

# Environmental and Social Code of Practice for Solar Home Systems

## 1. General

### 1.1. Purpose of the Environmental and Social Code of Practice

This Environmental and Social Code of Practice provides guidelines to follow when preparing and installing Solar Home Systems (SHS) under the National Electrification Project of the Union of Myanmar. These guidelines are intended to avoid environmental and social problems whenever possible or to mitigate those problems if they cannot be avoided.

### 1.2. Compliance to Legal Requirements

The bid document shall include all applicable clearances pertaining to environmental management and shall contain the necessary procedures for compliance of the same.

### 1.3. Consultation and Disclosure

1.3.1. The contractor and/or responsible authority (such as the DRD township engineer) should consult with and provide adequate and timely information to people affected by the project, including men and women.

1.3.2. Affected people include people benefiting from the project as well as people adversely affected by any project activities.

### 1.4. Language

1.4.1. Communication should be in languages clearly and easily understood by the affected people..

1.4.2. If the contractor and / or responsible authority cannot communicate in any of those languages, a translator must be engaged to provide the oral or written information as needed.

### 1.5. Working in / Visiting the Communities

The communities will be visited several times during preparation, installation, monitoring and maintenance. To avoid possible social conflicts or difficulties for the residents, the following should be practiced:

#### 1.5.1. Informing Community of Work Schedule

1.5.1.1. The VEC members or other village leaders should be informed of the expected number of visits under the project, and for what purposes, to allow them to be adequately prepared for those visits.

1.5.1.2. For each visit or work activity, the VEC focal persons or other village focal person should be informed sufficiently in advance, to allow them to inform other members of the community.

1.5.1.3. If there is any change in the schedule of a visit or work activity, the VEC focal persons or other village focal person should be informed sufficiently in advance.

#### 1.5.2. Payments to Communities for Food and Other Goods and Services

- 1.5.2.1. With several teams visiting the communities, providing meals to these teams on these numerous occasions can cause undue financial stress to the communities. To avoid this, food should be brought in by those visiting the community or if the community provides the food or meals, these should be paid for at replacement cost.
- 1.5.2.2. Other goods and services (including accommodation) provided by the communities at the request of the teams surveying, installing, or conducting follow-up for the NEP project should be paid for at market cost.
- 1.5.2.3. The contractor must not either directly or indirectly exploit local community in any other way to prevent unnecessary social issues.
- 1.5.2.4. The contractor must completely disburse the necessary payment (eg: land issues, labour hiring cost and etc.) to community in project implementation in case the contractor has to pay some cost to the community.

## **2. Preparation and Planning**

### **2.1. Site Selection for Public Lighting**

- 2.1.1. VEC members and other village representatives, including men and women, should be consulted on the selection of sites for the public streetlights.
- 2.1.2. The contractor should assure that the streetlights are distributed equitably through the community, including any neighbourhoods of ethnic or religious minorities or of poor households.
- 2.1.3. Public lighting should be provided for all religious buildings in a community (temples, churches and mosques)
- 2.1.4. Public lighting should be provided for all educational and health centres.

### **2.2. Storage Site for Equipment and Materials**

- 2.2.1. Materials and equipment brought to the community before installation should be stored at a site selected in consultation with the VEC members and village leaders.
- 2.2.2. Preferably, the site should be on public or community land. If on private land or on public lands being used by any persons, the contractor should obtain written permission from the land owner / land user for its use as a voluntary temporary donation (using the attached form for voluntary land donations) or if not granted voluntarily, provide the land owner / land user compensation for the temporary use of the land.
- 2.2.3. The storage site(s) should be free of risk from erosion or runoff into any waterways.
- 2.2.4. Upon completing installation in the community, the storage site should be cleared and restored to its original condition, and all waste removed (according to the procedures presented in Section 7 on Waste Management below).

## **3. Installation in Households**

### **3.1. Removal of Trees**

- 3.1.1. If any tree needs to be removed for the installation of the SHS, member(s) of the household should be consulted to assure the tree is not of value to the household.
- 3.1.2. If the tree is of value to the household and they do not want it removed, alternative sites for the solar panel should be suggested for the household member(s) to select.

- 3.1.3.If an alternative site for the solar panel is not possible, the contractor should explain why the tree needs to be cut down and obtain permission from the household member(s)
- 3.1.4.If the contractor cannot communicate directly and easily in a language understood by the household member(s), a translator should be engaged by the contractor.

### **3.2. Wiring**

- 3.2.1. The position of the light points (bulbs) should be decided by the contractor only after detailed discussion with both men and women of the house; and the house wiring should be done accordingly. There must be a light point in the kitchen or cooking area and in the area where children read or study.
- 3.2.2.All wiring of the SHS must be done by the contractor only, to assure the wiring is adequately safe. Wiring by the household or by a third party is not permitted.
- 3.2.3.If the household already has wiring, the contractor should replace it with the wiring and materials provided under the SHS.

### **3.3. Location of Battery and Other Equipment**

- 3.3.1.The battery should be placed within a locked box and in a safe location out of reach and inaccessible to young children.
- 3.3.2.If Lithium-ion batteries are used, to avoid improper use and thermal runaway, the battery cells and charge controller should be encased in one common housing that cannot be opened with commonly available tools such as screwdrivers. The housing should clearly indicate the type of battery enclosed.
- 3.3.3.Warning signs must be visible on the housing, in English and the local language(s), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion.
- 3.3.4.Other equipment of the SHS should be placed in safe locations out of reach and inaccessible to young children.

### **3.4. Training Household Members in Use of SHS**

- 3.4.1.After installing the SHS, the contractor must provide training to household members on the proper use and care of the system, and on safety measures.
- 3.4.2.The training must include adequate warnings of the risks of tampering with the SHS, including electric shock, fire, and explosion.
- 3.4.3.At least one adult male and one adult female in the household should be trained.
- 3.4.4.This should be done as group training on the operation and maintenance of SHS after work in a village or group of villages is completed. VEC members and the Township DRD representative should be present.

### **3.5. Instructions Booklet and Safety Poster**

- 3.5.1.The contractor must place a safety poster close to the battery for each SHS
- 3.5.2.The contractor must provide an instructions booklet in the local language for each SHS
- 3.5.3.Extra copies of the instruction booklet and safety poster should be provided to the VEC, as replacements for any lost or damaged booklets or posters

## **4. Installation of Public Systems**

#### **4.1. Removal of Trees**

- 4.1.1.If any tree needs to be removed for the installation of the public solar system, staff of the public institution, VEC members or other village leaders should be consulted to assure no valuable trees are removed.
- 4.1.2.If the tree is of value to the community and they do not want it removed, alternative sites for the solar panel should be suggested for the community to select.

#### **4.2. Wiring**

- 4.2.1. The decision for position of the battery box and rooms to wire lies with the public facility authorities, but the contractor has to evaluate the suggested position according to the safety of the equipment, the safety of people, and the location of the solar PV array, which should normally be installed facing south and not be shaded.
- 4.2.2.All wiring must be done by the contractor only, to assure the wiring is adequately safe. Wiring by members of the community or a third party is not permitted.
- 4.2.3.If the site already has wiring, the contractor should replace it with the wiring and materials provided under the SHS program.

#### **4.3. Location of Battery**

- 4.3.1.The battery should be placed in a safe location that is out of reach and inaccessible to young children.
- 4.3.2.If Lithium-ion batteries are used, to avoid improper use and thermal runaway, the battery cells and charge controller should be encased in one common housing that cannot be opened with commonly available tools such as screwdrivers. The housing should clearly indicate the type of battery enclosed.
- 4.3.3.Warning signs must be visible on the housing, in English and the local language(s), to prevent any tampering or attempts to alter the system, clearly stating the risks of electric shock, fire, and explosion.
- 4.3.4.Other equipment of the public system should be placed in safe locations out of reach and inaccessible to young children.

#### **4.4. Training Community Members in Use of the Public Systems**

- 4.4.1.After installing the public system, the contractor must provide training to staff at the public institution, VEC members or other village leaders on the proper use and care of the system.
- 4.4.2.The training must include adequate warnings of the risks of tampering with the SHS, including electric shock, fire, and explosion.
- 4.4.3.There should be an advance level technical training to the operation and maintenance staff of public facilities and VEC for the future technical support.

#### **4.5. Instructions Booklet and Safety Poster**

- 4.5.1.The contractor must place a safety poster close to the battery for each of the public systems.
- 4.5.2.The contractor must provide an operation manual and maintenance manual in the local language for each of the public systems.

## **5. Occupational Health and Safety**

### **5.1. Personal Protective Equipment**

- 5.1.1. Workers must use personal protective equipment (PPE) and protective clothing
- 5.1.2. People not involved with installation, including members of the households, should be kept safely away from the worksites.

### **5.2. Working at height**

- 5.2.1. If working at heights, sufficient protection against falls must be in place.
- 5.2.2. Equipment used to work at heights including safety belts and straps must be tested for integrity before use.

## **6. Public Health and Safety**

- 6.1. Workers will endeavour to keep dust and other potential hazards to a minimum.

### **6.2. Workers' Code of Conduct**

- 6.2.1. Workers must be provided with and given training on a code of conduct, to prevent adverse impacts to the environment and local community and to avoid undesirable contact with members of the community.
- 6.2.2. The code of conduct should be provided in writing to all workers.
- 6.2.3. The code should include, but not be limited to:
  - instructions on waste disposal and hygiene
  - not using illegal drugs
  - prohibition on theft of personal or community property
  - not causing damage to personal or community property
  - prohibition on hunting, fishing, or other activities causing harm to the natural environment
  - restrictions on drinking or gambling with members of the community
  - not making any unwanted verbal or sexual advances to those in the community
  - not exploiting local residents in any other way (such as demanding free transport)
  - awareness of religious practices or social customs of the community if different from that of the workers
  - prohibition on making any interactions with minors in the local communities, glorification of violence, incitement of hate against minority groups of society such as ethnic, national or religious minorities, or any segments of society

## **7. Waste Management**

- 7.1. The contractor shall identify activities during construction that have the potential to generate waste, and prepare measures to manage and dispose of waste in the construction schedule, including management of materials that can be recycled and management of hazardous waste.

- 7.2. The measures must abide by the laws and regulations concerning waste management of the Government of Myanmar and of the Ministry of Natural Resources and Environmental Conservation.
- 7.3. The waste management measures adopted by the contractor will be reviewed by the PMO of the DRD.
- 7.4. The contractor shall educate the workforce on the proper disposal of waste, the location of disposal sites, and other requirements and measure in waste disposal.
- 7.5. After installation of SHS in the communities, the contractor shall clear all storage and construction sites of debris and waste

## **8. Post-Installation**

### **8.1. Repairs and Maintenance**

- 8.1.1. The contractor shall follow all relevant environmental measures above when carrying out any maintenance or repair work for the SHS during the guarantee period.
- 8.1.2. The contractor shall dispose of any defective or used batteries according to the measures for battery disposal and recycling set by the DRD
- 8.1.3. The contractor shall dispose of any defective solar panels or other equipment according to measures set by the DRD.