	TSEL, Contractor through contract provisions	Construction period
Transportation and storage of materials	Nuisance to the general public	Transport loading and unloading of construction materials should not to cause nuisance to the people by way of noise, vibration and dust Avoid storage of construction materials beside the road, around water bodies, residential or public sensitive locations Construction materials should be stored in covered areas to ensure protection from dust, emissions and such materials should be bundled in environment friendly and nuisance free manner	Water and Air Quality	DOE Emission Standards and Water Quality standards	TSEL	Construction period
Health and safety	Injury and sickness of workers and members of the public	Contract provisions specifying minimum requirements for construction camps Contractor to prepare and implement a health and safety plan and provide workers with required PPE.	Contract clauses (number of incidents and total lost-work days caused by injuries and sickness)	Health and safety standards of Bangladesh Labor Rules, 2015	TSEL (Contractor through contract provisions)	Construction period

Project Activity	Potential	Mitigation Action	Parameters to	Standards	Institutional	Implementation
		Contractor to arrange for health and safety awareness programs and trainings				
Nuisance to nearby properties	Losses to neighboring nearby land uses/ valueable properties	Contract clauses specifying careful construction practices. As much as possible existing access ways will be used. Compensation will be paid for loss of caused by the project, if any.	Reinstatement of land status (area affected, m^2)	Incorporating good construction management, design engineering practices. Consultation with affected parties immediately after completion of	TSEL (Contractor through contract provisions)	Construction period

2.4.2 The Operational Phase

Table 2.2: EMP for the Operational Phase

Project Activity	Potential	Mitigation Action	Parameters to	Standards	Institutional	Implementation
Electric shock	Death or injury to the workers and public	Security fences around substation	Proper maintenance of fences and sign boards	Periodic maintenance	TSEL	Throughout the operation
		Establishment of warning signs	Usage of appropriate technologies (lost work days due to illness and injuries)	Number of programs and percent of staff/ workers covered		
		Careful design using appropriate technologies to minimize hazards				
Noise generation	The plant will not generate any noise, as it is solar based.	No action needed.	Noise level			
Transmission line, switch gears and transformers	Exposure to electromagnetic interference	Design of transmission line, switch gear and transformer to comply with the limits of electromagnetic interference	Required ground clearance (metres) Required vibrations level, instrumentation	Ground clearance, standards on EMF Technical specifications	TSEL	Measurement of electromagnetic force should be done by a certified agency for the transmission line, switch gears and transformers at least once per year.

2.4.3 The Decommissioning Phase

Table 2.3: Management Aspects during the Decommissioning Phase

Issue/Concerns	Anticipated Effect	Management Measures	Monitoring
Closure, Decommissioning and Rehabilitation	Major	• Closure / Decommissioning may involve adverse impacts not perceived at this stage of the project. • A detailed decommissioning and rehabilitation plan will be prepared prior to closure of the TSEL Power Plant. Such a plan might include: - strict adherence to all appropriate waste management techniques, including the reuse and recycling of materials wherever possible; - disposal of hazardous waste materials in a legal and responsible manner; - remediation of soil and/or groundwater contamination (if applicable); and - Rehabilitation and enhancement of terrestrial habitats within the power plants footprints. - Mitigation measures to control dust and air emissions during the construction phase will be implemented. - Ensure proper handing over of the leased lands on the same location to the landowners after the end of the project.	Soil and groundwater monitoring to determine subsurface impacts (if any) of the power plant's operation. Restoration to baseline conditions, as detailed in Section 4 of this report.

CHAPTER-3: INSTITUTIONAL ARRANGEMENT AND ENVIRONMENTAL MONITORING

3.1 Institutional Requirements

For ensuring the construction and operation of the power plant according to the required compliance, there should be designated entity/institution or unit. The institution will be fully responsible to maintain the safeguard compliances. TSEL has realized the importance of establishing a separate entity for environmental monitoring and management. So, to maintain the environmental and social compliances, TSEL has planned to establish an individual compliance unit operating under the guidance of Head of Operation. They are planning to name the unit as Environmental and Social Monitoring Unit (ESMU). The detail of the ESMU has been discussed in the following sections.

3.1.1 Environmental and Social Monitoring Unit

TSEL is in principal obligated to relevant national and international environmental and social compliances and standards. It has informed that it will try to maintain all relevant compliances during construction and operational phases. In doing so, it has planned to form ESMU as is mentioned in the earlier section. The duties of the ESMU will include to:

- Ensure environmental and social safeguard compliances;
- Coordinate environmental monitoring process;
- Act as liaison with the public, local organizations and government;
- Ensure and supervise record keeping, data storage for follow-up actions;
- Monitor hazardous materials storage and handling;
- Promote environmental awareness and safety measures; and
- Prepare environmental management and periodic monitoring reports as required by DOE.

3.1.2 Composition of Environmental and Social Monitoring Unit

The ESMU will be based on three tiers operational mechanism. It will be led by Head of Operation of the power plant. Head of Operation will serve as General Manager (Planning, Administration and Safeguard Compliance). Under his guidance there will be one Compliance Manager, who will be supported by two Compliance Officers. One Compliance Officer will be responsible for all sorts of environmental aspects and standards and another one will be assigned to maintain social and occupational health and safety aspects and standards.

Consulting services will be mobilized as necessary to assist in initial operations, to ensure that the ESMU will be self-sufficient for EMP implementation, submission of progress reports, and preparation of environmental assessment for subsequent construction works. Additional third-party services may be employed by the TSEL as necessary. Qualified and experienced construction contractor will be responsible for implementation of mitigation measures during the construction phase.

To look after the EHS aspects, TSEL should deploy an EHS Officer/Compliance Officer having sound qualification and experience. Based on the performance, he will be extended for the Operation Phase or a new EHS officer will be recruited. The major responsibilities of the EHS Officer/Compliance Officer are as follows:

- Monitor the environmental, health, safety, fire protection and emergency response matters;
- Ensure the compliance of the Department of Environment;
- Ensure the compliance of other external stakeholders;
- Monitor the implementation of the EMP;
- Develop standard operational procedure (SOP) for EHS aspects;
- Conduct safety inspections; provide safety training to promote a safe working environment for the employees.

3.1.3 Environmental Training

Training is an integral part of a preventive strategy. Environmental and disaster management training will be required to ensure proper implementation of effective environmental management and monitoring plan; and disaster management plan. However, training could be organized by ESMU involving relevant staff. As a trainer, competent Consultant can be outsourced. Important training under the spectrum of ESMU needs to include:

- Training on firefighting;
- Training on environmental regulations and standards;
- Staff training on environmental monitoring;
- Training on environmental health and safety measure.

3.2 Environmental Monitoring

Environmental monitoring is an essential component of environmental management plan, as it provides the basic scenario of the impact of the project on baseline condition. The prime objectives of environmental monitoring are:

- Assess the effectiveness of proposed mitigation measures by comparing monitoring result with baseline data/environmental standards;
- Identify the extent of environmental impact;
- Determine project compliance with regulatory requirements;
- Adopt remedial action and further mitigation measures if found to be necessary.

During the Construction Phase, the construction contractor will ensure that activities like land leveling, clearing work, access road construction, putting proper traffic signals etc. have been accomplished properly to minimize the level of impact. This in turn has to be monitored by the Compliance Officer of ESMU of the power plant, in operation phase. Preventive maintenance

should be carried out to identify and resolve problems. Other environmental good practices include maintaining hygienic conditions, maintenance of fire and safety equipment etc. and clearing of grass should be done periodically.

TSEL should develop a working relationship with the DOE by undertaking a joint monitoring program to monitor ambient air quality and also to assess whether there exists any significant noise problem; or they may exchange data and information or submit periodic report on self-monitoring to the DOE or as the situation may require.

The proposed monitoring program should be in compliance with national environmental standards. The importance of this monitoring program is also for ensuring that the plant does not create adverse environmental changes in the area and provide a database of operations and maintenance, which can be utilized if unwarranted complaints are made.

3.2.1 Environmental Monitoring Parameters

Environmental monitoring requires set of parameters that could be conveniently measured, assessed and evaluated periodically to observe the trends of change in base line environmental quality. The lists of possible parameters to be tested, sample number and sampling frequency are given in Table 9.1 and Table 9.2 for the construction and operation phases respectively. PM_{10}

Table 3.1: Monitoring parameters and frequency of monitoring during construction

Key parameters to be monitored: (1) Ambient Air Quality			
location	**frequency**	**parameter**	**submission**
At Project site, residential /institutional /commercial areas within 500m outside from plant boundary	Quarterly (routine) analysis	SPM, PM_{10}, $PM_{2.5}$	Quarterly submission to Cox's Bazar District Office of DOE.
Key parameters to be monitored: (2a) Surface Water			
location	**frequency**	**parameter**	**submission**
Project site at Cox's Bazar	Bi-annual basis in each year (pre-monsoon and post-monsoon)	pH, Temperature, DO, BOD, COD, TDS, TSS, Oil and grease	Bi-annual submission to Cox's Bazar District Office of DOE.
Key parameters to be monitored: (2b) Ground Water			
location	**frequency**	**parameter**	**submission**
Project site at Cox's Bazar	Bi-annual basis in every year (pre-monsoon and post-monsoon)	pH, Temperature, DO, BOD, COD, TDS, Oil and grease	Bi-annual submission to Cox's Bazar District Office of DOE.
Key parameters to be monitored: (3) Noise			
location	**frequency**	**parameter**	**submission**

At four corners of Project boundary, residential/institutional /commercial areas within 100m and 300m outside from plant boundary	Quarterly (routine) analysis Hourly basis for 24 hours during	Limits in dBA	Quarterly submission to Cox's Bazar District Office of DOE.

Table 3.2: Monitoring parameters and frequency of monitoring during operation phase

Key parameters to be monitored: (1) Ambient Air Quality			
location	**frequency**	**parameter**	**submission**
At Project site, residential /institutional /commercial areas within 500m outside from plant boundary	Quarterly (routine) analysis	SPM, PM_{10}, $PM_{2.5}$	Quarterly submission to Cox's Bazar District Office of DOE.
Key parameters to be monitored: (2a) Surface Water			
location	**frequency**	**parameter**	**submission**
Project site at Cox's Bazar	Bi-annual basis in each year (pre-monsoon and post-monsoon)	pH, Temperature, DO, BOD, COD, TDS, TSS, Oil and grease	Bi-annual submission to Cox's Bazar District Office of DOE.
Key parameters to be monitored: (2b) Ground Water			
location	**frequency**	**parameter**	**submission**
Project site at Cox's Bazar	Bi-annual basis in every year (pre-monsoon and post-monsoon)	pH, Temperature, DO, BOD, COD, TDS, Oil and grease	Bi-annual submission to Cox's Bazar District Office of DOE.
Key parameters to be monitored: (3) Noise			
location	**frequency**	**parameter**	**submission**
At four corners of Project boundary, residential/institutional /commercial areas within 100m and 300m outside from plant boundary	Quarterly (routine) analysis Hourly basis for 24 hours during	Limits in dBA	Quarterly submission to Cox's Bazar District Office of DOE.
Key parameters to be monitored: (4) Electromagnetic Force			
location	**frequency**	**parameter**	**submission**
Measurement of electromagnetic force by a certified agency for Transmission line, switch gears and transformers	Annual	electromagnetic force	Lender/Financier

3.3 Environmental Monitoring and Management Budget

Environmental monitoring is conducted to compare the change between baseline condition and after project scenario, by testing some environmental parameters of air, water and noise and in case of necessity soil is tested. ESMU is fully responsible for environmental monitoring as well as implementation of environmental management plan. As testing environmental parameters required sophisticated instruments, it is suggested that ESMU should outsource consulting firm for testing and analyzing environmental parameters. But it will have to be equipped with required instruments gradually by purchasing required instruments. However, a tentative environmental monitoring budget has been proposed in **Table** 9.3. Laboratory analysis fees considered as per monitoring fees format of DOE/private laboratories.

Table 3.3: An annual tentative budget for environmental monitoring

Activity	Units	Annual Total
Firefighting and suppression equipment, training and annual fire safety drill	lump sum	150,000
Cost of occupational health and safety equipment	lump sum	300,000
Quarterly test of ambient air quality (SPM, PM_{10}, $PM_{2.5}$)	4	100,000
Half yearly test of surface water (pH, Temperature, DO, BOD, COD, TDS, Oil and grease)	2	75,000
Half yearly test of ground water (pH, Temperature, DO, BOD, COD, TDS, Oil and grease)	2	75,000
Quarterly noise monitoring	4	100,000
Measurement of electromagnetic force by a certified agency for Transmission line, switch gears and transformers (annual)	1	300,000
Environmental Training	lump sum	125,000
Quarterly Environmental & Social Audit by Third Party	4	2,800,000
Sub Total in Tk.		4,025,000
Contingency (10 %)		402,500
Total in BDT		**4,427,500**
Note: (Considering USD 1 = Tk. 82.0)		**USD 53,994**

3.4 Financial Arrangement for Environmental Monitoring and Management

TSEL will provide the full financial support to Environmental and Social Monitoring Units (ESMU). For ensuring smooth and uninterrupted functioning of ESMU, it is suggested that TSEL will allocate the required fund based on analysis of estimated budget proposed by ESMU early in the every financial year. So, ESMU can run its operation to ensure environmental monitoring as well as implementation of proposed environmental management plan as may cause due to the unavailability of fund.

3.5 Environmental & Social Monitoring and Management Reporting

As a part of environmental and social compliances, TSEL will engage third party consultant for conducting quarterly Environment, Health, Safety & Social Compliance Monitoring/Auditing and the monitoring/audit report of the Project should be submitted to the financier/lender. It will describe in detail about the status of implementation of Environmental and Social Management and Monitoring Plan (ESMMP) as described in Section 8.4 of this report. This will also take into account compliance with national and lender required/international legal requirements in line with Environment, Health, Safety & Social Compliances. FINANCIER/LENDER will monitor the EHS compliance as and when required. The schedule of reporting the monitoring arrangement has been presented in the following **Table** 3.4.

Table 3.4: Reporting schedule

Reporting entity	Frequency of Report	Entity to whom the report will be submitted
Third Party Consultant	Quarterly EHS & Social Compliance Report during construction phase	To the Financier/ Lender through TSEL
Third Party Consultant	Quarterly EHS & Social Compliance Report during for the 1st 2 years of operation phase	To the Financier/ Lender through TSEL

References

1. Asian Development Bank's (ADB's) Safeguard Policy Statement (SPS, 2009).
2. BBS (2011): Bangladesh Bureau of Statistics (BBS), Government of People's Republic of Bangladesh.
3. BBS (2011): Bangladesh Population Census, Community Series Zila: Cox's Bazar, Bangladesh Bureau of Statistics (BBS), Planning Division, Ministry of Planning, Government of the Peoples' Republic of Bangladesh.
4. BBS (2011): Bangladesh Population Census, Community Series Zila: Cox's Bazar, Bangladesh Bureau of Statistics (BBS), Planning Division, Ministry of Planning, Government of the Peoples' Republic of Bangladesh.
5. GoB (1982): Government of the People's Republic of Bangladesh, Acquisition & Requisition of Immovable Property Ordinance.
6. GoB (1989): Government of the People's Republic of Bangladesh, Property (Emergency) Acquisition Act.
7. IFC Performace Standards (2008): International Finance Corporation, Land Acquisition & Private Communication (2005-2006): Information from Rural Industries
8. WB (2007): The World Bank Operation Manual: Involuntary Resettlement
9. www.adb.org/documents/guidelines/environmental_assessment/environmental_categorization.pdf

Annexures

Annex 1: No Objection Certificate from the 2 No. Nhila UP Chairman

বিছমিল্লাহির রাহমানির রাহীম।

২নং হীলা ইউনিয়ন পরিষদ কার্যালয়

ডাকঘর- হীলা, উপজেলা- টেকনাফ,
জেলা- কক্সবাজার, বাংলাদেশ।

সূত্র ঃ হীলা/ইউ.পি/টেক-৪৭ তারিখঃ ২০/০১/২০১৬ইং

অনাপত্তি সনদপত্র

আবেদনকারী ঃ "টেকনাফ সোলারটেক এনার্জি লিমিটেড"
এর পক্ষে ব্যবস্থাপনা পরিচালক/ স্বত্বাধিকারী ঃ- মাহমুদুল হাসান,
পিতা- হারুনউর রশিদ,মাতা- মাকছুদা বেগম।
স্থায়ী ঠিকানা- উত্তর শাহী মহল্লা, কুতুবপুর, ফতুল্লাহ, নারায়ন গঞ্জ।
বর্তমান ঠিকানা- ৮, কামাল আতাতুর্ক এভিনিউ, বনানী, বা/এ, বনানী ঢাকা।

প্রকল্পের অবস্থানগত ঠিকানা ঃ গ্রাম- দক্ষিণহীলা অলিখালী, ডাকঘর- রাঙ্গীখালী, ০২ নং হীলা ইউনিয়ন, থানা/উপজেলা- টেকনাফ, জেলা- কক্সবাজার।

প্রকল্পের উৎপাদিত/উৎপাদিতব্য পণ্যের নামঃ সোলার পাওয়ার উৎপাদন, বিতরণ, সরবরাহকারী, আমদানী ও রপ্তানী।

প্রকল্পের তফসিল ঃ মৌজা- দক্ষিণহীলা, জে.এল নং- ০৫, থানা/উপজেলা- টেকনাফ, জেলা- কক্সবাজার অধীনে, বি.এস খতিয়ান যথাক্রমে ২৬নং, ৫০নং, ৫১নং, ৩৫নং, ৪৫৪নং, ৭৫৭নং, ৭৬২নং, ৭৯৬নং, ৭৯৭নং, ৭৯৮নং, ৮১৬নং, ১১২৩নং, ১১২৪নং, ১২৩০নং, ১২৫২নং, ১২৯৩নং, ১২৯৫নং, ১৩২২নং, ১৪৮৩নং, ১৫২১নং, ১৬৩০নং, ১৬৫১নং, ১৬৫৯নং, ১৬৮১নং, ১৭৪৫নং, ১৭৮৫নং, ১৭৮৬নং, ১৭৯৫নং, ১৮৬৬নং, ১৮৩৩নং, ১৯৪৯নং, ২০১১নং, ২০৯৬নং, ২১০০নং, ২১০১নং, ২১০২নং, ২১০৩নং, ২১০৪নং, ২১০৫নং, ২২৩৫নং, ২২৪২নং, ২২৯৮নং, ২৩৫৫নং, ২৩৩২নং, ২৪৫৩নং, ২৪৬২নং।
বি.এস দাগ নং যথাক্রমে ১০৬৫৪, ১০৬৫৫, ১০৬৫৬, ১০৬৫৭, ১০৬৫৮, ১০৬৫৯, ১০৬৬০, ১০৬৬১, ১০৬৬২, ১০৬৬৩, ১০৬৬৪, ১০৬৬৫, ১০৬৬৬, ১০৬৬৭, ১০৬৬৮, ১০৬৬৯, ১০৬৭০, ১০৬৭৩, ১০৬৭২, ১০৬৭৩, ১০৬৭৪, ১০৬৭৫, ১০৬৭৬, ১০৬৭৭, ১০৬৭৮, ১০৬৭৯, ১০৬৮০, ১০৬৮১, ১০৬৮২, ১০৬৮৩, ১০৬৮৪, ১০৬৮৫, ১০৬৮৬, ১০৬৮৭, ১০৬৮৮, ১০৬৮৯, ১০৬৯০, ১০৬৯১, ১০৬৯২, ১০৬৯৩, ১০৬৯৪, ১০৭১৫, ১০৭২০, ১০৭২১, ১০৭২২, ১০৭২৩, ১০৭২৪, ১০৭২৫, ১০৭২৬, ১০৭২৭, ১০৭২৮, ১০৭২৯, ১০৭৩০, ১০৭৩১, ১০৭৩২, ১০৭৩৩, ১০৭৩৪, ১০৭৩৫, ১০৭৩৬, ১০৭৩৭, ১০৭৩৮, ১০৭৩৯, ১০৭৪৩, ১০৭৪২, ১০৭৪৩, ১০৭৪৬, ১০৭৪৭, ১০৭৪৯, ১০৭৫০, ১০৭৫১, ১০৭৫৪।
জমির পরিমাণ ঃ- ১১৬ একর। জমির ধরণ ঃ- নাল শ্রেণী।

এই মর্মে প্রত্যয়ন করা যাইতেছে যে, " টেকনাফ সোলারটেক এনার্জি লিমিটেড" এর সোলার পাওয়ার প্রকল্প বাস্তবায়ন হলে অত্র এলাকার মানুষের কর্ম সংস্থান সৃষ্টি হবে, আত্ন-সামাজিক উন্নয়ন হবে এবং সর্বোপরি বিদ্যুতের চাহিদা পূরণ হওয়ার সম্ভাবনা বিদ্যমান বিধায় উপরোক্ত তথ্যাদির আলোকে "টেকনাফ সোলারটেক এনার্জি লিমিটেড" প্রকল্পকে নিম্নবর্ণিত শর্ত সাপেক্ষে অত্র অনাপত্তিপত্র প্রদান করা হইল।

শর্তাবলীঃ

১. প্রকল্প/কারখানা স্থাপন ও পরিচালনার ক্ষেত্রে পরিবেশ সংরক্ষণ আইন ও বিধি যথাযতভাবে অনুসরণ করতে হবে
২. পরিবেশ অধিদপ্তর হতে বিধি দ্বারা নির্ধারিত পদ্ধতিতে ছাড়পত্র গ্রহণ করতে হবে।
৩. কর্মরত শ্রমিকদের পেশাগত স্বাস্থ্য ও নিরাপত্তা নিশ্চিত করতে হবে।
৪. উপযুক্ত অগ্নি নির্বাপক ব্যবস্থা রাখতে হবে এবং অগ্নিকান্ড কিংবা অন্য কোন দূর্ঘটনার সময় জরুরী নির্গম ব্যবস্থা থাকতে হবে।।
৫. বায়ু দূষণ ও শব্দ দূষণ করা যাবে না।
৬. কারখানা/প্রকল্প সৃষ্ট তরল বর্জ্য অপরিশোধিত অবস্থায় বাইরে নির্গমন করা যাবে না।

উপরোক্ত যে কোন শর্ত লঙ্ঘন করলে যথোপযুক্ত কর্তৃপক্ষ কতৃক কারখানা/প্রকল্পের বিরুদ্ধে আইনানুগ ব্যবস্থা গ্রহন করা হবে।

আমি অত্র প্রকল্পের সর্বাঙ্গীণ সাফল্য কামনা করি।

স্বাক্ষর ও সীল
২০/১/১৬
চেয়ারম্যান
০২ নং হীলা ইউনিয়ন পরিষদ
হীলা, টেকনাফ, কক্সবাজার।

তারিখ ঃ ২০/০১/২০১৬ইং

আলহাজ্ব এইচ.কে আলোয়ার
চেয়ারম্যান
হীলা ইউনিয়ন পরিষদ
টেকনাফ, কক্সবাজার।

Annex 2: Registration from Bangladesh Investment Development Institute

Bangladesh Investment Development Authority (BIDA)
Prime Minister's Office

Ref No. **03.231.161.00.00.1529.2017**, 39 Date: 2017-03-30

Sub: Registration of proposed industrial project under the title: **Technaf Solartech Energy Limited**

Dear Sir,
With reference to your application received on 2017-03-29 concerning the above subject, I am pleased to confirm that your proposed industrial project has been duly registered with the Bangladesh Investment Development Authority. The Registration number for this project is **J-401017036753-H** and the particulars of the terms and conditions of which are appended.

If we could be of any further assistance to you, please do not hesitate to call our Service Center representative who could be reached at telephone # 9561416, 9577271-2,9587352-3.

In the meantime, we would like to take this opportunity to extend our best wishes to you in your future endeavours.

Thanking You,

Sincerely yours,

(Sabina Yeasmin)
Director (R&I-Foreign Industry),
Bangladesh Investment Development Authority

MANAGING DIRECTOR
Technaf Solartech Energy Limited
House/Plot/Holding Number: ABC HOUSE, Flat/Apartment/Floor Number: 8TH FLOOR,
Road Name/Road Number: 08 KEMAL ATATURK AVENUE, Post Office: BANANI,
Thana/Upazilla: BANANI, District: Dhaka, - 1213.

Ref No. 03.231.161.00.00.1529.2017 Date: 2017-03-30

Copy for kind information and necessary action:
1. Director General, Department of Environment , Poribesh Bhaban, Plot No. 16 Agargaon, Sher-e-Bangla Nagar, Dhaka.
2. Registrar, Joint Stock Companies & Firms, TCB Bhaban, 1 Karwan Bazar, Dhaka.
3. General Manager, Statistics Department Bangladesh Bank, 29 th Storied Building, Motijheel C/A, Dhaka.
4. Deputy Commissioner, COX'S BAZAR.
5. Director (Policy Advocacy), Bangladesh Investment Development Authority, Jibon Bima Tower, 10 Dilkusha C/A, Dhaka.
6. Director (IM&C), Bangladesh Investment Development Authority, Jibon Bima Tower, 10 Dilkusha C/A, Dhaka.
7. P.S. to Executive Chairman, Bangladesh Investment Development Authority, Dhaka.
8. Master file.

Sincerely yours,

(Abu Mohammad Nurul Hayat Totul)
Assistant Director (R&I-Foreign Industry),
Bangladesh Investment Development Authority

Bangladesh Investment Development Authority, Prime Minister's Office, Jibon Bima Tower, 10 Dilkusha C/A, Dhaka-1000
Phone : PABX 88-02-9561416, 9577271-2, **Fax :** 88-02-9562312, **E-mail :** service@bida.gov.bd, **Web :** www.bida.gov.bd

Annex 3: List of Machineries

Project :	**Grid Tied Solar PV Power Plant of 20 MW (AC)** **Capacity at Nhilla, Teknaf, Cox's Bazar, Bangladesh.**		
Developer:	**Technaf Solartech Energy Limited**		
Sr. No.	**Item Description**	**Unit Of Material**	**Quantity**
A	**PV Modules capacity**		
	PV Modules of capacity 325Wp	Nos	94809
	RFID Tags for modules	Nos	94809
B	**Module Mounting Structure (MMS)**		
	42X6MMS Structure along with fasteners and allied	Sets	350
	Inverter Structure along with fasteners and allied	Sets	350
C	**DC System**		
	Connectors (MC4 Connectors)		
	Male Connector	Nos.	20000
	Female Connector	Nos.	20000
	String Combiner Boxes (SCB)		
	String Combiner boxes (SCB) for string configuration having DC input 12 nos.& DC output - 1no., with fuse protection.	Nos.	400
	DC Cables		
	Single core 4sq.mm 1.8kV DC, XLPO, Al/Copper cable, EN 50618 and TUV	m	150000
	Single core 95sq.mm, 1.5kV DC, XLPE, Ar, Al/Copper cable	m	150000
D	**String Inverters make SMA 60KW, 400V with connected accessories and peripherals and all necessary tools & tackles.**	Nos.	400
E	**Inverter Transformer**		
	33/0.4, 2MVA , ONAN Transformer with off circuit tap changer.	No.	12
F	**AC System**		

	19/33KV(E) HT POWER CABLE		
	3Cx185 sq.mm HT Cable (19/33kV(E), Al/Copper conductor, XLPE insulated, extruded PVC compound type ST-2 inner sheathed)	m	8000
	3Cx240 sq.mm HT Cable (19/33kV(E), Al/Copper conductor, XLPE insulated, extruded PVC compound type ST-2 inner sheathed)		4000
	3Cx300 sq.mm HT Cable (19/33kV(E),Al/Copper conductor, XLPE insulated, extruded PVC compound type ST-2 inner sheathed)		4000
	1.1KV LT POWER CABLE		
	1100V (E),Al/Copper conductor, XLPE insulated, Al armored, overall PVC outer sheathed, generally conforming to IEC 60502 of following sizes.		
	3Cx35 sq.mm LT Cable	m	10000
	1C x 300 sq.mm LT Cable	m	10000
	1C x 500 sq.mm LT Cable	m	10000
	1.1KV LT POWER CABLES		
	4C x 10 sq.mm Al/Cu cable	m	7000
	2C x 2.5 sq.mm Al/Cu cable	m	2000
	4C x 4 sq.mm Al/Cu cable	m	1000
	3C x 2.5 sq.mm Al/Cu cable	m	1000
	1C x 2.5 sq.mm Al/Cu cable	m	1000
	4C x 25 sq.mm Al/Cu cable	m	1000
	415V AC Distribution Board (415V ACDB) at MCR		
	33kV/415V,3ph,4 wire ACDB consisting of incomers for 50kVA Transformer buscouplers and TPN feeders with all control, protection, indication, other accessories & fittings as per specification and single line diagram.	Nos.	5
	400V Indoor Main LT Panel as per key AC SLD (16-10165-EE-SLD-DWG-01)	Nos.	12
	415V AC Distribution Board (415V ACDB) at Inverter Station		
	415V, 3ph, 4 wire UPS DB consisting of DP feeders as per single line diagram attached complete with all control, protection, indication, other accessories & fittings as per specification. (For inverter rooms)	Nos.	6
	415V, 3ph, 4 wire UPS DB consisting of DP feeders as per single line diagram attached complete with all control, protection, indication, other accessories & fittings as per specification. (For MCR)	Nos.	2
	DP/4P Structure		

	Double Pole Structure consisting of ISMC Channels and all required accessories	Set	2
	33kV Metering CT as per SLD	Nos.	4
	33kV Metering PT as per SLD	Nos.	4
	Energy meter	No.	2
	33kV, 10kA Lightning Arrestor	Nos.	4
	33kV Motorized Isolator with Earth Switch as per SLD	Set	4
G	**Allied System**		
	Cable Termination		
	Termination of following sizes of cables at equipment end including supply of required double compression cable glands, bimetallic lugs, ferrules, tag no. plates etc. for following cables		
	1C x 4 sq.mm cable/ *Pin type termination*	Lots	1
	1C x 95sq.mm cable */Bimetallic Lugs*	Lots	1
	3C x 35sq.mm cable/ *Lugs*	Lots	1
	3C x 240sq.mm cable/ *Lugs*	Lots	1
	1C x 300 sq.mm LT Cable*/Bimetallic Lugs*	Lots	1
	1C x 70 sq.mm cable*/Double Compression Gland*	Lots	1
	3C x 35sq.mm cable/ *Double Compression Gland*	Lots	1
	3C x 240sq.mm cable/ *Double Compression Gland*	Lots	1
	1C x 300 sq.mm LT Cable*/Double Compression Gland*	Lots	1
	HT Cable End Termination & Straight Through Joints		
	End Terminations for 33 kV earthed grade HT Cables (XLPE) for following sizes including necessary clamps / gland, lugs etc.		
	3Cx185 SQ.MM HT Cable termination kit	Nos.	50
	3Cx185 SQ.MM HT Cable termination kit for RMU	Nos.	50
	3Cx185 SQ.MM HT Cable straight through joints required	Nos.	50
	3Cx240 SQ.MM HT Cable termination kit	Nos.	50
	3Cx240 SQ.MM HT Cable termination kit for RMU	Nos.	50
	3Cx240 SQ.MM HT Cable straight through joints required	Nos.	50
	3Cx300 SQ.MM HT Cable termination kit	Nos.	50

	3Cx300 SQ.MM HT Cable termination kit for RMU	Nos.	50
	3Cx300 SQ.MM HT Cable straight through joints required	Nos.	50
	1.1KV LT Cables		
	2C x 4 sq.mm Al/Cu cable	Lots	1
	4C x 10 sq.mm Al/Cu cable	Lots	1
	2C x 2.5 sq.mm Al/Cu cable	Lots	1
	4C x 4 sq.mm Al/Cu cable	Lots	1
	3C x 2.5 sq.mm Al/Cu cable	Lots	1
	1C x 2.5 sq.mm Al/Cu cable	Lots	1
	4C x 50 sq.mm Al/Cu cable	Lots	1
	Cable Markers/Clamps for 33kV buried cable		
	Cable markers for underground cable runs of LT Cables and 33kV inclusive of providing and fixing supports on 18 SWG enameled steel plate engraved	Nos.	200
	Cable Warning tape for DC & 33kV cables		
	Cable warning tape for underground cable runs with letters "BURIED ELECTRIC CABLES BELOW" marked on yellow background, including necessary Civil material	m	4000
	DC trench	m	
	MV AC trench	m	4000
	Cable Trays		
	a) 900 x 2 x 100 mm (W x T x H) Ladder Type	m	100000
	b) 200 x 2 x 50 mm (W x T x H) Perforated Type	m	100000
	c) 100 x 2 x 50 mm (W x T x H) Perforated Type with Cover	m	100000
	d) 600 x 2 x 100 mm (W x T x H) Ladder Type	m	100000
	e) 450 x 2 x 100 mm (W x T x H) Ladder Type	m	100000
	ISMC channels, support metallic anchor fasteners for supporting cable tray supports / equipment erection .This shall also include hardware such as nut/bolts/ washers required to do mounting structure and other equipment earthing as required.	Lots	1
	Safety Equipment		
	Following equipment including necessary hard wares;		

	a. Shock hazard charts complete with frame and glass	Nos.	50
	b. First aid boxes	Nos.	50
	c. Caution boards as per IEC	Nos.	50
	d. Sand bucket with stand (Each set with 5 buckets)	Nos.	50
	e. SLD with frame and glass	Nos.	50
	f. Fire extinguisher		50
	i.10kG Co2 type	Nos.	50
	ii. Foam 45 ltr capacity	Nos.	50
	iii.10kG DCP type	Nos.	50
	g. Insulated floor Mats Manufactured from highly electric resistant elastomer, conforming to IEC, upper surface is having small aberration (Anti-Skid) marks to avoid slippery effects & lower surface is plain, according to its class, 1m wide.		
	a) Type – 'A' for working voltage up to 3.3 KV, Thick: 2mm	m	500
	b) Type – 'C' for working voltage up to 33KV, Thick: 3mm	m	100
	Heavy Duty HDPE pipes		
	200mm diameter pipe	m	500
	HDPE Conduit pipe and coupler		
	Conduit pipe, 50mm ID	m	100000
	Illumination System		
	Lighting Fixtures		
	Following lighting fixtures complete with lamps and necessary control gear including supply of all connected materials like flexible conduit, clamps, supports, chains, anchor fasteners, bolts, nuts and washers		
	40W Capsule LED fixture, surface / pendent mounting with all necessary accessories like suspension pipes, cover plates etc and suitable for 240V AC. Bajaj type – BICDP 40W LED / Philips / equivalent.	Nos.	500
	60W LED fixture, Outdoor type wall / structure mounting suitable for 240V AC. Bajaj / Philips / Wipro equivalent.	Nos.	500
	70W MH fixture, Outdoor type wall / structure mounting suitable for 240V AC.	Nos.	100
	Internal wiring		
	25 mm dia PVC Pipe	m	1000

	32A Welding Socket	Nos.	50
	2.5 sqmm Al/Cu wire	m	50000
	4 sqmm Al/Cu wire	m	20000
	6 sqmm Al/Cu wire	m	500
	230V 6A SP switch	Nos.	500
	6A Power Socket	Nos.	500
	16A Switch	Nos.	500
	16A Power Socket	Nos.	500
	16 module switchboard with 11nos 5A plate type switches with 2Nos of 5A, 3 pin 240V receptacle with safety shutter	Nos.	500
	6 module Switchboard with 1nos 16A plate type switches with 2Nos of 16A, 3 pin 240V receptacle with safety shutter	Nos.	500
	3way Junction Box	Nos.	500
	Clamps for conduits - 25 mm dia	Nos.	500
	Bends	Nos.	500
	Circular boxes/pull out boxes	Nos.	500
	Couplers	Nos.	500
	Lighting Panels/ Power panels		
	20kVA UPS with 4hr power backup with required battery bank	Nos.	4
	3kVA UPS with 2hr power backup with required battery bank	Nos.	10
	Street Lighting Poles		
	15 Watt LED	Nos.	500
	Swaged tubular steel poles complete with base plate along with supply of luminaries supporting bracket and earthing materials. 3.5m high lighting pole with Supply Junction box with HRC fuse, neutral link, terminal block and 02 nos. M8 earthing stud for single arm steel pole along with mounting bracket suitable for steel pole mounting.	Nos.	500
	Following Feeder Pillar Box/Street LP with dusk to dawn cotroller and timer FPB with outgoing feeders for outdoor lighting. Incomer : 50A TPN ELCB, Outgoing : 3 nos 16A SPN MCB	Nos.	10
	Street Lighting cables		
	1.1kV grade, XLPE insulated armored aluminum cable of size 4Cx10 sq. mm. for street light poles	m	2000

	Cable band, cable ties		
	100 mm aluminum tag	Lots	1
	PVC cable tie for clamping of loose solar cables with solar panel frames, Panel structure etc. The PVC cable tie shall be UV resistance.	Lots	1
	Cable Tie 300 mm UV protected black	Lots	1
	Cable Tie 100 mm UV protected black	Lots	1
	Cable Sleeve 8 mm Red	Lots	1
	Cable Sleeve 8 mm Black	Lots	1
	Ferrule 0-9 (10mm)	Lots	1
	ferrule, P,N (10mm)	Lots	1
H	ferrule, R,Y, B (10mm)	Lots	1
	Water Pumps and other Systems		
	Sump pump set 1.5HP, 3 phase, 415 volts, 50 Hz	Nos.	5
	Portable water pump set 1.5HP, 3 phase, 415 volts, 50 Hz	Nos.	5
I	Control panel consisting of DOL starter, MCB etc	Nos.	5
	4C, 4sq. Mm, 1100V AC grade PVC insulated steel wire/ tape armored copper conductor cables as required for installation of above pump.	m	500
	HT Switchgear and Battery Charger System		
	Control Room 33kV, 630A VCB(7Nos.), 25kA for 3 sec, Indoor type switchgear Panel at control room, Line PT-1 No.	No.	10
	Inverter Room 33kV, 630A VCB, 25kA for 3 sec, Indoor RMU Panel at inverter room with 2 Breaker + 1LBS (Type- CVV)	Nos.	10
	48V dual FCBC battery chrger with suitable AH capacity and DCDB.	Nos.	4
	Solar Field Earthing		
	Following GI earthing strip / GI Wire		
	50x10mm GI flat	m	2000
	25x6mm GI Flat	m	25000
	32x6mm Cu flat	m	500
	16sq.mm Insulated Al/Cu cable (Yellow-green for SCB grounding)	m	1500

J	16sq.mm Insulated Al/Cu cable Bimetallic lug for terminating with earth strip	Nos.	500
	16sq.mm Insulated Al/Cu cable (Yellow-green for Inverter grounding)	m	2000
	16sq.mm Insulated Bimetallic Lug	Nos.	500
	60MM DIA. 3000MM LONG GI pipe electrode with salt, charcoal etc (treated pits)	Nos.	200
	ESE type lightning arrester (107 ms radial range)	Nos.	24
	18MM DIA. 3000MM LONG Cu bonded electrode with chemical powder	Nos.	100
	Weather Station and Control & Monitoring		
	Control & Monitoring Cables for PV Plant		
	4x2x0.5 Sq. mm Twisted pair shielded Cable (Type Li- 2YCYv or equivalent)	km	10
	4 pair Category 6e cable consisting of 24 AWG solid copper conductors The cable shall have flexible jacket and ripcord for easy Stripability	m	6000
	06F armored unitube single sheath, multimode type Fiber optics Cable with required terminations.	m	10000
	LT Control Cables (1.1 kV grade, PVC insulated, armored FRLS PVC sheathed copper conductor cables)		
	4Cx2.5 Sq. mm Multi strand Al/Cu Cable	m	1000
	8Cx2.5sq. mm Multi strand Al/Cu Cable	m	1000
	12Cx2.5sq. mm Multi strand Al/Cu Cable	m	1500
	SCADA Hardware/Software		
	RTU Panel with I/O cards, ethernet/mod bus/gateway units, FO convertors, ethernet switches.	Nos.	10
	Workstation 22"	Nos.	15
	Server with required accessories and storage	Nos.	15
	Historian server workstation with required accessories and storage	No.	10
	SLDC Communication gateway/RTU	No.	10
	GPS Clock	No.	10
	Remote monitoring license	Nos.	10
	Software License with for unlimited I/O tags	No.	10
	Others as required to commission the SCADA	Lot	10
	Instruments for meteorological measurements		

	Pyranometer	Nos.	10
	Ambient Temperature cum humidity measuring instrument	No.	10
	Anemometer	No.	10
	Module temperature sensor	Nos.	10
	Data logger	No.	20
	Barometer	No.	10
	Rain Gauge	No.	10
	Misc. Others		
	Multi Sensors	Nos.	350
	Heat Detector	Nos.	350
	Fire Alarm Panel	Nos.	50
	CCTV cameras	Nos.	50
	1.5 ton Split AC	Nos.	10
	Electrical, Electronics and Mechanical Tools	Sets	50
	Installation of galvanized Factory Fabricated sheet metal ducting generally as specified and completely factory fabricated with: a) with angle 40x40x5mm flange & b) Stiffener Diagonal angle of 25x25x3mm all four side c) Galvanized companion flanges & girth angles. d) Turning vanes- 2 nos/inverter e) Galvanized structural support systems for hanging of duct f) Single louvered Exhaust air grilles with bird mesh in aluminum construction duly Powder coated and to be fitted with Exhaust Air Ducting of each Inverter Unit. g)2mm Galvanised Sheet Steel - 10 sq.mtr /per inverter	Nos.	50
	Exhaust fans in Inverter rooms	Nos.	30

Annex 4: Fire Accessories to be procured

Fire Fighting System

Quantity of Equipment

Item	Description	Qty	Unit
1	PUMP Set (Electric, Diesel, Jockey)	5	pcs
2	Sprinkle	25	pcs
3	Hydrant Water Nozzle	12	pcs
4	Fire Hydrant Piping	1000	m
5	ABC Type Fire extinguisher	30	pcs
6	CO2 type fire extinguisher	13	pcs
7	Fire detector	33	pcs
8	Smoke Detector	30	pcs
9	Heat detector	25	pcs
10	Fire alarm control panel	1	set
11	Fire exit signage	10	pcs
12	Emergency Light with battery backup	8	pcs
13	Fire alarm	2	pcs
14	First Aid Box	4	set
15	Bucket with sand	15	pcs
16	Wet Blanket	8	pcs

Annex 5: Land Details with Owners' Name, Dag and Khatian Numbers

SL. No.	Land Owner Name	BS Dag No.	Total Land (Decimals)
01	Shafiqul Islam Chowdhury	10661	20.00
		10673	14.00
		10674	25.00
		10715	120.00
02	Hazi Jamal Hochon	10686	57.00
03	Ali Hossain	10723	67.33
		10715/10751	80.00
04	Saira Khatun, Asma Begum, Abdur Rahman Bodi	10723	14.00
		10715	160.00
05	Syful Karim, Md. Dolilur Rahman	10654	63.00
		10655	4.25
		10657	14.00
		10658	20.00
06	Abdul Gafur, Amir Hochon	10724	43.00
		10686	45.00
		10676	40.00
07	Delower	10735	66.66
08	Shamsun Nahar	10674	40.00
		10671	25.00
09	Mr. Jamal Hochon	10661	147.23
		10674	
		10688	
		10669	
		10676	
		10684	
		10689	
		10668	
		10670	
		10653/'10754	
		10661	50.00
		10675	10.00
		10741	30.00
		10726	22.17

		10729/'10749	4.50
		10737	40.00
10	Monju Ara Begum	10671	25.00
11	Romija Khatun, Kader Hossain, Ashraf Hossain, Farid Alom, Jafar Alam, Rashid Ahmed, Badsha Miah, Golam Azom, Md. Hochon, Jaheda Khatun, Noor Jahan, Noor Nahar.	10684	45.00
		10673	65.00
		10672	80.00
		10661	43.50
		10674	108.50
		10667/'10747	70.00
12	Dil Mohammad & 5 Brothers	10659	57.00
		10660	
13	Mohammad Osman	10715	80.00
14	Mohammad Hochon	10675	107.00
		10689	5.00
		10727	40.00
		10671	7.67
15	Jamal Hochon Gong	10661	100.00
		10665	30.00
		10672	18.00
		10674	207.00
		10681	7.00
		10694	5.50
		10695	5.50
		10692	40.00
		10723	6.00
16	Ezahar Mia	10688	33.33
17	Jamal Hosson & Jokir Ahmed	10661	40.00
18	Chayad Alam	10623	40.00
19	Gulam Azam & Mohammad Hosson	10674	80.00
20	Farid Alam & 5 Brothers	10661	40.00
21	Farid Alam	10674	100.00
		10661	
22	Riduan Bhuiyan & 3 Brothers	10675	113.00
		10671	12.00
		10666	33.33
23	Abdur Rakim or Rahim	10661	40.00
24	Ayesha Begum represented by Soltan Ahmad	10741	35.00
		10675	25.00

		10674	
		10742	
		10738	
25	'Hazi Saleh Ahamed	10737	240.00
26	Successor of Gura Mia 'Ayesha Begum & 7 son 2 daughter	10737	180.00
27	Senuara Begum	10674	60.00
28	Halema Khatun	10674	20.00
		10661	15.00
		10684	5.00
		10694	
29	Monju Ara	10672	20.00
30	Khursheda Begum	10672	20.00
31	Saleha Begum	10675	70.00
32	Shah Azam	10684	52.00
		10688	8.00
		10669	5.00
		10660	54.34
		10742	40.00
		10741	40.00
		10724, 10691, 10694, 10723, 10674, 10685, 10686	186.00
33	Dr. Md. Nurul Absar Hkan, Dr. Md. Monjur Hosain, Dr. Jinnatun Nesa	10661	60.00
34	Ahmed Hochon, Jafar Alam, Ummat Ali, Aiyesha Begum, Gulfaraj Begum	10741	40.00
		10674	113.33
35	Simanta Aqua Culture Limited	10674,10672, 10673,	235.87
		10673,10672	80.67
		10673,10672	34.50
		10743	80.00
		10673,10674, 10672	76.33
		10674	20.00
36	Mojaher Miah, Azaher Miah, Dolil Ahammad, Shamsul Alam, Ubaidul Hazur, Nurul Haque, Dudu Miah, Lala Bibi	10774	136.66
		10688	73.00
37	Johur Alam	10673	200.00
38	'Hazi Mokbul Ahmed	10741	40.00
39	Md Rafique son of Rashid Ahmed	10741	80.00

40	Md Yousuf Son of Dildar Ahmed	10741	25.00
		10737	15.00
41	Md. Dildar Ahmed (Hazi Farid Ahamed)	10741	40.00
42	Nurul Huda	10661	11.00
		10692	8.67
		10674	9.33
		10663	27.00
		10735/'10774	21.67
		10724	5.00
		10729	11.33
43	Nurul Huda	10671	0.33
		10672	20.00
		10674	0.67
		10734	30.00
44	Gura Bibi, Shukot Ali	10674	14.67
		10661	44.00
45	Alikhali Mosque	10672	152.00
		10674	40.00
46	Jafor Alam, Jamal Hochon	10672	60.00
47	Rongikhali Darul Ulum Madrasa	10679	60.00
		10665	20.00
		10666	20.00
48	Dil Mohammad(Dost Mohammad)	10689	3.33
		10690	10.00
		10665	6.00
		10666	7.00
		10668	10.00
		10669	4.00
		10692	3.00
		10693	2.00
		10699	6.00
		10680	35.00
		10682	53.33
		10679	62.50
		10735	80.00
		10729	4.00
49	Mst. Nabin Sona, Yeasmin Ara, Anju Ara, Forija Begum, Nurul Amin, Nurul Aziz,	10674	50.00
		10684	58.00

	Abul Hasnat, Nurul Hasnat, Ummay Shely, Jasmin Sultana	10732	15.50
		10750	15.00
		10734	6.50
		10729	4.00
		10715	400.00
50	Shahid Sarwar	10662	107.00
		10653/'10754	51.00
		10661	105.33
		10742	98.72
51	Sirajul Monowar	10675	120.00
		10672	97.23
52	Hazi Saleh Ahamed , Mostak Ahamed	10725	80.00
53	Inheritance of Moulavi Soyed	10742	97.00
54	Md Aman Ullah	10693	40.00
55	Rashida	10674	30.00
	Liakat Ali	10674	30.00
56	Mohammad Kamal Uddin	10668	127.33
57	Mojaher Miah, Azaher Miah, Dolil Ahammad, Shamsul Alam, Ubaidul Hazur, Nurul Haque, Dudu Miah, Lala Bibi	10669	458.18
58	Akimunnesa , Sikder Ali, Siddique Ahammad, Lala Bibi, Patla Bibi	10692	291.33
59	Foyej Ahammad	10693	68.27
60	Mr. Afsar Kamal	10674	50.00
61	Nurul Kabir	10665	100.00
63	Dil Mohammad	10674	187.00
62	Harun KSA	10684	350.00
63	Jamal Member & Brothers (Inherritance)	10673	250.00
64	Gojaiya	10672	400.00
65	Moulavi Shaker & Gong	10661	400.00
66	Gura Mia (Farid)	10688	300.00
67	Ashu (Molavi Rafique)	10669	150.00
68	Bodu Company	10676	80.00
69	Amanullah	10684	40.00
70	Shah Majidia Madrasha	10699	40.00
71	Moulavi Kabir	10680	80.00
72	Omar Ali	10682	160.00
73	Kamal Hossain	10679	200.00

74	Borhan	10774	120.00
75	Momtaj Hossain	10658-60	255.16
Total Decimal			**11,686.55**

Annex 6: Site Clearance from DOE

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

নম্বর- ০২৪

পরিবেশ অধিদপ্তর, কক্সবাজার জেলা কার্যালয়
সায়মন রোড, ঝাউতলা, কক্সবাজার সদর, কক্সবাজার।
E-mail: coxsbazar@doe.gov.bd www.doe.gov.bd
ফোন ঃ ০৩৪১-৬২২৩২।

[পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭-এর বিধি ৭ ও ৮ অনুসারে অবস্থানগত ছাড়পত্র]

স্মারক নম্বরঃ ২২.০২.২২০০.২১৩.৭২.১৯৪.১৭. ০৫৮

তারিখঃ ০১/০৯/১৪২৪ বঙ্গাব্দ
১৭/০৯/২০১৭ খ্রিস্টাব্দ

বিষয়ঃ টেকনাফ সোলারটেক এনার্জি লিমিটেড নামক সৌর বিদ্যুৎ উৎপাদন কেন্দ্র এর অবস্থানগত ছাড়পত্র (শ্রেণীঃ লাল)।

তারঁ ১০/০৪/২০১৭ তারিখের কক্সবাজার জেলা কার্যালয়ে অবস্থানগত ছাড়পত্র আবেদনের প্রেক্ষিতে গত ২১/০৮/২০১৭ ও ২২/০৮/২০১৭ তারিখে পরিবেশ অধিদপ্তর, সদর দপ্তর পরিবেশগত ছাড়পত্র বিষয়ক কমিটির ৪১২ তম সভার ক্রমিক নং চ (৬) এ বর্ণিত শর্তাবলীর আলোকে পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭ অনুযায়ী লাল শ্রেণীভুক্ত বিবেচনায় সাং- আলীখালী, দক্ষিণ হলিা, উপজেলাঃ টেকনাফ, জেলাঃ কক্সবাজার এ অবস্থিত **টেকনাফ সোলারটেক এনার্জি লিমিটেড নামক সৌর বিদ্যুৎ উৎপাদন কেন্দ্র এর অবস্থানগত ছাড়পত্র** পরিবেশ অধিদপ্তর অধিদপ্তর চট্টগ্রাম অঞ্চল কার্যালয়ের অনুমোদনক্রমে নিম্নবর্ণিত শর্তসাপেক্ষে প্রদান করা হলো। উল্লেখ্য যে কোন শর্ত ভঙ্গের কারণে জারীকৃত ছাড়পত্র বাতিল বলে গণ্য হবে।

শর্তাবলীঃ

১. অবকাঠামোগত উন্নয়নের আওতায় অন্যান্য বিষয়ের মধ্যে আইইই প্রতিবেদনে বর্ণিত সকল মিটিগেশন মেজার্স যথাযথভাবে বাস্তবায়ন করতে হবে।
২. সৌর বিদ্যুৎ উৎপাদন কেন্দ্র স্থাপন কর্মকান্ড ও পরিচালনা দ্বারা কোনভাবে পরিবেশ (মাটি, পানি, বায়ু ও শব্দ) দূষণ করা যাবে না।
৩. পরিবেশ অধিদপ্তর কর্তৃক ইআইএ প্রতিবেদনে কার্যপরিধি (TOR) অনুমোদন করিয়ে নিতে হবে। অনুমোদিত TOR-এর ভিত্তিতে ইআইএ প্রতিবেদন প্রণয়ন করতে হবে এবং উক্ত ইআইএ প্রতিবেদন পরিবেশ অধিদপ্তরের অনুমোদনের নিমিত্তে পেশ করতে হবে।
৪. ইআইএ প্রতিবেদনে এ প্রকল্প সৃষ্ট গ্যাসীয় পদার্থের নিঃসরণ এবং বস্তু কণা (Particulate Matters) নির্গমণ পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭-এ উল্লেখিত মানমাত্রার মধ্যে রাখা, কুলিং ওয়াটার পুনব্যবহারের ব্যবস্থা, বর্জ্য ব্যবস্থাপনার ক্ষেত্রে প্রতিটি রিডাকশন স্টেজের বিস্তারিত ও বাস্তবসম্মত বর্ণনা এবং ১০০% ওয়াটার রিসাইক্লিং- এর বিষয় অর্ন্তভুক্ত করতে হবে।
৫. ইআইএ প্রতিবেদনে নিজস্ব লোকবল ও ইকুইপমেন্ট-এর সমন্বয়ে ইনহাউজ এনভায়রনমেন্টাল মনিটরিং সিস্টেম গড়ে তোলার বিষয়ে প্রয়োজনীয় কারিগরী ও আর্থিক প্রস্তাবনা অন্তর্ভুক্ত করতে হবে।
৬. ইআইএ অনুমোদিত না হলে আমদানিতব্য যন্ত্রপাতির অনুকূলে L/C খোলা যাবে না।
৭. প্রকল্প চত্তরের নূন্যতম ৩৩% জায়গা উপযুক্ত প্রজাতির ফলজ ও বনজ গাছ লাগিয়ে সবুজায়ন করতে হবে।
৮. প্রকল্প নির্মাণকালে সৃষ্ট ধূলা/ডাষ্ট নিয়ন্ত্রণের জন্য সময়ে সময়ে পর্যাপ্ত পানি ছিটানোর ব্যবস্থা গ্রহণ করতে হবে।
৯. শ্রমিকদের পেশাগত স্বাস্থ্য রক্ষার্থে সকল ব্যবস্থা যেমনঃ হার্ড হেলমেট, নোজ মাস্ক, বুট, চশমা ইত্যাদির ব্যবস্থা রাখতে হবে।
১০. এই ছাড়পত্র ভূমির মালিকানা স্বত্ত নির্ধারণ করে না।
১১. IEE প্রতিবেদনে বর্ণিত সকল Mitigation Measures বাস্তবায়ন করতে হবে।
১২. সৌর বিদ্যুৎ উৎপাদন কেন্দ্র স্থাপনের বিরুদ্ধে পরিবেশ দূষণমূলক কোন অভিযোগ উত্থাপিত ও অত্র দপ্তর কর্তৃক তা প্রমাণিত হলে অত্র দপ্তরের নির্দেশিত নিয়ন্ত্রণ/সংশোধনমূলক ব্যবস্থাদি (স্থানান্তর/কার্যক্রম বন্ধসহ) গ্রহণে প্রতিষ্টানটি বাধ্য থাকবে।
১৩. প্রতিষ্ঠান নির্মাণ কার্যক্রম দ্বারা আশেপাশের জমি, জমির ফসল, বনজ ও ফলজ বৃক্ষের ক্ষতিসাধন কার যাবে না।
১৪. প্রতিষ্ঠানের ডমেষ্টিক কাজে সৃষ্ট তরল বর্জ্য যথোপযুক্ত সেটলিং ট্যাংকে রেখে নির্গমন করার ব্যবস্থা রাখতে হবে।
১৫. উর্বর কৃষিজমি, পাহাড় কিংবা টিলা কেটে সৌর বিদ্যুৎ উৎপাদন কেন্দ্র মাটি ভরাট কাজে ব্যবহার করা যাবে না। তৎপরিবর্তে সরকারী বিধি অনুসারে যথাযথ কর্তৃপক্ষের অনুমোদন সাপেক্ষে মজা পকুর/খাল/বাড়ী/দিঘী/নদ-নদী/হাওর/চরাঞ্চল বা তৎসমতুল্য জায়গা হতে মাটি সংগ্রহহের ব্যবস্থা করতে হবে।
১৬. সৌর বিদ্যুৎ উৎপাদন কেন্দ্র স্থাপনে কর্মরত শ্রমিক কর্মচারীদের স্বাস্থ্যসম্মত পরিবেশ এবং নিরাপত্তামূলক ব্যবস্থা নিশ্চিত করতে হবে।
১৭. এই ছাড়পত্র কোনভাবেই সৌর বিদ্যুৎ উৎপাদন কেন্দ্রে ব্যবহৃত জমির মালিকানার শর্ত পূরণ করে না। এ সংক্রান্ত কোন প্রকার জটিলতা সৃষ্টি হলে এ ছাড়পত্র বাতিল বলে গন্য হবে।
১৮. সৌর বিদ্যুৎ উৎপাদন কেন্দ্র নির্মাণ কর্মকান্ডে কর্মরত শ্রমিকদের সুপেয় পানির ব্যবস্থা রাখতে হবে।
১৯. অগ্নি দূর্ঘটনা নিয়ন্ত্রণকল্পে ভাটায় যথোপযুক্ত অগ্নি নির্বাপক ব্যবস্থা গড়ে তুলতে হবে।

২০. বিদ্যুৎ উৎপাদন কেন্দ্রের নির্মাণ কার্যক্রমে উৎপন্ন শব্দ এবং কঠিন/তরল/বায়বীয় বর্জ্যের নিঃসরণ/নির্গমন মাত্রা যথাক্রমে শব্দ দূষণ (নিয়ন্ত্রণ) বিধিমালা, ২০০৬ এবং পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭-এ বর্ণিত মানমাত্রার মধ্যে হতে হবে।

২১. ১-২০ নং পর্যন্ত শর্তাবলী পুরণ সাপেক্ষে এবং সৌর বিদ্যুৎ উৎপাদন কেন্দ্র নির্মাণ কাজ সম্পন্ন করে পরিবেশগত ছাড়পত্রের জন্য আবেদন করতে হবে। পরিবেশগত ছাড়পত্র গ্রহন ব্যতীত কোন অবস্থায় সৌর বিদ্যুৎ উৎপাদন কার্যক্রম চালু করা যাবে না।

২২. প্রতিষ্ঠান নির্মাণ কার্যক্রম দ্বারা জনস্বার্থের ক্ষতি হলে তজ্জন্য ক্ষতিপূরণ দিতে হবে। দূষণ নিয়ন্ত্রণ ব্যবস্থা কার্যকর না থাকলে এবং এর ফলে পরিবেশ ও প্রতিবেশের ক্ষতি হলে Polluters Pay Principle অনুসারে ক্ষতিপূরণ ধার্য করা হবে এবং নির্ধারিত সময়ের মধ্যে ক্ষতিপূরণ দিতে হবে।

২৩. এই ছাড়পত্র জারীর তারিখ হতে পরবর্তী ০১ (এক) বৎসরের জন্য বহাল থাকবে এবং মেয়াদ শেষ হবার অন্ততঃ ৩০ (ত্রিশ) দিন পূর্বে নবায়নের জন্য আবেদন করতে হবে।

২৪. অবস্থানগত ছাড়পত্রের মূলকপি প্রতিষ্ঠানে সংরক্ষণ করতে হবে। পরিবেশ অধিদপ্তরের এনফোর্সমেন্ট টীম, পরিদর্শক ও পরিদর্শনের ক্ষমতাপ্রাপ্ত অন্যান্য কর্মকর্তাগণ প্রতিষ্ঠান পরিদর্শনকালে ছাড়পত্র/নবায়নপত্র প্রদর্শন এবং সৌর বিদ্যুৎ উৎপাদন কার্যক্রম পরিদর্শনে সহযোগিতা করতে হবে।

২৫. উপরোক্ত ১-২৫ অনুচ্ছেদে বর্ণিত যে কোন শর্ত ভংগ করলে এ ছাড়পত্র বাতিল বলে গণ্য হবে এবং তাঁর/তাঁর প্রতিষ্ঠানের বিরুদ্ধে বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ (সংশোধিত-২০১০); পরিবেশ সংরক্ষণ বিধিমালা, ১৯৯৭; শব্দ দূষণ (নিয়ন্ত্রণ) বিধিমালা, ২০০৬ অনুসারে আইনগত ব্যবস্থা গ্রহণ করা হবে।

(সরদার শরীফুল ইসলাম)
সহকারী পরিচালক
ফোনঃ ০৩৪১-৬২২৩২

জনাব মাহমুদুল হাসান
ব্যবস্থাপনা পরিচালক
টেকনাফ সোলারটেক এনার্জি লিমিটেড
সাং-আলীখালী, দক্ষিণ হ্নীলা,
উপজেলাঃ টেকনাফ, জেলাঃ কক্সবাজার।

স্মারক নম্বরঃ ২২.০২.২২০০.২১৩.৭২.১৯৪.১৭.

/০৫/১৪২৪ বঙ্গাব্দ
তারিখঃ----------
/০৯/২০১৭ খ্রিস্টাব্দ

অনুলিপিঃ সদয় অবগতির জন্য-
১। পরিচালক, পরিবেশ অধিদপ্তর, চট্টগ্রাম অঞ্চল কার্যালয়, চট্টগ্রাম।
২। জেলা প্রশাসক, কক্সবাজার।
৩। অফিস কপি।

(সরদার শরীফুল ইসলাম)
সহকারী পরিচালক
ফোনঃ ০৩৪১-৬২২৩২