Government of The People's Republic of Bangladesh

Ministry of Local Government, Rural Development and Co-operatives

Local Government Engineering Department (LGED)

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)

Project ID: P167762 **IDA Credit No. 5561-BD**

ENVIRONMENTAL SCREENING REPORT

Of the Sub-project:

Supply and Installation of Solar PV Nano Grid in Ukhiya and Teknaf Upazila of Cox's Bazar District.

Under the Package No. EMCRP/AF/G-18

Component Name: Supply and Installation of Solar PV Nano Grid

Upazila: Ukhiya and Teknaf

District: Cox's Bazar

Funded by:

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ACRONYMS

DoE	Department of Environment
DRP	Displaced Rohingya people
EA	Environmental Assessment
EC	Electrical Conductivity
EMCRP	Emergency Multi-Sector Rohingya Crisis Response Project
ESMP	Environmental and Social Management Plan
ERP	Emergency Response Plan
FDMN	Forcibly Displaced Myanmar National
FGD	Focus Group Discussion
FSM	Faecal Sludge Management
GBV	Gender Based violence
GPS	Government Primary School
IEFs	Important Environmental Features
ISCG	Inter Sector Coordination Group
IUCN	International Union for Conservation of Nature
IWM	Institute of Water Modeling
PIA	Project Influence Area
PPE	Personal Protective Equipment
PSC	Project Steering Committee
SPM	Suspended Particulate Matter
SWM	Solid Waste Management
UNHCR	The United Nations High Commissioner for Refugees
UNFPA	United Nations Population Fund
WB	World Bank

Executive Summary

The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of Forcibly Displaced Myanmar National (FDMN) along with people from the host communities in Teknaf and Ukhiya Upazila under Cox's Bazar District, to different disasters and improve the social service delivery system and disaster resilience to both the communities. This project will follow a sustainable development pathway that is resilient to disaster and climate change.

The project is jointly being implemented by Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE) and Ministry of Disaster Management and Relief (MoDMR) under their respective mandate and scope of works. Under the project purview of LGED, 35 nos. Solar PV Nano grid will be supplied and installed under the package of EMCRP/AF/G-18 in the Rohingya camps of Ukhiya and Teknaf Upazila of Cox's Bazar district in Bangladesh to address the severe energy crisis that has plagued these camps for years. The locations of the facilities where the electric connection to be provided are selected based on geographical priority and requirement of services to different facilities in different camp areas. Therefore, the installation of a solar PV Nano grid system will provide a reliable and sustainable source of electricity, improving the living conditions of the affected population and minimizing the carbon footprint during operations. It is anticipated that the installation works of the Nano grid may trigger some social and environmental risks and impacts along with some great opportunities, may it be trivial or insignificant. However, an assessment is required to identify those issues and address duly by the contractor during the installation period, and some responsibilities may lie on the receiving authority of those facilities afterwards (O&M period). This screening work thus has been undertaken before the mobilization of contractor in the field.

This package involves supplying and installation of 8KW capacity nano grid system with a control room having dimension of 10ft*8ft*8.5ft and a thickness of 2.3mm. The control room will be made of a steel container that includes thermal insulation, and ventilation operated by a temperature sensor, and will serve as the central hub for the distribution of electricity to the target facilities. None of the sections, equipment or operating parts of the control room will contain asbestos or similar type of hazardous compound or chemicals. Construction of RCC footing is also required, where the container will be placed on. The nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to various facilities. Each pole will have an electricity line drawn from the nano grid, with a solar panel to be installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding areas.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators. Two fire extinguishers will also be installed in the nano grid room, ensuring the safety of the equipment and personnel operating in the facility.

The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities.

Environmental nuisance during the construction phase may occur primarily from noise and dust generation. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works. In addition, there are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances, such as VOC and heavy metals. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk. However, appropriate mitigation and management measures are detailed out in the respective section of this document.

Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris that may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. Absence of labor shed will result in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during the construction phase. There will be no damage caused to the existing vegetation or garden plants, as the sites are found to be vacant open spaces without vegetation (shrubs are grown in some places only).

On the bright side of this package, each of the Nano-grid facilities equipped with Solar Powered electricity supply system with a capacity of 8 KW, would help reducing the CO2 emission to 8.76 Tons per year, considering a conservative estimation of reduction (Ref. CO2 Emission Reduction : Results - Solar Mango – #1 guide for solar; considering 250 days of sunshine each year).

One of the key concerns of this facility is the production of significant amount of e-wastes after the defunct/end-of-life stage of solar PV nano grid and lead acid batteries. Since we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

None of the proposed Solar PV Nano grid sites is located in or near to any environmentally sensitive sites/areas, nor will cause any significant detrimental impacts during the construction period. The Nano grid will power educational facilities in the camp area, such as schools and learning centers benefiting children in the community, and the availability of electricity in healthcare facilities in the camp areas supported by the Nano grid will improve access to quality healthcare services for women and children. By harnessing clean and renewable solar energy, the Nano grid will significantly reduce

reliance on fossil fuel-based power sources. This leads to a reduction in carbon emissions, helping to curb climate change contribution and improve air quality in the local environment. Besides, the short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized through adopting the given management plan.

1. INTRODUCTION

1.1 Project background

An estimated 730,000[1] people of Rohingya community has fled to neighboring Cox's Bazar district of Bangladesh since August 25, 2017 to escape extreme violence in Rakhine State of Myanmar, which caused the total number of Forcibly Displaced Myanmar National (FDMN) in the district to be about 923,033[2]. This huge number of displaced population account for about one-third of the total population of Cox's bazar, a district which was already facing many development challenges and suffering from resource-constrained social service delivery system even before the crisis evolved and the mass exodus of FDMN has worsened the situation further. Almost all of these displaced people are hosted in Ukhiya and Teknaf Upazila of Cox's Bazar, in extremely congested settlements in areas having very minimal access to basic infrastructure and services and is prone to natural disasters. The Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP) has been designed in order to reduce the vulnerability of Forcibly Displaced Myanmar National (FDMN) along with people from the host communities in Teknaf and Ukhiya Upazila under Cox's Bazar District, to different disasters and improve the social service delivery system and disaster resilience to both the communities. This project will follow a sustainable development pathway that is resilient to disaster and climate change.

The objective of the Project is to provide greater protection for the FDMN and host communities through:

- Reducing the vulnerability to natural disasters
- Improving social service delivery system
- Improving water and sanitation facilities
- Reducing vulnerability to accidental fire
- Provisioning better educational facilities and
- Strengthening and scaling up of GBV prevention services to the FDMN

The project is jointly being implemented by Local Government Engineering Department (LGED), Department of Public Health Engineering (DPHE) and Ministry of Disaster Management and Relief (MoDMR) under their respective mandate and scope of works. Apart from the interventions in addressing Gender and Social Inclusiveness and Preventing Gender Based Violence with the Support from UNFPA and building Communication and Awareness among all affected parties through an effective engagement of BCCP (Bangladesh Center for Communication Programs) in the areas, LGED is implementing a good number of infrastructural facilities, namely improvement of hat bazars, roads (both inside and outside of the camps), bridges, culverts, construction of School cum multi-purpose disaster shelters, Satellite Fire Stations, Relief Distribution Center, Community Service Center and many other different types of facilities. Apart from attaching Solar based individual (alternative) power system to disaster shelters, LGED is also implementing smaller grid based power (electricity) supply system at different places run by relatively bigger Solar power unit and the produced electricity will be distributed to different nearby facilities through the smaller grid network. Given the project interventions, sensitivity of the areas and volume of people in or around the sites, the project is more likely to trigger certain Operational Policies and Bank Procedures,

[1] ISCG: Situation Report Rohingya Refugee Crisis, (September 27, 2018)
[2] IOM Needs and Population Monitoring round 12 as of October 10, 2018

namely Environmental Assessment (OP/BP 4.01), Natural Habitat (OP/BP 4.04), Forest (OP/BP 4.36) and Physical Cultural Resources (OP /BP 4.11).

1.2 Rationale of Site Selection for Solar PV Nano Grid under the project

Solar PV nano grid installation is needed in the Rohingya camps of Ukhiya and Teknaf Upazila of Cox's Bazar district in Bangladesh to address the severe energy crisis that has plagued these camps for years. The area experiences high exposure of solar radiation, making it an ideal location for the installation of a solar PV system. Secondly, the camps are located in remote areas with limited access to the national power grid, and the population living in these camps has limited access to basic energy services. Therefore, the installation of a solar PV Nano grid system will provide a reliable and sustainable source of electricity, improving the living conditions of the affected population and minimizing the carbon footprint during operations.

Moreover, the project aims to support renewable energy systems using Solar PV Nano Grid schemes to increase access to clean electricity, with a focus on health centers, female safe spaces, distribution points, learning centers, offices, and urgent Water, Sanitation and Hygiene (WASH) service points, required for Rohingya people. This will eventually support the government agencies in strengthening institutional systems and capacities to plan, coordinate, and respond to crisis and emergencies.

These Solar PV Nano Grids in Rohingya camps in Cox's Bazar can significantly improve the living conditions of the Rohingya population and provide them with access to basic energy services that are essential for their health and well-being. Camp in Charge (CiC) will steer the operation of these structures and will judge the best fit practice for them.

1.3 Elementary information of Supply and Installation of Solar PV Nano grid

The catchment area of these components falls within the area where mostly Displaced Rohingya Community lives. Under the package of EMCRP/AF/G-18, 35 nos. Solar PV Nano grid will be supplied and installed in various camps of Ukhiya and teknaf Upazila under the Cox's bazar district. The locations of facilities are selected based on geographical priority and requirement of services to different facilities in different camp areas. It is anticipated that the installation works of the Nano grid may trigger some social and environmental risks and impacts along with some great opportunities, may it be trivial or insignificant. However, an assessment is required to identify those issues and address duly by the contractor during the installation period, and some responsibilities may lie on the receiving authority of those facilities afterwards (O&M period). This screening work thus has been undertaken before the mobilization of contractor in the field.

The objective of this Environmental Screening Report is to screen out the major environmental features of the proposed components site and surrounding areas, where the Installation of Solar PV Nano grid will take place, and assess the potential impacts in respect to the planned interventions on the site and also suggest intervention items specific management plan including appropriate mitigation options, if any or required. Visiting or investigation on the proposed Installation sites and the surrounding areas is the primary task in initiating the screening or assessment works, and details of the site geo-coordinates are provided in the following table.

Table-1.3.1: Basic Geolocation Information and current condition of the proposed location where Solar PV Nano grids to be installed.

Subproject Component no.	Catchment area	Block	Sub block	Upazila	Union	Distance From Upazila headquarters	GPS Location	Connecting road	Current land condition
1	Camp 7	D	D1	Ukhiya	Rajapalong	8km	21.20308, 92.16917	Camp 7 connecting road (10ft HBB)	All the locations are empty space now.
2	Camp 7	C	C1	Ukhiya	Rajapalon	8km	21.20407, 92.16665	Camp 7 connecting road (10ft HBB)	
3	Camp 7	B	B1	Ukhiya	Rajapalon	8km	21.20563, 92.16902	Camp 7 connecting road (10ft HBB)	
4	Camp 7	D	D1	Ukhiya	Rajapalon	8km	21.20261, 92.16946	Camp 7 connecting road (10ft HBB)	
5	Camp 8W	F	A59	Ukhiya	Palongkhali	10km	21.195416, 92.148684	12ft HBB camp road	
6	Camp 8W	B	A20	Ukhiya	Palongkhali	10km	21.19759, 92.15925	12ft HBB camp road (Balukhali pan bazar road)	
7	Camp 13	A	A1	Ukhiya	Palongkhali	33km	21.174547, 92.142545	Thainkhali to Telkhola road (BC Road)	
8	Camp 15	A	A2	Ukhiya	Palongkhali	15km	21.160256, 92.147327	Camp 15 connecting road (12ft HBB road)	
9	Camp 15	E	E1	Ukhiya	Palongkhali	15km	21.161077, 92.142906	Camp 15 connecting road (12ft HBB road)	
10	Camp 15	G	G4	Ukhiya	Palongkhali	15km	21.15672, 92.14666	Camp 15 connecting road (12ft HBB road)	
11	Camp 15	A	A1	Ukhiya	Palongkhali	15km	21.16077, 92.14793	Camp 15 connecting road (12ft HBB road)	
12	Camp 15	E	E5	Ukhiya	Palongkhali	15km	21.16055, 92.13891	Camp 15 connecting road (12ft HBB road)	
13	Camp 15	G	G1	Ukhiya	Palongkhali	15km	21.159515, 92.147222	Camp 15 connecting road (12ft HBB road)	
14	Camp 15	G	G8	Ukhiya	Palongkhali	15km	21.160607, 92.145065	Camp 15 connecting road (12ft HBB road)	
15	Camp 15	F	F3	Ukhiya	Palongkhali	15km	21.15671, 92.141881	Camp 15 connecting road (12ft HBB road)	

Subproject Component no.	Catchment area	Block	Sub block	Upazila	Union	Distance From Upazila headquarters	GPS Location	Connecting road	Current land condition
16	Camp 15	H	H2	Ukhiya	Palongkhali	15km	21.15775, 92.1389	Camp 15 connecting road (12ft HBB road)	All the locations are empty space now.
17	Camp 16	A	A4	Ukhiya	Palongkhali	17km	21.158613, 92.15008	Camp 16 connecting road (12ft HBB road)	
18	Camp 16	A	A1	Ukhiya	Palongkhali	17km	21.156981, 92.148857	Camp 16 connecting road (12ft HBB road)	
19	Camp 16	D	D4	Ukhiya	Palongkhali	17km	21.155819, 92.145912	Camp 16 connecting road (12ft HBB road)	
20	Camp 16	B	B5	Ukhiya	Palongkhali	17km	21.156374, 92.149826	Camp 16 connecting road	
21	Camp 16	B	B1	Ukhiya	Palongkhali	14km	21.156778, 92.152171	Camp 16 connecting road	
22	Camp 17	C	H76	Ukhiya	Rajapalong	12km	21.19426, 92.145711	10ft HBB rohingya camp 17 connecting road	
23	Camp 17	C	H75	Ukhiya	Rajapalong	12km	21.196753, 92.147092	Army road (18ft HBB)	
24	Camp 17	A	H100	Ukhiya	Rajapalong	12km	21.19935, 92.146313	18ft HBB Army road	
25	Camp 19	B	B12	Ukhiya	Palongkhali	15km	21.184902, 92.141474	12ft HBB camp road	
26	Camp 19	D	D10	Ukhiya	Palongkhali	15km	21.179972, 92.147028	18ft BC Taznimarkhola Ghonarpara road	
27	Camp 19	B	B4	Ukhiya	Palongkhali	15km	21.181522, 92.143346	12ft HBB camp road	
28	Camp 19	A	A16	Ukhiya	Palongkhali	16km	21.184486, 92.139959	12ft HBB camp road	
29	Camp 19	D	D5	Ukhiya	Palongkhali	15km	21.180883, 92.147377	12ft BC Tajnimarkhola road	
30	Camp 20	B	B1	Ukhiya	Palongkhali	12km	21.18636, 92.14375	Camp 20 connecting road (12ft HBB road)	
31	Camp 20	A	A5	Ukhiya	Palongkhali	12km	21.19109, 92.14228	Camp 20 connecting road (12ft HBB road)	

Subproject Component no.	Catchment area	Block	Sub block	Upazila	Union	Distance From Upazila headquarters	GPS Location	Connecting road	Current land condition
32	Camp 20	A	A5	Ukhiya	Palongkhali	12km	21.19164, 92.13963	Camp 20 connecting road (12ft HBB road)	
33	Camp 20	A	A2	Ukhiya	Palongkhali	12km	21.19251, 92.13967	Camp 20 connecting road (12ft HBB road)	
34	Camp 20	A	A3	Ukhiya	Palongkhali	12km	21.19206, 92.13750	Camp 20 connecting road (12ft HBB road)	
35	icddr,b	Host Community	Teknaf	Teknaf	Teknaf Pourashava	1km	20.874589, 92.296166	Teknaf- Cox's Bazar highway	

[Sources of data: Field survey, 2023: DDCL]

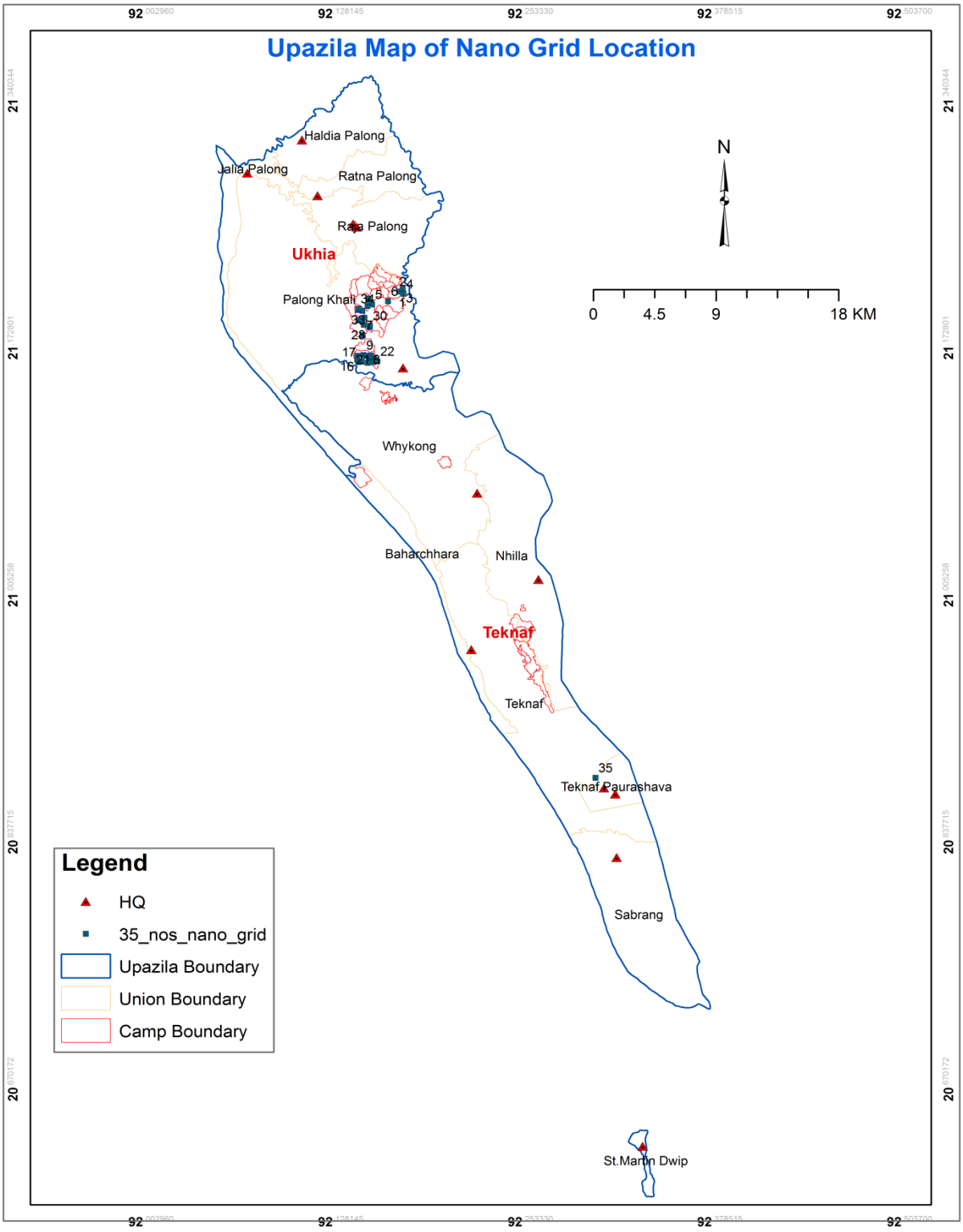


Figure 1.3.1: Location of Solar PV Nano Grid (Ukhiya & Teknaf Upazila)

1.4 Proposed Facilities in Solar PV Nano Grid

The proposed facilities for the Solar PV Nano Grid are exclusively designed to provide electricity to the service centers and facilities that engage the Rohingya people. These facilities include health centers, female safe spaces, distribution points, learning centers and urgent Water, Sanitation and Hygiene (WASH) needs centers.

The 8KW capacity nano grid control room, which is 10ft*8ft*8.5ft in dimension and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes thermal insulation, and ventilation operated by a temperature sensor, and devoid of asbestos or similar type of hazardous compounds. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance and causes no carcinogenic impacts to the users. Construction of RCC footing is required, where the container will be placed on.

The nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to various facilities. Each pole will have an electricity line drawn from the nano grid, with a solar panel to be installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding areas.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the nano grid room, ensuring the safety of the equipment and personnel operating in the facility.

In summary, the Solar PV Nano Grid is designed to provide reliable and sustainable electricity to the service centers and facilities. The proposed facilities include a robust control room, poles with electricity lines and panels, security lights, energy-efficient fans and lights in service centers, and fire extinguishers for safety measures. These facilities will ensure the efficient and safe operation of the Solar PV Nano Grid and provide the necessary support for the various service centers in the Rohingya camps.

Table 1.4.1: Detailed Technical Specification for each Solar PV Nano Grid constructions and proposed facilities

Name of Goods	Detailed Technical Specification	Quantity	Capacity
Control Room	10ft*8ft*8.5ft and thickness is 2.3mm made of steel container inclusive of construction of RCC footing, thermal insulation and ventilation fan operated by temperature sensor	1 no.	8KW

Solar PV module	450 Wp, PV Module, Mono Crystalline type, 72 Cell or higher/ Module in conformity with international standard &code.	18 nos.	18*450w= 8KW
Vented Lead Acid Battery	2V, 900Ah @ 10Hr or Higher capacity solar battery having tubular positive plate, pasted flat negative plate and Dilute Sulfuric Acid Electrolyte in conformity with international standard &code.	24 nos.	2V, 900Ah
Overhead Distribution Line pole	7.6 m SPC or 6.0m Steel pole including erection of the pole with RCC base, Number Plate and earthing with all others fittings and accessories etc.	14 nos.	Height 7.6 m SPC or 6.0m Steel pole
Led Light	10 Watt capacity LED Lights for Public facilities etc.	65 nos.	10 Watt
Security Light	10 Watt capacity LED bulb for Security Light with outdoor installation fixtures and Day Light & Motion Sensor etc.	15 nos.	10 Watt
Energy Saving BLDC Ceiling fan	35 Watt capacity 56 inch BLDC Ceiling fan with 5 Step Capacitive Compatible Wall Regulator for Public facilities complete with canopies and required length of rods, ceiling roses, switches and required length of flexible wire etc.	65 nos.	35 Watt capacity 56 inch
Switch, Socket and Fuse board	Public Facilities Internal wiring for lights and fans including Switches, Sockets, PVC Switch Boxes and PVC insulated Cables with all other fittings and Accessories etc.	20 nos.	-

2. PUBLIC CONSULTATION, PARTICIPATION AND SURVEY FINDINGS

2.1 Methodology

Public participation and community consultation has been taken up as an integral part of environmental assessment process of the project. Field visits have been carried out around the Sub-project sites. As part of the impact assessment, 35 nos. participatory public consultation were conducted in that area by the field level staffs, and consultants from PIU and D&SC, with active participation from the Rohingya community. These meetings were crucial in gathering insights and perspectives from the affected population, as well as engaging with various stakeholders.

The consultation meetings were organized in different blocks and sub-blocks within the Rohingya camp, where the proposed nano grids were to be installed. The participants included representatives from various facilities, such as team members, doctors and nurses from different hospitals located in camp inside, site management personnel, and teachers from learning centers that would benefit from the electricity provided by the nano grids. To ensure inclusivity, the participants were selected from different age groups, representing a diverse range of stakeholders. The meetings were conducted in an informed, expressive, and unbiased manner, allowing different views and concerns to be raised. These valuable inputs were given due consideration during the site selection and will be properly taken care of during the construction phases of the sub-project. To address any confusion or worries regarding the proposed intervention, relevant information was shared with the audience, and discussions were held to clarify any issues.

Additionally, specific consultation meetings were held with the Camp in Charge (CiC), where detailed discussions took place regarding the facilities or service centres that would be integrated into the nano grid system and provided with environmental friendly (renewable energy based) energy soruces. This ensured that the project is aligned with sustainable practices and prioritizing environmental considerations in identification of components to implement. The consultation meetings played a significant role in fostering transparency, accountability, and community engagement. By involving the Rohingya community and other relevant stakeholders throughout the decision-making process, the project aimed to ensure that their perspectives will be considered and integrated into the implementation and operation of the nano grids. These locations in particular have no major complications and are in relevance with the CiC office authority currently. Most of the present Camp in Charges have suggested starting the development works as early as possible.

To help with the screening process, consultants' team shared relevant information with the audience and addressed any confusing or concerning issues related to the proposed project. They discussed the potential impacts on the environment and socio-economic aspects during the pre-construction, construction, and post-construction phases. By doing so, it was ensured that the community was well informed about the project's potential benefits and effects. The consultation meetings ensured the inclusion of diverse perspectives and allowed for the identification of potential challenges and opportunities related to the environment and socio-economic aspects. The findings will be taken into account to inform the project's design, construction, and operation, with the aim of mitigating any adverse impacts and promoting sustainable development.

2.2 Important features/establishments within the PIA

To understand the surrounding features and potential impacts, a screening process was carried out for each Nano Grid, considering a Project Influence Area (PIA) with a radius of 10 meters. A solar PV nano grid comprises 14 poles that will be installed within a half-kilometer radius of the project site. To identify and document the existing features in this area, an initial screening process for each nano grid was conducted through field surveys and active involvement of stakeholders residing in the influence area of the proposed component.

Combining the insights gained from field walk-throughs and the inputs provided by the audience, a comprehensive register of existing features was created. The table 2.2.1 below highlights these elements across all Solar PV Nano Grid installations.

The table is consist of a list of important features and establishments found within the PIAs, which may include existing infrastructures, community facilities, health centers, educational institutions, distribution points, or any other significant elements present in the vicinity of the solar PV nano grids. At many sites, there are no significant establishments or infrastructure or settlements or environmental/cultural objects within 100 meters in one or more directions, with 'No structures within 100 meters' mentioned in relation to those directions.

Table 2.2.1: Important features under Project Influence Area

Sl. No.	Component name	Direction	Important features/ establishment (approx. distance from the proposed site)
1.	Camp No.7 Block D Sub-block D1	North	No establishment in 100 meters
		South	Learning center (40m, 80m), CiC office (40m), Religious facility (85m, 90m)
		East	No establishment in 100 meters
		West	No establishment in 100 meters
2.	Camp No.7 Block C Sub-block C1	North	Learning center (70m)
		South	Learning center (40m, 50m, 60m)
		East	No establishment in 100 meters
		West	Religious facility (70m, 80m)
3.	Camp No.7 Block B Sub-block B1	North	Learning center (90m, 35m, 20m)
		South	Learning center (85m)
		East	Health post (50m), Learning center (85m)
		West	Learning center (55m, 88m, 95m)
4.	Camp No.7 Block D Sub-block D1	North	CiC office (30m)
		South	Learning center (30m), religious Facility (32m)
		East	No establishment in 100 meters
		West	Learning center (60m), religious Facility (70m)

Sl. No.	Component name	Direction	Important features/ establishment (approx. distance from the proposed site)
5.	Camp No.8W Block F Sub-block A59	North	No establishment in 100 meters
		South	No establishment in 100 meters
		East	Religious facility (94m and 100m)
		West	No establishment in 100 meters
6.	Camp No.8W Block B Sub-block A20	North	Learning center (35m, 55m, 80m, 90m, 95m, 100m)
		South	Religious facility (82m, 85m, 86m, 98m)
		East	Learning center (100m)
		West	Religious facility (30m, 45m, 65m, 85m), Primary health center (65m)
7.	Camp No.13 Block A Sub-block A1	North	Religious center (55m), Mother baby area (60m), health post (60m)
		South	Learning center (5m)
		East	No establishment in 100 meters
		West	Religious center (50m, 60m), learning center (50m)
8.	Camp No.15 Block A Sub-block A2	North	Child protection facility (15m, 83m), Religious facility (20m, 25m, 30m, 85m, 90m), Learning center (50m, 55m)
		South	Health post (10m, 55m), CiC office (45m, 55m), Mother baby area (90m)
		East	No establishment in 100 meters
		West	Child protection facility (90m), Religious facility (95m)
9.	Camp No.15 Block E Sub-block E1	North	Religious facility (25m, 100m)
		South	Religious facility (85m, 89m, 3 nos at 80m, 60m), Learning center (85m, 90m, 100m), child protection center (70m)
		East	Religious facility (75m, 85m)
		West	Religious facility (80m), safe space for girls and women (95m)
10.	Camp No.15 Block G Sub-block G4	North	Religious facility (50m, 60m, 80m, 90m, 82m, 85m, 89m), learning center (75m, 90m)
		South	No establishment in 100 meters
		East	No establishment in 100 meters
		West	Learning center (75m, 90m), primary health center (35m)
11.	Camp No.15 Block A Sub-block A1	North	Learning center (75m), Religious facility (50m, 60m)
		South	Health post (85m, 90m), Religious facility (55m, 60m, 65m), child protection facility (80m)
		East	Safe space for women (25m), learning center (85m. 95m)
		West	child protection facility (85m), learning center (85m, 90m)

Sl. No.	Component name	Direction	Important features/ establishment (approx. distance from the proposed site)
12.	Camp No.15 Block E Sub-block E5	North	Learning center (20m), safe space for woman (35m)
		South	Learning center (40m, 80m)
		East	Learning center (90m, 95m)
		West	Learning center (70m), religious facility (40m, 60m), child protection facility (20m)
13.	Camp No.15 Block G Sub-block G1	North	CiC office (20m, 50m)health post (70m, 75m), child protection facility (96m), Training center (100m)
		South	child protection facility (65m, 80m), learning center (95m, 80m), training center (70m)
		East	No establishment in 100 meters
		West	Mother baby care (65m), child protection facility (65m, 80m), religious facility (100m)
14.	Camp No.15 Block G Sub-block G8	North	Learning center (65m, 95m, 97m)
		South	Health post (17m, 30m), learning center (55m, 75m), primary health center (45m)
		East	No establishment in 100 meters
		West	Learning center (96m), religious facility (95m, 97m)
15.	Camp No.15 Block F Sub-block F3	North	child protection facility (100m), learning center (100m)
		South	child protection facility (20m), health post (25m)
		East	Learning center (60m)
		West	Learning center (65m)
16.	Camp No.15 Block H Sub-block H2	North	child protection facility (100m), religious facility (90m, 95m), learning center (15m, 67m, 88m, 95m)
		South	Religious facility (25m, 30m)
		East	child protection facility (36m), learning center (65m)
		West	Learning center (15m)
17.	Camp No.16 Block A	North	Religious center (456m, 68m, 72m, 85m), health post (35m)
		South	Learning center (55m), religious center (70m, 75m, 85m), safe space for woman (42m)
		East	Learning center (17m, 65m), religious center (50m, 65m), child protection facility (80m)
		West	Learning center (10m), religious center (50m, 70m), safe space for woman (90m)
18.	Camp No.16 Block A	North	Learning center (40m, 90m), health post (40m)
		South	Learning center (60m, 85m), health post (40m), safe space for

Sl. No.	Component name	Direction	Important features/ establishment (approx. distance from the proposed site)
			woman (27m)
		East	Health post (70m), learning center (80m), child protection facilities (80m), multipurpose protection center (74m), religious facility (85m, 90m)
		West	No establishment in 100 meters
19.	Camp No.16 Block D Sub-block D4	North	Religious facility (2 nos at 67m, 40m, 45m), learning center (35m)
		South	Religious facility (3 nos. at 95m, 100m), learning center (35m, 45m, 57m, 85m, 95m, 100m), child protection facilities (55m, 100m)
		East	Religious facility (85m, 90m), learning center (92m)
		West	No establishment in 100 meters
20.	Camp No.16 Block B Sub-block B5	North	Religious facility (75m, 80m), child protection facilities (80m), multipurpose protection center (70m), health post (15m)
		South	No establishment in 100 meters
		East	Learning center (35m, 37m)
		West	Learning center (60m), religious facility (2 nos at 15m), child protection facilities (30m)
21.	Camp No.16 Block B Sub-block B1	North	CiC office (20m, 66m), health post (100m)
		South	Learning center (66m), religious facility (81m)
		East	No establishment in 100 meters
		West	Health post (80m, 65m)
22.	Camp No.17 Block C Sub-block H76	North	No establishment in 100 meters
		South	Learning center (55m)
		East	No establishment in 100 meters
		West	Learning center (50m), safe space for women and girl (60m)
23.	Camp No.17 Block C Sub-block H75	North	Religious facility (50m, 55m, 65m, 66m), child protection facilities (25m, 30m)
		South	No establishment in 100 meters
		East	CiC office (20m)
		West	No establishment in 100 meters
24.	Camp No.17 Block A Sub-block H100	North	Religious facility (90m)
		South	No establishment in 100 meters
		East	No establishment in 100 meters
		West	No establishment in 100 meters
25.	Camp No.19	North	Primary health center (20m), safe space for women (90m)

Sl. No.	Component name	Direction	Important features/ establishment (approx. distance from the proposed site)
	Block B Sub-block B12	South	Learning center (30m, 95m), religious facility (65m, 72m, 75m)
		East	Religious facility (65m, 75m)
		West	child protection facilities (80m, 95m)
26.	Camp No.19 Block D Sub-block D10	North	No establishment in 100 meters
		South	Religious facility (40m, 45m)
		East	Religious facility (42m, 45m)
		West	Health post (7m)
27.	Camp No.19 Block B Sub-block B4	North	Learning center (70m, 80m, 100m, 82m, 90m, 77m, 87m, 94m), religious facility (98m), health post (50m)
		South	No establishment in 100 meters
		East	No establishment in 100 meters
		West	No establishment in 100 meters
28.	Camp No.19 Block A Sub-block A16	North	Religious facility (5m, 10m), learning center (50m, 52m)
		South	Learning center (75m), religious facility (95m)
		East	Learning center (40m)
		West	Religious facility (5m)
29.	Camp No.19 Block D Sub-block D5	North	Learning center (75m), multipurpose protection center (95m)
		South	Religious facility (67m, 73m)
		East	No establishment in 100 meters
		West	No establishment in 100 meters
30.	Camp No.20 Block B Sub-block B1	North	Religious facility (55m, 60m, 70m), Learning center (90m)
		South	-
		East	Child protection Facility (70m), Community kitchen (45m), Safe space for women and girl (40m), Learning center (50m, 60m), Health post (50m)
		West	No establishment in 100 meters
31.	Camp No.20 Block A Sub-block A5	North	No establishment in 100 meters
		South	Health post (20m)
		East	No establishment in 100 meters
		West	CiC office (60m)
32.	Camp No.20 Block A Sub-block A5	North	Religious facility (60m, 65m), Community kitchen (100m), Child protection Facility (70m)
		South	Learning center (65m, 70m), Religious facility (2 nos. of 85m)
		East	Religious facility (2 nos. of 80m)

Sl. No.	Component name	Direction	Important features/ establishment (approx. distance from the proposed site)
		West	Safe space for women and girl (95m)
33.	Camp No.20 Block A Sub-block A2	North	No establishment in 100 meters
		South	Religious facility (35m, 40m), Child protection Facility (55m)
		East	No establishment in 100 meters
		West	Community kitchen (40m)
34.	Camp No.20 Block A Sub-block A3	North	Religious facility (60m, 65m), learning center (28m, 43m, 73m), health post (15m)
		South	No establishment in 100 meters
		East	No establishment in 100 meters
		West	No establishment in 100 meters
35.	icddr,b Host Community Teknaf	North	Teknaf upazila health complex (90m and 95m)
		South	No establishment in 100 meters
		East	Icddr`b mosque (74m)
		West	Maimuna GPS (45m), Teknaf upazila complex (95m)

2.3 Issues and Recommendations raised by the Participants in regard to component interventions

In the consultation meetings conducted for the Solar PV Nano Grid project in the various blocks and sub-blocks of Rohingya camps in Ukhiya and Teknaf Upazila, the participants discussed environmental issues and their impacts on the proposed interventions. The advantages and disadvantages of the development activities were also revealed during these discussions. The successful execution of a public consultation program requires three key elements: (i) dissemination of information to stakeholders, (ii) solicitation of views and information from affected parties and residents on social and environmental issues, and (iii) consultation with interest groups and the public.

D&S Consultants and PIU Consultant from EMCRP-LGED facilitated the consultation meetings with the Rohingya communities, specifically addressing the work activities related to the Solar PV Nano Grid project. Altogether 35 consultation meetings were held, where the participants number was 289, among them 87 were female participants and the rest were male. The participants, overall, expressed their enthusiasm for the sub-project's potential benefits and interest in receiving the services and advantages it would provide. During the meetings, it was assured to the participants that the impact, particularly from the construction of 35 nos. Nano Grid structures in open spaces would be very low and negligible. They were reassured that the interventions would have minimal adverse effects on the environment.

Please follow the table 2.3.1 given below to recognize participants' inputs arranged in relevance with separate component. Consultation meeting summary and attendance sheets along with pictures of location with separate meetings for proposed location of each Solar PV Nano Grid can be found in

Table 2.3.2 and Appendix-01 and Appendix-02 respectively. These meetings ensured the well-represented participation of both women and men from the Rohingya community, allowing their voices and perspectives to be heard. Additionally, specific consultation meetings were organized with the Camp in Charges (CiC) to discuss the implementation of the nano grid project. These inclusive and participatory meetings helped gather valuable insights and recommendations, ensuring that the Solar PV Nano Grid project reflects the needs and aspirations of the Rohingya community and the various facilities within the camp area.

Table 2.3.1: Issues and Recommendations raised by the Participants

TOPIC DISCUSSED	ISSUES INTRODUCED	PARTICIPANTS' FEEDBACK /ACKNOWLEDGEMENT
Ideology of Solar PV Nano Grid	Solar PV Nano Grids systems harness solar energy to provide clean and reliable electricity to specific areas within the Rohingya camps. By promoting environmental sustainability, embracing renewable energy, improving access to electricity, improving access to essential services, and actively involving the community in decision-making, Solar PV nano grids create a more sustainable and inclusive and resilient environment for the Rohingya community.	Participants have expressed appreciation for the use of renewable energy sources and the positive impact it has on the environment. They have acknowledged the ideology of promoting clean and sustainable energy solutions. Participants have indicated that the construction of Solar PV Nano Grid has increased their awareness and understanding of the benefits of solar energy and its potential to address energy needs in a sustainable manner. Participants have provided feedback on how the implementation of Solar PV Nano Grid can improve their living conditions, particularly in terms of access to clean electricity, better lighting, and enhanced services in facilities such as health centers, learning centers, distribution points and medical centers. Participants have expressed a sense of empowerment and engagement through their involvement in the consultation and decision-making processes related to the Solar PV Nano Grid. Participants have acknowledged the social benefits can bring about by the Solar PV Nano Grid, such as improve livelihood opportunities, and increased access to essential services.

		Participants have recognized the long-term sustainability of Solar PV Nano Grid and its potential to contribute to a greener and more sustainable future. They have appreciated the focus on reducing carbon footprint and reliance on fossil fuels.
Construction and positioning of Solar PV Nano grid	Construction and positioning of Solar PV nano grids involve site selection, design and engineering, installation, positioning of panels for maximum sunlight exposure, infrastructure development, pole and electric line installation and grid integration. It aims to create a reliable and sustainable source of electricity for designated facilities in the Rohingya camps.	Participants have acknowledged the efficient construction process of the Solar PV Nano Grid, highlighting the timely completion and effective coordination of construction activities. Participants have expressed appreciation for the well-planned positioning of the Solar PV Nano Grid. They have recognized the efforts made to identify suitable locations within the camp areas that maximize solar exposure and minimize shading. Participants have provided feedback on the minimal disruption cause during the construction phase of the Solar PV Nano Grid. They have acknowledged the efforts made to minimize noise, dust, and inconvenience to the surrounding community. Participants have emphasized the need for stringent safety measures during the construction of the Solar PV Nano Grid. They have highlighted the importance of implementing necessary safety protocols to ensure the protection of workers and the community. Participants have praised the Solar PV Nano Grid and its accompanying infrastructure, including pole installations, electrical lines, and panel setups. They have discussed the improved infrastructure for electricity distribution within the camp and ensuring the accessibility of various amenities. They emphasized the importance of considering the ease with which everyone can benefit

		from the advantages of this Nano Grid. Participants have provided positive feedback regarding the aesthetic aspect of the Solar PV Nano Grid. They have emphasized the importance of completing the integrated infrastructure properly, which will play a crucial role in maintaining the camp environment.
Environmental Concerns	Solar PV Nano Grid panels require space for installation, which may involve clearing or repurposing land or open space. The presence of solar PV panels and associated infrastructure may alter the visual landscape. Proper disposal and recycling of solar PV panels at the end of their lifespan is essential to minimize environmental impacts. The installation works involve very minor construction works (construction of footings, esp.) which may cause soil excavation, thus very limited scale dust pollution by the soil particle may be induced during the construction phase. Mitigation measures should be in place to minimize disturbances, and restore affected areas after construction.	Participants have expressed appreciation for the adoption of Solar PV Nano Grid as a renewable energy solution. They have emphasized the positive environmental impact of reducing dependence on fossil fuels and minimizing greenhouse gas emissions. The participants have appreciated the focus on environmental sustainability shown through the use of the Solar PV Nano Grid. They have recognized the efforts made to utilize clean and renewable energy sources, which help create a greener and more sustainable future. Participants have highlighted the positive impact of Solar PV Nano Grid in reducing air pollution. They have acknowledged that the use of solar energy eliminates the emissions of harmful pollutants associated with traditional energy sources, leading to improved air quality within the camp. Participants have expressed the conservation of natural resources facilitated by Solar PV Nano Grid. They have acknowledged that solar energy harnesses the power of the sun, a virtually limitless resource, thereby reducing the strain on finite resources like fossil fuels. Participants have expressed appreciation when they heard that the Solar PV Nano Grid will operate quietly and without causing vibrations. They are happy with

		how the solar energy system will not create noise or disturbances, making the environment peaceful and enjoyable.
Safety at work site	Safety at the work site for solar PV nano grids involves ensuring equipment safety, implementing electrical safety measures. The risk of electrical shocks, burns, and electrocution is a significant concern, while testing with the lines. Prioritizing safety minimizes risks and ensures worker well-being. Safety of children and adults at the sites during construction works. Fencing will have to be maintained while construction so that local habitants are not disturbed for any reason.	They have appreciated this motif and stated they will arrange fencing if necessary, for their own safety from their part of effort.

Table 2.3.2: Particulars of Consultation Meetings

Sl. No.	Component's name	Date of meeting	Meeting Place	Number of Participants		Total
				Male	Female	
1	Camp No.7 Block D Sub-block D1	26/01/2023	Rohingya Camp 7 CiC office	6	1	7
2	Camp No.7 Block C Sub-block C1	26/01/2023	BRAC – HCMP- Camp 7	6	0	6
3	Camp No.7 Block B Sub-block B1	26/01/2023	Friendship Hospital	3	4	7
4	Camp No.7 Block D Sub-block D1	26/01/2023	Rohingya Camp 7 CiC office	6	1	7
5	Camp No.8W Block F Sub-block A59	24/01/2023	MFS Hospital-OPD 3	6	1	7
6	Camp No.8W Block B Sub-block A20	25/01/2023	PHD Hospital	2	9	11
7	Camp No.13 Block A Sub-block A1	23/01/2023	Rohingya Camp 13 CiC office	10	0	10
8	Camp No.15 Block A Sub-block A2	22/01/2023	Rohingya Camp 15 CiC office	6	3	9
9	Camp No.15 Block E Sub-block E1	22/01/2023	Rohingya Camp 15 CiC office	6	3	9
10	Camp No.15 Block G Sub-block G4	30/01/2023	BDRCS Hospital	4	1	5
11	Camp No.15 Block A Sub-block A1	30/01/2023	Mercy Hospital	3	3	6
12	Camp No.15 Block E Sub-block E5	30/01/2323	Good Neighbors, Bangladesh	5	4	9
13	Camp No.15 Block G Sub-block G1	22/01/2023	Rohingya Camp 15 CiC office	6	3	9

Sl. No.	Component's name	Date of meeting	Meeting Place	Number of Participants		Total
				Male	Female	
14	Camp No.15 Block G Sub-block G8	22/01/2023	BRAC health Post	7	5	12
15	Camp No.15 Block F Sub-block F3	22/01/2023	Friendship Learning Center	3	1	4
16	Camp No.15 Block H Sub-block H2	30/01/2023	Shushilan Learning Center (VSO)	4	1	5
17	Camp No.16 Block A Sub-block A6	23/01/2023	MSI Health Post	3	4	7
18	Camp No.16 Block A Sub-block A1	23/01/2023	Partners in Heath & Development (PHD)	6	6	12
19	Camp No.16 Block D Sub-block D4	23/01/2023	Feedback Information Center	4	4	8
20	Camp No.16 Block B Sub-block B5	23/01/2023	BRAC Learning Center	6	1	7
21	Camp No.16 Block B Sub-block B1	23/01/2023	BRAC Health Post Center	5	4	9
22	Camp No.17 Block C Sub-block H76	24/01/2023	PHD-WW Health Post	9	5	14
23	Camp No.17 Block C Sub-block H75	24/01/2023	Rohingya Camp 17 CiC office	7	0	7
24	Camp No.17 Block A Sub-block H100	24/01/2023	Rohingya Camp 17 CiC office	7	0	7
25	Camp No.19 Block B Sub-block B12	23/01/2023	RTMI Hospital	6	2	8
26	Camp No.19 Block D Sub-block D10	26/01/2023	BDRCS Health Post	6	3	9

Sl. No.	Component's name	Date of meeting	Meeting Place	Number of Participants		Total
				Male	Female	
27	Camp No.19 Block B Sub-block B4	23/01/2023	CARITAS	7	0	7
28	Camp No.19 Block A Sub-block A16	26/01/2023	Rohingya Camp 19 CiC office	8	3	11
29	Camp No.19 Block D Sub-block D5	26/01/2023	Rohingya Camp 19 CiC office	8	3	11
30	Camp No.20 Block B Sub-block B1	24/01/2023	SARPV Center	9	0	9
31	Camp No.20 Block A Sub-block A5	24/01/2023	10M Camp 20HP	5	2	7
32	Camp No.20 Block A Sub-block A5	24/01/2023	Jagoroni Chakra Foundation (JCF)	8	1	9
33	Camp No.20 Block A Sub-block A2	24/01/2023	Mutipurpose Child & Adolescent Center	7	4	11
34	Camp No.20 Block A Sub-block A3	24/01/2023	Mutipurpose Child & Adolescent Center	2	2	4
35	icddr,b - Host Community Teknaf	31/01/2023	icddr,b-Teknaf	6	3	9

3. ENVIRONMENTAL SCREENING

3.1 General

This section identifies the potential impacts (if any) that the various elements of the proposed Solar PV Nano grid may have on the physical, biological and socio-economic environment within 10 meters of the radial distance around the selected site. Environmental Assessment (EA) based on this screening study for the Sub-project has been conducted to identify and determine which potential Project impacts may be significant and therefore require the application of reasonable and effective management and/or mitigation measures.

In order to realize the exact physical, biological, socio-economic and environmental impacts of the proposed sub-project sites and the influence area in regards to the implementation measures, an extensive field visit was carried out in each proposed area.

The screening data and information for each Solar PV Nano Grid is illustrated in safeguard questionnaire summary form shown in tables under section 3.2 where project impacts in construction phases have been considered. Each component has been brought to questioning in order to understand the characteristics of each way impacts these developments may have with circumambient features.

3.2 Major Findings

Information have been gathered about the current environmental conditions in specific locations and analyzed how different interventions may impact them. It's interesting to note that most sub-projects are related to their surroundings and have similar effects. However, the degree of impact can vary as each component is not equally scaled. This is where differentiated mitigation measures come into play. Unique circumstances have also been considered during the environmental screening process, which is important to address. The significant issues observed in camp wise sub-projects are enlisted in following Table 3.2.1 with pertaining impacts. For more details, please refer to the detailed Environmental Screening form provided in Appendix-03.

Table 3.2.1: Concerning environmental issues relating to Camp wise proposed Solar PV Nano Grids

Environmental Screening Summary	
Scheme Name	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (Camp 7)	There are 4 Solar PV Nano grids will be installed within the Camp 7. These are- 1. Camp No.7,Block D, Sub-block D1 2. Camp No.7, Block C, Sub-block C1 3. Camp No.7, Block B, Sub-block B1 4. Camp No.7, Block D, Sub-block D1
Are the subprojects located in any environmentally sensitive locations?	
No. The proposed locations for the Solar PV Nano Grids are not situated in any critical areas. These sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies. Currently, the designated sites are observed to have open spaces without any environmental concerns. Therefore, the implementation of the Nano Grids in these locations is expected to have no adverse effects on the surrounding environment.	
Are the subprojects located in elephant migration route?	
No. These have been checked based on elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).	
Will the construction of these components induce land degradation or landslide?	
The installation of the Solar PV Nano Grids component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grids are situated on plain land with moderate vegetation (shrub) cover, and these areas do not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the installation activities associated with the Nano Grids,	

utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.
Will the installation obstruct water cycle of the local area or pollute near water body and groundwater?
No. The installation of the Solar PV Nano Grids will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The installation activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the installation process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation. Moreover, since the Nano Grids primarily rely on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.
Chances of Waste generation?
The installation process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase. The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction and installation process are expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.
Any damage to existing vegetation or garden plants?
The installation of the Solar PV Nano Grids will take places in open spaces, ensuring that there will be no damage caused to the existing vegetation or garden plants. The construction/installation process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be placed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids unnecessary disturbance to nearby plants and garden areas. If there are any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC footings, efforts will be made to minimize the impact.
Will the project cause socio-economic disturbance?
The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grids site, which is an open space, is identified as Government land. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement. Meaningful communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement (e.g., providing jobs) with local stakeholders to ensure their acceptance and participation in the process.
Violation of Environment, Health and Safety?
The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities.

Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities includes transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works. There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk.
Availability of Labor camp and material storage Space?
The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed. The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. Sophisticated equipment and materials will be kept inside the container. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place from the part of the contractor.
Availability of Utility Services?
Electricity is not available. Alternative measures such as solar power or generators will be considered. Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work and the workers as well. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.
Availability of access road?
There is a road called the Camp 7 connecting road (10ft HBB) that will be used for transportation and delivering materials to the four Nano grids in Camp 7. It provides access for vehicles and ensures a route for transporting goods and supplies.
Whether e-waste will be produced during the O&M period and if yes, how will be managed?
Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of

those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes.

However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***		
	PC	**OM**	**DE**
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None
Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

Note: PC = Pre-construction and construction stages; OM = Operation and Maintenance Stage; DE = decommissioning stage. High = Likely to cause long-term impacts or over large area (>0.5sqkm); Medium = Likely to cause temporary damage or over moderate area (0.25 to 0.5sqkm); Low = Likely to cause little, short-term damage and over small area (<0.25sqkm)

Environmental Screening Summary	
Project Name:	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (Camp 8W)	There are 2 Solar PV Nano grids will be constructed within the Camp 8W. These are- 1. Camp No.8W, Block F, Sub-block A59 2. Camp No.8W, Block B, Sub-block A20
Are the subprojects located in any environmentally sensitive locations?	
No. The proposed locations for the Solar PV Nano Grids are not situated in any critical areas. These sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies. Currently, the designated sites are observed to have open spaces without any environmental concerns. Therefore, the implementation of the Nano Grids in these locations is expected to have no adverse effects on the surrounding environment.	
Are the subprojects located in elephant migration route?	

No. These have been checked based on elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).
Will the construction of these components induce land degradation or landslide?
The construction of the Solar PV Nano Grids component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grids are situated on plain land with moderate vegetation (shrub, mainly) cover, and these areas do not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the construction activities associated with the Nano Grids, utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.
Will the construction obstruct water cycle of the local area or pollute near water body and groundwater?
No. The construction of the Solar PV Nano Grids will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The construction activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the construction process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation. Moreover, since the Nano Grids primarily rely on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.
Chances of Waste generation?
The construction process involves the installation of a steel container to be used as control room which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase. The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.
Any damage to existing vegetation or garden plants?
The construction of the Solar PV Nano Grids will take places in open spaces, ensuring that there will be no damage caused to the existing vegetation or garden plants. The construction process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be constructed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids unnecessary disturbance to nearby plants and garden areas. If there are any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC footings, efforts will be made to minimize the impact.
Will the project cause socio-economic disturbance?

The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grids site, which is located in open spaces, is identified as Government land. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement.

Meaningful communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement (e.g., providing jobs) with local stakeholders to ensure their acceptance and participation in the process.

Violation of Environment, Health and Safety?

The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities. Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities includes transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works.

There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk.

Availability of Labor camp and material storage Space?

The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed.

The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place.

Availability of Utility Services?

Electricity is not available. Alternative measures such as solar power or generators will be considered. Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the

contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.
Availability of access road?
There is a road called the Balukhali pan bazar road (12ft HBB) that will be used for transportation and delivering materials to the two Nano grids in Camp 8W. It provides access for vehicles and ensures a route for transporting goods and supplies.
Whether e-waste will be produced during the O&M period and if yes, how will be managed?
Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes. However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***		
	PC	**OM**	**DE**
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None
Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

Environmental Screening Summary	
Project Name:	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (Camp 13)	There is one Solar PV Nano grid will be constructed within the Camp 13. This is- 1. Camp No.13, Block A, Sub-block A1
Are the subprojects located in any environmentally sensitive locations?	
No. The proposed locations for the Solar PV Nano Grid are not situated in any critical areas. These sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies.	

Currently, the designated sites are observed to have open space without any environmental concerns. Therefore, the implementation of the Nano Grid in this location is expected to have no adverse effects on the surrounding environment.
Are the subprojects located in elephant migration route?
No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).
Will the construction of these components induce land degradation or landslide?
The construction/installation of the Solar PV Nano Grid component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grid are situated on plain land with moderate vegetation (shrub only) cover, and this area does not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the construction activities associated with the Nano Grid, utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.
Will the construction obstruct water cycle of the local area or pollute near water body and groundwater?
No. The construction of the Solar PV Nano Grid will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The construction activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the construction process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation. Moreover, since the Nano Grid primarily relies on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.
Chances of Waste generation?
The construction process involves the installation of a steel container to be used as control room which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase. The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.
Any damage to existing vegetation or garden plants?
The construction of the Solar PV Nano Grid will take place in an open space, ensuring that there will be no damage caused to the existing vegetation or garden plants. The construction process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be constructed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids

unnecessary disturbance to nearby plants and garden areas. If there are any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC footings, efforts will be made to minimize the impact.
Will the project cause socio-economic disturbance?
The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grid site, which is located in open space, is identified as Government land. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement. Clear communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement with local stakeholders to ensure their acceptance and participation in the process.
Violation of Environment, Health and Safety?
The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities. Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities includes transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works. There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk.
Availability of Labor camp and material storage Space?
The construction process involves the installation of a steel container to be used as control room which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed. The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place.

Availability of Utility Services?
Electricity is not available. Alternative measures such as solar power or generators will be considered. Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.
Availability of access road?
There is a road called Thainkhali to Telkhola road (BC road) that will be used for transportation and delivering materials to the Nano grid in Camp 13. It provides access for vehicles and ensures a route for transporting goods and supplies.
Whether e-waste will be produced during the O&M period and if yes, how will be managed?
Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes. However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***		
	PC	**OM**	**DE**
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None
Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

Environmental Screening Summary	
Project Name:	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (Camp 15)	There are 9 Solar PV Nano grids will be constructed within the Camp 15. These are- 1. Camp No.15, Block A, Sub-block A2

	2. Camp No.15, Block E, Sub-block E1 3. Camp No.15, Block G, Sub-block G4 4. Camp No.15, Block A, Sub-block A1 5. Camp No.15, Block E, Sub-block E5 6. Camp No.15, Block G, Sub-block G1 7. Camp No.15, Block G, Sub-block G8 8. Camp No.15, Block F, Sub-block F3 9. Camp No.15, Block H, Sub-block H2
Are the subprojects located in any environmentally sensitive locations?	
No. The proposed locations for the Solar PV Nano Grids are not situated in any critical areas. These sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies. Currently, the designated sites are observed to have open spaces without any environmental concerns. Therefore, the implementation of the Nano Grids in these locations is expected to have no adverse effects on the surrounding environment.	
Are the subprojects located in elephant migration route?	
No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).	
Will the construction of these components induce land degradation or landslide?	
The construction of the Solar PV Nano Grids component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grids are situated on plain land with moderate vegetation (primarily, shrub) cover, and these areas do not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the construction activities associated with the Nano Grids, utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.	
Will the construction obstruct water cycle of the local area or pollute near water body and groundwater?	
No. The construction of the Solar PV Nano Grids will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The construction activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the construction process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation. Moreover, since the Nano Grids primarily rely on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.	
Chances of Waste generation?	
The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase. The container and associated instruments will be transported to the site using a truck and then	

installed on the pillars with the assistance of a crane. As a result, the construction and installation process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.
Any damage to existing vegetation or garden plants?
The construction of the Solar PV Nano Grids will take places in open spaces, ensuring that there will be no damage caused to the existing vegetation or garden plants. The construction and installation process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be placed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids unnecessary disturbance to nearby plants and garden areas. If there are any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC footings, efforts will be made to minimize the impact.
Will the project cause socio-economic disturbance?
The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grids site, which is located in open spaces, is identified as Government land. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement. Meaningful communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement with local stakeholders to ensure their acceptance and participation in the process.
Violation of Environment, Health and Safety?
The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities. Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities includes transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works. There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from

heights thus pose a significant risk.

Availability of Labor camp and material storage Space?

The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed.

The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place.

Availability of Utility Services?

Electricity is not available. Alternative measures such as solar power or generators will be considered. Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.

Availability of access road?

There is a road called the Camp 15 connecting road (12ft HBB road) that will be used for transportation and delivering materials to the 9 Nano grids in Camp 15. It provides access for vehicles and ensures a route for transporting goods and supplies.

Whether e-waste will be produced during the O&M period and if yes, how will be managed?

Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes.

However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***		
	PC	**OM**	**DE**
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None

Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

Environmental Screening Summary	
Project Name:	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (Camp 16)	There are 5 Solar PV Nano grids will be constructed within the Camp 16. These are- 1. Camp No.16,Block A 2. Camp No.16, Block A 3. Camp No.16, Block D, Sub-block D4 4. Camp No.16, Block B, Sub-block B5 5. Camp No.16, Block B, Sub-block B1
Are the subprojects located in any environmentally sensitive locations?	
No. The proposed locations for the Solar PV Nano Grids are not situated in any critical areas. These sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies. Currently, the designated sites are observed to have open spaces without any environmental concerns. Therefore, the implementation of the Nano Grids in these locations is expected to have no adverse effects on the surrounding environment.	
Are the subprojects located in elephant migration route?	
No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).	
Will the construction of these components induce land degradation or landslide?	
The construction of the Solar PV Nano Grids component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grids are situated on plain land with moderate vegetation (primarily, shrub) cover, and these areas do not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the construction activities associated with the Nano Grids, utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.	
Will the construction obstruct water cycle of the local area or pollute near water body and groundwater?	
No. The construction of the Solar PV Nano Grids will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The construction activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the construction process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation. Moreover, since the Nano Grids primarily rely on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.	
Chances of Waste generation?	
The construction process involves the installation of a steel container to be used as control room	

which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Any damage to existing vegetation or garden plants?

The construction of the Solar PV Nano Grids will take places in open spaces, ensuring that there will be no damage caused to the existing vegetation or garden plants. The construction process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be constructed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids unnecessary disturbance to nearby plants and garden areas. If there are any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC footings, efforts will be made to minimize the impact.

Will the project cause socio-economic disturbance?

The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grids site, which is located in open spaces, is identified as Government land. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement.

Meaningful communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement with local stakeholders to ensure their acceptance and participation in the process.

Violation of Environment, Health and Safety?

The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities. Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities includes transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works.

There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of

poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk.
Availability of Labor camp and material storage Space?
The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed. The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place.
Availability of Utility Services?
Electricity is not available. Alternative measures such as solar power or generators will be considered. Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.
Availability of access road?
There is a road called the Camp 16 connecting road (12ft HBB road) that will be used for transportation and delivering materials to the five Nano grids in Camp 16. It provides access for vehicles and ensures a route for transporting goods and supplies.
Whether e-waste will be produced during the O&M period and if yes, how will be managed?
Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes. However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***

	PC	OM	DE
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None
Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

Environmental Screening Summary	
Project Name:	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (Camp 17)	There are 3 Solar PV Nano grids will be constructed within the Camp 17. These are- 1. Camp No.17, Block C, Sub-block H76 2. Camp No.17, Block C, Sub-block H75 3. Camp No.17, Block A, Sub-block H100
Are the subprojects located in any environmentally sensitive locations?	
No. The proposed locations for the Solar PV Nano Grids are not situated in any critical areas. These sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies. Currently, the designated sites are observed to have open spaces without any environmental concerns. Therefore, the implementation of the Nano Grids in these locations is expected to have no adverse effects on the surrounding environment.	
Are the subprojects located in elephant migration route?	
No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).	
Will the construction of these components induce land degradation or landslide?	
The construction of the Solar PV Nano Grids component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grids are situated on plain land with moderate vegetation (primarily, shrub) cover, and these areas do not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the construction activities associated with the Nano Grids, utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.	
Will the construction obstruct water cycle of the local area or pollute near water body and groundwater?	
No. The construction of the Solar PV Nano Grids will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The construction activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the construction process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation.	

Moreover, since the Nano Grids primarily rely on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.
Chances of Waste generation?
The construction process involves the installation of a steel container to be used as control room which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase. The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.
Any damage to existing vegetation or garden plants?
The construction of the Solar PV Nano Grids will take places in open spaces, ensuring that there will be no damage caused to the existing vegetation or garden plants. The construction process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be constructed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids unnecessary disturbance to nearby plants and garden areas. If there are any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC footings, efforts will be made to minimize the impact.
Will the project cause socio-economic disturbance?
The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grids site, which is located in open spaces, is identified as Government land. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement. Meaningful communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement with local stakeholders to ensure their acceptance and participation in the process.
Violation of Environment, Health and Safety?
The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities. Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities include transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and

construction works. There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk.
Availability of Labor camp and material storage Space?
The construction process involves the installation of a steel container to be used as control room which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed. The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place.
Availability of Utility Services?
Electricity is not available. Alternative measures such as solar power or generators will be considered. Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.
Availability of access road?
In Camp 17, there are three nano grids located in different blocks and sub-blocks. The first nano grid is in Block C, Sub-block H76, accessible through the 10ft HBB Rohingya Camp 17 connecting road. The second nano grid is in Block C, Sub-block H75, and can be reached via the Army road (18ft HBB). The third nano grid is in Block A, Sub-block H100, also connected by the Army road (18ft HBB). These roads allow vehicles to transport and deliver materials to the nano grid locations.
Whether e-waste will be produced during the O&M period and if yes, how will be managed?
Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes. However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes

(non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***		
	PC	**OM**	**DE**
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None
Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

Environmental Screening Summary	
Project Name:	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (Camp 19)	There are 5 Solar PV Nano grids will be constructed within the Camp 19. These are- 1. Camp No.19, Block B, Sub-block B12 2. Camp No.19, Block D, Sub-block D10 3. Camp No.19, Block B, Sub-block B4 4. Camp No.19, Block A, Sub-block A16 5. Camp No.19, Block D, Sub-block D5
Are the subprojects located in any environmentally sensitive locations?	
No. The proposed locations for the Solar PV Nano Grids are not situated in any critical areas. These sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies. Currently, the designated sites are observed to have open spaces without any environmental concerns. Therefore, the implementation of the Nano Grids in these locations is expected to have no adverse effects on the surrounding environment.	
Are the subprojects located in elephant migration route?	
No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).	
Will the construction of these components induce land degradation or landslide?	
The construction of the Solar PV Nano Grids component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grids are situated on plain land with moderate vegetation (primarily, shrub) cover, and these areas do not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the construction activities associated with	

the Nano Grids, utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.
Will the construction obstruct water cycle of the local area or pollute near water body and groundwater?
No. The construction of the Solar PV Nano Grids will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The construction activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the construction process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation. Moreover, since the Nano Grids primarily rely on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.
Chances of Waste generation?
The construction process involves the installation of a steel container to be used as control room which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase. The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.
Any damage to existing vegetation or garden plants?
The construction of the Solar PV Nano Grids will take places in open spaces, ensuring that there will be no damage caused to the existing vegetation or garden plants. The construction process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be constructed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids unnecessary disturbance to nearby plants and garden areas. If there are any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC footings, efforts will be made to minimize the impact.
Will the project cause socio-economic disturbance?
The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grids site, which is located in open spaces, is identified as Government land. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement. Meaningful communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement with local stakeholders to ensure their acceptance and participation in the process.
Violation of Environment, Health and Safety?
The installation of the Nano grids is expected to cause minimal environmental damage, though

temporarily; there may still be some impacts on air and soil due to the construction activities. Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities include transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works.

There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk.

Availability of Labor camp and material storage Space?

The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed.

The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place.

Availability of Utility Services?

Electricity is not available. Alternative measures such as solar power or generators will be considered. Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.

Availability of access road?

Camp 19, located in Ukhiya Upazila and Palongkhali Union, has five nano grids. Each nano grid can be reached using different roads. These roads make it easier to transport materials to the nano grids. In Block B, Sub-block B12, the road to the nano grid is called the 12ft HBB camp road. In Block D, Sub-block D10, the road is the 18ft BC Taznimarkhola Ghonarpara road. Block B, Sub-block B4, also uses

the 12ft HBB camp road. For Block A, Sub-block A16, the road is the 12ft HBB camp road as well. Lastly, in Block D, Sub-block D5, the road is the 12ft BC Tajnimarkhola road.

Whether e-waste will be produced during the O&M period and if yes, how will be managed?

Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes.

However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***		
	PC	**OM**	**DE**
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None
Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

Environmental Screening Summary	
Project Name:	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (Camp 20)	There are 5 Solar PV Nano grids will be constructed within the Camp 20. These are- 1. Camp No.20, Block B, Sub-block B1 2. Camp No.20, Block A, Sub-block A5 3. Camp No.20, Block A, Sub-block A5 4. Camp No.20, Block A, Sub-block A2 5. Camp No.20, Block A, Sub-block A3

Are the subprojects located in any environmentally sensitive locations?

No. The proposed locations for the Solar PV Nano Grids are not situated in any critical areas. These sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies. Currently, the designated sites are observed to have open spaces without any environmental concerns. Therefore, the implementation of the Nano Grids in these locations is expected to have no

adverse effects on the surrounding environment.
Are the subprojects located in elephant migration route?
No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).
Will the construction of these components induce land degradation or landslide?
The construction of the Solar PV Nano Grids component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grids are situated on plain land with moderate vegetation (primarily, shrub) cover, and these areas do not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the construction activities associated with the Nano Grids, utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.
Will the construction obstruct water cycle of the local area or pollute near water body and groundwater?
No. The construction of the Solar PV Nano Grids will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The construction activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the construction process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation. Moreover, since the Nano Grids primarily rely on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.
Chances of Waste generation?
The construction process involves the installation of a steel container to be used as control room which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase. The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.
Any damage to existing vegetation or garden plants?
The construction of the Solar PV Nano Grids will take places in open spaces, ensuring that there will be no damage caused to the existing vegetation or garden plants. The construction process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be constructed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids unnecessary disturbance to nearby plants and garden areas. If there are any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC

footings, efforts will be made to minimize the impact.
Will the project cause socio-economic disturbance?
The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grids site, which is located in open spaces, is identified as Government land. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement. Meaningful communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement with local stakeholders to ensure their acceptance and participation in the process.
Violation of Environment, Health and Safety?
The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities. Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities include transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works. There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk.
Availability of Labor camp and material storage Space?
The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed. The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place.
Availability of Utility Services?
Electricity is not available. Alternative measures such as solar power or generators will be considered.

Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.

Availability of access road?

There is a road called the Camp 20 connecting road (12ft HBB road) that is used for transportation and delivering materials to the five Nano grids in Camp 20. It provides access for vehicles and ensures a route for transporting goods and supplies.

Whether e-waste will be produced during the O&M period and if yes, how will be managed?

Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes.

However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***		
	PC	**OM**	**DE**
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None
Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

Environmental Screening Summary	
Project Name:	**Supply and Installation of Solar PV Nano Grid**
Camp wise subprojects location (icddr,b – Teknaf)	There is one Solar PV Nano grids will be constructed in Teknaf. This is- 1. Icddr,b, Host Community, Teknaf
Are the subprojects located in any environmentally sensitive locations?	
No. The proposed locations for the Solar PV Nano Grid are not situated in any critical areas. These	

sites do not pose any risks or impact on sensitive habitats, major forest covers, or water bodies. Currently, the designated sites are observed to have open space without any environmental concerns. Therefore, the implementation of the Nano Grid in this location is expected to have no adverse effects on the surrounding environment.
Are the subprojects located in elephant migration route?
No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).
Will the construction of these components induce land degradation or landslide?
The construction of the Solar PV Nano Grid component, which involves installing a steel container structure supported by four RCC pillars, is not expected to induce land degradation or trigger landslides. The selected locations for the Nano Grid are situated on plain land with moderate vegetation (shrub) cover, and this area does not have any significant inclinations or steep slopes. The use of the steel container structure eliminates the need for extensive excavation or heavy piling work. While minimal ground preparation and pillar installation may be required, the overall impact on the land is expected to be minimal. Therefore, the construction activities associated with the Nano Grid, utilizing the steel container structure and pillar installation, are unlikely to cause land degradation or pose landslide risks in the designated areas.
Will the construction obstruct water cycle of the local area or pollute near water body and groundwater?
No. The construction of the Solar PV Nano Grid will not obstruct the water cycle of the local area or cause pollution near water bodies and groundwater. The construction activities will be confined to the selected sites, which are not in close proximity to any significant water bodies that could be negatively impacted. Furthermore, the construction process does not involve heavy earth removal or cutting, minimizing the risk of disrupting the natural flow of water or causing sedimentation. Moreover, since the Nano Grid primarily relies on solar energy, there will be no direct discharge of pollutants into water bodies or groundwater.
Chances of Waste generation?
The construction process involves the installation of a steel container to be used as control room which will be constructed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, there will be a little waste generation, primarily consisting of construction debris. This may include leftover brick chips, cement, wood, bamboo, plastics, wires etc. There will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase. The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.
Any damage to existing vegetation or garden plants?
The construction of the Solar PV Nano Grid will take place in an open space, ensuring that The construction process involves the installation of a steel container to be used as control room, which measures 10ft*8ft*8.5ft and has a thickness of 2.3mm. The control room will be constructed on RCC footings. The positioning of the control room and the construction of the RCC footings will be carried out in a manner that avoids unnecessary disturbance to nearby plants and garden areas. If there are

any plants or vegetation that need to be cleared or uprooted to accommodate the installation of the control room and RCC footings, efforts will be made to minimize the impact.
Will the project cause socio-economic disturbance?
The implementation of the Solar PV Nano Grid subproject is not anticipated to cause any significant socio-economic disturbances. The Nano grid site, which is located in open space. While the intervention may challenge existing socio-economic practices to some extent, arrangements have been made ensuring a mutually beneficial agreement. Meaningful communication and collaboration with the community will be maintained to address any concerns or issues that may arise. The project team will prioritize respectful engagement with local stakeholders to ensure their acceptance and participation in the process.
Violation of Environment, Health and Safety?
The installation of the Nano grids is expected to cause minimal environmental damage, though temporarily; there may still be some impacts on air and soil due to the construction activities. Environmental damage during the construction phase can occur primarily from noise and dust generation. Construction and installation activities include transportation and mechanical (with crane and local smaller carts) and headload carrying of materials and equipment to the site, construction of RCC footings, installation of steel container (control room) inclusive of thermal insulation and ventilation fan, installation of solar PV module connected to the vented lead acid battery, installation of overhead pole for distribution line and setting up the distribution line, installation of LED and security light, ceiling fan, switch, socket and fuse board with all the fittings and accessories. Installation of container and poles may generate noise and vibration that could potentially disturb the surrounding environment. Dust particles may be released into the air during excavation and construction works. There are several health and safety issues that need to be considered due to the use of crane and heavy equipment, battery storage, electric wires, welding machines and so on. The installation of poles and electrical lines involves working with heavier machineries and welding equipment. The risk of electrical shocks and burns is a significant concern. Chemicals, such as paints, solvents, adhesives, and insulation materials may contain hazardous substances. Construction activities may involve manual lifting, carrying, and moving of heavy equipment and materials. Improper lifting techniques and overexertion can lead to musculoskeletal injuries. Construction and installation activities may require working at heights, such as during the installation of poles and overhead lines. Falling from heights thus pose a significant risk.
Availability of Labor camp and material storage Space?
The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. So minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction and use of the local labor force for this minimal works, there is no need for labor shed. The materials, including the poles, for the Nano grids will be stored in designated vacant spaces near each Nano grid. To ensure security during nighttime, there may be provisions for having night guards in place.
Availability of Utility Services?
Electricity is not available. Alternative measures such as solar power or generators will be considered.

Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period.

Availability of access road?

There is a road called the Teknaf- Cox's Bazar highway road that is used for transportation and delivering materials to the Nano grid in icddr,b - teknaf. It provides access for vehicles and ensures a route for transporting goods and supplies.

Whether e-waste will be produced during the O&M period and if yes, how will be managed?

Solar PV nano-grid and lead acid batteries will produce significant amount of e-wastes at the end of those products' defunct/ end-of-life stage. Except the nonreactive silica from the defunct solar panel, all other objects or substances, e.g., heavy metals, acid, electric parts and wires, etc. can pose serious threat to the environment as well as to human health. Yet, we don't have any formal facilities in Bangladesh to recycle or upcycle these wastes.

However, the project has made a plan to manage all the wastes produced from solar system (street light, nano-grid, etc.) after the end-life of associated products, equipment, batteries, etc. One of the working vendors supplying and installing these solar systems is willing to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for. The project, hence, will come to an agreement (MoU) with that vendor by the end of this project or the end of the warranty period of their services, whichever comes first, in this regard.

Environmental Components (Physical/ Biological)	***Impact during the project life span***		
	PC	**OM**	**DE**
Noise	Low	Low	None
Air Pollution	Low	None	None
Soils	Low	None	None
Vibrations	Low	None	None
Surface Water	None	None	None
Groundwater	None	None	None
Flora	None	None	None
Fauna	None	None	None

There is no evidence of presence of elephants in the subproject area. A few incidents of human elephant conflict have been reported in 2018. The IUCN has conducted a study on such conflict. With the support from UNHCR, IUCN has been marking elephant routs and corridors and informing local communities and stakeholders of avoiding the marked areas. As part of the mitigation options, different initiatives have been undertaken, such as formation and capacity development of Elephant Response Teams (ERTs); providing equipment to ERTs to divert in-coming elephants; and setting up elephant deterrent tools (e.g., trip alarms and watch-towers). Though the current chances of occurrence of conflicting incidence are becoming narrow, any recurrence would be managed by the

ERTs and they will be called if there appears any minute possibility to recur. Appendix-4 presents a map of elephant routes of Ukhiya and Teknaf Upazila which is prepared by the IUCN.

In order to offset the loss or attenuating the environmental degradation, a set of mitigation measures will be adopted, on top of general practice of standard construction procedure or following the relevant codes of practices.

3.3 Climate Change Impact Screening

3.3.1 General Overview of the area

Cox's Bazar is one of the coastal districts of Bangladesh and is prone to the effects of climate change due to its geomorphological siting and climate induced effects. The hilly tracts of Cox's Bazar could foster further environmental crisis brought on by indiscriminate deforestation and diminishing groundwater reservoirs, which have been taken place in recent months as the Rohingya crisis evolved. A recent study conducted by World Bank[3] has found that Cox's Bazar will be the worst-hit district in South Asia as average temperatures rise and rainfall patterns become disruptive, by 2050, if greenhouse gas emissions continue unabated.

The hilly region of the country, especially the part in Cox's Bazar is characteristically of muddy soil structure, not of any rocky formation and the stability comes from the roots of the trees. Also rainfall, proximity to the sea, elevation, and land cover are very important factors for analyzing the risk of cyclone. Denudation of trees from hilltops in order for the huge settlement of Rohingya people has already increased the vulnerability to the risk of hill collapse by destabilizing the terrain. Also deforestation at a rapid speed uncovers the land and raise the risk of occurrence of cyclones, as forests protect land from high wind and storm surges where demolishing the trees would make the area vulnerable.

Together with the above-mentioned hazardous situation, again due to sudden extraction of huge amount of groundwater, availability of potable water from shallow tube wells that pump water up from about 150 feet has already reached to a critical level. Averting the problem requires new tube wells to be plumbing deeper into the poorly mapped aquifer, but going deeper than 700 feet in some places may cause salt water to contaminate freshwater resources.

3.3.2 Site Specific Screening and outcome

Climate Change impact on a particular subproject is tough to deduce as the highest resolution of climate model simulation done over Bangladesh is 50km. Depending on the simulation ensemble of Cox's Bazar district, the temperature and precipitation are likely to increase with time.

The impact of cyclone and precipitation has higher impact in this area, Intensity of precipitation has increased according to the participants and number of cyclones has been seen to have increased in the past few years. Salinity has not been found in the vicinity of the target locations. Cyclonic storm surge has medium impact in the proposed areas. Temperature has increased and thus has medium impact on the area and Thunderstorm has been seen to increase and is found to have highest impact in the area. Water stagnation has not been found. Drainage channel has not been found in the target areas.

[3] https://openknowledge.worldbank.org/bitstream/handle/10986/28723/9781464811555.pdf

As compared to the entire district area or a 50km resolution for model simulation, the proposed sites are trivial point for impact generation, having minor footprints in respect to climate change effects. Yet, to avoid the devastation caused by the growing thunderstorm events, conventional lightning protection system (copper rod to be used as a lightning arrester) should be employed to the proposed facilities. Solar power as energy sources is suggested to be incorporated in the design and to be implemented as part of the construction of these Solar PV Nano Grids. As there is very low impact of cyclonic storm surge in the area the mitigation measures for flooding potential are not provided here.

The containers (control rooms) are heavy enough to withstand the primary onslaught of cyclonic wind effects; moreover, the footings below the containers save the entire structures from any damage out of water congestion/flooding. Installing lightning arresters of advanced technical grade are also in progress under a different 'goods' package of this project; so, protection from the event of lightning will be ensured.

4. ENVIRONMENTAL AND SOCIAL PROTECTION/SAFEGUARDS

It is important to address the environmental and social aspects to ensure effective safeguarding. The potential impacts associated with this project are primarily construction-related and can be mitigated through the implementation of good engineering practices, proper material management, and adherence to health and safety protocols.

The construction process involves the installation of a steel container to be used as control room which will be placed on RCC footings. Hence, minimal ground preparation and RCC pillar installation may be required. Due to the small scale of construction, a very little amount of dust will be generated during the construction phases. The contractor will be responsible for adopting the best practices in debris management and implementing regular dust control measures, such as spraying water, to minimize any potential adverse effects. Construction activities involving equipment, such as drilling, cutting, and using heavy machinery, can generate high levels of noise and vibrations. To minimize noise and vibration associated with the construction activities of the Nano grid, the contractor will be responsible for adopting the best practices in line with regulations. Regular maintenance and calibration of construction equipment, including cutting tools, cranes, and trucks, are crucial to ensuring they operate efficiently and produce minimal noise and vibration. Proper lubrication, alignment, and inspection of machinery can help mitigate any excessive noise or vibration generation. Close attention will be given to activities that may have an impact on the surrounding environment, and appropriate mitigation measures will be applied with careful consideration and vigilance.

To prioritize the safety of workers and the local community, the contractor will provide thorough training to their staff and workers. This training will cover best practices in construction, health and safety protocols, and efficient site management. Additionally, awareness sessions will be conducted to promote understanding of the project's environmental goals and the importance of safeguarding measures. Records of these training sessions will be kept on-site for effective monitoring and management.

The sub-project includes an environmental management plan, outlined in Appendix-5, which contains specific guidelines and measures for each phase of the Nano grid project. This plan ensures that environmental concerns are addressed proactively, and a monitoring program is in place to assess the effectiveness of the mitigation measures.

By following these measures and implementing the environmental management plan, the project aims to minimize and control any potential environmental impacts associated with the construction and operation of the Nano grid.

On the bright side, each of the Nano-grid facilities equipped with Solar Powered electricity supply system with a capacity of 8 KW, would help reducing the CO2 emission to 8.76 Tons per year, considering a conservative estimation of reduction (Ref. CO2 Emission Reduction : Results - Solar Mango – #1 guide for solar; considering 250 days of sunshine each year).

5. CONCLUSION AND RECOMMENDATIONS

The overall conclusion is that if the management and mitigation measures are implemented in full, there will be no significant negative environmental impacts in regards to the selection of location, design, construction, and/or operation procedure of the proposed Sub-project. There will in fact be tremendous benefits from recommended mitigation and management measures and major improvements in quality of life and ensuring social safety and security for adjacent communities will be achieved once the scheme is in operation.

The conclusions of the screening study can be summarized as follows:

- None of the proposed Solar PV Nano grid sites are located in or near to any environmentally sensitive sites/areas, nor will cause any significant detrimental impacts during the construction period.
- The Nano grid will enhance safety and security measures in the community. This will provide a safer environment for women and children, especially during nighttime hours. This will contribute to their overall well-being and peace of mind.
- The Nano grid will power educational facilities in the camp area, such as schools and learning centers benefiting children in the community. With electricity, these educational institutions can provide better lighting, and extend study hours. This will improve access to quality education and empower children with knowledge and skills for their future.
- The availability of electricity in healthcare facilities in the camp areas supported by the Nano grid will improve access to quality healthcare services for women and children. Powered medical equipment and lighting will enhance the provision of healthcare, leading to improved maternal and child health outcomes.
- The Nano grid utilizes solar photovoltaic (PV) technology to generate electricity. By harnessing clean and renewable solar energy, the Nano grid will significantly reduce reliance on fossil fuel-based power sources. This leads to a reduction in carbon emissions, helping to curb climate change contribution and improve air quality in the local environment.
- The short-term negative impacts that may come by the way of air quality, noise, solid waste, occupational health & safety during the construction period, that need to be minimized

through management plan. Management problems are common and should be taken into consideration.

- The project will create employment for those who live in the vicinity of the construction site and will provide them a short-term economic gain.

Appendix-01: List of Participants in the Consultation Meetings

Supply and Installation of Solar PV Nano Grid
Camp No.7,Block D, Sub-block D1
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District:** Cox's Bazar
Time: 02:30 PM **Dated:** 25/01/2023
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: Rohingya Camp 7, CIC office

Sl. No.	Name	Designation	Signature
1	Rabindra chakma	CIC	
2	Md. Maksudur Rahman.	ACIC camp-7	
3	Tohidul Islam	CMO	
4	Rupu Barua	IA	
5	I-)zizul Haque	CMA	
6	Md. Zahir Hossain	DTL	
7.	Pabel chowdhury	CMO	

Table 01 : Attendance of consultation meeting for Camp No.7Block D Sub-block D1 (Opposite of camp 7 CiC)

Supply and Installation of Solar PV Nano Grid
Camp No. 7, Block-C, Sub Block-C1
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List
Focus Group Discussion

Upazila: Ukhiya
Time: 11:45 A.M
Purpose of consultation: Supply and installation of solar PV Nano Grid
Place of meeting: BRAC - HCMP - Camp - 7

District: Cox's Bazar
Dated: 26/01/2023

Sl. No.	Name	Designation	Signature
01	Tofiqul Islam	CMO	
02	Mahib ullah	WASH focal	26.01.2023
03	Md. Abdulla Al Farug	Nutrition Focal	
04	Pabel chowdhury	CMO (SMS) BRAC	
05	Md. Abul Muttaki	AE-Sanitation	
06	Md. Giyas Uddin	FA	

Table 02: Attendance of consultation meeting for Camp 7, Block C, Sub-block C1 (Open space near a playground)

Supply and Installation of Solar PV Nano Grid

Camp-7, Block-B, Sub Block-B1

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 12.05 PM
Purpose of consultation: Supply and installation of solar PV Nano Grid
Place of meeting: Friendship Hospital
District: Cox's Bazar
Dated: 26/01/2023

Sl. No.	Name	Designation	Signature
1.	Dr. Prahar Chakma	Medical Officer	
2.	MD. Khodomacul	M.A	
3.	Taslima Akter Toma	M.A	
04	MST: Afsana mimi	m.A	
05	Dr. Sayed fahad Munksir	Medical officer	
06	Mst. Jinia Jafrin	Midwife	
07	Provilata Mondal	midwife	

Table 03: Attendance of consultation meeting for Camp 7, Block B, Sub-block B1 (Infront of Brac learning center)

Supply and Installation of Solar PV Nano Grid
Camp-7, Block-D, Sub Block-D1

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 12:30 PM
District: Cox's Bazar
Dated: 26/01/2023
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: Rohingya Camp 7, CIC office

Sl. No.	Name	Designation	Signature
1	Rabindra chakma	CIC	
2	Md. Maksudur Rahman.	ACIC camp-7	
3	Tohidul Islam	CMO	
4	Rupu Barua	IA	
5	1-)zizul Haque	CMA	
6	Md. Zahir Hossain	DTL	
7.	Pabel chowdhury	CMO	

Table 04: Attendance of consultation meeting for Camp No.7 Block D Sub-block D1 (South west side of CiC office)

Supply and Installation of Solar PV Nano Grid

Camp-8W, Block-F, Sub Block-A59

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 2:30 PM
District: Cox's Bazar
Dated: 24.01.2023
Purpose of consultation: Supply and installation of solar PV Nano Grid
Place of meeting: MFS Hospital-OPD-3, Camp-8W, Block-F, SB-A59

Sl. No.	Name	Designation	Signature
1	IMTIAZ KAMRAN	PROJECT COORD. SUPPORT	
2	Valerie Binet	construction Manager MSF	
3.	Md. Ashraful Islam	CMPO RRRC	
4.	Rafiaul Islam	MSF	
5	Humayun Kabir Shofiq	Counsellor	
6	Rustam Ali	watchman	
7	KOMAL BARUA		KOMAL

Table 05: Attendance of consultation meeting for Camp 8W Block F Sub-block A59 MSF Field Hospital Point

Supply and Installation of Solar PV Nano Grid

Camp-8W, Block-B, Sub Block-A20

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya — District: Cox's Bazar
Time: 01:00 pm — Dated: 25.01.2023
Purpose of consultation: Supply and Installation of solar PV Nano Grid
Place of meeting: PHD Hospital, Camp-8W, Block-B.SB-A20

Sl. No.	Name	Designation	Signature
1	Dr. Md. Mahmudul haque	clinical coordinator.	
2.	Dr. Sinajum Monira	Medical offiem	
3	Akter Jahan Sweety	M.A	Sweety
4.	Isstiak Azad	Pharmacist	Isstiak
5.	Kajal Bekha	Drug Dispenser	Kajal
6.	Mony Akter	Nurse	Mony
7.	Rani Akter	Midwife	Rani
8.	Jakia Farzana	S.F	
9.	shahena Akter	Lab. Tec	Shahena
10.	Tumpa Barua	SF	Tumpa
11	Salma Akter	S.F	

Table 06: Attendance of consultation meeting for Camp No.8W Block B Sub-block A20 PHD Point

Supply and Installation of Solar PV Nano Grid

Camp-13, Block-A, Sub Block-A1

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District: Cox's Bazar**
Time: 12:00 PM **Dated:** 23.01.2023
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: CIC office, Camp-13, Block-A, SB-A1

Sl. No.	Name	Designation	Signature
1.	Shirul Islam	CiC	
2	MD. SHAH ALAM.	ASP	
3.	MD. Main uddin	Police Inspector	
4	Omen Farooque Abir	DCM	
05	Dr. Imam Uddin Ariet	BRAC	
06	md Ali	Camp-13, Head	
07	Md. Shakhawat Hossain	F.F- (S.D)	S. Hossain
08	Md. Maruf Ment	Edu. Focal	
09	Riton Barua	PO	
10	Md. Saddam Hossain	PO	

Table 07: Attendance of consultation meeting for Camp No.13 Block A Sub-block A1 APBN Police Barrack Point

Supply and Installation of Solar PV Nano Grid

Camp-15, Block-A, Sub Block-A2

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District: Cox's Bazar**
Time: 02:15 PM **Dated:** 22/01/2023
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: Rohingya Camp 15 CIC office

Sl. No.	Name	Designation	Signature
01	Saukar Kumar Barua	CiC	22.01.22
02	Md. Shah Alam.	ASP	
03	Md Abubakkar Siddique	ACiC	22/1/23
04	Shuvashis Chowdhury	Cmn. Protection Ass	22.01.22
05	Md. Tariqul Islam	CMO	22/01/23
06	Riaul Kaiser Siddique	CMA	22-01-2023
07	Mahiuddin Sikdar.	Medical Assistant	22.01.2023
08	Shazmin Akter	Senior project offic	22.01.23
09	Abu Rafa Md. Nafis	Deputy Manager SSG Solar	22-01-23.
10	Israt Jahan Keya	Assistant manager CIS	22-01-23
11.	Md. Shariful Islam	Field Coordinator CIS	
12	Tanvin Kashem	SFOA/ZOM SMS	
13	A N M. Zobayer	Energy Specialist	
14	Md. Shariful Alam	Shelter Supervisor	

Table 08: Attendance of consultation meeting for Camp No.15 Block A Sub-block A2 Beside APBN Check post

Supply and Installation of Solar PV Nano Grid

Camp-15, Block-E, Sub Block-E1

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District:** Cox's Bazar
Time: 12:45 PM **Dated:** 22/01/2023
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: Rohingya Camp 15 CIC office

Sl. No.	Name	Designation	Signature
01	Sankar Kumar Barua	CiC	22.01.22
02	Md. Shah Alam.	Asp	22.01.22
03	Md Abubakar Siddique	ACiC	22/1/23
04	Shuvashis Chowdhury	Cmn. Protection Ass	22.01.22
05	Md. Tariqul Islam	CMO	22/01/23
06	Ziaul Kabir Siddique	CMA	22-01-2023
07	Mahiuddin Sikdar.	Medical Assistant	22.01.2023
08	Shezmin Akter	Senior project offic	22.01.23
09	Abu Rafa Md. Nafis	Deputy Manager SSG Solar	22-01-23.
10	Israt Jahan Keya	Assistant manager CIS	22.01.23
11.	Md. Shoriful Islam	Field Coordinator CIS	
12	Tanvin Kashem	SFOA/ZOM SMS	
13	A N M. Zobayer	Energy Specialist	
14	Md. Shariful Alam	Shelter Supervisor	

Table 10: Attendance of consultation meeting for Camp No.15 Block E Sub-block E1 Beside WFP Food Distribution Center

Supply and Installation of Solar PV Nano Grid

Camp-15, Block-G, Sub Block-G4

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
District: Cox's Bazar
Time: 11:50 AM
Dated: 30.01.2023
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: BDRCS Hospital, camp-15, Block-G, SB-G4

Sl. No.	Name	Designation	Signature
01	Abdullah Al Saadh	Camp officer	[signature]
02	Azhar Hossain	PHC In-charge	[signature]
03	Md. Mahedi Hasan	Sr. WO	[signature]
04	Md. Masful Ali	CHF	[signature]
05	Dr Mou Das	Medical officer	[signature]

Table 11: Attendance of consultation meeting for Camp No.15 Block G Sub-block G4 Open space infront of BDRCS hospital

Supply and Installation of Solar PV Nano Grid

Camp-15, Block-A, Sub Block-A1

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
District: Cox's Bazar
Time: 1:45 PM
Dated: 30.01.2023
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: At Mercy Hospital, Camp -15, Block-A. SB-A1

Sl. No.	Name	Designation	Signature
01	MD. Habib ullah Coly	Paramedic	
02	Md. Lavlu Miah	Medical Assistant	Lavlu
03	Ripa Shill	C.H.C.D	Ripa
04	Rina Halder	Midwife	Rina
05	Farjana Akter	Paramedic	Farjana
06	Md. Shoriful Islam	Field Coordinator	

Table 12: Attendance of consultation meeting for Camp No.15 Block A Sub-block A1 Inside the DCH trust compound

Supply and Installation of Solar PV Nano Grid
Camp-15, Block-E, Sub Block-E5
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 1:30PM
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: Good Neighbors Bangladesh, Camp-15, Block-E, SB-E5
District: Cox's Bazar
Dated: 30.01.2023

Sl. No.	Name	Designation	Signature
01	Moubin Akter Mouny	Case Management officer	
02	Juwel Mallik	LSB Facilitator	
03	Md Elyas	PSS-volunteer	
04	Mohammed Edris	GBV Volunteer	
05	Mizanor Rahman	GBV- men and boys engagement Facilitator	
06	Rafika	outreach Volunteer	
07	Ofaiza	PSS Volunteer	
08	Rasoma Akter	GBV Mobilizer	
09.	Sayed Amin	Outreach Volunteer	

Table 13: Attendance of consultation meeting for Camp No.15 Block E Sub-block E5 Beside World Vision Child and Adolescent care center

Supply and Installation of Solar PV Nano Grid
Camp-15, Block-G, Sub Block-G1
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District: Cox's Bazar**
Time: 1:50 PM **Dated:** 22.01.2023
Purpose of consultation: Supply and Installation of Solar pv Nano Grid
Place of meeting: CIC office, Camp-15, Block-G, SB-G1

Sl. No.	Name	Designation	Signature
1	Ejaul Hoque	~~Enforcement~~ Focal point	
2	Md. Amran Hossain	Project Officer	
3	Muna Faria	Site Engineer	
4	Asma ul Hosna	Field Facilitator	Asma
5.	Farhana Haque	Site Engineer	
6	Azizul Hoque	Team Leader	
7	Hamidur Rahman	Mobilizer Team leader	
8	Md. Mizbaq uddin	Site Engineer	
9	Md. Tauhidul Islam	Site Engineer	Tauhid

Table 14: Attendance of consultation meeting for Camp No.15 Block G Sub-block G1 Beside CIC office

Supply and Installation of Solar PV Nano Grid
Camp-15, Block-G, Sub Block-G8
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District: Cox's Bazar**
Time: 2:45 PM **Dated:** 22.01.2023
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: At BRAC Health Post, Camp-15, Block-G, SB-G8

Sl. No.	Name	Designation	Signature
01	Dr. Md. Yasin Shariş	ATS(MOIncharge)	
02	Dr. Ashraf Ahmed	MO (AWARD)	
03	Rujina parrin.	ATO (Nurse)	Rujina parrin
04	Tanbin Nusrat Amin	T.A (pharmacist)	
05	Mukul Kumer Das	FO-CDP	
06	Runa	Senior Nurse	Runa
07	Mst. Sathi khatun.	T.A(Midwife)	
08	MD. Golam Kibria	pharmacist	
09	MD. Homayun kabir	Re officer	
10	Misbah [illegible]	PO.	
11	Sugam chakma	TA	
12.	Rukaiya Hossain	PO.	

Table 15: Attendance of consultation meeting for Camp No.15 Block G Sub-block G8 Beside Brac Health Post

Supply and Installation of Solar PV Nano Grid
Camp-15, Block-F, Sub Block-F3
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District: Cox's Bazar**
Time: 3:40 PM **Dated:** 22.01.2023
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: Friend Ship Learning Center, Camp-15, Block-F, SB-F3 (World Vision)

Sl. No.	Name	Designation	Signature
01	Jack Barua Bappu	FRIENDSHIP National Teacher	Jack
02	Morium Akther	Friendship National Teacher	
03	mohammed ENOS	friend ship Rohingya teacher	
04	Sayed Wasim	RT	

Table 16: Attendance of consultation meeting for Camp No.15 Block F Sub-block F3 Beside Friendship Learning Center and World Vision Learningn center

Supply and Installation of Solar PV Nano Grid

Camp-15, Block-H, Sub Block-H2

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
District: Cox's Bazar
Time: 1:00 PM
Dated: 30.01.2023
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: At Sushilon Learning Center, Camp-15, Block-H, SB-H2 (VSO)

Sl. No.	Name	Designation	Signature
01	MD Daoud	LC-Teacher	
02	Khadiga begum	LC Teacher	
03	Md Abdullah	LC Teacher	
04	Rachoon	community	
05	Hafaz Ahmmed	community	

Table 17: Attendance of consultation meeting for Camp No.15 Block H Sub-block H2 Infront of VSO bangladesh Shushilan LC

Supply and Installation of Solar PV Nano Grid
Camp-16, Block-A, Sub Block-A6
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 12:05 PM
Purpose of consultation:
Place of meeting: MSI Health Post

District: Cox's Bazar
Dated: 23/01/2023

Sl. No.	Name	Designation	Signature
01	Salma ferdaus	Teacher	Salma
02	Ismot Ara	Teacher	Ismot
03	Md Ahmed	SMV	Ahmed
04.	Yeasir	Rsmv	
05.	Mohammed Ayas	Teacher	
06	Tasmin Akhter	prevention officer	
07	Dr. Roksana Akter	(MO)	Dr. Roksana 23-01-23

Table 18: Attendance of consultation meeting for Camp No.16 Block A sub block A4 Inside of MSI hospital compound

Supply and Installation of Solar PV Nano Grid

Camp-16, Block-A, Sub Block-A1

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 01:00 PM
District: Cox's Bazar
Dated: 23/01/2023
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: Partners in Health and Development (PHD)

Sl. No.	Name	Designation	Signature
02	Pradip Bala	Medical Assistant	
03	Azizur Rahman Aziz	Drug Dispenser	
04.	Fatema Khatun	Midwife	
05.	Yeasmin Akter	Nurse	
06	Md Salim	Volunteer	
07	Md Ahmed	SMO	
08	Sabinayeasmin Kazal	Register	
09	Kawsar Jahan	Service facilitator	
10	Sarjena yeasmin	"	
11	Fatema khanom	"	
12	Rozina Akter	"	

Table 19: Attendance of consultation meeting for Camp No.16 Block A sub Block A1 Abutting PHD Hospital

Supply and Installation of Solar PV Nano Grid

Camp-16, Block-D, Sub Block-D4

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District: Cox's Bazar**
Time: 02:15 PM **Dated:** 23/01/2023
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: Fidback Information centre

Sl. No.	Name	Designation	Signature
01	Hosnara	SMV	
02	Khourshida Akter	National Teacher	
03	Absar Kamal	V. Teacher	
04	Ziyabar Rahaman	WASH-Volunteer	
05	Afrina Sultana	National teacher	Afrina
06	Rebeka Sultana	V. Teacher	
07	Saful Islam	National facilitator	Saiful
08	Saiful Haque	SBF	

Table 20: Attendance of consultation meeting for Camp No.16 Block D Sub-block D4 beside World Vision AMPC

Supply and Installation of Solar PV Nano Grid

Camp-16, Block-B, Sub Block-B5

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 11:15 AM
District: Cox's Bazar
Dated: 23/01/2023
Purpose of consultation: Supply and installation of solar PV Nano Grid
Place of meeting: BRAC Learning center

Sl. No.	Name	Designation	Signature
01	Md. Shakib	RT	
02.	Suchayan chakma	PO (SKUS)	
03	Esika chakma	NT (SKUS)	
04	Md. Ayoub	BLI (BLC-182.)	
05	Nur Alam	BLI (BRAC)	
06	Md Ahmed	SMV	
07	Imtiaz Malek	P. O (Brac)	

Table 21: Attendance of consultation meeting for Camp No.16 Block B Sub-block B5 Open space backside of AWARD hospital

Supply and Installation of Solar PV Nano Grid

Camp-16, Block-B, Sub Block-B1

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
District: Cox's Bazar
Time: 02: 30 PM
Dated: 28/01/2023
Purpose of consultation: Supply and installation of solar PV Nano Grid
Place of meeting: Brac Health Post Center, Camp- 16

Sl. No.	Name	Designation	Signature
1	Humayan Kabir	M.A	
2	Farida Akter	ISP	Farida.
3	Md. Ruhullah	ISP	
4	Akika Alam	Tika	
5	Rimon Dhar	COP	
06	Nur Islam	projectofficer	
07	Md Ahmed	SMV	
08	Aiman Nahan	Teacher	
09.	Md. yea saiv	SMV	

Table 22: Attendance of consultation meeting for Camp No.16 Block B Sub-block B1 Beside camp 16 road neat CiC office and infront of Brac office

Supply and Installation of Solar PV Nano Grid

Camp-17, Block-C, Sub Block-H76

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya — District: Cox's Bazar
Time: 12:00 PM — Dated: 24.01.2023
Purpose of consultation: Supply and installation of solar PV Nano Grid
Place of meeting: PHD-WW Health Post, Camp-17, Block-C, SB-H76

Sl. No.	Name	Designation	Signature
1	Dr. Nazmus Sakib	Project Coordinator	
2	Uttam Kumar Dey	Finance Coordinator	
3	Md. Anju Sankar	Medical Assistant	
4	Khandokar Tasnim Ahsan	Program Support officer	
5	md. Imran	Pharmacy Assistant	
6	Md Nur	DG	
7	Md AYUb	CL	
8	Jahi Alam	NG	
9	Tasmin Akter	Regi Assistant	Tasmin
10	Kamrun Nahar	register	
11	Mahamuda Khatun	midwife	Mukti
12	Ismatara Begum	WEF-E Counsellor	
13	Mahfuja Sarkar	PSSO-Ga	
14	MD-Ano war	CHW	

Table 23: Attendance of consultation meeting for Camp No.17 Block C Sub-block H76 PHD (Near waste Management) Point

Supply and Installation of Solar PV Nano Grid

Camp-17, Block-C, Sub Block-H75

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 3:00 pm
Purpose of consultation: Supply and Installation of solar PV Nano Grid.
Place of meeting: CIC office Room · Camp-17

District: Cox's Bazar
Dated: 24.01.2023

Sl. No.	Name	Designation	Signature
01	S.M. Ishtiaque Shahrian	CiC	28/1/23
02.	Md. Rayhan Ali	AciC	28/01/23
03.	Md. Ashraful Islam	CMO	24.1.2023
04.	Supan Shil	I.A	
05	Mong Kyaw Hla Chak	I.A	
06	Abul Bashar	Guard	
07	Ratan Paul	Police NK	

Table 24: Attendance of consultation meeting for Camp No.17 Block C Sub-block H75 Near the CiC Office

Supply and Installation of Solar PV Nano Grid

Camp-17, Block-A, Sub Block-H100

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 3:00 pm
District: Cox's Bazar
Dated: 24.01.2023
Purpose of consultation: Supply and Installation of solar PV Nano Grid.
Place of meeting: CIC office Room · Camp-17

Sl. No.	Name	Designation	Signature
01	S.M. Ishtiaque Shahrian	CiC	28/1/23
02.	Md. Rayhan Ali	AEE	28/01/23
03.	Md. Ashraful Islam	CMO	24.1.2023
04.	Supan Shil	I.A	
05	Mongkyaw Hla Chak	I.A	
06	Abul Bashar	Guard	
07	Rajan Paul	Police NK	

Table 25: Attendance of consultation meeting for Camp No.17 Block A Sub-block H100 Infront of TRC

Supply and Installation of Solar PV Nano Grid

Camp-19, Block-B, Sub Block-B12

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 2:30 PM
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: RTMI Hospital, Camp-19.
District: Cox's Bazar
Dated: 23.01.2023

Sl. No.	Name	Designation	Signature
01	Md. Rejaul Mowla	PM	
02	Dr. Kaushik ahamed	CM	
03	Abdullah Al Mamud	MISO	
04	Kamil Ahmed	FLS	
05	MD. Riad	F.S.	
06	Asma Akter Trisha	F.S	
07	Dr. Rehana Jannath Mary	MO	
08	Dr. Tanvir Ahamed Sujan	MO	

Table 26: Attendance of consultation meeting for Camp No.19 Block B Sub-block B12 Inside the RTMI (IOM) PHC

Supply and Installation of Solar PV Nano Grid

Camp-19, Block-D, Sub Block-D10

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 12:03 PM
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: At BDRCS Health Post, Camp-19, Block-D, SB-D10

District: Cox's Bazar
Dated: 26.01.2023

Sl. No.	Name	Designation	Signature
01	Dipu Sultan	CMA	
02	Ushen Maung	Site Management Assistant	
03	Shah Kutub Rajavi	camp officer	
04	Dr. Choudhury Asif Hum	Medical officer	
05	Selina Akter	Nurse	Selina
06	Shaheda Begum	Family Planning Assistant	
07	Mir Anisur Rahman	paramedic	
08	Farhana Ferdose	Medical Assistant	Farhana.
09	Saydul Amin	Community Volunteer	

Table 27: Attendance of consultation meeting for Camp No.19 Block D Sub-block D10 Inside location of BDRCS Health Post

Supply and Installation of Solar PV Nano Grid

Camp-19, Block-B, Sub Block-B4

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 2:15 PM
District: Cox's Bazar
Dated: 23.01.2023
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: At CARITAS (NGO), Camp-19, Block-B, SB-B4

Sl. No.	Name	Designation	Signature
01	MD. Rajmul Hosen	Site Engineer	
02	MD. Kamrul Hossain	Site Engineer	
03	Ruhul Kader Shahin	Site Engineer	
04	Dominic Biswas	Logistic Offic	
05	Mahfuzur Rahman	Site Engineer	
06	Amit Kumar Das	Site Engineer	
07	Clive Mcbold	Supervisor	

Table 28: Attendance of consultation meeting for Camp No.19 Block B Sub-block B4 Inside the CARITAS

Supply and Installation of Solar PV Nano Grid
Camp-19, Block-A, Sub Block-A16
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District: Cox's Bazar**
Time: 3:15 PM **Dated:** 26.01.2023
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: At CIC office, Camp-19,

Sl. No.	Name	Designation	Signature
01	Syed Mahbubul Haque	C:C	
02	Dipu Saha	GMA	
03	Ahsan Ullah	Associate Legal officer	
04	Fahia Farzana	Senior project officer	
05	Masuma Tabassum	Project officer	
06	Md. Rejaul Molla	PM-PTMI	
07	Jashim Uddin	office staff	
08	salim uddin	"	
09	Aminul Islam	CPP	
10	Ewan Hossain	"	
11	Sabnaj Binte Kayum	Social Mobilizer	

Table 29: Attendance of consultation meeting for Camp No.19 Block A Sub-block A16 World Vision Point

Supply and Installation of Solar PV Nano Grid

Camp-19, Block-D, Sub Block-D5

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District:** Cox's Bazar
Time: 1:00 PM **Dated:** 26.01.2023
Purpose of consultation: Supply and Installation of Solar pv Nano Grid
Place of meeting: at CIC office, Camp-19, Block-D, SB-D5

Sl. No.	Name	Designation	Signature
01	Syed Mahbubul Haque	C:C	
02	Dipu Saha	GMA	
03	Ahsan Ullah	Associate Legal officer	
04	Fahia Farzana	Senior project officer	
05	Masuma Tabassum	Project officer	
06	Md. Rejaul Molla	PM-PTMI	
07	Jashim Uddin	office staff	
08	salim uddin	u	
09	Aminul Islam	CPP	
10	Eman Hossain	u	
11	Sabnaj Binte Nayum	Social Mobilizer	

Table 30: Attendance of consultation meeting for Camp No.19 Block D Sub-block D5 Near CiC Office

Supply and Installation of Solar PV Nano Grid

Camp-20, Block-B, Sub Block-B1

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya **District: Cox's Bazar**
Time: 11.20 Am **Dated:** 24.01.2023
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: Social Assistance & Rehabilitation for the physically vulnerable (SARPV)

Sl. No.	Name	Designation	Signature
01	Ratul Roy	Nutrition site supervisor	
02.	Joy Das	Storekeeper	
03.	Nazmul Hasan	Registrar	Nazmul
04	Mohabbar Rahaman	S.G1	
05	Rabin Alom	2nd C.V	
06	Mobarak Islam	S.G1	
07	Abdur Rahim	C V	
08	Md Alam	C N V	
09	Ansar Ullah	IOMSMVL	

Table 31: Attendance of consultation meeting for Camp No.20 Block B Sub-block B1

Supply and Installation of Solar PV Nano Grid

Camp-20, Block-A, Sub Block-A5

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya — **District: Cox's Bazar**
Time: 12:50 PM — **Dated:** 24.01.2023
Purpose of consultation: Supply and Installation of Solar pv Nano Grid
Place of meeting: Tom Camp 20 HP.

Sl. No.	Name	Designation	Signature
01.	Giyas Uddin Khan.	M.A	
02.	Jani Alom	V-1	
03.	Abdul Noor	V-1	
04.	Abdu Holek.	V-4	
05.		cleaner	
06.	Shahida	Midwife	
07.	Ansar Ullah	Tom SM V2	

Table 32: Attendance of consultation meeting for Camp No.20 Block A Sub-block A5 Start of the stair case to the right

Supply and Installation of Solar PV Nano Grid

Camp-20, Block-A, Sub Block-A5

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
Time: 12.15 PM
Purpose of consultation: Supply and Installation of Solar PV Nano Grid
Place of meeting: JCF (Jagorani Chakra Foundation)
District: Cox's Bazar
Dated: 24.01.2023

Sl. No.	Name	Designation	Signature
01	Ziabur Rahman	RT	
02	Abdul Hamid	RT	
03	Md Anas	RT	
04	Lokmun Hakim	RT	
05	Rafiqul Islam	H.T	
06	Md Osman	R.F	
07	Md Shaker	Mentar	
08	Mst Afroza	RT	
09	Ansar Ullah	IDM SmVL	

Table 33: Attendance of consultation meeting for Camp No.20 Block A Sub-block A5 beside camp 20 road

Supply and Installation of Solar PV Nano Grid
Camp-20, Block-A, Sub Block-A2
Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Ukhiya
District: Cox's Bazar
Time: 02:45 PM
Dated: 24.01.2023
Purpose of consultation: Supply and installation of Solar PV Nano Grid
Place of meeting: Multipurpose child and Adolescent Centre MCAC-194, Block-M-35, Camp-20

Sl. No.	Name	Designation	Signature
01	Md. Hadiur Rahman	Project Officer	
02	MD. Khorshed Alam	Field Assistant	
03	Yeasmin Akter	Field Assistant	
04	Asmaul Husna	Field Assistant	
05	Abdul Hamid	Community Volunteer	
06	Arif Ullah	T.A.V	
07	Noor Khabir	Adolescent/peer	
08	Khairun Akter	Adolescent Volunteer	
09	Manuf	Tailoring Instructor	
10	Rashid Begum	Cleaner	
11	Ansar Ullah	Tom sm VL	

Table 34: Attendance of consultation meeting for Camp No.20 Block A Sub-block A2 Small abandoned vegetable yard

Supply and Installation of Solar PV Nano Grid

icddr.b - Host Community, Teknaf

Package Number : EMCRP/AF/G-18

Emergency Multi-Sector Rohingya Crisis Response Project (EMCRP)
জরুরী ভিত্তিতে রোহিঙ্গা সংকট মোকাবেলায় মাল্টি সেক্টর প্রকল্প
Local Government Engineering Department (LGED)
Public Consultation Participants List

Focus Group Discussion

Upazila: Teknaf
Time: 04:15 PM
Purpose of consultation: Supply and installation of solar PV Nano Grid
Place of meeting: icddr,b - Teknaf

District: Cox's Bazar
Dated: 30/01/2023

Sl. No.	Name	Designation	Signature
1.	Dr. Ziaul Islam	Sr. Program Coordinator	
2.	Dr. Tareq Mahmud Rakib	Senior Medical officer	
3.	Abu Saleh	Manager, IT	A-Sl.
4.	Sourab Guha	Deputy Bio-Med Engineer	
5.	MD Abdul Wahid	Assistant Bio-med engineer	
6	Mushfurrahman kusum	Senior Finance Officer	
7.	Arzina Khatun	Change Nurse	
8.	Dr. Kamrun Nahar kali	MO	Kali
9.	Dr. Syrod Jahan	MO	

Table 35: Attendance of consultation meeting for icddr,b Teknaf

Appendix-02: Pictorial View of the sites and consultation meetings


Figure 1: Present condition of selected site for Camp No.7, Block D, Sub-block D1 (Opposite of camp 7 CiC)


Figure 2: Present condition of selected site for Camp 7, Block C, Sub-block C1 (Open space near a playground)


Figure 3: Present condition of selected site for Camp 7, Block B, Sub-block B1 (Infront of Brac learning center)


Figure 4: Present condition of selected site for Camp No.7 Block D Sub-block D1 (South west side of CiC office)


Figure 5: Present condition of selected site for Camp 8W Block F Sub-block A59 MSF Field Hospital Point


Figure 6: Present condition of selected site for Camp No.8W Block B Sub-block A20 PHD Point


Figure 7: Present condition of selected site for Camp No.13 Block A Sub-block A1 APBN Police Barrack Point


Figure 8: Present condition of selected site for Camp No.15, Block A, Sub-block A2, Beside APBN Check post


Figure 9: Present condition of selected site for Camp No.15, Block E, Sub-block E1, Beside WFP Food Distribution Center


Figure 10: Present condition of selected site for Camp No.15, Block G, Sub-block G4, Open space infront of BDRCS hospital


Figure 11: Present condition of selected site for Camp No.15, Block A, Sub-block A1, Inside the DCH trust compound


Figure 12: Present condition of selected site for Camp No.15, Block E, Sub-block E5, Beside World Vision Child and Adolescent care center


Figure 13: Present condition of selected site for Camp No.15, Block G, Sub-block G1, Beside CIC office


Figure 14: Present condition of selected site for Camp No.15, Block G, Sub-block G8, Beside Brac Health Post


Figure 15: Present condition of selected site for Camp No.15, Block F, Sub-block F3, Beside Friendship Learning Center and World Vision Learning center


Figure 16: Present condition of selected site for Camp No.15, Block H, Sub-block H2, Infront of VSO Bangladesh Shushilan LC


Figure 17: Present condition of selected site for Camp No.16, Block A, sub block A4, Inside of MSI hospital compound


Figure 18: Present condition of selected site for Camp No.16, Block A, Sub–Block A1, Abutting PHD Hospital


Figure 19: Present condition of selected site for Camp No.16, Block D, Sub-block D4, beside World Vision AMPC


Figure 20: Present condition of selected site for Camp No.16, Block B, Sub-block B5, Open space backside of AWARD hospital


Figure 21: Present condition of selected site for Camp No.16, Block B, Sub-block B1, Beside camp 16 road near CiC office and Infront of Brac office


Figure 22: Present condition of selected site for Camp No.17, Block C, Sub-block H76, PHD (Near waste Management) Point


Figure 23: Present condition of selected site for Camp No.17, Block C, Sub-block H75, Near the CiC Office


Figure 24: Present condition of selected site for Camp No.17, Block A, Sub-block H100, Infront of TRC

Figure 25: Present condition of selected site for Camp No.19, Block B, Sub-block B12, Inside the RTMI (IOM) PHC

Figure 26: Present condition of selected site for Camp No.19, Block D, Sub-block D10, Inside location of BDRCS Health Post

Figure 27: Present condition of selected site for Camp No.19 Block B Sub-block B4 Inside the CARITAS

Figure 28: Present condition of selected site for Camp No.19, Block A, Sub-block A16, World Vision Point


Figure 29: Present condition of selected site for Camp No.19, Block D, Sub-block D5, Near CiC Office


Figure 30: Present condition of selected site for Camp No.20, Block B, Sub-block B1


Figure 31: Present condition of selected site for Camp No.20, Block A, Sub-block A5, Start of the stair case to the right


Figure 32: Present condition of selected site for Camp No.20, Block A, Sub-block A5, beside camp 20 road

Figure 33: Present condition of selected site for Camp No.20, Block A, Sub-block A2, Small abandoned vegetable yard

Figure 34: Present condition of selected site for icddr,b Teknaf

Appendix-03: Filled in Environmental Screening Forms for examining Solar PV Nano Grids

Environmental Screening Form for Solar PV Nano Grid (Camp 7)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (Camp 7: There are 4 nos. of Nano Grid will be installed in Camp 7)

S/L	Camp	Block	Sub-block	Location	District	Sub-District	Union
1	Camp 7	D	D1	Opposite of camp 7 CiC	Cox's Bazar	Ukhiya	Rajapalong
2	Camp 7	C	C1	Open space near a playground	Cox's Bazar	Ukhiya	Rajapalong
3	Camp 7	B	B1	Infront of brac learning center	Cox's Bazar	Ukhiya	Rajapalong
4	Camp 7	D	D1	South west side of CiC office	Cox's Bazar	Ukhiya	Rajapalong

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):
The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

There are four nano grids located in Camp 7. Out of 4 Nano grids, two Nano grids are installed in Block D, Sub-block D1. 1st Nano grid is located opposite the Camp 7 CiC office next to the camp 7 road and the 2nd one is situated on the southwest side of the Camp 7 CiC office. The sites are within the fenced area to the north of the facility. There are a few trees on the site, and towards the west side, there is a pre-existing solar panel, solar lamp with a battery house, and fencing within a 5-meter distance. The fencing faces the TB tower road or the camp 7 road.

In Block C, Sub-block C1, the Nano grid is located in an open space near a playground. The area is mostly surrounded by DRP settlements. There are a few trees to the north of the location, and there is a staircase and a drainage channel on the west side.

For Block B, Sub-block B1, the Nano grid is positioned in front of the BRAC learning center. It is on the south side of the camp 7 connecting road and is surrounded by a few DRP settlements. On the south of the location, there is a UNICEF learning center with a wash block. Additionally, there is a drain running to the east side between the location and the learning center.

Overall Comments

The proposed Solar PV Nano grids will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land.
The construction materials and equipment required for the Nano grids will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The rohingya community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the Nano grids at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grids will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grids is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity to various facilities such as learning centers, health posts, and food distribution centers, creating a conducive environment for education, healthcare, and community activities. The Solar PV Nano grids will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:
The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:
4 nos. of Nano grids will be installed in Camp 7. Within the influence area of the subproject no historical sites were identified. The proposed locations for the Nano grids have been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:

1. Block D, Sub-block D1: Opposite of camp 7 CiC
    - Learning center: Located 40m south and 80m south of the proposed location.
    - Religious center: Found 90m south and 85m south.
    - CiC office: Situated 40m south of the proposed location.

2. Block C, Sub-block C1: Open space near a playground
    - Learning center: Positioned 90m, 35m, and 20m south, as well as 55m, 88m, and 95m west. Another learning center is located 50m east.
    - Health post: Located 50m east.

3. Block B, Sub-block B1: In front of BRAC learning center
    - Learning center: Found 70m north, 40m, 50m, and 60m north.
    - Religious facility: Situated 70m and 80m west.

4. Block D, Sub-block D1: Southwest side of CiC office
    - CiC office: Located 30m north.
    - Learning center: Found 60m west and 30m south.
    - Religious facility: Positioned 70m west and 32m south.

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. Mostly Rohingya settlements are found around the proposed area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

4 nos. of Nano grids will be installed in Camp 7. The location details are given below.

S/L	Catchment area	Block	Sub block	District	Upazila	Union	Location	GPS Location
1	Camp 7	D	D1	Cox's Bazar	Ukhiya	Rajapalong	Opposite of camp 7 CiC	21.20308, 92.16917
2	Camp 7	C	C1	Cox's Bazar	Ukhiya	Rajapalong	Open space near a playground	21.20407, 92.16665
3	Camp 7	B	B1	Cox's Bazar	Ukhiya	Rajapalong	Infront of brac learning center	21.20563, 92.16902
4	Camp 7	D	D1	Cox's Bazar	Ukhiya	Rajapalong	South west side of CiC office	21.20261, 92.16946

Land ownership

Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

There are 4 nos. of Nano grid in Camp 7. In Block D, Sub-block D1, the Nano grid site is located opposite of camp 7 CiC office, with learning centers situated 40m and 80m south, religious centers at 90m and 85m south, and the CiC office located at 40m south. In Block C, Sub-block C1, the site is near an open space and playground, with learning centers located at 90m, 35m, and 20m south, as well as 55m, 88m, and 95m west, and another one located 50m east from the sub-project component site. Additionally, there is a health post situated 50m east. In Block B, Sub-block B1, the site is in front of a BRAC learning center, with learning centers located 70m north, 40m, 50m, and 60m north, and religious facilities found at 70m and 80m west. In Block D, Sub-block D1, on the southwest side of the CiC office, the site is near learning centers at distances of 60m west and 30m south, the CiC office located at 30m north, and religious facilities located at 70m west and 32m south from the sub-project component site.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting).

Section B: Environmental Screening

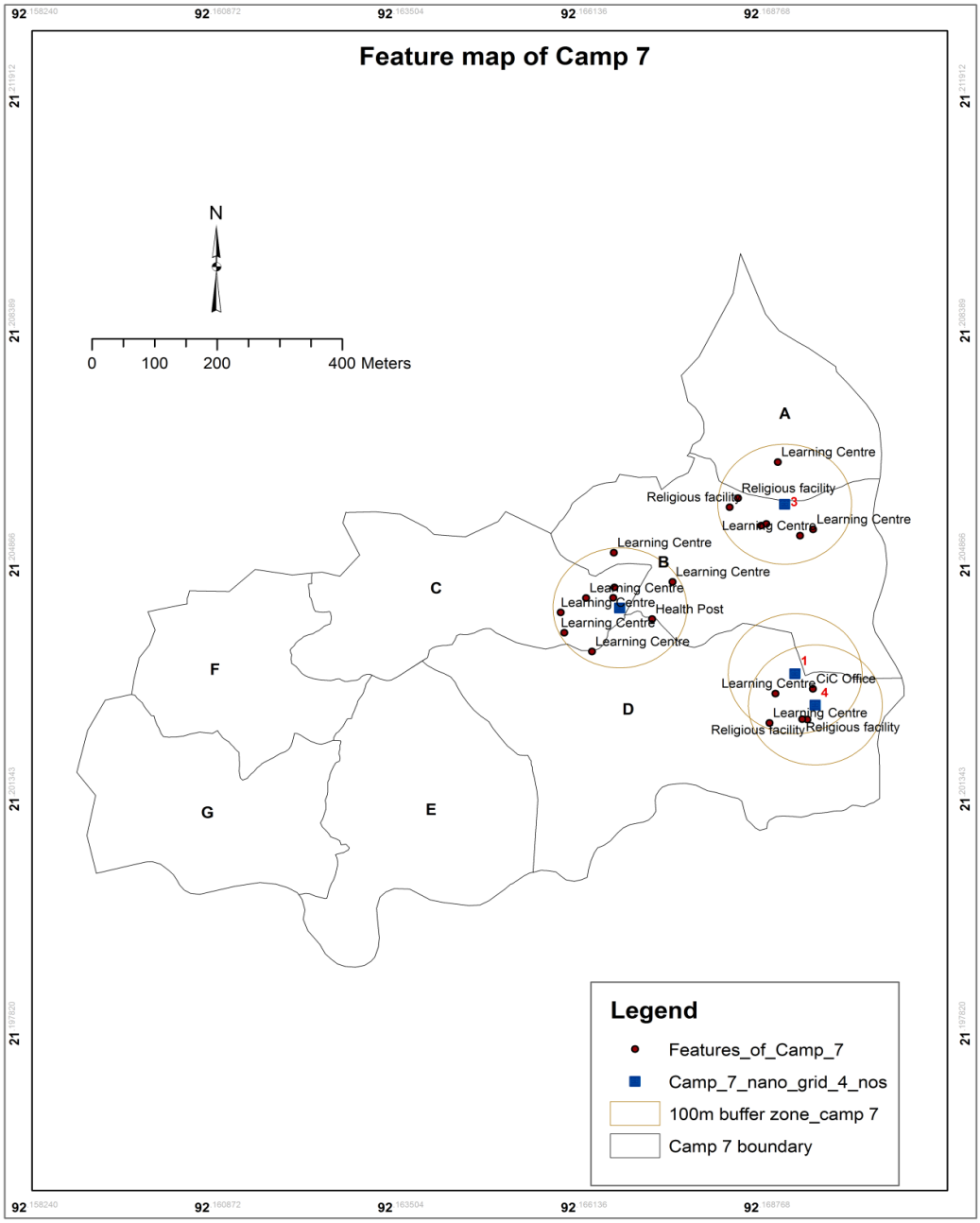
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

There are 4 nos. of Nano grid in Camp 7. In Block D, Sub-block D1, the Nano grid site is located opposite of camp 7 CiC office, with learning centers situated 40m and 80m south, religious centers at 90m and 85m south, and the CiC office located at 40m south. In Block C, Sub-block C1, the site is near an open space and playground, with learning centers located at 90m, 35m, and 20m south, as

well as 55m, 88m, and 95m west, and another one located 50m east from the sub-project component site. Additionally, there is a health post situated 50m east. In Block B, Sub-block B1, the site is in front of a BRAC learning center, with learning centers located 70m north, 40m, 50m, and 60m north, and religious facilities found at 70m and 80m west. In Block D, Sub-block D1, on the southwest side of the CiC office, the site is near learning centers at distances of 60m west and 30m south, the CiC office located at 30m north, and religious facilities located at 70m west and 32m south from the sub-project component site. There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, rohingya settlements and religious facilities were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the proposed location)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation: Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): There is a road called the Camp 7 connecting road (10ft HBB) that will be used for transportation and delivering materials to the four Nano grids in Camp 7. It provides access for vehicles and ensures a route for transporting goods and supplies.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials
Identification of access road for transportation (Yes/No): Yes. There is a road called the Camp 7 connecting road (10ft HBB) that will be used for transportation and delivering materials to the four Nano grids in Camp 7. It provides access for vehicles and ensures a route for transporting goods and supplies.
Location identification for raw material storage: The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. **Liquid waste**: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs) will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 100 sq. feet area is needed for this project. No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description). No pre-existing water body or drainage is present
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) **Low.** The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community. Educational institutions can improve their teaching and learning environments through the availability of electricity, enabling students to access modern technology and educational resources.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. There are no protected areas in or around project sites, and no known areas of ecological interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Solar PV Nano Grid (Camp 8W)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (Camp 8W: There are 2 nos. of Nano Grid will be installed in Camp 8W)

S/L	Camp	Block	Sub-block	Location	District	Sub-District	Union
5	Camp 8W	F	A 59	MSF Field Hospital Point	Cox's Bazar	Ukhiya	Palonkhali
6	Camp 8W	B	A 20	PHD Point	Cox's Bazar	Ukhiya	Palonkhali

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):
The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:
Two nano grid will be installed in camp 8W. In Camp 8W, Block F, Sub block A59, the location is situated on the north side of the MSF field hospital. There is a highland or hilly area located just behind this site, but not need to cut down the hill for installing the Nano grid container. The site is adjacent to a 12ft wide HBB camp connecting road on the west side. The CiC (Camp-in-Charge) office is located more than 200 meters away from this site.

In Camp 8W, Block B, Sub block A20, the location is on the west side of the Primary Health Care Center (PHC). This nano grid will only serve the PHC facility. The site is situated beside a canal and is connected to the camp through a 12ft wide HBB road (Balukhali-Pan Bazar Road). There is a small garden with a few shrubs and banana trees present at the site. Additionally, there is a DRP settlement nearby.

Overall Comments
The proposed Solar PV Nano grids will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land.
The construction materials and equipment required for the Nano grids will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The rohingya community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the Nano grids at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grids will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grids is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity to various facilities such as learning centers, health posts, and food distribution centers, creating a conducive environment for education, healthcare, and community activities. The Solar PV Nano grids will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:

The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:

2 nos. of Nano grids will be installed in Camp 8W. Within the influence area of the subproject no historical sites were identified. The proposed locations for the Nano grids have been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:

5. Camp No.8W, Block F, Sub-block A59: Near MSF Field Hospital
    - Religious facility: Located 94 meters and 100 meters to the east of the proposed location.
6. Camp No.8W, Block B, Sub-block A20: PHD Point
    - Learning center: Located 35 meters, 55 meters, 80 meters, 90 meters, 95 meters, and 100 meters to the north of the proposed location.
    - Religious facility: Located 82 meters, 85 meters, 86 meters, and 98 meters to the south of the proposed location and 30 meters, 45 meters, 65 meters, and 85 meters to the west of the proposed location.
    - Learning center: Located 100 meters to the east of the proposed location.
    - Religious facility: Primary health center: Located 65 meters to the west of the proposed location.

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. Mostly Rohingya settlements are found around the proposed area. No disturbance is

anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

2 nos. of Nano grids will be installed in Camp 8W. The location details are given below.

S/L	Catchment area	Block	Sub block	District	Upazila	Union	Location	GPS Location
5	Camp 8W	F	A59	Cox's Bazar	Ukhiya	Palonkhali	Near MSF Field Hospital	21.195416 92.148684
6	Camp 8W	B	A20	Cox's Bazar	Ukhiya	Palonkhali	Open space near a playground	21.19759 92.15925

Land ownership

Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

There are 2 nos. of nano grid in camp 8W. The first site, Camp No.8W, Block F, Sub-block A59, is

designated as the MSF Field Hospital Point for the Nano grid. While there are no immediate sensitive features adjacent to the site, there are religious facilities situated 94 meters and 100 meters to the east, requiring attention and consideration.

The second site, Camp No.8W, Block B, Sub-block A20, known as the PHD Point, including learning centers located at distances of 35m, 55m, 80m, 90m, 95m, and 100m to the north. To the south, religious facilities are present at distances of 82m, 85m, 86m, and 98m. Furthermore, a learning center is situated 100m east of the site, while religious facilities and a Primary health center are found at distances of 30m, 45m, 65m, 85m, and 65m to the west.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting).

Section B: Environmental Screening

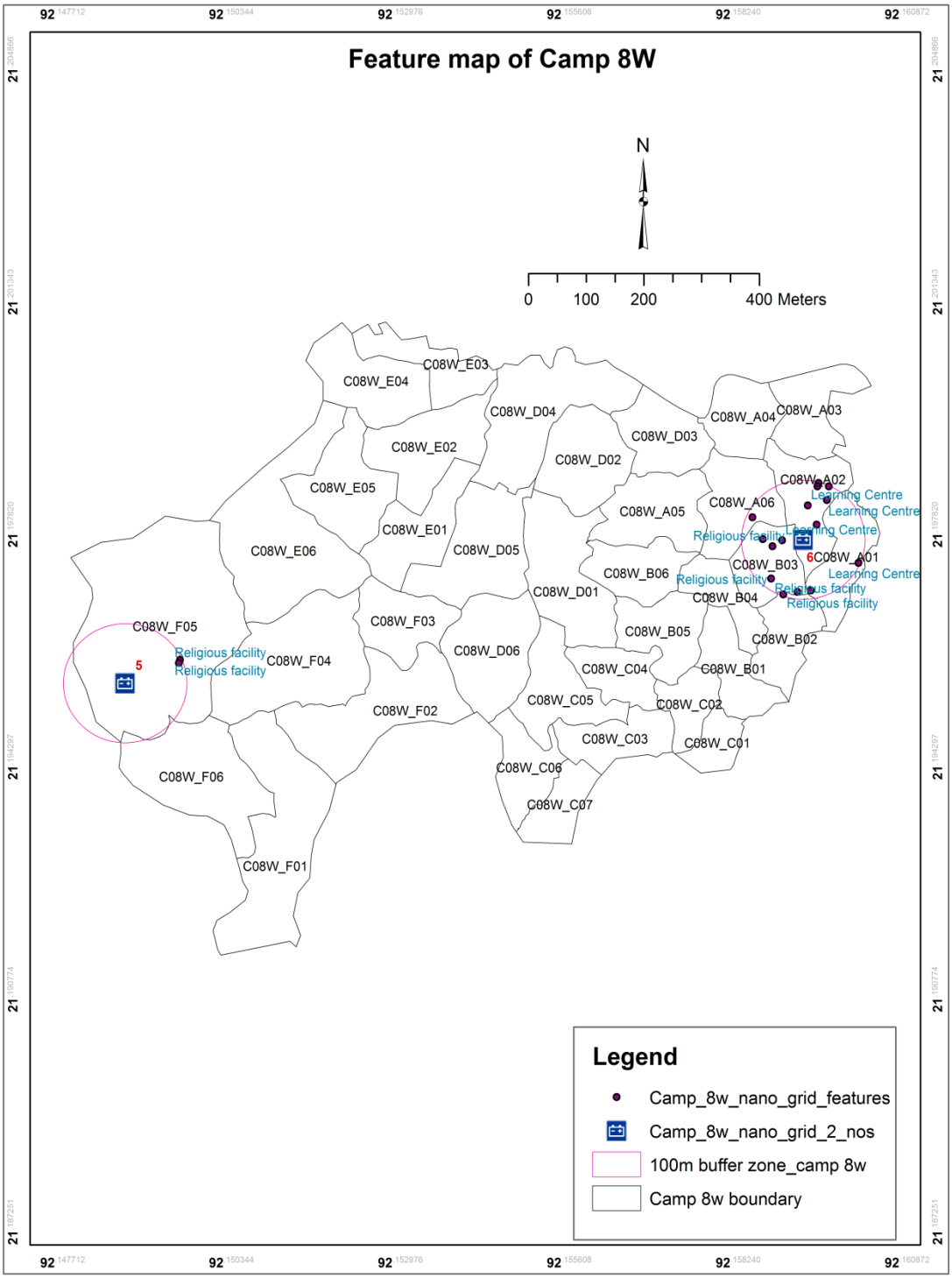
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

There are 2 nos. of Nano grid in camp 8W. The first site, Camp No.8W, Block F, Sub-block A59, is designated as the MSF Field Hospital Point for the Nano grid. There are religious facilities situated 94 meters and 100 meters to the east.

The second site, Camp No.8W, Block B, Sub-block A20, known as the PHD Point, including learning centers located at distances of 35m, 55m, 80m, 90m, 95m, and 100m to the north. To the south, religious facilities are present at distances of 82m, 85m, 86m, and 98m. Furthermore, a learning center is situated 100m east of the site, while religious facilities and a Primary health center are found at distances of 30m, 45m, 65m, 85m, and 65m to the west. There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, rohingya settlements and religious facilities were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the proposed location)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.

Summary of water balance analysis (For water supply scheme only):

N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): There is a road called the Balukhali pan bazar road (12ft HBB) that will be used for transportation and delivering materials to the two Nano grids in Camp 8W. It provides access for vehicles and ensures a route for transporting goods and supplies.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials
Identification of access road for transportation (Yes/No): Yes. There is a road called the Balukhali pan bazar road (12ft HBB) that will be used for transportation and delivering materials to the two Nano grids in Camp 8W. It provides access for vehicles and ensures a route for transporting goods and supplies.
Location identification for raw material storage: The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction

site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum.

Liquid waste: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs) will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):
Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:
Around 100 sq. feet area is needed for this project.

No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)
Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description).
No pre-existing water body or drainage is present

Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)
Low. The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:
The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)
N/A

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community. Educational institutions can improve their teaching and learning environments through the availability of electricity, enabling students to access modern technology and educational resources.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. There are no protected areas in or around project sites, and no known areas of ecological interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Solar PV Nano Grid (Camp 13)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (Camp 13: There is one Nano Grid will be installed in Camp 13)

S/L	Camp	Block	Sub-block	Location	District	Sub-District	Union
7	13	A1	A 59	APBN Police Barrack Point	Cox's Bazar	Ukhiya	Palongkhali

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):
The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

In Camp 13, Block A, Sub block A1, the location is situated on the south side of the APBN (Armed Police Battalion) Police Barrack compound. The installation site is securely fenced with wire. There is a small vegetable garden with a few shrubs and small trees present at the site. On the north side of the location, there is a 12ft wide BC Thainkhali-Telkhola Road. Towards the southwest side of the location, there is a DRP settlement.

Overall Comments

The proposed Solar PV Nano grid will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land.
The construction materials and equipment required for the Nano grid will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The rohingya community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the Nano grid at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grid will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grid is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity to various facilities such as learning centers, health posts, and food distribution centers, creating a conducive environment for education, healthcare, and community activities. The Solar PV Nano grids will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:

The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small

and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:

One Nano grid will be installed in Camp 13. Within the influence area of the subproject no historical sites were identified. The proposed location for the Nano grid has been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:

Camp No.13, Block A, Sub-block A1: Near APBN Police Barrack Point

- Religious center: Located at a distance of 55 meters to the north and 50 meters and 60 meters to the south of the proposed location.
- Mother baby area: Located 60 meters to the North of the proposed location.
- Health post: located 60 meters to the north of the proposed location.
- Learning center: Positioned just 5 meters to the south from the site.

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. Mostly Rohingya settlements are found around the proposed area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

One Nano grid will be installed in Camp 13. The location details are given below.

S/L	Catchment area	Block	Sub block	District	Upazila	Union	Location	GPS Location
7	Camp 13	A	A1	Cox's Bazar	Ukhiya	Palongkhali	APBN Police Barrack Point	21.174547, 92.142545

Land ownership

Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

Camp No.13, located in Block A, Sub-block A1, has been identified as the site for constructing one of the Nano grid. The specific location within the camp is known as the APBN Police Barrack Point. To the north of the proposed location, there is a religious center situated at a distance of 55 meters. Additionally, there is a mother baby area and a health post located 60 meters away in the same direction. On the south side, there is a learning center positioned just 5 meters from the site. Moving towards the west, there are religious centers at distances of 50 meters and 60 meters, along with a learning center located 50 meters away.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting).

Section B: Environmental Screening

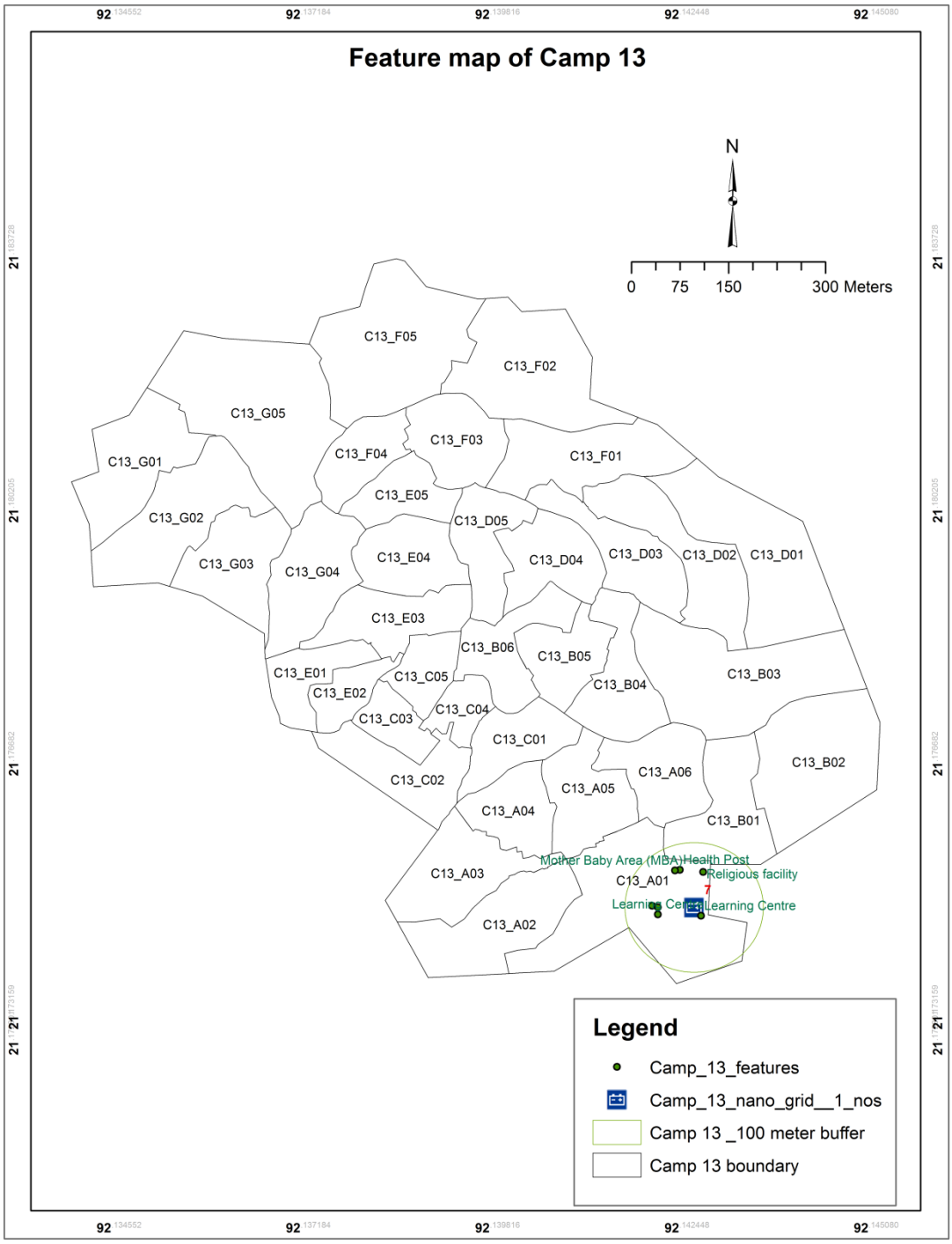
***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

To the north of the proposed location, there is a religious center situated at a distance of 55 meters. Additionally, there is a mother baby area and a health post located 60 meters away in the same direction. On the south side, there is a learning center positioned just 5 meters from the site. Moving towards the west, there are religious centers at distances of 50 meters and 60 meters, along with a learning center located 50 meters away.

There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.


Feature map of Camp 13
N
0 75 150 300 Meters
C13_F05
C13_F02
C13_G05
C13_F03
C13_F04
C13_F01
C13_G01
C13_E05
C13_G02
C13_D05
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C13_C03
C13_C01
C13_B02
C13_C02
C13_A06
C13_A05
C13_A04
C13_B01
C13_A03
C13_A01
C13_A02
Mother Baby Area (MBA) Health Post
Religious facility
Learning Centre
Legend
Camp_13_features
Camp_13_nano_grid__1_nos
Camp 13 _100 meter buffer
Camp 13 boundary

Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, rohingya settlements and religious facilities were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the proposed location)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation: Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): There is a road called Thainkhali to Telkhola road (BC road) that will be used for transportation and delivering materials to the Nano grid in Camp 13. It provides access for vehicles and ensures a route for transporting goods and supplies.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials
Identification of access road for transportation (Yes/No): Yes. There is a road called Thainkhali to Telkhola road (BC road) that will be used for transportation and delivering materials to the Nano grid in Camp 13. It provides access for vehicles and ensures a route for transporting goods and supplies.
Location identification for raw material storage: The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. **Liquid waste**: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs) will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 100 sq. feet area is needed for this project. No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description). No pre-existing water body or drainage is present
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) **Low.** The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community. Educational institutions can improve their teaching and learning environments through the availability of electricity, enabling students to access modern technology and educational resources.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. There are no protected areas in or around project sites, and no known areas of ecological interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Solar PV Nano Grid (Camp 15)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (Camp 15: There are 9 nos. of Nano Grid will be installed in Camp 15)

S/L	Catchment area	Block	Sub-block	District	Upazila	Union	Location	GPS Location
8	Camp 15	A	A2	Cox's Bazar	Ukhiya	Palongkhali	Beside APBN Checkpost	21.160256 92.147327
9	Camp 15	E	E1	Cox's Bazar	Ukhiya	Palongkhali	Beside WFP Food Distribution Center	21.161077 92.142906
10	Camp 15	G	G4	Cox's Bazar	Ukhiya	Palongkhali	Open space infront of BDRCS hospital	21.15672 92.14666
11	Camp 15	A	A1	Cox's Bazar	Ukhiya	Palongkhali	Inside the DCH trust compound	21.16077 92.14793
12	Camp 15	E	E5	Cox's Bazar	Ukhiya	Palongkhali	Beside World Vision Child and Adolescent care center	21.16055 92.13891
13	Camp 15	G	G1	Cox's Bazar	Ukhiya	Palongkhali	Beside CIC office	21.159515 92.147222
14	Camp 15	G	G8	Cox's Bazar	Ukhiya	Palongkhali	Beside Brac Health Post	21.160607 92.145065
15	Camp 15	F	F3	Cox's Bazar	Ukhiya	Palongkhali	Beside Friendship Learning Center and World Vision Learningn center	21.15671 92.141881
16	Camp 15	H	H2	Cox's Bazar	Ukhiya	Palongkhali	Infront of VSO bangladesh Shushilan LC	21.15775 92.1389

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:
In Camp 15, there are nine sub-project sites for nano grids. One of the locations, Block A, Sub block A2, is situated inside Brac's child-friendly space. The site is relatively empty, with no notable features other than the facility itself and a solar lamp located to the south.

In Block E, Sub block E1, the nano grid is located beside the Camp 15 connecting road. It is surrounded by various facilities, including the WFP food distribution center, IOM health post, and World Vision office, all within a 20-meter radius. DRP settlements are also present nearby.

Moving to Block G, Sub block G4, the site is positioned on the east side of the Camp 15 connecting road. While the space itself is moderately empty, it is mainly surrounded by DRP settlements. A BDRCS hospital is situated to the west, and a Care warehouse is located to the northeast. Currently, the location is being used as a dumping ground for dry garbage.

Block A, Sub block A1, presents another sub-project site. It has been selected in front of the Comprehensive Primary Health Care Center by the Community Initiative Society (CIS). The area is empty with no significant features, except for the facility itself on the west side and a women-friendly space on the east side. The Camp 15 bazaar area is situated 40 to 50 meters away on the southwest side. An alternative location is also available, just a few meters west of the open space within the bamboo-fenced area of the health center.

In Block E, Sub block E5, the selected site is positioned to the north of the Camp 15 connecting road, on lower grounds compared to the road itself. There are no trees on the site, but a few can be found in the surrounding area, along with DRP settlements.

Adjacent to the Camp 15 connecting road in Block G, Sub block G1, the nano grid site is located within the fenced facility of World Vision. Currently not in use, the site is surrounded by trees and features two solar lamp lights.

Moving to Block G, Sub block G8, the sub-project site is situated west of the Camp 15 connecting road, on lower grounds approximately 10 to 15 meters away from the road. The location is surrounded by a few small trees and is close to a BRAC health post and AWARD hospital. Access to the site can be gained through an inclined slope to the south.

Block F, Sub block F3, presents another sub-project site located north of the Camp 15 connecting road. It is positioned beside two toilet facilities and is surrounded by a Child and Adolescent Center on the west side and a Friendship learning center on the east side. There are no other notable features in the immediate vicinity.

Finally, in Block H, Sub block H2, the selected site is positioned west of the adjacent Camp 15 connecting road. It is situated on lower grounds, with a drain running between the site and the road. The area is close to several institutions, including the FDMN Learning Center and Brac Wash Block. DRP settlements are predominantly found in the surrounding area.

Overall Comments

The proposed Solar PV Nano grids will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land. The construction materials and equipment required for the Nano grids will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The rohingya community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the Nano grids at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grids will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grids is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity to various facilities such as learning centers, health posts, and food distribution centers, creating a conducive environment for education, healthcare, and community activities. The Solar PV Nano grids will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:

The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the

installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:

9 nos. of Nano grids will be installed in Camp 15. Within the influence area of the subproject no historical sites were identified. The proposed locations for the Nano grids have been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:

Within Camp No.15, where 9 Nano grids are planned for construction, several sensitive features are present in different blocks and sub-blocks.

8. Block A, Sub-block A2, located beside the APBN Check post:

- To the north, at a distance of approximately 15m, there is a child protection facility. Religious facilities can be found at distances of around 20m, 25m, 30m, 85m, and 90m, while learning centers are situated approximately 50m and 55m away.
- To the south, a health post is located around 10m away, along with two CiC office and mother baby area at distances of 45m, 55m, and 90m respectively. Additionally, a child protection facility and a religious facility are situated approximately 90m away.
- Towards the west, religious facilities can be found around 50m and 60m away.

9. Block E, Sub-block E1, located beside the WFP Food Distribution Center:

- To the north, religious facilities are situated at distances of approximately 25m and 100m.
- Moving southwards, there are religious facilities at distances of around 85m, 89m, and three instances at 80m and 60m. Learning centers can be found at distances of approximately 85m, 90m, and 100m, while a child protection center is located around 70m away.

- Towards the west, religious facilities are situated approximately 75m and 85m away, along with a safe space for girls and women at a distance of 95m.

10. Block G, Sub-block G4, located in front of the BDRCS hospital:
    - To the north, religious facilities are situated at distances of around 50m, 60m, 80m, 90m, 82m, and 85m. Learning centers can be found approximately 75m and 90m away.
    - Towards the west, learning centers are situated at distances of approximately 75m and 90m, along with a primary health center at a distance of 35m.

11. Block A, Sub-block A1, located inside the DCH trust compound:
    - To the north, a learning center is situated at a distance of approximately 75m, along with religious facilities at distances of around 50m and 60m.
    - Moving southwards, there are health posts at distances of approximately 85m and 90m, along with religious facilities at distances of 55m, 60m, 65m, and a child protection facility at a distance of 80m.
    - Towards the east, a safe space for women is located around 25m away, along with learning centers at distances of approximately 85m and 95m.
    - Towards the west, a child protection facility is situated at a distance of around 85m, along with learning centers at distances of approximately 85m and 90m.

12. Block E, Sub-block E5, located beside the World Vision Child and Adolescent care center:
    - To the north, a learning center is situated at a distance of approximately 20m, along with a safe space for women at a distance of 35m.
    - Moving southwards, learning centers are located at distances of around 40m and 80m.
    - Towards the east, learning centers can be found at distances of approximately 90m and 95m.
    - Towards the west, a learning center is situated around 70m away, along with religious facilities at distances of 40m, 60m, and a child protection facility at a distance of 20m.

13. Block G, Sub-block G1, located beside the CiC office:
    - To the north, the CiC office is situated at distances of approximately 20m and 50m, along with health posts at distances of 70m and 75m. A child protection facility and a training center are located at distances of 96m and 100m respectively.
    - Moving southwards, a child protection facility is situated at distances of approximately 65m and 80m, along with learning centers at distances of 95m and 80m. Additionally, a training center is located at a distance of 70m.
    - Towards the west, there is a mother baby care facility at a distance of 65m, along with a child protection facility at distances of 65m and 80m, and a religious facility at a distance of 100m.

14. Block G, Sub-block G8, located beside the Brac Health Post:
    - To the north, learning centers are situated at distances of approximately 65m, 95m, and 97m.

- Moving southwards, health posts can be found at distances of around 17m and 30m, along with learning centers at distances of 55m and 75m, and a primary health center at a distance of 45m.
- Towards the west, a learning center is situated at a distance of approximately 96m, along with religious facilities at distances of 95m and 97m.

15. Block F, Sub-block F3, located beside the Friendship Learning Center and World Vision Learning Center:

- To the north, a child protection facility is situated at a distance of approximately 100m, along with a learning center.
- Moving southwards, a child protection facility is located at a distance of around 20m, along with a health post at a distance of 25m.
- Towards the east, a learning center is situated at a distance of approximately 60m.
- Towards the west, a learning center is located at a distance of around 65m.

16. Block H, Sub-block H2, located in front of VSO Bangladesh Shushilan LC:

- To the north, there are child protection facilities at a distance of 100m, along with religious facilities at distances of 90m and 95m, and learning centers at distances of 15m, 67m, 88m, and 95m.
- Moving southwards, religious facilities can be found at distances of approximately 25m and 30m.
- Towards the east, a child protection facility is located at a distance of approximately 36m, along with a learning center at a distance of 65m.
- Towards the west, a learning center is situated at a distance of around 15m.

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. Mostly Rohingya settlements are found around the proposed area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

9 nos. of Nano grids will be installed in Camp 15. The location details are given below.

S/L	Catchment area	Block	Sub-block	District	Upazila	Union	Location	GPS Location
8	Camp 15	A	A2	Cox's Bazar	Ukhiya	Palongkhali	Beside APBN Checkpost	21.160256 92.147327
9	Camp 15	E	E1	Cox's Bazar	Ukhiya	Palongkhali	Beside WFP Food Distribution Center	21.161077 92.142906
10	Camp 15	G	G4	Cox's Bazar	Ukhiya	Palongkhali	Open space infront of BDRCS hospital	21.15672 92.14666
11	Camp 15	A	A1	Cox's Bazar	Ukhiya	Palongkhali	Inside the DCH trust compound	21.16077 92.14793
12	Camp 15	E	E5	Cox's Bazar	Ukhiya	Palongkhali	Beside World Vision Child and Adolescent care center	21.16055 92.13891
13	Camp 15	G	G1	Cox's Bazar	Ukhiya	Palongkhali	Beside CIC office	21.159515 92.147222
14	Camp 15	G	G8	Cox's Bazar	Ukhiya	Palongkhali	Beside Brac Health Post	21.160607 92.145065
15	Camp 15	F	F3	Cox's Bazar	Ukhiya	Palongkhali	Beside Friendship Learning Center and World Vision Learningn center	21.15671 92.141881

	16	Camp 15	H	H2	Cox's Bazar	Ukhiya	Palongkhali	Infront of VSO bangladesh Shushilan LC	21.15775 92.1389

Land ownership
Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

There are 9 nos. of Nano grid in camp 15. Block A, Sub-block A2, is located beside the APBN Check post. To the north, there is a child protection facility approximately 15 meters away, along with religious facilities at distances of 20, 25, 30, 85, and 90 meters. Additionally, learning centers are situated around 50 and 55 meters. Moving southwards, a health post is located approximately 10 meters away, along with two CiC offices and mother baby area at distances of 45, 55, and 90 meters respectively. Furthermore, a child protection facility and a religious facility are situated around 90 meters away. Towards the west, religious facilities can be found at distances of about 50 and 60 meters.

Block E, Sub-block E1, is located beside the WFP Food Distribution Center. To the north, there are religious facilities approximately 25 and 100 meters away. Moving southwards, religious facilities are situated at distances of around 85, 89, and with three instances at 80 and 60 meters. Learning centers can be found at distances of approximately 85, 90, and 100 meters, while a child protection center is located around 70 meters away. Towards the west, religious facilities are situated approximately 75 and 85 meters away, along with a safe space for girls and women at a distance of 95 meters.

Block G, Sub-block G4, is located in front of the BDRCS hospital. To the north, religious facilities are situated at distances of around 50, 60, 80, 90, 82, and 85 meters, with learning centers approximately 75 and 90 meters away. Towards the west, learning centers are situated at distances of approximately 75 and 90 meters, along with a primary health center at a distance of 35 meters.

Block A, Sub-block A1, is located inside the DCH trust compound. To the north, there is a learning center at a distance of approximately 75 meters, along with religious facilities at distances of around 50 and 60 meters. Moving southwards, health posts can be found at distances of approximately 85 and 90 meters, along with religious facilities at distances of 55, 60, 65 meters, and a child protection facility at a distance of 80 meters. Towards the east, a safe space for women is located around 25 meters away, along with learning centers at distances of approximately 85 and 95 meters. Towards the west, a child protection facility is situated at a distance of around 85 meters, along with learning centers at distances of approximately 85 and 90 meters.

Block E, Sub-block E5, is located beside the World Vision Child and Adolescent care center. To the north, there is a learning center approximately 20 meters away, along with a safe space for women at a distance of 35 meters. Moving southwards, learning centers are located at distances of around

40 and 80 meters. Towards the east, learning centers can be found at distances of approximately 90 and 95 meters. Towards the west, a learning center is situated around 70 meters away, along with religious facilities at distances of 40 and 60 meters, and a child protection facility at a distance of 20 meters.

Block G, Sub-block G1, is located beside the CiC office. To the north, the CiC office is situated at distances of approximately 20 and 50 meters, along with health posts at distances of 70 and 75 meters. A child protection facility and a training center are located at distances of 96 and 100 meters respectively. Moving southwards, a child protection facility is situated at distances of approximately 65 and 80 meters, along with learning centers at distances of 95 and 80 meters. Additionally, a training center is located at a distance of 70 meters. Towards the west, there is a mother baby care facility at a distance of 65 meters, along with a child protection facility at distances of 65 and 80 meters, and a religious facility at a distance of 100 meters.

Block G, Sub-block G8, is located beside the Brac Health Post. To the north, learning centers are situated at distances of approximately 65, 95, and 97 meters. Moving southwards, health posts can be found at distances of around 17 and 30 meters, along with learning centers at distances of 55 and 75 meters, and a primary health center at a distance of 45 meters. Towards the west, a learning center is situated at a distance of approximately 96 meters, along with religious facilities at distances of 95 and 97 meters.

Block F, Sub-block F3, is located beside the Friendship Learning Center and World Vision Learning Center. To the north, a child protection facility is situated at a distance of approximately 100 meters, along with a learning center. Moving southwards, a child protection facility is located at a distance of around 20 meters, along with a health post at a distance of 25 meters. Towards the east, a learning center is situated at a distance of approximately 60 meters. Towards the west, a learning center is located at a distance of around 65 meters.

Block H, Sub-block H2, is located in front of VSO Bangladesh Shushilan LC. To the north, there are child protection facilities at a distance of 100 meters, along with religious facilities at distances of 90 and 95 meters, and learning centers at distances of 15, 67, 88, and 95 meters. Moving southwards, religious facilities can be found at distances of approximately 25 and 30 meters. Towards the east, a child protection facility is located at a distance of approximately 36 meters, along with a learning center at a distance of 65 meters. Towards the west, a learning center is situated at a distance of around 15 meters.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site

including elephant migration routes and remaining forests:

There are 9 nos. of Nano grid in camp 15. Block A, Sub-block A2, is located beside the APBN Check post. To the north, there is a child protection facility approximately 15 meters away, along with religious facilities at distances of 20, 25, 30, 85, and 90 meters. Additionally, learning centers are situated around 50 and 55 meters. Moving southwards, a health post is located approximately 10 meters away, along with two CiC offices and mother baby area at distances of 45, 55, and 90 meters respectively. Furthermore, a child protection facility and a religious facility are situated around 90 meters away. Towards the west, religious facilities can be found at distances of about 50 and 60 meters.

Block E, Sub-block E1, is located beside the WFP Food Distribution Center. To the north, there are religious facilities approximately 25 and 100 meters away. Moving southwards, religious facilities are situated at distances of around 85, 89, and with three instances at 80 and 60 meters. Learning centers can be found at distances of approximately 85, 90, and 100 meters, while a child protection center is located around 70 meters away. Towards the west, religious facilities are situated approximately 75 and 85 meters away, along with a safe space for girls and women at a distance of 95 meters.

Block G, Sub-block G4, is located in front of the BDRCS hospital. To the north, religious facilities are situated at distances of around 50, 60, 80, 90, 82, and 85 meters, with learning centers approximately 75 and 90 meters away. Towards the west, learning centers are situated at distances of approximately 75 and 90 meters, along with a primary health center at a distance of 35 meters.

Block A, Sub-block A1, is located inside the DCH trust compound. To the north, there is a learning center at a distance of approximately 75 meters, along with religious facilities at distances of around 50 and 60 meters. Moving southwards, health posts can be found at distances of approximately 85 and 90 meters, along with religious facilities at distances of 55, 60, 65 meters, and a child protection facility at a distance of 80 meters. Towards the east, a safe space for women is located around 25 meters away, along with learning centers at distances of approximately 85 and 95 meters. Towards the west, a child protection facility is situated at a distance of around 85 meters, along with learning centers at distances of approximately 85 and 90 meters.

Block E, Sub-block E5, is located beside the World Vision Child and Adolescent care center. To the north, there is a learning center approximately 20 meters away, along with a safe space for women at a distance of 35 meters. Moving southwards, learning centers are located at distances of around 40 and 80 meters. Towards the east, learning centers can be found at distances of approximately 90 and 95 meters. Towards the west, a learning center is situated around 70 meters away, along with religious facilities at distances of 40 and 60 meters, and a child protection facility at a distance of 20 meters.

Block G, Sub-block G1, is located beside the CiC office. To the north, the CiC office is situated at distances of approximately 20 and 50 meters, along with health posts at distances of 70 and 75 meters. A child protection facility and a training center are located at distances of 96 and 100 meters respectively. Moving southwards, a child protection facility is situated at distances of approximately 65 and 80 meters, along with learning centers at distances of 95 and 80 meters. Additionally, a

training center is located at a distance of 70 meters. Towards the west, there is a mother baby care facility at a distance of 65 meters, along with a child protection facility at distances of 65 and 80 meters, and a religious facility at a distance of 100 meters.

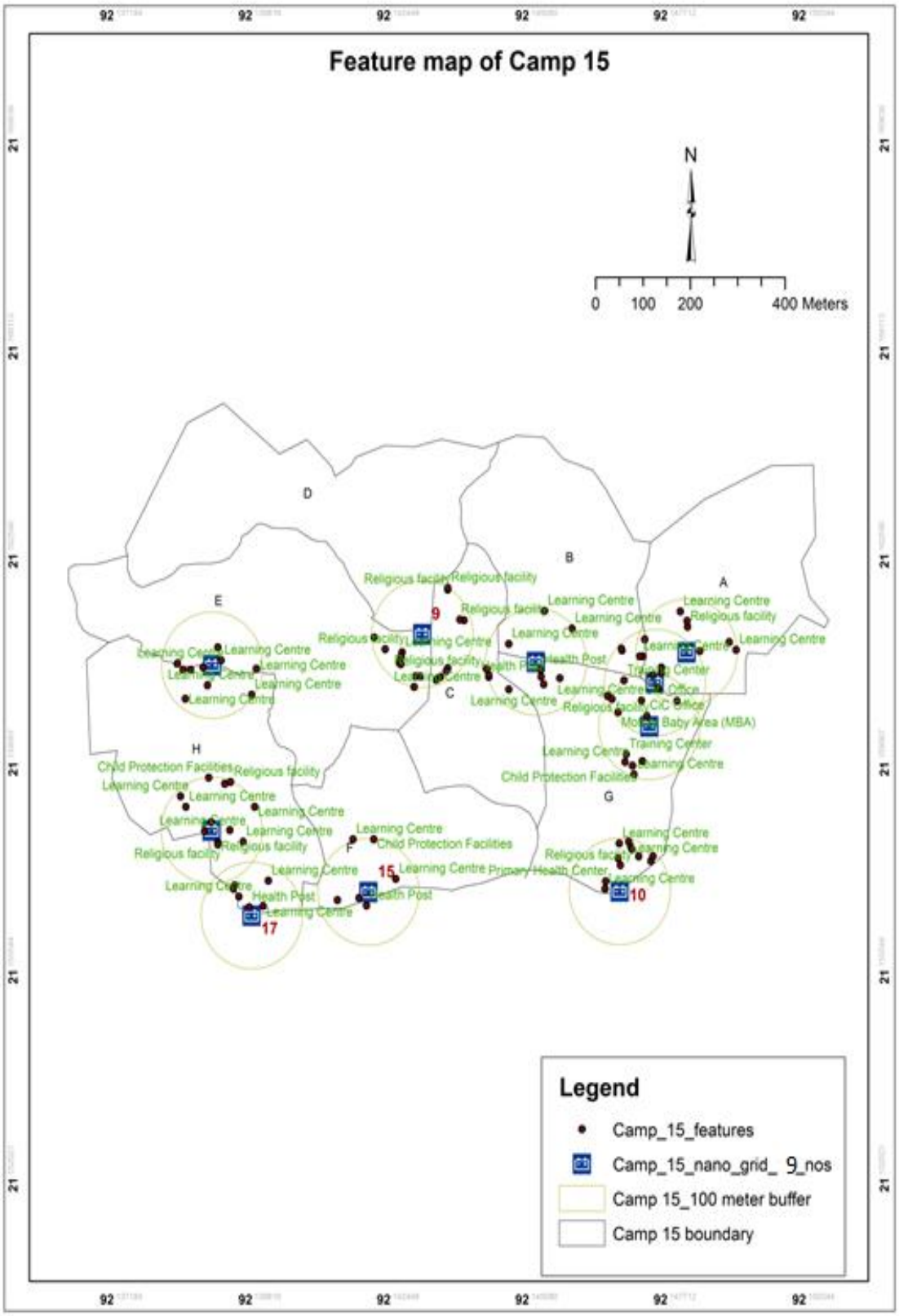
Block G, Sub-block G8, is located beside the Brac Health Post. To the north, learning centers are situated at distances of approximately 65, 95, and 97 meters. Moving southwards, health posts can be found at distances of around 17 and 30 meters, along with learning centers at distances of 55 and 75 meters, and a primary health center at a distance of 45 meters. Towards the west, a learning center is situated at a distance of approximately 96 meters, along with religious facilities at distances of 95 and 97 meters.

Block F, Sub-block F3, is located beside the Friendship Learning Center and World Vision Learning Center. To the north, a child protection facility is situated at a distance of approximately 100 meters, along with a learning center. Moving southwards, a child protection facility is located at a distance of around 20 meters, along with a health post at a distance of 25 meters. Towards the east, a learning center is situated at a distance of approximately 60 meters. Towards the west, a learning center is located at a distance of around 65 meters.

Block H, Sub-block H2, is located in front of VSO Bangladesh Shushilan LC. To the north, there are child protection facilities at a distance of 100 meters, along with religious facilities at distances of 90 and 95 meters, and learning centers at distances of 15, 67, 88, and 95 meters. Moving southwards, religious facilities can be found at distances of approximately 25 and 30 meters. Towards the east, a child protection facility is located at a distance of approximately 36 meters, along with a learning center at a distance of 65 meters. Towards the west, a learning center is situated at a distance of around 15 meters.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting). There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.


Feature map of Camp 15
N
0
100
200
400 Meters
A
B
C
D
E
F
G
H
9
10
15
17
Legend
Camp_15_features
Camp_15_nano_grid_ 9_nos
Camp 15_100 meter buffer
Camp 15 boundary

Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, rohingya settlements and religious facilities were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the proposed location)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation: Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): There is a road called the Camp 15 connecting road (12ft HBB road) that will be used for transportation and delivering materials to the 9 Nano grids in Camp 15. It provides access for vehicles and ensures a route for transporting goods and supplies.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials
Identification of access road for transportation (Yes/No): Yes. There is a road called the Camp 15 connecting road (12ft HBB road) that will be used for transportation and delivering materials to the 9 Nano grids in Camp 15. It provides access for vehicles and ensures a route for transporting goods and supplies.
Location identification for raw material storage: The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. **Liquid waste**: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs) will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 100 sq. feet area is needed for this project. No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description). No pre-existing water body or drainage is present
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) **Low.** The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community. Educational institutions can improve their teaching and learning environments through the availability of electricity, enabling students to access modern technology and educational resources.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated.

Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. There are no protected areas in or around project sites, and no known areas of ecological interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Solar PV Nano Grid (Camp 16)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (Camp 16: There are 5 nos. of Nano Grid will be installed in Camp 16)

S/L	Camp	Block	Sub-block	Location	District	Sub-District	Union
17	16	A	A4	Inside of MSI hospital compound	Cox's Bazar	Ukhiya	Palongkhali
18	16	A	A1	Abutting PHD Hospital	Cox's Bazar	Ukhiya	Palongkhali
19	16	D	D4	beside World Vision AMPC	Cox's Bazar	Ukhiya	Palongkhali
20	16	B	B5	Open space backside of AWARD hospital	Cox's Bazar	Ukhiya	Palongkhali
21	16	B	B1	Beside camp 16 road neat CiC office and infront of Brac office	Cox's Bazar	Ukhiya	Palongkhali

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):
The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

In Camp 16, there are five sub-project sites for nano grids. Starting with Block A, Sub block A4, the site is situated inside the boundary area of MSI Hospital. It is positioned on the southwest side of the facility. Near the selected site, there is a water tank with a hand wash facility, and a guard room is present to the north.

Moving to Block A, Sub block A1, the nano grid site is located right beside the PHD Hospital, with the Camp 16 connecting road to the south. The site is surrounded mainly by DRP settlements, and there is a tree to the northwest. The location has a barrier with the hospital, and an abandoned banner stands in the middle. A drain runs through the south of the location.

Next, in Block D, Sub block D4, the site is an empty space adjacent to a facility of World Vision Learning Center. There is an existing solar panel next to the targeted open space, and a watchtower is found to the west. The Camp 16 road runs through the south of the location.

Moving on to Block B, Sub block B5, the sub-project site is selected on the open space with no notable items present. An AWARD hospital is located on the northeast side of the location, and a vegetable garden is found to the southwest.

Lastly, in Block B, Sub block B1, the site is situated on the south of the Camp 16 road and is an empty space. Surrounding the site, there are various facilities, including a BRAC office to the north and Tika on the southwest. A drain is located on the east side, right beside the location, and a solar power lamp is present at the selected site.

Overall Comments

The proposed Solar PV Nano grids will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land. The construction materials and equipment required for the Nano grids will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The rohingya community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the

Nano grids at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grids will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grids is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity to various facilities such as learning centers, health posts, and food distribution centers, creating a conducive environment for education, healthcare, and community activities. The Solar PV Nano grids will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:
The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:
5 nos. of Nano grids will be installed in Camp 16. Within the influence area of the subproject no historical sites were identified. The proposed locations for the Nano grids have been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:
17. Block A, Inside of MSI hospital compound:

- North: Religious centers are located at distances of 456m, 68m, 72m, and 85m. There is also a health post 35m away.

- South: A learning center is approximately 55m away, along with religious centers at distances of 70m, 75m, and 85m. There is a safe space for women situated about 42m to the south.
- East: Learning centers are found at distances of 17m and 65m, religious centers at distances of 50m and 65m, and a child protection facility 80m away.
- West: A learning center is located 10m away, accompanied by religious centers at distances of 50m and 70m. A safe space for women is situated approximately 90m to the west.

18. Block A, Abutting PHD Hospital:
    - North: There are learning centers at distances of 40m and 90m, as well as a health post 40m away.
    - South: Learning centers are approximately 60m and 85m away, along with a health post situated 40m away. There is also a safe space for women around 27m to the south.
    - East: A health post is 70m away, a learning center is 80m away, and various sensitive features such as child protection facilities, a multipurpose protection center, and religious facilities are found at distances ranging from 74m to 90m.

19. Block D, Sub-block D4, beside World Vision AMPC:
    - North: Religious facilities are located at distances of approximately 67m, 40m, and 45m, along with a learning center 35m away.
    - South: Religious facilities are situated at distances of 95m and 100m. There are multiple learning centers at distances of 35m, 45m, 57m, 85m, 95m, and 100m. Additionally, child protection facilities are found at distances of 55m and 100m.
    - East: Religious facilities are present at distances of 85m and 90m, and a learning center is located 92m away.

20. Block B, Sub-block B5, Open space backside of AWARD hospital:
    - North: Religious facilities are situated at distances of approximately 75m and 80m. There are also child protection facilities, a multipurpose protection center, and a health post located 15m away.
    - East: Learning centers are found at distances of 35m and 37m.
    - West: A learning center is approximately 60m away, accompanied by religious facilities at distances of 15m. A child protection facility is found 30m away.

21. Block B, Sub-block B1, Beside camp 16 road near CiC office and in front of Brac office:
    - North: The CiC office is located at distances of approximately 20m and 66m, along with a health post 100m away.
    - South: A learning center is approximately 66m away, and there is a religious facility at a distance of 81m.
    - West: Health posts are found at distances of 80m and 65m.

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. Mostly Rohingya settlements are found around the proposed area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project

area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

5 nos. of Nano grids will be installed in Camp 16. The location details are given below.

S/L	Catchment area	Block	Sub-block	District	Upazila	Union	Location	GPS Location
17	Camp 16	A	A4	Cox's Bazar	Ukhiya	Palongkhali	Inside of MSI hospital compound	21.158613 92.15008
18	Camp 16	A	A1	Cox's Bazar	Ukhiya	Palongkhali	Abutting PHD Hospital	21.156981 92.148857
19	Camp 16	D	D4	Cox's Bazar	Ukhiya	Palongkhali	beside World Vision AMPC	21.155819 92.145912
20	Camp 16	B	B5	Cox's Bazar	Ukhiya	Palongkhali	Open space backside of AWARD hospital	21.156374 92.149826
21	Camp 16	B	B1	Cox's Bazar	Ukhiya	Palongkhali	Beside camp 16 road neat CiC office and infront of Brac office	21.156778 92.152171

Land ownership

Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water

bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

There are 5 nos. of nano grid in camp 16. In Block A, the proposed location is within the MSI hospital compound. To the north of this location, there are religious centers at distances of approximately 45, 68, 72, and 85 meters, along with a health post at a distance of 35 meters. Moving southwards, a learning center is located around 55 meters away, along with religious centers at distances of 70, 75, and 85 meters, and a safe space for women at a distance of 42 meters. Towards the east, there are learning centers at distances of approximately 17 and 65 meters, religious centers at distances of 50 and 65 meters, and a child protection facility at a distance of 80 meters. Towards the west, there is a learning center at a distance of 10 meters, religious centers at distances of 50 and 70 meters, and a safe space for women at a distance of 90 meters.

In Block A, another proposed location is abutting the PHD Hospital. To the north, there are learning centers at distances of approximately 40 and 90 meters, along with a health post at a distance of 40 meters. Moving southwards, learning centers are located at distances of around 60 and 85 meters, along with a health post at a distance of 40 meters, and a safe space for women at a distance of 27 meters. Towards the east, there is a health post at a distance of 70 meters, a learning center at a distance of 80 meters, child protection facilities at a distance of 80 meters, a multipurpose protection center at a distance of 74 meters, and religious facilities at distances of 85 and 90 meters.

In Block D, Sub-block D4, the proposed location is beside the World Vision AMPC. To the north, there are religious facilities at distances of approximately 67, 40, and 45 meters, along with a learning center at a distance of 35 meters. Moving southwards, religious facilities are situated at distances of around 95 and 100 meters, learning centers at distances of 35, 45, 57, 85, 95, and 100 meters, and child protection facilities at distances of 55 and 100 meters. Towards the east, there are religious facilities at distances of 85 and 90 meters, and a learning center at a distance of 92 meters.

In Block B, Sub-block B5, the proposed location is an open space at the backside of AWARD hospital. To the north, there are religious facilities at distances of approximately 75 and 80 meters, child protection facilities at a distance of 80 meters, a multipurpose protection center at a distance of 70 meters, and a health post at a distance of 15 meters. Towards the east, there are learning centers at distances of 35 and 37 meters. Towards the west, there is a learning center at a distance of 60 meters, religious facilities at distances of 15 meters, and child protection facilities at a distance of 30 meters.

In Block B, Sub-block B1, the proposed location is beside the camp 16 road near the CiC office and in front of the Brac office. To the north, there is a CiC office at distances of approximately 20 and 66 meters, along with a health post at a distance of 100 meters. Moving southwards, there is a learning center at a distance of 66 meters, and a religious facility at a distance of 81 meters. Towards the west, there are health posts at distances of 80 and 65 meters.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

There are 5 nos. of Nano grid in camp 16. In Block A, the proposed location is within the MSI hospital compound. To the north of this location, there are religious centers at distances of approximately 45, 68, 72, and 85 meters, along with a health post at a distance of 35 meters. Moving southwards, a learning center is located around 55 meters away, along with religious centers at distances of 70, 75, and 85 meters, and a safe space for women at a distance of 42 meters. Towards the east, there are learning centers at distances of approximately 17 and 65 meters, religious centers at distances of 50 and 65 meters, and a child protection facility at a distance of 80 meters. Towards the west, there is a learning center at a distance of 10 meters, religious centers at distances of 50 and 70 meters, and a safe space for women at a distance of 90 meters.

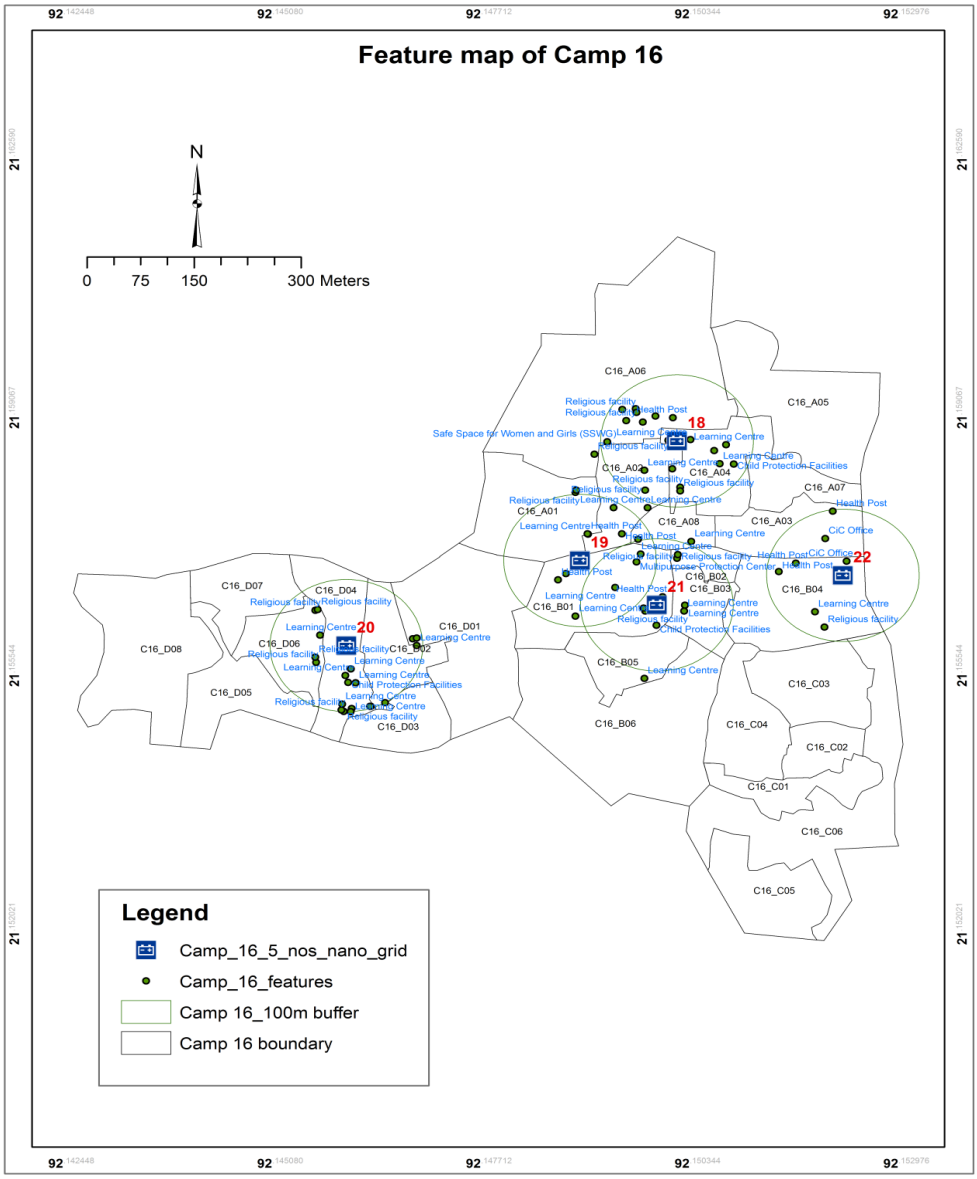
In Block A, another proposed location is abutting the PHD Hospital. To the north, there are learning centers at distances of approximately 40 and 90 meters, along with a health post at a distance of 40 meters. Moving southwards, learning centers are located at distances of around 60 and 85 meters, along with a health post at a distance of 40 meters, and a safe space for women at a distance of 27 meters. Towards the east, there is a health post at a distance of 70 meters, a learning center at a distance of 80 meters, child protection facilities at a distance of 80 meters, a multipurpose protection center at a distance of 74 meters, and religious facilities at distances of 85 and 90 meters.

In Block D, Sub-block D4, the proposed location is beside the World Vision AMPC. To the north, there are religious facilities at distances of approximately 67, 40, and 45 meters, along with a learning center at a distance of 35 meters. Moving southwards, religious facilities are situated at distances of around 95 and 100 meters, learning centers at distances of 35, 45, 57, 85, 95, and 100 meters, and child protection facilities at distances of 55 and 100 meters. Towards the east, there are religious facilities at distances of 85 and 90 meters, and a learning center at a distance of 92 meters.

In Block B, Sub-block B5, the proposed location is an open space at the backside of AWARD hospital. To the north, there are religious facilities at distances of approximately 75 and 80 meters, child protection facilities at a distance of 80 meters, a multipurpose protection center at a distance of 70 meters, and a health post at a distance of 15 meters. Towards the east, there are learning centers at distances of 35 and 37 meters. Towards the west, there is a learning center at a distance of 60 meters, religious facilities at distances of 15 meters, and child protection facilities at a distance of 30 meters.

In Block B, Sub-block B1, the proposed location is beside the camp 16 road near the CiC office and in front of the Brac office. To the north, there is a CiC office at distances of approximately 20 and 66 meters, along with a health post at a distance of 100 meters. Moving southwards, there is a learning center at a distance of 66 meters, and a religious facility at a distance of 81 meters. Towards the west, there are health posts at distances of 80 and 65 meters. There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, rohingya settlements and religious facilities were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No N/A (This activity will be confined within the proposed location) **(3) Other issues:** N/A *This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN
Baseline air quality and noise levels: **Dust:** Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation. **Noise:** Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.
Baseline soil quality: The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate. **Landslide potential (high/medium/low, with explanation):** The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.
Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH): Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): There is a road called the Camp 16 connecting road (12ft HBB road) that will be used for

transportation and delivering materials to the five Nano grids in Camp 16. It provides access for vehicles and ensures a route for transporting goods and supplies.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials
Identification of access road for transportation (Yes/No): Yes. There is a road called the Camp 16 connecting road (12ft HBB road) that will be used for transportation and delivering materials to the five Nano grids in Camp 16. It provides access for vehicles and ensures a route for transporting goods and supplies.
Location identification for raw material storage: The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. **Liquid waste**: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs)

will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 100 sq. feet area is needed for this project. No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description). No pre-existing water body or drainage is present
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) **Low.** The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community. Educational institutions can improve their teaching and learning environments through the availability of electricity, enabling students to access modern technology and educational resources.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. There are no protected areas in or around project sites, and no known areas of ecological interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Solar PV Nano Grid (Camp 17)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (Camp 17: There are 3 nos. of Nano Grid will be installed in Camp 17)

S/L	Camp	Block	Sub-block	Location	District	Sub-District	Union
22	Camp 17	C	H76	PHD (Near waste Management) Point	Cox's Bazar	Ukhiya	Rajapalong
23	Camp 17	C	H75	Near the CiC Office	Cox's Bazar	Ukhiya	Rajapalong
24	Camp 17	A	H100	Infront of TRC	Cox's Bazar	Ukhiya	Rajapalong

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

In Camp 17, there are three sub-project sites for Nano grids. Starting with Block C, Sub block H76, the site is located on the south side of the PHD Health Post compound. It is well tin-fenced, and there is a hilly chorra and a 10ft. wide camp connecting road on the east side. To install the Nano grid, a maximum of six medium and small trees will need to be cut down. The site is accompanied by DRP settlements on the hilltop alongside the location.

Moving to Block C, Sub block H75, the nano grid site is situated on a hilly plain land, which is an empty space adjacent to the camp 17 CiC office. An 18ft. wide Army Road runs on the east side of the location.

Next, in Block A, Sub block H100, the site is positioned on high plain vacant land on the east side of the BDRCS compound. The installation site is well fenced by wire. The location is accompanied by an 18ft. wide HBB site connecting road and Army Road.

Overall Comments

The proposed Solar PV Nano grids will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land. The construction materials and equipment required for the Nano grids will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The rohingya community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the Nano grids at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grids will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grids is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity to various facilities such as learning centers, health posts, and food distribution centers, creating a conducive environment for education, healthcare, and community activities. The Solar PV Nano grids will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:

The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:

3 nos. of Nano grids will be installed in Camp 17. Within the influence area of the subproject no historical sites were identified. The proposed locations for the Nano grids have been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:

22. Block C, Sub-block H76, PHD (Near waste Management) Point:
    - South: There is a learning center approximately 55m away from the proposed location.
    - West: A learning center is located 50m away, and there is a safe space for women and girls situated about 60m to the west.

23. Block C, Sub-block H75, Near the CiC Office:
    - North: Religious facilities are present at distances of approximately 50m, 55m, 65m, and 66m. There are also child protection facilities located 25m and 30m away to the north.
    - East: The CiC office is situated approximately 20m away from the proposed location.

24. Block A, Sub-block H100, In front of TRC:
    - North: There is a religious facility located approximately 90m away from the proposed location.

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. Mostly Rohingya settlements are found around the proposed area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

3 nos. of Nano grids will be installed in Camp 17. The location details are given below.

S/L	Catchment area	Block	Sub-block	District	Sub-District	Union	Location	GPS Location
22	Camp 17	C	H76	Cox's Bazar	Ukhiya	Rajapalong	PHD (Near waste Management) Point	21.19426 92.145711
23	Camp 17	C	H75	Cox's Bazar	Ukhiya	Rajapalong	Near the CiC Office	21.196753 92.147092
24	Camp 17	A	H100	Cox's Bazar	Ukhiya	Rajapalong	Infront of TRC	21.19935 92.146313

Land ownership

Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

In Camp No.17, three out of the planned 35 Nano grids will be constructed. In Block C, Sub-block

H76, situated near the PHD (Near waste Management) Point, there is a learning center located to the south, approximately 55m away from the proposed site. Moving towards the west, there is another learning center at a distance of 50m, accompanied by a safe space for women and girls, situated about 60m away.

In Block C, Sub-block H75, near the CiC Office, several sensitive features are present. To the north, there are religious facilities at distances of around 50m, 55m, 65m, and 66m, along with child protection facilities positioned 25m and 30m away. As we move east, the CiC office is located at a proximity of approximately 20m from the proposed site.

Finally, in Block A, Sub-block H100, positioned in front of TRC, there is a religious facility situated to the north, approximately 90m away from the proposed location.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

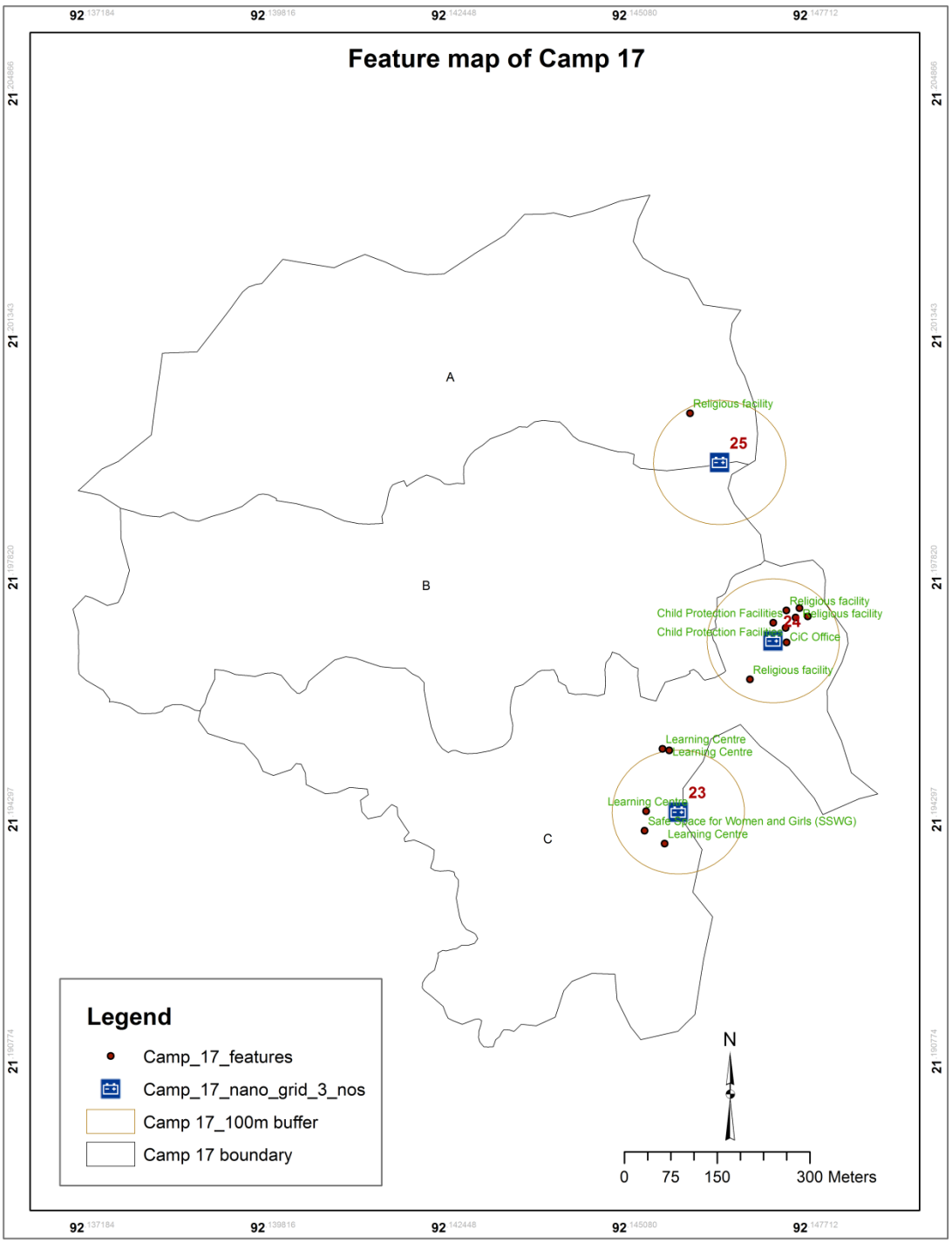
Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

In Camp No.17, three out of the planned 35 Nano grids will be constructed. In Block C, Sub-block H76, situated near the PHD (Near waste Management) Point, there is a learning center located to the south, approximately 55m away from the proposed site. Moving towards the west, there is another learning center at a distance of 50m, accompanied by a safe space for women and girls, situated about 60m away.

In Block C, Sub-block H75, near the CiC Office, several sensitive features are present. To the north, there are religious facilities at distances of around 50m, 55m, 65m, and 66m, along with child protection facilities positioned 25m and 30m away. As we move east, the CiC office is located at a proximity of approximately 20m from the proposed site.

Finally, in Block A, Sub-block H100, positioned in front of TRC, there is a religious facility situated to the north, approximately 90m away from the proposed location. There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, rohingya settlements and religious facilities were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the proposed location)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.

Summary of water balance analysis (For water supply scheme only):

N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): In Camp 17, there are three nano grids located in different blocks and sub-blocks. The first nano grid is in Block C, Sub-block H76, accessible through the 10ft HBB Rohingya Camp 17 connecting road. The second nano grid is in Block C, Sub-block H75, and can be reached via the Army road (18ft HBB). The third nano grid is in Block A, Sub-block H100, also connected by the Army road (18ft HBB). These roads allow vehicles to transport and deliver materials to the nano grid locations.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials
Identification of access road for transportation (Yes/No): Yes. In Camp 17, there are three nano grids located in different blocks and sub-blocks. The first nano grid is in Block C, Sub-block H76, accessible through the 10ft HBB Rohingya Camp 17 connecting road. The second nano grid is in Block C, Sub-block H75, and can be reached via the Army road (18ft HBB). The third nano grid is in Block A, Sub-block H100, also connected by the Army road (18ft HBB). These roads allow vehicles to transport and deliver materials to the nano grid locations.
Location identification for raw material storage: The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. **Liquid waste**: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs) will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 100 sq. feet area is needed for this project. No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description). No pre-existing water body or drainage is present
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) **Low.** The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or

any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community. Educational institutions can improve their teaching and learning environments through the availability of electricity, enabling students to access modern technology and educational resources.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated.
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

Low. There are no protected areas in or around project sites, and no known areas of ecological interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Solar PV Nano Grid (Camp 19)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (Camp 19: There are 5 nos. of Nano Grid will be installed in Camp 19)

S/L	Camp	Block	Sub-block	Location	District	Sub-District	Union
25	Camp 19	B	B12	Inside the RTMI (IOM) PHC	Cox's Bazar	Ukhiya	Palongkhali
26	Camp 19	D	D10	Inside location of BDRCS Health Post	Cox's Bazar	Ukhiya	Palongkhali
27	Camp 19	B	B4	Inside the CARITAS	Cox's Bazar	Ukhiya	Palongkhali
28	Camp 19	A	A16	World Vision Point	Cox's Bazar	Ukhiya	Palongkhali
29	Camp 19	D	D5	Near CiC Office	Cox's Bazar	Ukhiya	Palongkhali

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):
The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

Camp 19 has five sub-project sites for nano grids. Starting with Block B, Sub block B12, the site is located inside the RTMI (IOM) PHC compound. It is situated on high plain vacant land on the southeast side of the compound, and the installation site is well fenced with tin. A 12ft. wide HBB camp connecting road runs on the north side of the location. DRP settlements are present alongside the identified location, and there is a staircase in front of the RTMI-PHC center.

Moving to Block D, Sub block D10, the nano grid site is situated inside the location of the BDRCS Health Post. It is on plain vacant land on the north side of the BDRCS compound, and the installation site is well fenced with wire. A 12ft. wide BC Tajnimarkhola Road and a u-drain are located on the north side of the location. DRP settlements are present on the south side of the identified location.

Next, in Block B, Sub block B4, the site is positioned inside CARITAS. It is on plain vacant land on the southeast side of the SUM Training Center compound. The installation site is well fenced, and a 12ft. wide HBB camp connecting road runs on the south side of the location. DRP settlements are present on the north and east side of the identified location.

Moving on to Block A, Sub block A16, the site is situated at World Vision Point. It is on plain vacant land on the south side of the People Corner within the World Vision compound. The installation site is well fenced with tin. A well-designed U drain, a 12ft. wide HBB camp connecting road, and a playground are located on the south side of the location. DRP settlements are present on the east side of the location.

Finally, in Block D, Sub block D5, the nano grid site is near the CiC Office. It is on plain vacant land on the north side of the camp 19 CiC office compound. The installation site is well fenced with bamboo. A 12ft. wide BC Tajnimarkhola road runs on the north side of the location. Various types of service delivery organizations and DRP settlements are present alongside the identified location.

Overall Comments

The proposed Solar PV Nano grids will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land.
The construction materials and equipment required for the Nano grids will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The rohingya community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally

sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the Nano grids at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grids will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grids is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity to various facilities such as learning centers, health posts, and food distribution centers, creating a conducive environment for education, healthcare, and community activities. The Solar PV Nano grids will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:
The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:
5 nos. of Nano grids will be installed in Camp 19. Within the influence area of the subproject no historical sites were identified. The proposed locations for the Nano grids have been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:

25. Block B, Sub-block B12 (Inside the RTMI (IOM) PHC):
    - North: Primary health center (20m), safe space for women (90m)
    - South: Learning centers (30m, 95m), religious facilities (65m, 72m, 75m)
    - East: Religious facilities (65m, 75m)
    - West: Child protection facilities (80m, 95m)

26. Block D, Sub-block D10 (Inside the BDRCS Health Post):
    - South: Religious facilities (40m, 45m)
    - East: Religious facilities (42m, 45m)
    - West: Health post (7m)

27. Block B, Sub-block B4 (Inside the CARITAS):
    - North: Learning centers (70m, 80m, 100m, 82m, 90m, 77m, 87m, 94m), religious facility (98m), health post (50m)

28. Block A, Sub-block A16 (World Vision Point):
    - North: Religious facilities (5m, 10m), learning centers (50m, 52m)
    - South: Learning center (75m), religious facility (95m)
    - East: Learning center (40m)
    - West: Religious facility (5m)

29. Block D, Sub-block D5 (Near CiC Office):
    - North: Learning center (75m), multipurpose protection center (95m)
    - South: Religious facilities (67m, 73m)

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. Mostly Rohingya settlements are found around the proposed area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

5 nos. of Nano grids will be installed in Camp 19. The location details are given below.

S/L	Catchment area	Block	Sub-block	District	Sub-District	Union	Location	GPS Location
25	Camp 19	B	B12	Cox's Bazar	Ukhiya	Palongkhali	Inside the RTMI (IOM) PHC	21.184902 92.141474
26	Camp 19	D	D10	Cox's Bazar	Ukhiya	Palongkhali	Inside location of BDRCS Health Post	21.179972 92.147028
27	Camp 19	B	B4	Cox's Bazar	Ukhiya	Palongkhali	Inside the CARITAS	21.181522 92.143346
28	Camp 19	A	A16	Cox's Bazar	Ukhiya	Palongkhali	World Vision Point	21.184486 92.139959
29	Camp 19	D	D5	Cox's Bazar	Ukhiya	Palongkhali	Near CiC Office	21.180883 92.147377

Land ownership

Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

In Camp No.19, a total of five Nano grids will be constructed out of the planned 35 Nano grids.
In Block B, Sub-block B12, situated inside the RTMI (IOM) PHC, there are several sensitive features nearby. To the north, there is a primary health center located just 20m away from the proposed site, along with a safe space for women at a distance of approximately 90m. Moving towards the south,

there are learning centers positioned at distances of 30m and 95m, accompanied by religious facilities situated approximately 65m, 72m, and 75m away. Towards the east, there are religious facilities at distances of 65m and 75m, while to the west, there are child protection facilities positioned around 80m and 95m away.

In Block D, Sub-block D10, located inside the BDRCS Health Post, there are religious facilities to the south at distances of about 40m and 45m. Moving towards the east, there are additional religious facilities situated approximately 42m and 45m away. To the west, there is a health post located at a close proximity of around 7m from the proposed site.

In Block B, Sub-block B4, positioned inside the CARITAS, there are multiple sensitive features nearby. To the north, there are learning centers at distances of 70m, 80m, 100m, 82m, 90m, 77m, 87m, and 94m, accompanied by a religious facility approximately 98m away. Additionally, there is a health post situated about 50m away from the proposed location.

In Block A, Sub-block A16, near the World Vision Point, there are various sensitive features present. To the north, there are religious facilities at distances of 5m and 10m, along with learning centers positioned around 50m and 52m away. Moving towards the south, there is a learning center located approximately 75m away, accompanied by a religious facility around 95m away. Towards the east, there is a learning center situated at a distance of 40m. To the west, there is a religious facility positioned at a proximity of 5m from the proposed site.

Lastly, in Block D, Sub-block D5, near the CiC Office, there are sensitive features in the vicinity. To the north, there is a learning center located approximately 75m away, accompanied by a multipurpose protection center at a distance of around 95m. Moving towards the south, there are religious facilities positioned about 67m and 73m away.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

There are 5 nos. of Nano grid in camp 19. In Block B, Sub-block B12, situated inside the RTMI (IOM) PHC, there are several sensitive features nearby. To the north, there is a primary health center located just 20m away from the proposed site, along with a safe space for women at a distance of approximately 90m. Moving towards the south, there are learning centers positioned at distances of 30m and 95m, accompanied by religious facilities situated approximately 65m, 72m, and 75m away. Towards the east, there are religious facilities at distances of 65m and 75m, while to the west, there are child protection facilities positioned around 80m and 95m away.

In Block D, Sub-block D10, located inside the BDRCS Health Post, there are religious facilities to the south at distances of about 40m and 45m. Moving towards the east, there are additional religious facilities situated approximately 42m and 45m away. To the west, there is a health post located at a close proximity of around 7m from the proposed site.

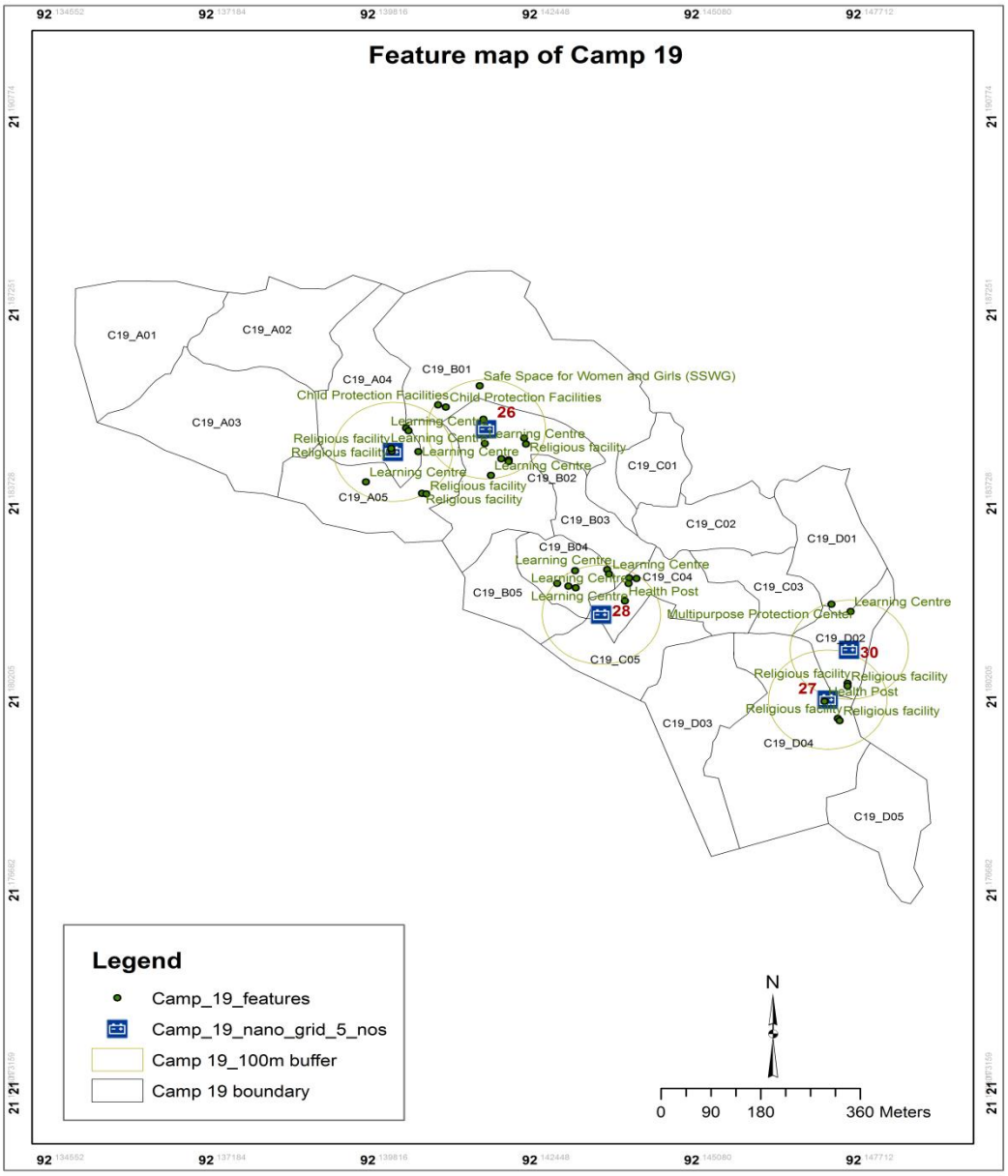
In Block B, Sub-block B4, positioned inside the CARITAS, there are multiple sensitive features nearby. To the north, there are learning centers at distances of 70m, 80m, 100m, 82m, 90m, 77m, 87m, and 94m, accompanied by a religious facility approximately 98m away. Additionally, there is a health post situated about 50m away from the proposed location.

In Block A, Sub-block A16, near the World Vision Point, there are various sensitive features present. To the north, there are religious facilities at distances of 5m and 10m, along with learning centers positioned around 50m and 52m away. Moving towards the south, there is a learning center located approximately 75m away, accompanied by a religious facility around 95m away. Towards the east, there is a learning center situated at a distance of 40m. To the west, there is a religious facility positioned at a proximity of 5m from the proposed site.

Lastly, in Block D, Sub-block D5, near the CiC Office, there are sensitive features in the vicinity. To the north, there is a learning center located approximately 75m away, accompanied by a multipurpose protection center at a distance of around 95m. Moving towards the south, there are religious facilities positioned about 67m and 73m away.

There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, rohingya settlements and religious facilities were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the proposed location)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN
Baseline air quality and noise levels: **Dust:** Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation. **Noise:** Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.
Baseline soil quality: The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate. **Landslide potential (high/medium/low, with explanation):** The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.
Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH): Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer. Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)
Status of wildlife movement: **N/A** (None of the information was found about the wildlife movement in or across the area)
State of forestation: Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.
Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): Camp 19, located in Ukhiya Upazila and Palongkhali Union, has five nano grids. Each nano grid can be reached using different roads. These roads make it easier to transport materials to the nano grids. In Block B, Sub-block B12, the road to the nano grid is called the 12ft HBB camp road. In Block D, Sub-block D10, the road is the 18ft BC Taznimarkhola Ghonarpara road. Block B, Sub-block B4, also uses

the 12ft HBB camp road. For Block A, Sub-block A16, the road is the 12ft HBB camp road as well. Lastly, in Block D, Sub-block D5, the road is the 12ft BC Tajnimarkhola road.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials.
Identification of access road for transportation (Yes/No): Yes. Camp 19, located in Ukhiya Upazila and Palongkhali Union, has five nano grids. Each nano grid can be reached using different roads. These roads make it easier to transport materials to the nano grids. In Block B, Sub-block B12, the road to the nano grid is called the 12ft HBB camp road. In Block D, Sub-block D10, the road is the 18ft BC Taznimarkhola Ghonarpara road. Block B, Sub-block B4, also uses the 12ft HBB camp road. For Block A, Sub-block A16, the road is the 12ft HBB camp road as well. Lastly, in Block D, Sub-block D5, the road is the 12ft BC Tajnimarkhola road.
Location identification for raw material storage: The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a

very negligible amount- half a kilogram a day maximum. **Liquid waste**: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs) will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 100 sq. feet area is needed for this project. No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description). No pre-existing water body or drainage is there.
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) **Low.** The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts: The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community. Educational institutions can improve their teaching and learning environments through the availability of electricity, enabling students to access modern technology and educational resources.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. There are no protected areas in or around project sites, and no known areas of ecological interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Solar PV Nano Grid (Camp 20)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (Camp 20: There are 5 nos. of Nano Grid will be installed in Camp 20)

S/L	Camp	Block	Sub-block	Location	District	Sub-District	Union
30	Camp 20	B	B1		Cox's Bazar	Ukhiya	Palongkhali
31	Camp 20	A	A5	Start of the stair case to the right	Cox's Bazar	Ukhiya	Palongkhali
32	Camp 20	A	A5	Beside camp 20 road	Cox's Bazar	Ukhiya	Palongkhali
33	Camp 20	A	A2	Small abandoned vegetable yard	Cox's Bazar	Ukhiya	Palongkhali
34	Camp 20	A	A3	Small abandoned vegetable yard	Cox's Bazar	Ukhiya	Palongkhali

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

Camp 20 has five sub-project sites for nano grids. Starting with Block B, Sub block B1, the site is located beside a playground, which is an open space with no notable features. Approximately 200 meters away from the location, there is an Integrated Nutrition Center on the north side, and around 150 meters away, there is a Red Cross hospital on the east side. The Camp 20 connecting road is situated 50 to 80 meters away from the selected site.

Moving to Block A, Sub block A5, there are two sites with the same details. The first site is selected inside a protection wall, adjacent to a hilly location on the southeast side of the camp 20 HBB road. There is a staircase on the south of the location that leads to the IOM SMS hub. Additionally, a water tank is present on the site, and there are two DRP settlements nearby.

The third site in Block A, Sub block A5, is selected inside a protection wall, abutting a hilly location on the north side. The location is open and empty, providing available space. It is situated on the north side of the camp 20 connecting road, and there is a child-friendly space on the northwest side of the location.

In Block A, Sub block A2, the site is located beside a linking road of the camp 20 HBB road. There is a small vegetable garden with a few shrubs and small trees at the site. A DRP settlement is present on the northwest side of the location, and a staircase is found on the north side.

Lastly, adjacent to the wire fencing of Camp 20, in Block A, Sub block A3, the location of the nano grid is on the south side of the Camp 20 connecting road. The site itself is mostly empty, with a health post from Save the Children positioned to the north.

Overall Comments

The proposed Solar PV Nano grids will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land.
The construction materials and equipment required for the Nano grids will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The rohingya community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the

Nano grids at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grids will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grids is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity to various facilities such as learning centers, health posts, and food distribution centers, creating a conducive environment for education, healthcare, and community activities. The Solar PV Nano grids will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:
The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:
5 nos. of Nano grids will be installed in Camp 20. Within the influence area of the subproject no historical sites were identified. The proposed locations for the Nano grids have been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:
30. Camp No.20, Block B, Sub-block B1:

- North of the proposed nano grid site, there are religious facilities at distances of 55m, 60m, and 70m.

- To the east, within a 100m radius, there is a child protection facility (70m), a community kitchen (45m), a safe space for women and girls (40m), and additional learning centers at 50m and 60m.
- Moving towards the east, there is a health post located 50m away.

31. Camp No.20, Block A, Sub-block A5 (Start of the staircase to the right):
    - South of the proposed site, there is a health post situated just 20m away.
    - To the west, there is a CiC office located 60m away.

32. Camp No.20, Block A, Sub-block A5 (Adjacent to Camp 20 road):
    - North of the proposed nano grid site, there are religious facilities at distances of 60m and 65m, a community kitchen at 100m, and a child protection facility at 70m.
    - Moving south, there are learning centers at 65m and 70m, and two additional religious facilities at 85m.
    - To the east, there are two more religious facilities at 80m.
    - To the west, there is a safe space for women and girls located 95m away.

33. Camp No.20, Block A, Sub-block A2 (Small abandoned vegetable yard):
    - South of the proposed site, there are religious facilities at distances of 35m and 40m, and a child protection facility at 55m.
    - To the west, there is a community kitchen located 40m away.

34. Camp No.20, Block A, Sub-block A3 (Small abandoned vegetable yard):
    - To the north, religious facilities are situated at distances of approximately 60m and 65m, along with learning centers at distances of 28m, 43m, and 73m, and a health post at a distance of 15m.
    - No sensitive features are mentioned towards the south, east, or west in this sub-block.

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. Mostly Rohingya settlements are found around the proposed area. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

4 nos. of Nano grids will be installed in Camp 20. The location details are given below.

S/L	Catchment area	Block	Sub-block	District	Sub-District	Union	Location	GPS location
30	Camp 20	B	B1	Cox's Bazar	Ukhiya	Palongkhali	-	21.18636 92.14375
31	Camp 20	A	A5	Cox's Bazar	Ukhiya	Palongkhali	Start of the stair case to the right	21.19109 92.14228
32	Camp 20	A	A5	Cox's Bazar	Ukhiya	Palongkhali	Beside camp 20 road	21.19164 92.13963
33	Camp 20	A	A2	Cox's Bazar	Ukhiya	Palongkhali	Small abandoned vegetable yard	21.19251 92.13967
34	Camp 20	A	A3	Cox's Bazar	Ukhiya	Palongkhali	Small abandoned vegetable yard	21.19206 92.13750

Land ownership

Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

There are 5 nos. of nano grid in camp 20. In Camp No.20, specifically in Block B, Sub-block B1, the

proposed nano grid site is situated north of various sensitive features. These include religious facilities at distances of 55m, 60m, and 70m. Moving east from the site, within a 100m radius, there are important facilities such as a child protection facility (70m), a community kitchen (45m), a safe space for women and girls (40m), and additional learning centers at 50m and 60m. Additionally, there is a health post located 50m away towards the east.

In the same camp, Block A, Sub-block A5, the nano grid site is positioned south of the proposed location, where a health post is just 20m away. To the west of the site, there is a CiC office located 60m away, which is an important point to consider for the construction and operation of the nano grids.

Adjacent to Camp 20 road, in Block A, Sub-block A5, there are several sensitive features surrounding the proposed site. To the north, there are religious facilities at distances of 60m and 65m, a community kitchen at 100m, and a child protection facility at 70m. In the south direction, there are learning centers at 65m and 70m, as well as two additional religious facilities at 85m. To the east, there are two more religious facilities at 80m. Lastly, to the west, there is a safe space for women and girls located 95m away.

In Block A, Sub-block A2, the proposed nano grid site is located in a small abandoned vegetable yard. To the south, there are religious facilities at distances of 35m and 40m, along with a child protection facility at 55m. Towards the west, there is a community kitchen situated 40m away from the site.

Lastly, In Block A, Sub-block A3, the proposed nano grid site is located in a small abandoned vegetable yard. To the north, religious facilities are situated at distances of approximately 60m and 65m, along with learning centers at distances of 28m, 43m, and 73m, and a health post at a distance of 15m. No sensitive features are mentioned towards the south, east, or west in this sub-block.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in the consultation meeting).

Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

There are 5 nos. of Nano grid in camp 20. In Camp No.20, specifically in Block B, Sub-block B1, the proposed nano grid site is situated north of various sensitive features. These include religious facilities at distances of 55m, 60m, and 70m. Moving east from the site, within a 100m radius, there are important facilities such as a child protection facility (70m), a community kitchen (45m), a safe space for women and girls (40m), and additional learning centers at 50m and 60m. Additionally, there is a health post located 50m away towards the east.

In the same camp, Block A, Sub-block A5, the nano grid site is positioned south of the proposed location, where a health post is just 20m away. To the west of the site, there is a CiC office located 60m away, which is an important point to consider for the construction and operation of the nano grids.

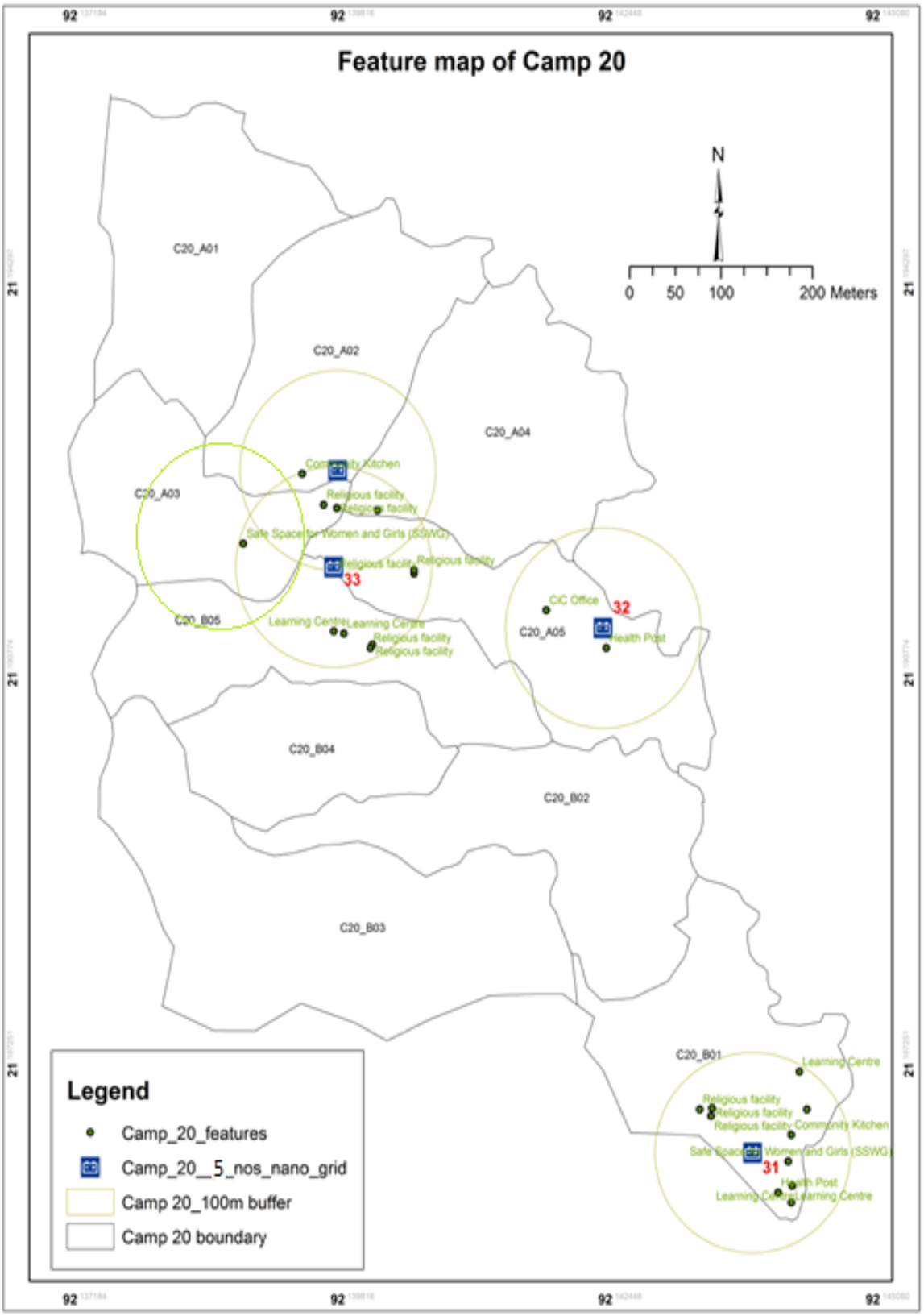
Adjacent to Camp 20 road, in Block A, Sub-block A5, there are several sensitive features surrounding the proposed site. To the north, there are religious facilities at distances of 60m and 65m, a community kitchen at 100m, and a child protection facility at 70m. In the south direction, there are learning centers at 65m and 70m, as well as two additional religious facilities at 85m. To the east, there are two more religious facilities at 80m. Lastly, to the west, there is a safe space for women and girls located 95m away.

In Block A, Sub-block A2, the proposed nano grid site is located in a small abandoned vegetable yard. To the south, there are religious facilities at distances of 35m and 40m, along with a child protection facility at 55m. Towards the west, there is a community kitchen situated 40m away from the site.

Lastly, In Block A, Sub-block A3, the proposed nano grid site is located in a small abandoned vegetable yard. To the north, religious facilities are situated at distances of approximately 60m and 65m, along with learning centers at distances of 28m, 43m, and 73m, and a health post at a distance of 15m. No sensitive features are mentioned towards the south, east, or west in this sub-block.

There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, rohingya settlements and religious facilities were found during the survey. It will not

be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the proposed location)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.

Summary of water balance analysis (For water supply scheme only):

N/A

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): There is a road called the Camp 20 connecting road (12ft HBB road) that is used for transportation and delivering materials to the five Nano grids in Camp 20. It provides access for vehicles and ensures a route for transporting goods and supplies.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials
Identification of access road for transportation (Yes/No): Yes. There is a road called the Camp 20 connecting road (12ft HBB road) that is used for transportation and delivering materials to the four Nano grids in Camp 20. It provides access for vehicles and ensures a route for transporting goods and supplies.
Location identification for raw material storage: The materials, including the poles, for the Nano grids will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The site management or the Camp-in-Charge (CIC) will grant permission to store the required materials for the Nano grid within the camp premises. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation

wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum.

Liquid waste: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs) will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.

Type and quantity of raw materials used (wood, bricks, cement, water, etc.):

Type: i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction.

Quantity: It is difficult to give exact figures of construction waste produced on a typical construction site.

Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards:

Around 100 sq. feet area is needed for this project.

No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.

Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation)

Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.

Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description).

No pre-existing water body or drainage is present

Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description)

Low. The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.

Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:

The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.

Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description)

N/A

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:

No traffic movement impact on light is anticipated, but low effects of noise and air pollution may

appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community. Educational institutions can improve their teaching and learning environments through the availability of electricity, enabling students to access modern technology and educational resources.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. There are no protected areas in or around project sites, and no known areas of ecological interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A

Describe possible traffic movement impacts on (unwanted) light, noise and air pollution:
N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Environmental Screening Form for Solar PV Nano Grid (icddr,b - Teknaf)

Name of Sub-Project: Supply and Installation of Solar PV Nano grid (icddr,b - Teknaf)

S/L	Location	District	Sub-District	Union/ Pourashava
35	Icddr,b - Teknaf	Cox's Bazar	Teknaf	Teknaf Pourashava

Implementing Agency/Agencies: Local Government Engineering Department (LGED)

Description of proposed sub-project activities (incl. type of activities, footprint area, natural resources required, etc.):

The proposed sub-project activities for the Nano grid include various components and equipment that are essential for its functioning. The control room is a steel container with dimensions of 10ft**8ft**8.5ft and a thickness of 2.3mm. It includes the construction of reinforced concrete footing, installing thermal insulation, and a ventilation fan operated by a temperature sensor. The control room will have the option for operation and maintenance of the Nanogrid facility of 8KW capacity.

The sub-project will require 18 solar PV modules, each with a capacity of 450 Wp (watt peak). These modules are of the mono crystalline type and consist of 72 cells or more, conforming to international standards and codes. The total capacity of the solar PV modules will be 8KW.

A total of 24 vented lead acid batteries will be used, each having a capacity of 2V and 900Ah (ampere-hour) or higher. These batteries are specifically designed for solar applications and comply with international standards and codes.

14 overhead distribution line poles will be erected, either with a height of 7.6 meters (SPC) or 6.0 meters (steel). The installation includes the use of reinforced concrete base, number plate, earthing, and all necessary fittings and accessories.

A total of 65 LED lights with a capacity of 10 watts will be installed for public facilities. These energy efficient lights will provide illumination while consuming minimal power.

Fifteen security lights with a capacity of 10 watts, equipped with outdoor installation fixtures, day light, and motion sensors, will be installed to ensure safety and security in the area.

Sixty-five energy-saving BLDC (Brushless Direct Current) ceiling fans with a capacity of 35 watts and a size of 56 inches will be installed in public facilities. These fans come with a 5-step capacitive compatible wall regulator and all necessary accessories for installation.

Twenty sets of switch, socket, and fuse board will be installed for the internal wiring of lights and fans in public facilities. This includes switches, sockets, PVC switch boxes, PVC insulated cables, and all other necessary fittings and accessories.

Estimated footprint / land area is 100 sq. feet for each Nano grid

Brief description of sub-project site: (e.g., present land use, Important Environmental Features (IEFs) near site, etc.:

There is a nano grid installed in the host community located at icddr,b-Teknaf. The site is situated on plain vacant land on the west side of the icddr,b-Teknaf compound. It is well-fenced by a brick boundary. This particular location belongs to the host community. On the east side of the site, there is the Teknaf-Cox's Bazar highway. Surrounding the installation site, there are various Upazila Government offices. Furthermore, the Naf River is located more than 300 meters to the east of this identified site.

Overall Comments

The proposed Solar PV Nano grid will have minimal environmental impact and are not located in environmentally sensitive areas. The project activities will not pose a significant threat to the natural surroundings and will not cause drainage congestion or water logging issues. Moreover, there will be no utilization of productive agricultural soil for the project, ensuring the preservation of fertile land.
The construction materials and equipment required for the Nano grid will be limited to the project boundary, minimizing any potential impact on the surrounding environment. The project follows environmentally responsible practices and aims to reduce any negative effects on the ecosystem.

The local community has shown a positive attitude towards the project and expressed their enthusiasm to actively participate in its activities. The project is considered environmentally sustainable and socially acceptable by the adjacent community and representatives from various facilities. The participatory public consultation meeting provided an opportunity for community members to voice their opinions, and no objections were raised regarding the construction of the Nano grid at the proposed site. On the contrary, the community expressed appreciation for the infrastructure as it will enhance safety and security for the community.

During the consultation, the community highlighted the benefits that the Solar PV Nano grid will bring, particularly in terms of socio-security for female communities. The project is seen as a means to improve the quality of life, reduce vulnerability to social aggression and mistreatment, and enhance access to education and healthcare services. In addition, the establishment of the Solar PV Nano grid is expected to contribute to the overall development and well-being of the adjacent community. It will provide reliable electricity. The Solar PV Nano grid will not only provide electricity but also empower the community, ensuring a brighter and more secure future for all.

Types of waste to be generated during construction and operation phase:

The construction of the Nano grid involves installing a control room made of a steel container, which will be placed on RCC foundations. This process may require minimal ground preparation and the installation of RCC foundations. Additionally, during the construction phase, 14 poles will be installed near the project site.

During the installation of the poles and RCC foundations, there is a possibility of generating waste materials. These may include soil and debris that are excavated while digging holes for pole installation. The waste generated from the pole installation and RCC foundation is relatively small and mainly consists of construction debris. This debris can include materials like concrete, cement, bricks, and other building materials that are used during the installation process. If wooden or

bamboo components or supports are used during the pole installation, there may be waste generated from cutting or shaping the wood or bamboo to fit the desired specifications.

Due to the small scale of construction, there will be no need for a labor shed, resulting in a reduced likelihood of generating organic waste, faecal waste, and kitchen waste during this phase.

The container and associated instruments will be transported to the site using a truck and then installed on the pillars with the assistance of a crane. As a result, the construction process is expected to have minimal waste generation. However, it is important to ensure proper waste management practices are in place to handle any potential waste materials that could be produced during transportation and installation.

Sensitive environmental, cultural, archaeological, religious sites near (within 100m) of site including elephant migration routes and remaining forests:
One Nano grid will be installed in icddr`b, Teknaf . Within the influence area of the subproject no historical sites were identified. The proposed location for the Nano grid has been considered for their proximity to sensitive environmental, cultural, archaeological, religious sites, as well as elephant migration routes and remaining forests within a 100-meter radius. Several sensitive features have been identified near the Nano grid locations, as described below:

The proposed nano grid site in icddr,b Teknaf is located within the host community. In the vicinity of the site, there are several sensitive features to consider.

- North: Towards the north, at a distance of 90m, there is the Teknaf Upazila Health Complex, which serves as a significant healthcare facility in the area. Additionally, another healthcare facility, the Teknaf Upazila Health Complex, is situated at a distance of 95m to the north of the site.
- East: Moving east from the site, there is the icddr,b mosque, which is located 74m away. This mosque holds religious importance within the community.
- West: To the west of the site, there are two notable locations. The first is Maimuna GPS, positioned at a distance of 45m. The second is the Teknaf Upazila Complex, situated 95m away. These locations hold significance in the local context.

Apart from these structures no other sensitive environmental, cultural, archaeological, religious sites exists. No disturbance is anticipated due to construction activities to those environmental components. In this sub-project area, no elephant migration routes exist (ref. IUCN). No disturbance is anticipated due to construction activities to those social and environmental components.

Completed environmental and social screening forms are given below

Section A: Sub-Project Overview

Description of sub-project/component interventions:

The 8KW capacity Nano grid control room, which is 10ft*8ft*8.5ft in size and has a thickness of 2.3mm, will serve as the central hub for the distribution of electricity to these facilities. The control room will be made of a steel container that includes the construction of RCC footing, thermal insulation, and ventilation operated by a temperature sensor. This will ensure that the equipment is protected from extreme weather conditions and operates at optimal performance.

The Nano grid will consist of approximately 14 poles, which will be installed to distribute electricity to the various facilities. Each pole will have an electricity line drawn from the Nano grid, with 14 panels installed on top of each pole. Additionally, each pole will have a 10 watt security light installed on top, providing additional safety and security for the surrounding area.

The proposed facilities also include the installation of 65 energy-efficient fans and lights in various service centers, each with a capacity of 35 watts and 10 watts respectively. These fans will help to keep the facilities cool during hot temperatures, ensuring a comfortable working environment for the facilitators.

Two fire extinguishers will also be installed in the Nano grid room, ensuring the safety of the equipment and personnel operating in the area.

Sub-project Location:

One Nano grid will be installed in icddr,b- Teknaf. The location details are given below.

S/L	Location	District	Upazila	Union/ Pourashava	GPS Location
35	Icddr,b	Cox's Bazar	Teknaf	Teknaf Pourashava	20.874589 92.296166

Land ownership

Govt. Land

Expected construction period: 6 months

Description of project intervention area and project influence area with schematic diagram (where relevant, indicate distance to sensitive environmental areas such as elephant corridors, water bodies, etc. and historical or socio-cultural assets): Please also explain any analysis on alternative location was conducted:

The proposed nano grid site in icddr,b Teknaf is located within the host community. Within a 100m radius of the site, there are several sensitive features to consider. Towards the north, there are the Teknaf Upazila Health Complex at distances of 90m and 95m, which are important healthcare facilities in the area. Moving east from the site, there is the icddr,b mosque situated 74m away. To the west, there are two significant locations, namely Maimuna GPS at a distance of 45m and the Teknaf Upazila Complex at 95m.

Within the influence area of the proposed location no historical sites were identified. Also, there is no evidence of elephant movement close to subproject location (confirmed by the participants in

the consultation meeting).

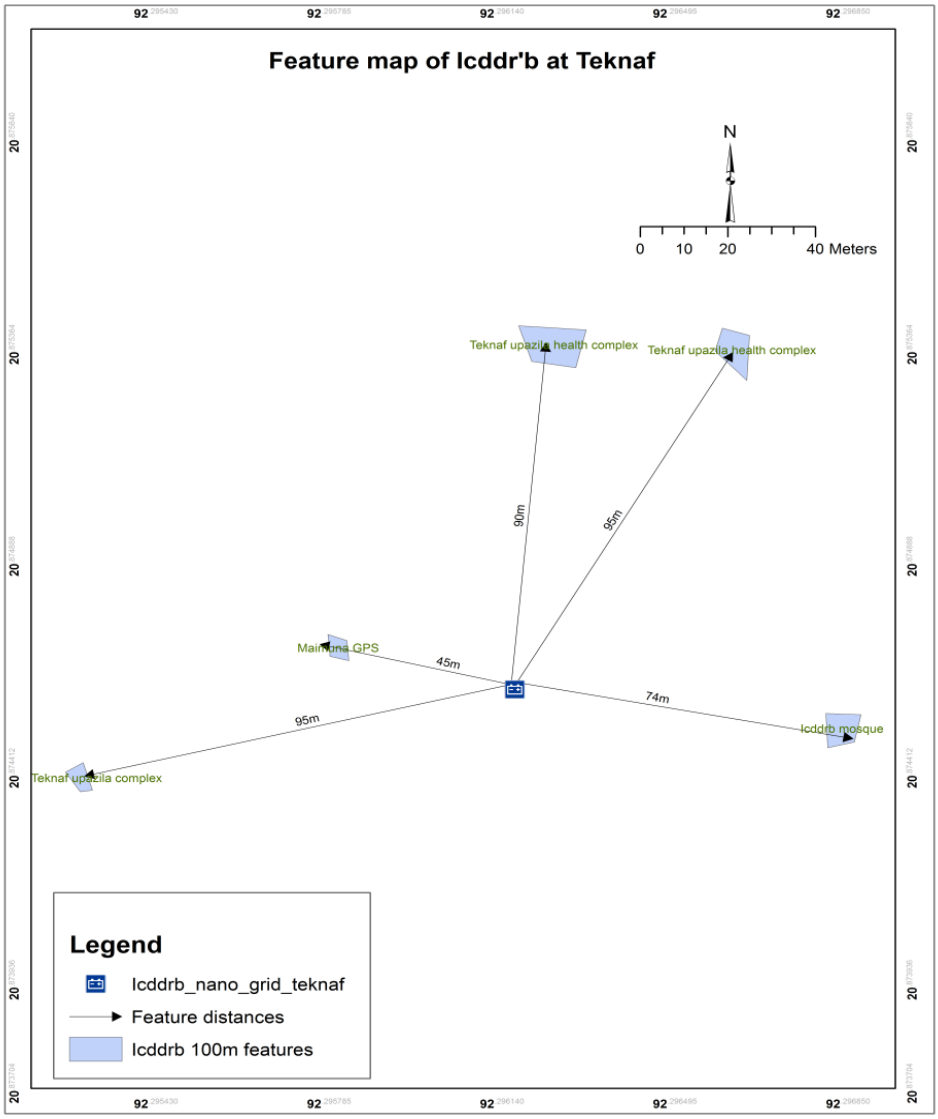
Section B: Environmental Screening

***B.1*: Environmental feature of sub-project location**

Description of cultural properties (if applicable, including distance from site): Sensitive environmental, cultural, archaeological, religious sites near (within the catchment area) of site including elephant migration routes and remaining forests:

Towards the north, there are the Teknaf Upazila Health Complex at distances of 90m and 95m, which are important healthcare facilities in the area. Moving east from the site, there is the icddr,b mosque situated 74m away. To the west, there are two significant locations, namely Maimuna GPS at a distance of 45m and the Teknaf Upazila Complex at 95m. There are no other sensitive environmental, cultural, archaeological sites within the catchment area of this sub-project.

A sketch of the project surrounding area with several features at relatively distant places and locations of sensitive institutions in the project surrounding areas are shown below.



Location of environmentally important and sensitive areas:

There are no environmentally important or sensitive features found in the footprint area. Several learning center, settlements and religious facilities were found during the survey. It will not be affected by the construction works, as the activities will be carried out within the existing proposed area boundary and necessary preventive and mitigation measures will be followed during the entire construction period.

(1) Within/near Elephant Migration Routes Yes/No*

No. These have been checked on the basis of elephant migration route map established by UNHCR/IUCN (latest updated maps as of 22 February 2018 and later June 05, 2018).

(2) potential impacts on remaining forests in/around camps Yes/No

N/A (This activity will be confined within the proposed location)

(3) Other issues: N/A

*This question needs to be answered by checking the elephant migration route map established by UNHCR/IUCN

Baseline air quality and noise levels:

Dust:

Ambient air quality data was not readily available, but quality is apparently good due to the appearance of rural vegetative settings around. Dust is slightly generated through movement of pedestrians. Natural air action, over the road surface which causes dust circulation.

Noise:

Noise in the Sub-project area is not a major concern because noise level is within the tolerance limit. Vehicles such as tempo, auto rickshaw, trailer, mini truck, etc. move on roads adjacent to proposed location throughout the day generating noise but within tolerable limit in most cases.

Baseline soil quality:

The Sub-project area is located mainly on red, alluvial, muddy and sandy soil. The soil developing from the weathered sandstones tend to be sandy to clay loams. Presence of Organic matter content in the soil is moderate.

Landslide potential (high/medium/low, with explanation):

The nominated location is found to be on fairly plane land. There is no condition found around the selected site which might give reasons for landslides.

Baseline surface water and groundwater quality (FE, TDS, fecal coliform, pH):

Groundwater is the main source of potable water in the Sub-project area. The shallow depth is about 100 feet to 120 feet and deep tube well depth is 700 to 850 feet. In the sub-project area, deep groundwater is fresh and potable, and arsenic free. Water from the shallower aquifers contains medium concentration of iron. Deep groundwater table (drinkable) varies from 600-800ft (Field survey, 2021). Local people usually use deep tube-well water for drinking and other domestic purposes. There should have been deep tube well which pump water from the confined aquifer.

Groundwater quality: pH-5.17 to 8.51, DO-2.26 to 8.14mg/l, TDS-23.40 to 320 mg/l, EC -25.7 to 681µs/cm, Fe-0.5 to 7.0 mg/l and As-Nil (IWM Study Report, 2019)

Status of wildlife movement:

N/A (None of the information was found about the wildlife movement in or across the area)

State of forestation:

Patches of vegetation containing small trees and shrubs found in target location and in surrounding area of the proposed location which are within 200m radial distance.

Summary of water balance analysis (For water supply scheme only): **N/A**

B.2: Pre construction Phase

Information on Ancillary Facilities (e.g., status of access road or any other facility required for sub-project to be viable): There is a road called the Teknaf- Cox's Bazar highway road that is used for transportation and delivering materials to the Nano grid in icddr,b - teknaf. It provides access for vehicles and ensures a route for transporting goods and supplies.
Requirement of accommodation or service amenities (toilet, water supply, electricity) to support the workforce during construction: Due to the small scale of construction, hence there is no need for labor shed. As a result, there is no necessity for a tube well in the proposed locations. Instead, during the construction phase, the contractor will arrange for a mobile water supply system to ensure a sufficient water source for the construction work. Additionally, the contractor will be responsible for providing temporary sanitation facilities. A portable or temporary sanitary system will be set up to cater to the basic hygiene needs of the workers during the construction period in the vicinity of the construction area for all the components of the project. Electricity is not available in the area. Generator or Solar lamp will need installation.
Possible location of labor camps: Due to the small scale of construction, hence there is no need for labor shed.
Requirement and type of raw materials (e.g., sand, stone, wood, etc.): i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials
Identification of access road for transportation (Yes/No): Yes. There is a road called the Teknaf- Cox's Bazar highway road that is used for transportation and delivering materials to the Nano grid in icddr,b - Teknaf. It provides access for vehicles and ensures a route for transporting goods and supplies.
Location identification for raw material storage: The materials, including the poles, for the Nano grid will be stored either on the side of the road or in designated vacant spaces near each Nano grid. The local authority will grant permission to store the required materials for the Nano grid within the vicinity of the proposed site. To ensure security during nighttime, there may be provisions for having night guards in place
Possible composition and quantities of wastes (Solids wastes, demolition materials, sludge from old latrines, etc.): There is no pre-existing structure which will face demolition. Here, demolition waste will not have to be accounted for. Few leftovers from soil clearing, plastics or residual clearing and site clearing may be generated.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.3: Construction Phase

Type and quantity of waste generated (e.g., Solids wastes, liquid wastes, etc.): **Solid waste:** Iron, concrete, metal, drywall, wood, plastic, rubber, copper wires, excavated soils etc. **Quantity:** It is difficult to give exact figures of construction waste produced on a typical construction site. However, in order to approximate the quantity, it is estimated that nearly 2 kg of waste would be generated each working day, which are mainly RCC foundation construction and poles installation wastes. Some plastic, paper and organic waste will be generated from the use of workers, though a very negligible amount- half a kilogram a day maximum. **Liquid waste**: Paint chemicals as paint thinners which contain Volatile Organic Compounds (VOCs) will come out as leftovers. Due to the small scale of construction, hence there is no need for labor shed. So, fecal sludge will not be generated from the labor camp during the construction period. Leftover oils or spills from machinery can be a high probability generating liquid waste.
Type and quantity of raw materials used (wood, bricks, cement, water, etc.): **Type:** i) Bricks, ii) Sand iii) cement iv) aggregates v) metals vi) water vii) concretes vii) Bamboo & wood from mobilized materials viii) clay are the most common type of building material used in construction. **Quantity**: It is difficult to give exact figures of construction waste produced on a typical construction site.
Approx. area (in square meters) of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards: Around 100 sq. feet area is needed for this project. No vegetation is present in the targeted footprint area. Specific soil amount is not needed for the sub-project component. The current condition explains that there is no aggregated soil on the right of way. On the other hand, vegetation was found around the proposed area. The vegetation will not be affected by construction work since scope of works is confined within planned area.
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) Low. No borrow pit or quarries will be required to dig out during the construction period in or around/ adjacent to the proposed area.
Disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description). No pre-existing water body or drainage is present
Destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) **Low.** The site is free from any aquatic ecosystems or habitats of endangered species. There are some terrestrial flora species around the project site, which will slightly be affected by the works. Life cycle or movement of some terrestrial living species (fauna) (i.e. Insects - ant, bees, earthworm, reptiles, birds etc.) might be disturbed for the time being, but with very less impact indeed. So, overall potential effect is very low or absent for this specific sub project.
Activities that can lead to landslides, slumps, slips and other mass movements in road cuts:

The soil in the proposed site is largely flat, so there is almost no chance to trigger the landslide or any type of mass movement of soil for the said construction works.
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with description) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: No traffic movement impact on light is anticipated, but low effects of noise and air pollution may appear resulting from the movement of vehicles carrying construction materials.

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

B.4: Operation Phase

Activities leading to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles: N/A
Chance of long-term or semi-permanent destruction of soils: (High/Medium/Low with description) There is no chance of activities during the operation period, which can lead to any long-term or semi-permanent destruction of soils.
Possibility of odor and water, soil quality impacts from SWM and FSM disposal system: (High/Medium/Low with description) N/A
Possibility of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors: (High/Medium/Low with explanation) There is no possibility for creating borrow-pits, quarries, etc. during the operation phase.
Likely direct and indirect impacts on economic development in the project areas by the sub-project: During the operation phase of the sub-project, there are likely to be both direct and indirect impacts on economic development in the project areas. Direct impacts refer to the immediate effects that result directly from the sub-project activities. For example, the establishment and operation of the Nano grid can create employment opportunities for the adjacent workforce. This can include job opportunities in the construction phase as well as maintenance and operation of the infrastructure. Indirect impacts, on the other hand, are the ripple effects that arise from the sub-project activities. Access to electricity provided by the Nano grid can enhance the quality and efficiency of various services such as healthcare, education, and communication. Healthcare facilities can operate more effectively with reliable power supply, ensuring better medical services for the community.
Extent of disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes): (High/Medium/Low with description) No existing drainage channels or surface water bodies found in the project area; therefore, no such effect can be anticipated
Extent of destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development: (High/Medium/Low with description) Low. There are no protected areas in or around project sites, and no known areas of ecological

interest which can be affected by the daily activity of this facility.
Activities leading to landslides, slumps, slips and other mass movements in road cuts: N/A
Erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains: (High/Medium/Low with explanation) N/A
Describe possible traffic movement impacts on (unwanted) light, noise and air pollution: N/A

High = Likely to cause long-term impacts or over large area (>1sqkm); Medium = Likely to cause temporary damage or over moderate area (0.5 to 1sqkm); Low = Likely to cause little, short-term damage and over small area (<0.5sqkm)

Appendix-04: Elephant Presence Map

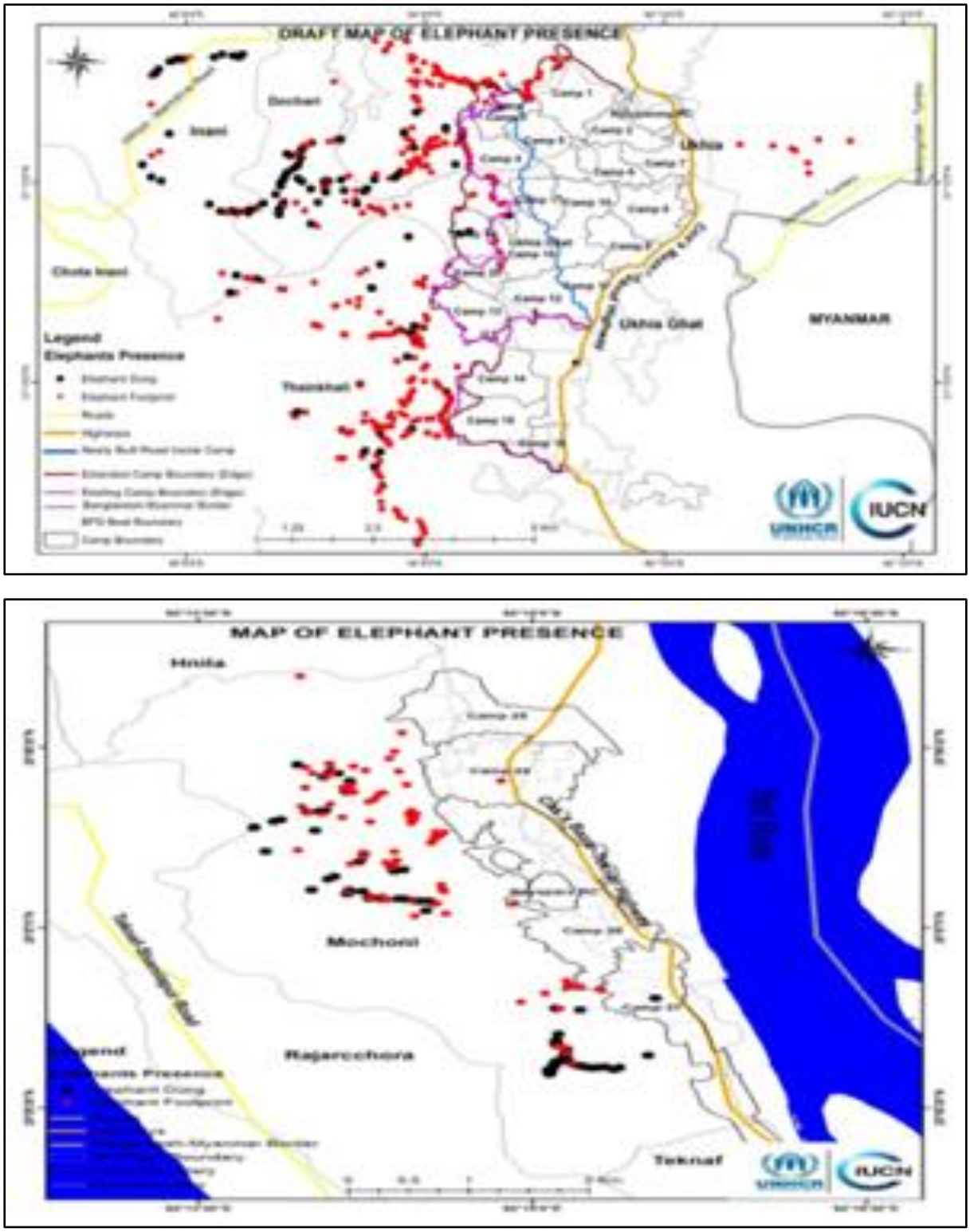


Figure: Elephant presence map (latest information published on 24 May 2018)

Appendix-05: Environmental Screening Summary for Supplying and Installation of Solar PV Nano grid

Section D: Environmental Screening Summary

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
1. Sub-project Interventions	**Construction/Installation** of Solar PV Nano Grids (degradation of air and soil quality, and local hydrology)	Under the sub-project intervention, the overall score is low	• Limiting earthworks; • Watering of dry exposed surfaces and stockpiles of aggregates at least twice daily, as necessary; • Requiring trucks delivering aggregates or bricks, poles, container and cement to have tarpaulin cover and Limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph. • The earthwork sites where exposed land surface is vulnerable to runoff shall be consolidated and/or covered. • The material stockpile sites shall be far away from surface water bodies and areas prone to surface run-off. Loose materials shall be bagged and covered. • Channels, earth bunds, netting, tarpaulin and or sand bag barriers shall be used on site to manage surface water runoff and minimize erosion. • All precautions to store chemicals/oil/fuel properly so that no chance of spill.	Contractor, environmental specialist of D&SC	Visual monitoring result of air quality condition, Results of water test parameters, blockage of water flow with soil, debris or stack materials at site.	Throughout the time during the construction period.

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			• Workers must specify waste dump locations to avoid littering which in turn might negatively affect surface and ground water.			
2.Pre-construction Phase	**Site planning** (i.e. construction of material storage area etc.)	Under the sub-project intervention, the overall score is low.	• The construction area is on a plain land. The entire construction area within the camp boundary needs to be well fenced so that children, people and others could be protected from any accidental events/injuries. • Construction camp and material storage area should be located at the site & approved by the Environmental Specialist of D&SC.	Contractor, environmental specialist of D&SC	Location of stockpiles	Prior to the start of Construction works.
	Transportation	Under the subproject intervention the overall score is **low.**	• Contractor should verify vehicles for the suitability of carrying, loading and unloading of materials.	Contractor, environmental specialist of D&SC	• Record of regular inspection. • Record of accidents/incidents	Monthly monitoring.
	Storage of construction materials	Under the subproject intervention, the overall score is **low**.	• Train concerned person and team assigned for the construction work to ensure items are stored properly and away from steep slopes.	Contractor, environmental specialist of D&SC	List of materials and sources of materials;	During Design Stage
3. Construction Phase	**Noise Impacts**	Under the sub-project intervention, the overall score is low.	• Avoid high noise making activities during active hours. One very effective method is to discuss with the CiC authority and settle for a time for heavy machinery usage.	Contractor, environmental specialist of D&SC	Number of complaints from stakeholders, Use of	Daily

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			• Involve the community in planning the work program so that any particularly noisy or otherwise invasive activities can be scheduled to avoid sensitive times. • Avoid using of construction equipment producing excessive noise at day working time & at night. • Ear protection devices for the workers & site staffs should be available in site during construction period.		silencers in noise producing equipment and sound barriers, Noise Level following decibel meter (dB)	
	Air pollution	Under the subproject intervention the overall score is **low.**	Water spraying for dust control; construction materials with potential for significant dust generation shall be covered; no smoke emitting equipment; and limiting speed of construction vehicles in access roads and work sites to maximum of 20 kph.	Contractor, environmental specialist of D&SC	Location of stockpiles; Number of complaints from stakeholders; Records of air quality inspection, if any.	Visual observation and monitoring of air quality during construction period.
	Workers health and safety	Under the sub-project intervention, the overall score is low.	• Prevent excessive noise; • Construction staff are to make use of the facilities provided for them • No fires permitted on site except if needed for the construction works; • Staff must be trained up for operating	Contractor, environmental specialist of D&SC	Numbers of complaints from sensitive receptors; Number of walkways	Monthly

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
			equipment, • Availability and access to first-aid equipment and medical supplies. • Appropriate PPEs along with safety and working instruments for working at height, carrying heavy loads, welding works, and such other hazardous works have to be kept at site and used appropriately under the guidance of supervisors. • Ensure the presence and use of safety gear at site: Ear protection devices, Goggles, Illuminating jackets, Masks, Gloves, Helmets, Uniforms etc., • Paint containing low VOC shall be used, and workers must use nose-mask during the painting works. • Ensure adequate portable supply of drinking water. • Mobile Sanitation facilities for male & female workers separately.		signage, and metal sheets placed at project location;	

Section	Main Environmental Impacts	Impact Significance*	Suggested Mitigation Measures	Person/ Institution Responsible	Monitoring Suggestions	
					Indicators	Frequency
4. **Post-Construction Phase**	Safety/Location signage	Under the issue the overall score is **low**.	• The contractor shall provide, erect and maintain informatory/safety signs written in local language, wherever required.	Construction Contractor.	Location signage and safety instruments at suitable locations and chainage.	Immediately after the construction work is over.
	Construction clean-up (Damage due to debris, spoils, wire, plastic, excess construction materials)	Under the sub-project intervention, the overall score is low.	• Remove all spoils wreckage, rubbish; wires, plastic etc. • All affected structures rehabilitated/compensated; • All imported materials are to be removed; • The contractor must arrange the cancellation of all temporary services;	Contractor	Worksite is restored to original conditions; worksite cleanup is satisfactory; camp has been restored to pre project conditions.	After the completion of Works
	Produced e-wastes management	Under the sub-project intervention, the overall score is medium.	• Contracting with vendors/suppliers to take back all the wastes (non-functioning products, equipment, batteries, spare-parts, etc.) on its own cost and will manage those in cooperation with the manufacturing company which it is representing for.	PIU	Defunct products and removal of those	Throughout the O&M period

* Overall Impact Score: High = Likely to cause long-term E&S impacts; Medium = Likely to cause temporary impacts; Low = Likely to cause little, short-term impacts

**Post-construction phase denotes the time period contractor use to clear and clean up the sites after the construction work is ended, perform tree plantation, grass turfing, and minor rectification till the official handing over the site to LGED, or owner of the site.

Recommendation for further environmental and social assessment and/or site specific environmental and social management plan: Yes

**If yes, please specify what assessments/plans would be required.* Mention some recommendation on E&S assessment …. ESMP

If site specific environmental and social management plan (ESMP) is followed the impacts can be mitigated and monitored. ESMP is attached.

Appendix-06: Environmental and Social Management Plan (ESMP) of this Sub project (site specific)

ESMP for Supplying and Installation of 35 Solar PV Nano grid (LGED/EMCRP/AF/G-18)

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Pre-Construction Stage	Loss of land / and other physical assets	• No land acquisition is allowed inside the camp so, there is no mitigation measures for this impact.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of livelihood	• Under this subproject, there is no scope of negative impact on livelihoods of the people of catchment area.	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Stakeholders Engagement	• All the project stakeholders will be consulted • Consultation meeting with nearby residents about the project objectives and scope of works • People living in nearby community will be involved with the GRM • All the stakeholders will be informed about the GRM	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Loss of right to access	• In case of unavoidable circumstances, alternative access will be provided. • Access road shall be well demarcated and accessibly paved.	PIU	Social Development Specialist and Gender Specialist of PIU, PSC
Pre-Construction Stage	Site Selection & implementing	• Selection of sub-project sites and all implementing interventions must take place outside of the elephant	PIU	Environmental Consultant of PIU,

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
	interventions: Human-elephant conflict	corridor/influence area.		PSC
Pre-Construction Stage	Site Preparation: Soil Erosion; Alteration of natural drainage	• Selected site will be far away from any water bodies or natural flow path to avoid the flash flood or any kind or surface runoff. • Minimize cut & fill operations, the site clearing and grubbing operations should be limited to specific locations only. • The existing slope and natural drainage pattern on the site should not be significantly altered. • The contractor shall ensure that site preparation activities do not lead to disruption of activities of the local residents.	PIU & Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Noise from construction works	• Construction activities will be finished at day time within 05 PM. Proper measures will be taken to avoid any disturbances. • All Personal Protective Equipment (PPE) will be available in site before starting any kind of construction works. • Workers working in the noisy environment must use earplug while working.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Dust	• Construction machinery shall be properly maintained to minimize exhaust emissions of CO, particulate matter (SPM, PM2.5, PM 10) and Hydrocarbons. • Provision of using water sprinklers to dust control. • Construction materials should be covered properly while carrying in vehicles to the site. • Vehicle movement will be controlled on haul roads/access	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		roads for limiting dust generation.		
Construction Activity	Safety Issues	• Unauthorized entry to the site area is completely prohibited and the site will be properly fenced with a single entry, for this purpose. • It will be ensured that proper training and guidance are provided on general and occupational health and safety to Contractors' personnel and labors forces, and records of training sessions are to be kept on site. • Appropriate PPEs along with safety and working instruments for working at height, carrying heavy loads, welding works, and such other hazardous works have to be kept at site and used appropriately under the guidance of supervisors. • All kinds of Child labor will be completely prohibited.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Traffic Management	• Contractors will discuss with traffic management authorities and take site-specific traffic management measures to avoid traffic jam and any unwanted incidents or accidents. • Maintain safety measures during the movement and operation of heavy machineries and equipment. • Adjacent community will be informed about traffic management and awareness.	Contractor	Environmental Consultant of PIU, PSC
Construction Activity	Conflicts with existing users due to the scarcity of resource base.	• 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. • If ground water is withdrawn, adequate approvals from the appropriate department need to be undertaken before	PIU & Contractor	Social Development Specialist and Gender Specialist of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		setting up bore wells. • Camp in Charge must be consulted before any construction work starts.		
Construction Activity	Conflicts with the local residents	• Awareness building session will be undertaken about prevention of child abuse, child marriage, GBV, sexual harassment, trafficking of women and children as well as illegal drug trade. Written records of this awareness building session shall be kept on site. • Work force should be prohibited from disturbing the flora, fauna including hunting of animals, wildlife hunting, poaching and tree felling. • Treated water will be made available at site for drinking purpose. • Labor code of conduct is to be disclosed through consultation.	Contractor	Social Development Specialist and Gender Specialist of PIU, PSC
Construction Activity	Waste Management: Improper management and handling of hazardous and non-hazardous waste during construction.	Preparation of a waste management plan covering the following aspects: • Working areas are kept clean and tidy at all times. • The waste from equipment maintenance or vehicles on-site is managed responsibly. • Construction site is to be checked for spills of substances i.e., chemical, oil, paint, wire, debris, etc. • Bins and/ or skips should be emptied regularly and waste/ debris should be disposed of at waste disposal areas and/ or at the site. • Hazardous waste viz. waste oil etc. will be collected and stored in the paved and bounded area and subsequently sold to authorized recyclers.	Contractor	Environmental Consultant of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		• The Hazardous Waste Management Rules are applicable and followed.		
Construction Activity	Health & Safety Risks: • The 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. • 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.	• All construction equipment will be properly inspected timely. • The risk assessment will be prepared time to time for all types of work activities on site. • Proper walkways will be prepared for adjacent people in existing boundary. • Proper Signpost at any slippery areas will be ensured in construction site. • Fire extinguishers will be located at identified fire points around the site. The extinguishers must be appropriate to the nature of the potential fire. • Electrical equipment will be ensured to be safe and properly maintained, and works will not be carried out on live systems. • Maintenance on electrical equipment will be carried out only by competent authorized persons. Adequate Personal Protective Equipment (PPE) for electrical works will be provided to all personnel involved in the tasks. • Provision to first aid box in sub-project areas will be ensured. • Proper Emergency evacuation response plan will exist in sub-project area. • All safety equipment will be available in sub-project site (safety, size, power, efficiency, ergonomics, cost, user	PIU & Contractor	Environmental Consultant as well as Social Development and Gender Specialists of PIU, PSC

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
		acceptability etc.), the lowest vibration tools will be provided that are suitable and can do the works. • Awareness training will be given to all personnel involved during the construction phase in order to highlight/make aware of the heat related illnesses of working in hot conditions such as heat cramps, heat exhaustion, heat stroke, and dehydration. • Adequate quantities of drinking water will be available at all Sites, on different locations within the site. • Provision to maintain proper PPE wherever necessary and to ensure that there are satisfactory washing and changing facilities. • Paint containing low VOC shall be used, and workers must use nose-mask during the painting works. • Provision to ensure all workers exposed to a risk are aware of the possible dangers and also given thorough training on how to protect themselves and there should be effective supervision to ensure that the correct methods are being used.		
Decommissioning during the project implementation period (including site clearance after the construction)	The impacts are similar to those listed in construction stage: • Pollution from waste materials Health & Safety risks to workers and local community/DRPs	• Provision to proper measure of mitigation and monitoring to minimize or reduce the environmental and social impacts during decommissioning are anticipated to be similar to those identified for the construction phase.	Contractor	Environmental Consultant of PIU/D&SC, XEN, Cox's Bazar, PSC.
Operation &	Noise disturbances to	• Provision to maintain noise from the operation and	Representative	Environmental

Project Stage	Potential Environmental & Social Impacts/Issues	Proposed Mitigation Measures	Institutional Responsibilities	Supervision Responsibility
Maintenance	fauna	maintenance of machinery and equipment by proper monitoring and measures. • Provision to take necessary lighting, caution for the works and necessary maintenance should be done in day light.	from CiC	Consultant of PIU, PSC

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