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INDIA: GRID-CONNECTED ROOFTOP SOLAR PROGRAM

ENVIRONMENT AND SOCIAL SYSTEMS ASSESSMENT

FINAL

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Energy and Extractives Global Practice
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The World Bank

Environment and Social Systems Assessment
India: Grid-Connected Rooftop Solar Program

ABBREVIATIONS AND ACRONYMS

AC	Alternating Current
ADB	Asian Development Bank
BR	Business Responsibility
CAG	Corporate Accounts Group
CAPEX	Capital expenditure
CEA	Central Electricity Authority
CFA	Central Financial Assistance
CFE	Consent for Establishing
CFO	Consent for Operation
CGM	Chief General Manager
CPCB	Central Pollution Control Board
CAPIO	Central Association of Public Information Officers
CPIO	Central Public Information Officer
CPPD	Credit Policy & Procedures Department
CPS	Country Partnership Strategy
CTF	Clean Technology Fund
DC	Direct Current
DG	Diesel Generator
DLC	District Level Committee
DoE	Department of Environment
EAC	Expert Appraisal Committee
EIA	Environmental Impact Assessment
EHS	Environmental Health Safety
EHSG	Environmental, Health and Safety Guidelines
FAR	Floor Area Ratio
FY	Financial Year
GHG	Green House Gas
GoI	Government of India
GRM	Grievance Redressal Mechanism
GRPV	Grid-connected Rooftop Solar Photovoltaic
GRSSPP	Grid-connected Rooftop and Small Solar Power Plant
GW	Gigawatts
IBRD	International Bank for Reconstruction and Development
IE	Independent Engineer
IFC	International Finance Corporation
IGNP	Indira Gandhi Nahar Project
IREDA	Indian Renewable Energy Development Agency
IPF	Investment Project Financing
JNNSM	Jawaharlal Nehru National Solar Mission
kWp	Kilowatt peak
LIE	Lender's Independent Engineer
MCG	Mid-Corporate Group
MNRE	Ministry of New and Renewable Energy
MoEF	Ministry of Environment & Forests
MoU	Memorandum of Understanding
MPPT	Maximum Power Point Tracking
MW	Megawatts
NBG	National Banking Group
NDC	Nationally Determined Contribution
NoC	No Objection Certificate
OM	Operations Manual
O&M	Operate and Maintenance
OP	Operations Policy
PDO	Program Development Objective
PEO	Program Environment Objective
PCB	Pollution Control Board
PFSBU	Project Finance Strategic Business Unit
PforR	Program-for-Results
PNB	Punjab National Bank
POM	Program Operations Manual
PPA	Power Purchase Agreement
PV	Photovoltaic
PWM	Pulse Width Modulated
RE	Renewable Energy
RESCO	Renewable Energy Service Company
RREC	Rajasthan Renewable Electricity Corporation
SBI	State Bank of India
SEAC	State Expert Appraisal Committee
SEIAA	State Environment Impact Assessment Authority
SOPs	Standard Operating Procedures
SPCB	State Pollution Control Board
SPV	Solar Photo Voltaic
ST	Scheduled Tribes
TA	Technical Assistance
ULBs	Urban Local Bodies
WB	World Bank

Environment and Social Systems Assessment
India: Grid-Connected Rooftop Solar Program

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SECTION 1 -- PROGRAM DESCRIPTION

1.1 Context

1. Over the last decade, India's economy expanded at an average annual rate of 7.6 percent, placing it among the top five fastest growing nations in the world. The demand for power is expected to rise to support the growing economy. With about 275 GW of installed capacity (as of November, 2015), the Indian power system is among the largest in the world, but per capita consumption of electricity is less than one-fourth of the world average. An estimated 300 million people are not connected to the national electrical grid. Even when connected, many face frequent disruptions. Power shortages in 2015 were equivalent to about 3.6 percent of total energy and 4.7 percent of peak capacity requirements.

2. The Government of India (GoI) wants a growing share of the country's electricity generation to come from renewable energy**.** In its Nationally Determined Contribution (NDC), approved by the Union Cabinet, India announced at the Conference of Parties (COP) 21 in Paris that it aims to increase to 40 percent the share of installed electric power capacity from non-fossil-fuel-based energy resources by the year 2030. This includes plans to quadruple the country's (non-hydropower) renewable energy capacity to 175 GW by the year 2022, which will require up to $170 billion in investments in generation, as well as substantial complementary investments in strengthening the transmission network to absorb this variable power. This push in renewable energy also underpins GoI's ambitious goal of providing uninterrupted power for all homes, industrial and commercial establishments through its *24x7 Power for All program*.

1.2 Program Description

3. In mid-2015, GoI announced the Grid-connected Rooftop and Small Solar Power (GRSSPP) program to support the achievement of GoI's Grid-connected Rooftop Solar Photovoltaic (GRPV) targets. Under the umbrella of the Jawaharlal Nehru National Solar Mission (JNNSM), the Ministry of New and Renewable Energy (MNRE) is coordinating the GRSSPP to facilitate the installation of 40,000MW of GRPV in the country by the year 2022. This target will require investments of more than $40 billion. MNRE hopes to achieve this through action on multiple fronts: provision of subsidies,[1] creation of debt funds, development of business models, and creation of enabling environment for private investment at the state level, and raising consumer awareness.

4. MNRE is partnering with financial institutions to increase the amount of debt financing available for GRPV in the country. It has asked three financial institutions – State Bank of India (SBI), Indian Renewable Energy Development Agency (IREDA) and Punjab National Bank (PNB) - to set up debt funds for GRPV customers with the assistance of World Bank, KfW and ADB, respectively. These three funds will together provide $1.5 billion of

[1] The amount allocated for Central Financial Assistance (CFA) support to GRSSPP was raised from $90 million to $770 million in mid-January, 2016. The CFA will be provided to residential and institutional customers of GRPV and will cover 70 percent of the cost of GRPV systems in special category states and up to 30 percent of the cost in the remaining states of GRPV system.

financing to GRPV customers while also helping mobilize another $600 million in private and public financing, and central and state subsidies for GRPV. These funds will kick start the debt market for GRPV in the country by piloting new business models, establishing a performance track record for GRPV and helping achieve economies of scale and reduce the costs of GRPV. The loan facility funded by KfW at IREDA was launched in late year 2015 while the facility to be funded by ADB at PNB is currently under preparation. Since these debt funds have either just been launched or are still under preparation, there is currently little or no data on implementation and results.

5. The GoI program is applicable to all states of India. It focuses on promoting GRPV to meet and supplement electricity requirements. The government program supports the installation of rooftop solar photovoltaic power generation plant for self-consumption as well as supply to the grid. Both program and project modes of implementation are eligible, with the former limited to systems of less than 50 Kilowatt (kWp). Monitoring and evaluation of the government program is envisaged through a combination of data from system providers, field inspection reports, and impact assessment reports.

6. The PDO is to increase installed capacity of GRPV and strengthen the capacity of relevant institutions for GRPV. The Program Environmental Objective (PEO) is to achieve reductions in GHG emissions through the displacement of thermal energy with solar energy.

7. The proposed Program will support the implementation of MNRE's GRSSPP program, with a focus on mobilizing private sector equity investments and commercial lending, increasing deployment and uptake of GRPV through a variety of business models, and thereby contributing to the achievement of GoI's GRPV installation targets. The PforR (Program for Results) Program will finance activities in three results areas on a countrywide eligibility basis, as outlined in SBI's Program Operations Manual (POM):[2]

    (i) strengthening institutional capacity for GRPV;
    (ii) market development of GRPV; and
    (iii) expanding GRPV generation.

8. Essentially two types of grid-connected rooftop systems will be financed under the Program, as detailed below:

    i. Grid-tied, wherein systems are primarily designed to supply the generated power to both the grid and the connected load (consumer). These systems will not generate power during a power failure as the inverter shuts down the system to stop sending power into the grid and avoids the risk of electrocuting utility personnel who are working to repair the grid (i.e. "islanding protection").

    ii. Grid-interactive system works in conjunction with either a battery backup or diesel generator to support the load even during a power failure.

[2] The POM is being finalized by SBI and the first draft is expected mid-June, 2016. Its completion, satisfactory to the World Bank, is a condition for disbursement.

9. Primary components of a Rooftop Photo Voltaic (SPV) power plant are as follows:

- **Solar PV panels** (also known as solar PV modules or SPV array) use semiconductor material to convert solar energy directly into electrical energy.
- **Inverter:** The electricity generated by the PV panels is Direct Current (DC). This needs to be converted into Alternating Current (AC) using an Inverter which determines the quality of AC power fed into the system, and also the kind of loads that can be powered with solar energy – different inverters support different levels of starting current requirements which affects the kind of machinery that can run on solar power. An inverter has a typical life of 5-10 years and has to be replaced during the lifetime of the plant.
- **Module Mounting Structures:** The solar PV panels are mounted on the rooftop using special Module Mounting Structures that are iron fixtures which can withstand wind and the weight of the panels. The proper design of mounting structures is important to power plant performance as the power output from the PV plant will not be maximized if the mountings buckle and the panels are not optimally oriented towards the sun.
- **Tracker:** Tracking is a way of mounting the panels through a mechanism that allows the panels to follow the sun as it moves across the sky. Single-axis trackers follow the sun as it moves from East to West during the day, while dual-axis trackers also follow the sun on its North-South journey over the course of a year.
- **Battery**: If solar power is required when there is not enough sunlight for the panels to generate electricity (such as at night), a battery backup is required.
- **A charge controller** is required to regulate the charging of batteries and provides optimum charging current, and protects the batteries from overcharging. There are two kinds of charge controllers: i) Pulse Width Modulated (PWM); and ii) Maximum Power Point Tracking (MPPT).

  Other components include the interconnect cables, junction box, switches, fuses, etc.

1.3 Scope of the Program

10. The program will finance applicable Grid-connected/interactive Solar PV projects located on Rooftops (commercial, industrial and institutional buildings – both public and private) across India. The focus will be on installing GRPV systems for aggregate generation capacity of at least 400MW including optional batteries for power storage in accordance with the technical standards issued by MNRE and/or CEA, as applicable. For Capital Expenditure (CAPEX) and Renewable Energy Service Company (RESCO) models funded through the sub-project mode, GRPV power generation plants with a minimum capacity of 100kWp per sub-project or system will be eligible under the Program. For the RESCO model funded through the program mode, the aggregate capacity will have to be at least 1MW. The program encourages installation of rooftop solar photovoltaic power generation plant for self-consumption as well as supply/sale of electricity to the grid. The program may also include lending to Non-Banking Finance Companies for further on-lending for GRPV. The program will also cover installation on the vacant land along with rooftop installation on the same

premises. The developer will only select land parcels for installation that are free of all encroachment and other encumbrances.

11. The Program implementation duration shall be 5 years.

1.4 Need for Environmental and Social Systems Assessment

12. The Program for Results instrument - PforR requires technical, fiduciary, environment and social assessments to be carried out as required under Operational Policy (OP 9.00) - *Program for Results Financing.* An initial environmental and social screening indicated that the proposed Program is expected to lead to a reduction in negative externalities associated with local pollution and Green House Gas (GHG) emissions and have mainly positive environmental impacts. The safety of GRPV installers is a potential concern but this can be mitigated by stipulating conditions on the Sub-Borrowers under the program to ensure that the installer has basic knowledge about the safety standards. Additionally, stability of the structure wherein the plant is installed could have potential adverse impacts. Therefore, based on this assessment, the Program was categorized as Category B and C investments. Hence as required under the OP, in order to assess the adequacy of the environment and social systems during Program preparation, an Environmental and Social Systems Assessment (ESSA) was conducted for the Program to be implemented by SBI.

13. The purpose of the Environmental and Social Systems Assessment (ESSA) is to: (i) review the environmental and social management rules and procedures and institutional responsibilities that are being used by the Program; (ii) assess the implementing agency (SBI's) institutional capacity and performance to date to manage potential adverse environmental and social issues under the Program; and (iii) recommend specific actions for improving the capacity of the SBI in regard to effective management of environmental, health and safety and social issues during implementation.

1.5 Key Program Implementation Entities

14. **Government.** As the lead ministry responsible for GoI solar power targets and the GRSSPP program, MNRE will provide overall policy guidance. MNRE will also play a lead role in coordinating development partners (including coordinating with parallel GRPV programs supported by KfW and ADB) and in ensuring that the lessons from this Program are internalized in other government supported initiatives.

15. **State Bank of India.** SBI will be the borrower and implementing agency for the PforR component of this operation. Under this operation, SBI will lend to GRPV customers, developers, aggregators, and intermediaries that are qualified in terms of technical capacity, relevant experience, and creditworthiness, according to SBI's standards. This access to capital will allow qualified private sector developers and aggregators to buy the required equipment, acquire customers, and push for large-scale deployment of GRPV systems among customers using different business models. SBI will be responsible for identifying, appraising, and financing eligible investments that meet the criteria set out in the POM. The POM will outline detailed eligibility criteria, technical performance requirements, and

appraisal guidelines. The POM is being prepared by SBI; and POM, which is satisfactory to the Bank for purposes of carrying out the Program, will be used during Program implementation.

16. SBI will coordinate the implementation of the Technical Assistance (TA) with the help of a Project Management Consultant firm. SBI will be responsible for appointment of Project Management Consultant and will make payment to all the TA providers as per the instruction of the MNRE-led Steering Committee.

17. SBI is India's oldest and largest financial services company. It has more than 16,000 branches in the country, 194 foreign offices in 36 countries, and an active customer base of 270 million. While the bank is majority-owned by the GoI, SBI shares are traded on the Bombay Stock Exchange and National Stock Exchange of India. Its Global Depository Receipts are listed on the London Stock Exchange. SBI's size and reach makes it an ideal partner to roll out MNRE's GRSSPP program. SBI is interested in participating in the Program because it is an entry-point into an area with significant growth potential. SBI has assured MNRE that, if this Program is successful, it will continue its implementation on a nation-wide basis using its own resources. The Program will be implemented through SBI's branch network, including its Corporate Accounts Group, Mid-Corporate Group, and National Banking Group branches.

1.6 ESSA Approach

18. The ESSA is a World Bank document requirement for PforR operations. It is prepared by the Bank staff with consultant support as necessary through a combination of reviews of existing program materials and available technical literature, and SBI staff, and consultations with key stakeholders and experts. The findings, conclusions, and opinions expressed in the ESSA document are those of the Bank. Recommendations contained in the analysis have been discussed and finalized with the SBI officials.

19. The methodology for preparation of the ESSA involved the following:

(i) a review of the systems proposed in the draft POM prepared by SBI to address potential environment and social issues including its review against the six core principles outlined in the Bank Policy or Program for Results financing;
(ii) a desk review of the laws, regulations, requirements, and guidelines on the Environment Health Safety (EHS) and social management;
(iii) interactions with private aggregators who were involved in the business of setting up rooftop Solar PV systems;
(iv) based on any identified gaps, a Program Action Plan was devised;
(v) discussions held with SBI for their responses on suggested Program Actions and to finalize the draft ESSA; and
(vi) disclosure of the draft ESSA to a set of stakeholder for their inputs, followed by finalization of the ESSA report.

SECTION 2 -- STAKEHOLDER CONSULTATIONS

2.1 Stakeholder Consultations

20. Stakeholder Consultations were carried out with GRPV developers and aggregators, including through a large meeting that was dedicated to discussing safeguards issues at the World Bank office. The objective of the interactions was to seek feedback on the constraints or challenges faced by developers and aggregators in their work, and to learn about their approach to management of environment and social issues. Findings from the interactions are summarized below:

i. Tata Capital.

21. Tata Capital has financed three rooftop projects. Key discussions points were as follows:
    - Siting: Tata Capital has been involved with company premises and has done installations involving part rooftop, part vacant land. Siting is on structures and open spaces, including on top of parking spaces; garden rooftop, etc. Sometimes siting solar PV on such open land or parking space risks litigation.
    - Appraisal of proposals: The HR policy of the developer is reviewed, particularly with a view to strengthening areas of weakness with appropriate guidance. Documents submitted for appraisal are checked and an adequate timeline is provided to address gaps, if any. Safety norms including structural stability of buildings is assessed. Basic knowledge of workers is ensured through in-house training. Selection of vendors is based on a Vendor Identification policy.
    - Approach to E&S issues: In order to address environment and social issues, Tata capital has an Environment and Social risk assessment model based on IFC Performance Standards. Access to the rooftop will be assured either with a no-objection certificate (NoC) from the rooftop owner, or a lease agreement giving the developer rights to the roof. The relevant document will be included in the Power Purchase Agreement (PPA). Water availability for panels is another consideration, as approximately 0.5 litres of water per panel per month is required. So, making water available on the roof is also part of the PPA. Construction of a concrete base or pedestal is required to clamp down the PV panels and drilling is not normally undertaken on the roof. Panel installation arrangements are agreed upon with building owner. Handling of disposed or discarded panels is between the supplier and developer on a take-back policy, if one is in place.

ii. Solar Town

22. Factors considered during planning/design: As each roof is different in terms of its orientation, materials and make, life-expectancy and surrounding structures, a study is undertaken during the site surveys to identify design level changes that need incorporation. For example:
    - It is generally recommend to customers to change the roofing to metal roofing;
    - Mounting on shingles or mounting on reinforced concrete is recommended in order to avoid penetration of the roof surface as this can lead to future leakages, customized solutions are designed accordingly;

- Anodized aluminum or increasing the galvanization thickness is recommended on rooftops closer to coastal areas and beaches, due to increased risk of corrosion due to salt in the air, and
- protection devices (earthing + lightning arrestors) are incorporated in the design stage.

23. In addition, during the procurement stage Solar Town consciously seeks to identify vendor partners who are environmentally conscious.

24. **Challenges faced:** At this stage, Solar Town is doing a lot of sub-contracting for solar rooftop installation activities across India. In future, as part of its plans to scale up, it proposes to have an in-house installation and commissioning team. Challenges currently faced with external installation partners are multi-fold. These include:
    - a lack of education or expertise in solar PV, which means that Solar Town needs to provide common guidelines on solar installations, or educate its external installation partners with manuals or handholding;
    - most installation partners do not adhere to safety norms while dealing with structural/electrical components. Solar Town needs to provide support gear while installing complex structures and inculcate these safe practices;
    - Safety signboards and danger warnings to bystanders are an important requirement. While these signboards are a common practice in ground-mounted MW installations, they are often neglected in the rooftop segment. This again requires education of installer partners, and its inculcation as a routine practice;
    - Insurance for contractors is important issue in respect of workers' rights. In order to qualify for a labour certificate, the contractor is normally obliged to take care of his employees' insurance. Hence, the present focus of labor laws is to make it compulsory to take better care of workers by with a select group of contractors to further enhance this, and make them the employers of choice.

25. Post-installation activities: These include -
    - Sending back damaged panels to panel manufacturers who adhere to procedures for safe disposal.
    - Surplus inventory of inverters/mounting structures/cables are documented, and if possible used in subsequent projects.
    - Timely annual maintenance services for upkeep.

Jackson Power

26. Issues considered include:
    - During project screening, close attention is paid to the quality of the roof and creditworthiness of the roof owner.
    - The discom would typically not allow the owner of the solar panels to generate more than 80 percent of the approved load for a particular customer location, and therefore no new transformers would be required. (In other words, the discom is ensuring that even if enough rooftop space were available to meet the consumer's entire load, the consumer is not allowed to generate all of his power requirement on the rooftop).
    - Roof protection is typically neglected in most cases. Jackson Power works with DC systems and up to 1,000 volts of AC - all necessary precautions are taken.

- Access to the rooftop is not provided all the time. However, continuous and unhindered access is essential.
- Reverse power accidents may occur due to carelessness or improperly functioning equipment, and must be prevented through extra attention.

27. Requirements ensured: These include -

- Ensuring that unhindered access to the rooftop is part of the roof lease agreement.
- Ensuring that access to water which is required for washing of panels is also part of the lease.

SECTION 3 -- ENVIRONMENTAL, HEALTH, SAFETY AND SOCIAL IMPACTS

3.1 Potential Environmental, Health and Safety Concerns/Impacts

28. Potential environmental and social impacts for investments to be financed under the Program are not expected to be significant, since sub-projects with high environment and social risks will not be included in the Program. As a result, all investments to be covered by the Program will have the following potential EHS characteristics: they are small or modest in intensity, of limited duration and extent, mostly completely reversible, and readily mitigated to acceptable levels with standard cost effective measures commercially available in the country. In general, proposed investments are minor modifications on existing facilities where the incremental effects are clearly identified to be small and are readily known. Potential investments will not encroach or degrade sensitive habitats, nor be located in sensitive areas of bio-diversity value, nor located in areas protected for physical cultural resources.

29. The environmental concerns or issues likely to arise from the installation and operation of the GRPV facility are limited and can be managed/mitigated, except for the disposal of damaged or discarded panels, if these are not covered under the take-back policy with the manufacturer/supplier during replacement. In case a take-back policy is not available or cannot be ensured throughout the life cycle, the discarded or damaged panels should be disposed of as per the local laws on the disposal of hazardous wastes. Safety of personnel during installation and operation can be ensured through measures in each rooftop developer's standard working protocol regarding safety equipment, which the developer can include as part of the loan application.

30. The Program will bring general social benefit for the region through air quality improvement, and employment opportunities to the local communities. Since all PV panels would be installed on rooftops, the only negative social impacts could be access restrictions to the rooftop. However, these will be part of a contractual arrangement and hence these are expected to be voluntary and agreed by consent amongst the parties.

31. The generic environmental and safety concerns likely are given in **Table 3.1.** A Program Action Plan, will be prepared, which addresses all environmental concerns and safety issues of the GRPV facility.

Table 3.1 - Environmental, Health and Safety Concerns of GRPV and Mitigation Measures

GRPV Specific Requirements	Level of Concern	Mitigation Measures
Safe access to Roof for installation and operation through life cycle of facility	Moderate	None required, if access to roof is provided through existing staircase on a 24 X 365 days (including holidays and Sundays). In case, external access dedicated to GRPV has to be installed, it shall then have adequate safe access to roof for installers and O&M personnel e.g. staircase slope, riser height, tread width, landings, hand railing etc.
Lopping and Pruning of Trees for shadow free areas on roof	Moderate	None required, if there are no trees adjacent to building. In case of trees, which cast shadow on the roof, permissions from competent authorities are to be obtained for periodic lopping and/or pruning of trees through life cycle of facility.
Roof Condition and Drainage	Moderate	None required, in case roof is in good condition with no leak/cracks and satisfactory drainage. Permissions for making good the roof and carry out rectifications to ensure roof has a proper and adequate drainage shall be obtained from the building owner, if required.
Availability of Water	Moderate	None required, if assured dedicated extension from existing water supply system to the building. If not, services in terms of a new municipal water supply connection or commercial water tankers are to be availed. If commercial water tankers are not viable or not dependable then a new tube well has to be installed to serve the washing/cleaning needs of the panels. Required permissions for a new tube well from competent authorities and consents from building owner are to be obtained, as may be required.
Disposal of damaged and/or discarded panels	Moderate	None required, if there are take-back arrangements with manufacturer or supplier(s). If not, damaged/discarded panels can be disposed as per the local laws for disposal of hazardous wastes.
Safety of installers and O&M Personnel	Moderate	Can be managed by taking care of basic safety measures e.g. providing safety gears like boots, hard hats, and safety belts while working at heights.

Table 3.1 - Environmental, Health and Safety Concerns of GRPV and Mitigation Measures		
GRPV Specific Requirements	**Level of Concern**	**Mitigation Measures**
Safety and Fire Hazards	Moderate	Can be managed by taking care of basic safety measures like providing rubber mats, gloves, first-aid box, fire extinguishers to handle all type of fires and well-lit exit routes while installers and O&M personnel at work, in case of fire or any type of emergencies.

3.2 Social Impacts

32. In terms of social impacts, the Program, through financing energy efficiency and green energy projects, will bring general social benefit for the region through air quality improvement, and also bring economic growth and employment opportunities to the local communities albeit in a limited manner. Since all PV panels would be installed on rooftops, the only negative social impacts could be access restrictions to rooftop (See **Table 3.2** for potential social impacts and mitigation measures). Hence, a set of recommendations is presented to assess and mitigate any adverse impact.

Table 3.2 - Potential Social impacts of the Program and Mitigation measures		
Likely Social impacts	**Level of Concern**	**Mitigation**
Acquisition of private land for transformers or installation of ground mounted panels.	Low	Not applicable as no private land will be acquired. In case of any requirement of small piece of land, it will be directly purchased on willing buyer willing seller basis. Ground mounted panels will be installed on land already owned by the premise owner.
For projects to be undertaken on vacant land within the same premises where rooftop solar will be installed	Low	Screening of the site would be undertaken to ascertain if the site is un-encumbered/without encroachments and only such sites without any encumbrances or encroachments would be selected (See Annexure 1 for Screening format)
For those projects to be carried out on roof taken lease /roof taken on rent	Low	In case of third party model, developer will enter into an agreement with the property owner with mutually agreed terms and agreements. As part of the SBI's due diligence process before disbursement of funds, the lease/title deeds/rent agreement will be examined and site visit will be made.

SECTION 4 -- REVIEW OF APPLICABLE REGULATORY FRAMEWORK

4.1 Applicable laws and regulations -- National, State and World Bank

33. The program would be governed by National, and State level policies that are specific to rooftop solar energy as applicable (See **Annexure 2** for a tentative list of these policies). Other laws and regulations at the National and State level would be applicable to the program which are relevant for Rooftop Solar, in context of environment and social issues. Objectives, provisions and relevance of these legislations, principles are presented in **Table 4.1** below:

Table 4.1 - Summary of Key Social Regulations Relevant to Program

Legislation (Year)	Objective	Provisions	Relevance/ Applicability to Program
National level			
Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013	It aims to ensure, a humane, participative, informed and transparent process for land acquisition with least disturbance to the owners of the land and other affected families and provide just and fair compensation to the affected families whose land has been acquired or proposed to be acquired or are affected by such acquisition and make adequate provisions for such affected persons for their rehabilitation and resettlement and for ensuring that the cumulative outcome of compulsory acquisition should be that affected persons become partners in development leading to an improvement in their post-acquisition social and economic status.	The Act • defines affected family, interested persons, project area, • details process to define public purpose and social impact, steps towards notification and acquisition, • provides institutions (Appraisal committee, R&R administrator, R&R Commissioner; National Committee for Monitoring for Rehabilitation and Resettlement; LARR Authority, etc.), and • factors for consideration to determine market value of assets; solatium & multiplication factors applicable; and infrastructural amenities at resettlement site; apportionment and payment of compensation.	**Not applicable** as much of the infrastructure under the Program is limited to Rooftops. However, in case of requirement of small quantum of land as determined (on case by case basis), same is expected to be acquired through bilateral negotiation.
Scheduled Tribes (ST) and	The Act has been framed to recognize and vest the forest	The Act provides three kinds of rights to	**Not relevant** as Program would have

Table 4.1 - Summary of Key Social Regulations Relevant to Program			
Legislation (Year)	**Objective**	**Provisions**	**Relevance/ Applicability to Program**
Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	rights and occupation in forest land in forest dwelling STs and other traditional forest dwellers who have residing in such forests for generations but whose rights could not be recorded. The Act intends to provide for a framework for recording the forest rights so vested and the nature of evidence required for such recognition and vesting in respect of forest land. The main objective is to facilitate the overall development and welfare of the tribal people by empowering them socially, economically and politically without any impact on their culture, habitation and tradition and in terms of their age old rights and privileges.	Scheduled Tribes and Other Traditional Forest Dwellers – i) Land Rights: Right to continue cultivating land (less than or equal to four hectares) where they have been cultivating prior to 13th December 2005; ii) Use Rights: Provides for rights to use and/or collect a) minor forest produce (tendu patta, herbs, medicinal plants) that has been traditionally collected, b) Grazing grounds and water bodies, c) Traditional areas of use by nomadic or pastoralist Communities iii) Right to protect and conserve: Gives the community the right to protect and manage the forest.	no projects/solar installations in any such location.
Right to Information Act, 2005	Provide for setting out the practical regime of right to information for citizens to secure access to information under the control of Public Authorities.	The act sets out: • obligations of public authorities with respect to provision of information; • requires designating of a Public Information Officer; • process for any citizen to obtain information/disposal of request, etc.; • provides for institutions such as Central Information Commission/ State Information Commission.	Information in respect of State Bank of India and the Program under Right to Information Act, 2005 can be sought through an application to already designated CPIOs / CAPIOs.
State Level			
Bihar Raiyati Land Lease	To take land on perpetual lease for construction of	Policy provides for: • taking of land on	**Not applicable** as much of the

Table 4.1 - Summary of Key Social Regulations Relevant to Program			
Legislation (Year)	**Objective**	**Provisions**	**Relevance/ Applicability to Program**
Policy, 2014	infrastructure such as academic institutions/road/electricity projects/approach road/stadium embankment /canal/land bank, etc., rehabilitation of persons affected by natural disaster.	perpetual lease and other lease terms; • at the rate of four times in the rural areas and two times in the urban areas of the Minimum Valuation register (MVR); • analysis of alternatives wherein land/site selection committee selects 2-3 alternative land sites; • obtaining concurrence of land owners through advertisements in the newspapers; and • model format for lease.	infrastructure under the Program is limited to Rooftops. Would be applicable if land is taken on lease rather through acquisition In case of requirement of small quantum of land as determined (on case by case basis), same is expected to be acquired through bilateral negotiation.
Uttar Pradesh - Purchase through consent of land owners, 2015	Provides for taking of land from land owners on direct purchase to expedite projects based on size.	Provides for: • composition of committees depending upon size of the project; • lays out process for verification of land and timelines; and • provides a template for recording consent.	**Not applicable** as much of the infrastructure under the Program is limited to Rooftops. Would be applicable if land is purchased from land owners on mutual consent rather through acquisition In case of requirement of small quantum of land as determined (on case by case basis), same is expected to be acquired through bilateral negotiation.
Madhya Pradesh - Consent Land Purchase Policy, 2014	To overcome the cost and time delays in taking of land required for development works.	• provides for making available government land and in its absence from private land owners; • provides for compensation for land at Collector issued	**Not applicable** as much of the infrastructure under the Program is limited to Rooftops. Would be applicable if land is purchased from land owners on

Table 4.1 - Summary of Key Social Regulations Relevant to Program			
Legislation (Year)	**Objective**	**Provisions**	**Relevance/ Applicability to Program**
		Guideline values and assets on land (from respective departments) and budget provision.	mutual consent rather through acquisition. In case of requirement of small quantum of land as determined (on case by case basis) required, same is expected to be acquired through bilateral negotiation.
Karnataka Solar Policy (2014-2021)	To add solar generation in a phase manner; to encourage public private participation in the sector; to promote Rooftop generation and technologies; encourage decentralized generation and distribution of energy where access to grid is difficult; to promote R&D and innovations, skill development in the sector.	Policy has provisions relating to site requirement and interconnection voltage such as the Project site/ installation locations may be decided based on total energy requirement at the premises and usable area available for installation of rooftop solar PV system. *Further, future initiatives considered include:* • *project site/installation locations may be decided based on total energy requirement at the premises and the usable area available for installation of rooftop Solar PV system;* • *amendment to bye-laws in respect of Floor Area Ratio (FAR) in coordination with BBMP/local bodies and urban development department to exempt FAR in respect of additional floor area created under the Solar PV panels* • *Provide financial assistance for development of solar*	The policy is applicable to GRPV projects as it sets year-wise targets for such projects in the state, besides has provisions relating to site requirement.

Table 4.1 - Summary of Key Social Regulations Relevant to Program			
Legislation (Year)	**Objective**	**Provisions**	**Relevance/ Applicability to Program**
		park (not less than 100 acres); • *create land banks for development of solar projects, on long term lease; and* • *Solar PV projects shall be exempted from obtaining clearances of pollution control board.*	
The World Bank			
World Bank's (WB) Policy on Access to Information, 2010	This Policy governs the public accessibility of information in the Bank's possession that is not on a list of exceptions.	Policy is based on five principles: • Maximizing access to information; • Setting out a clear list of exceptions; • Safeguarding the deliberative process; • Providing clear procedures for making information available; and • Recognizing requesters' right to an appeals process. The policy outlines a clear process for making information publicly available and provides a right to appeal if information-seekers believe they were improperly or unreasonably denied access to information or there is a public interest case to override an exception that restricts access to certain information.	WB is required to disclose Program related information during preparation and implementation as per this policy.

34. In the context of Environment regulations, the Government of India through the Ministry of Environment and Forests (MoEF), is responsible for environmental policy and regulatory

formulation, as well as overseeing implementation of these regulations. The State Governments are responsible for ensuring implementation and enforcement of national and state environmental legislations. The Central Pollution Control Board at the central level, along with its counterparts, the State Pollution Control Boards/Committees, are jointly responsible for implementation of legislations related to prevention and control of environmental pollution.

35. The institutional structure for environmental policy and regulatory framework in India is given in **Figure 4.1.**

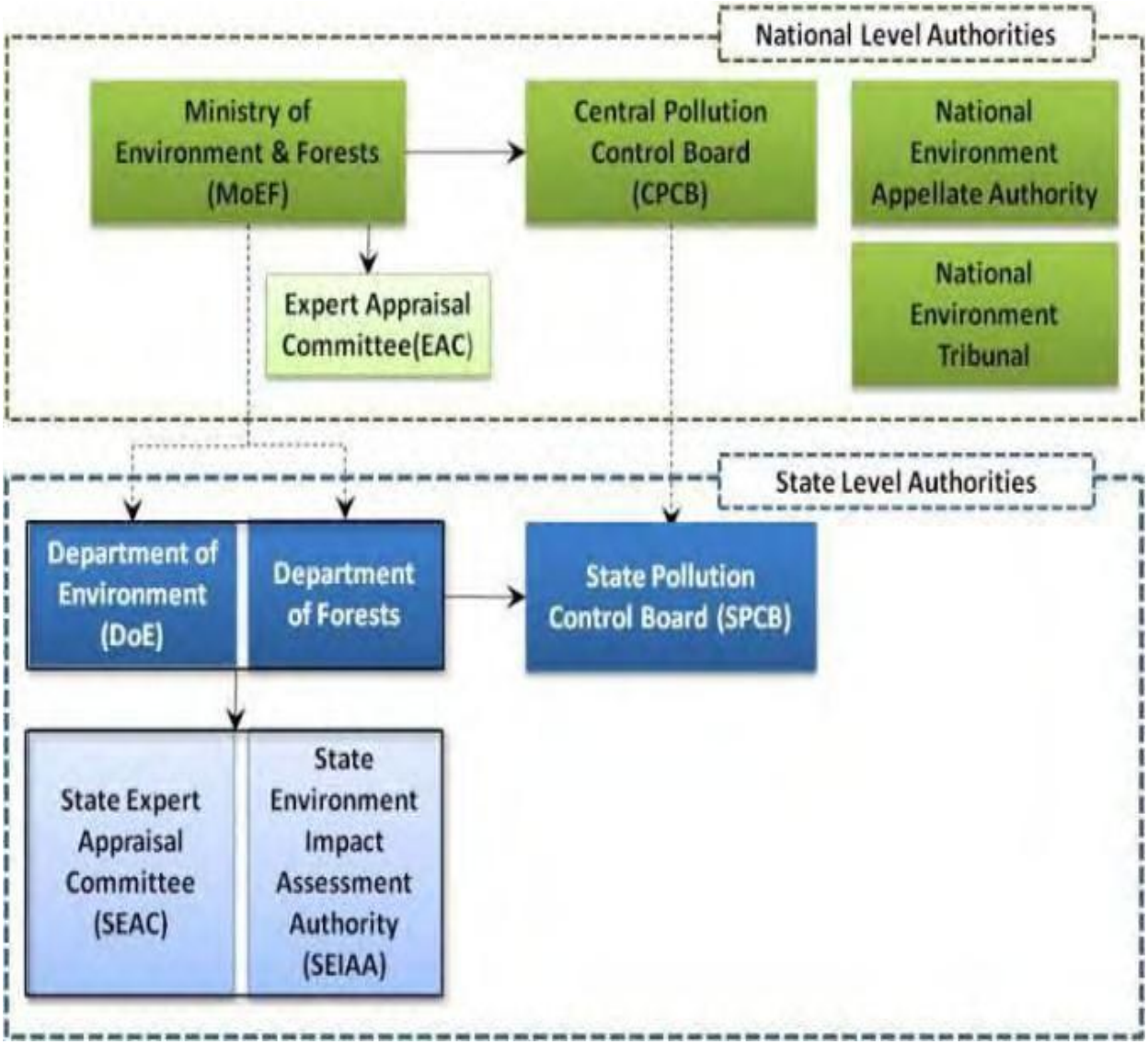

Figure 4.1: Institutional Set-up for Environmental Policy and Regulatory Framework

36. The key environmental regulations at the National, State and local levels, which are relevant and applicable for GRPV and compliance requirements, are summarized in **Table 4.2.**

Table 4.2 -- Environmental Regulations and their applicability to GRPV Program

S. No.	Environmental Acts and Regulations	Requirement of the Regulations	Applicability to the GRPV Facility
National Level			
1	Environmental Impact Assessment Notification, 2006 and latest amendments	Obtaining prior Environmental Clearance from Ministry of Environment and Forests (MoEF) or State Environmental Impact Assessment Authority (SEIAA) for new/expansion of project or activities listed in the Schedule of EIA Notification 2006.	Not applicable to the Project. Solar Power Projects including Rooftop projects are exempted from purview of EIA notification, 2006 as per circular issued by the MoEF, GoI.
State Level			
2	Water (Prevention and Control of Pollution) Act, 1974 and amendments thereof	Obtaining Consent for Establishing (CFE) before commencement of construction and Consent for Operation (CFO) are to be obtained prior to start of construction and before commissioning of Project from Pollution Control Board (PCB).	Applicable as required by the respective jurisdiction within whose jurisdiction the respective sub-project lies. Consent for Establish (CFE) at the time of construction and Consent for Operation (CFO) at the time of commission of the plant is to be obtained from the respective Pollution Control Boards.
3	Air (Prevention and Control of Pollution) Act, 1981 and amendments	Obtaining Consent for Establishing (CFE) before commencement of construction and Consent for Operation (CFO) before commissioning from PCB.	As above.
4	Hazardous Waste (Management and Handling) Rules, 2008 and amendments thereafter	Obtaining authorization from PCB for management and handling of Hazardous Waste like discarded/damaged PV panels, lube and/or transformer oils etc. during installation and operation phases.	Authorization from the State Pollution Control Board shall be obtained for lube and/or transformer oils etc. during installation and operation phases, as may be applicable.
Local Level			
5	Tree Lopping and Pruning	Permission has to be sought from the designated local tree authority designated by the Department of Environment and Forests.	No permissions are required as no tree cutting will be required for the project facility.
6	Disposal of construction spoil and debris	Permission of local self-government bodies (ULBs) will be required for disposal of construction spoil and debris.	To be taken, if required.
Health and Safety Acts and Rules			

Table 4.2 -- Environmental Regulations and their applicability to GRPV Program			
S. No.	**Environmental Acts and Regulations**	**Requirement of the Regulations**	**Applicability to the GRPV Facility**
7	Building and Other construction Workers (Regulation of Employment and Conditions of Service) Act, 1996	Regulates the employment and conditions of service of building and other construction workers and to provide for their safety, health and welfare.	If required, project proponent shall ensure compliance of the requirements under the Act during construction.
8	Petroleum Act, 1934 and Rules 2002	Regulates import, transport, storage, production, refining and blending of petroleum as approval is to be sought from the Chief Inspectorate of Explosives for storage of diesel.	Not applicable.
9	Indian Electricity Act 2003 and Rules 1956 amended to 2000	The safety requirements specified in Chapter IV of the Act are to be observed.	Project proponent shall ensure compliance of the requirements under the Act during construction, installation and Operation phases.
10	World Bank Group Environmental, Health and Safety Guidelines (EHSG)	Provides the good practice that should be reviewed and followed for Bank supported projects. Relevant guidelines are those covering General Aspects, and Transmission and Distribution Sectoral guidelines.	Project proponent shall confirm that WB group's EHSG guidelines applicable to rooftop solar will be followed during installation and operation of plants as reflected in the Annexures 3 and 4.

SECTION 5 -- ENVIRONMENT AND SOCIAL SYSTEM ASSESSMENT

5.1 Assessment of Program Systems vis-à-vis Core Principles of OP 9.00

37. According to the Bank Policy on Program-for-Results Financing, assessment and comparison of the core principles of Bank Policy against the country legal system for EHS and social management should be conducted. The core principles are to:

- promote environmental and social sustainability in the Program design; avoid, minimize, or mitigate adverse impacts, and promote informed decision-making relating to the Program's environmental and social impacts;

- avoid, minimize, or mitigate adverse impacts on natural habitats and physical cultural resources resulting from the Program;

- protect public and worker safety against the potential risks associated with: (i) construction and/or operations of facilities or other operational practices under the

Program; (ii) exposure to toxic chemicals, hazardous wastes, and other dangerous materials under the Program; (iii) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards;

- manage land acquisition and loss of access to natural resources in a way that avoids or minimizes displacement, and assist the affected people in improving, or at the minimum restoring, their livelihoods and living standards;

- give due consideration to the cultural appropriateness of, and equitable access to, Program benefits, giving special attention to the rights and interests of the Indigenous Peoples and to the needs or concerns of vulnerable groups; and

- avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.

38. Analysis of the Program system against the core principles of the OP 9.00 is presented in **Table 5.1** below:

Table 5.1 - Analysis of SBI's Program Systems in respect of core principles of OP 9.00

Core Principles (OP 9.0) & Key Planning Elements	Existing System	Gap	Action
Principle 1: Environmental and social management procedures and processes are designed to (a) promote environmental and social sustainability in the program design; (b) avoid, minimize, or mitigate against adverse impacts; and (c) promote informed decision-making relating to a program's environmental and social effects.			
Operate within an adequate legal and regulatory framework to guide Environmental and Social impact assessments at the Program level. Incorporate recognized elements of environmental and social assessment good practice, including (a) early screening of potential effects; (b) consideration of strategic, technical, and site alternatives (including the "no action" alternative); (c)	Key policies are: SBI's Renewable Energy Sector Policy dated October 2015 requires compliance to environment, social and governance as per local laws. Specifically it requires ensuring "statutory clearances in respect of Environment are in place. Social concerns if any are duly addressed and the Corporate adheres to the good governance practices". Additionally: Bank's lending policy as	The grievances will be handled through existing process of GRM and segregating the grievances that might arise under this Program for reporting is not possible.	In the operations manual WB EHSS norms relevant to rooftop will be included as part of the standard loan agreement. CPPD would revise the Operations Manual with Annexures 3 and 4 ensuring that the relevant officials in SBI's are aware of and familiar with the requirements to ensure their implementation. SBI should make necessary arrangement to segregate and furnish report related

Table 5.1 - Analysis of SBI's Program Systems in respect of core principles of OP 9.00			
Core Principles (OP 9.0) & Key Planning Elements	**Existing System**	**Gap**	**Action**
explicit assessment of potential induced, cumulative, and trans-boundary impacts; (d) identification of measures to mitigate adverse environmental or social impacts that cannot be otherwise avoided or minimized; (e) clear articulation of institutional responsibilities and resources to support implementation of plans; and (f) responsiveness and accountability through stakeholder consultation, timely dissemination of program information, and responsive grievance redress measures.	reflected in Annexures 3 and 4 to the ESSA; Business Responsibility Policy includes guidelines on good corporate governance, ethics, bribery and corruption, etc; and emphasizes on minimizing the direct and indirect impacts of its operations on environment Corporate Social Responsibility Policy: under this various welfare and social activities are undertaken by the Bank both in Banking and Non-Banking areas to raise the quality of life of the downtrodden and under-privileged sections of society; and Right to Information Act, 2005: The Bank has designated officers of the rank of AGM and above as Central Public Information Officers (CPIO) to give information to a person who seeks information under the RTI Act. The RE Sector policy sets desired and acceptable level provisions including: Residential, Commercial, Institutional and Industrial building should be owned and in the possession of the promoter(s) in case of CAPEX Model and in case of Third Party Model, lease agreement for rooftop with access rights, with the owner of the		to the grievances that might arise under this Program.

Table 5.1 - Analysis of SBI's Program Systems in respect of core principles of OP 9.00			
Core Principles (OP 9.0) & Key Planning Elements	**Existing System**	**Gap**	**Action**
	building should be in place. Tripartite agreement (amongst Landlord, Developer and Bank) is to be executed. Compliance of terms & conditions of sanction pre-disbursement stage includes: Environmental clearances from appropriate authorities are to be in place. Reimbursement: All clearances /approvals required for the project are to be in place. Credit Policy and Procedures Department (CPPD), within SBI would be key nodal department for monitoring and evaluation of the Program. CPPD formulates clear policies on standards for presentation of credit proposals, financial covenants, rating standards and benchmarks, delegations of credit approving powers, prudential limits on large credit exposures, asset concentrations, standards for loan collateral, portfolio management, loan review mechanisms, risk concentrations, risk monitoring and evaluation, pricing of loans, provisioning and regulatory & legal compliance		

Table 5.1 - Analysis of SBI's Program Systems in respect of core principles of OP 9.00			
Core Principles (OP 9.0) & Key Planning Elements	**Existing System**	**Gap**	**Action**
	The Bank has laid down procedures for fair and expeditious handling of customers grievances. SBI has recently launched a mobile app "State Bank of India Samadhan" on Google play store.		
Principle 2: Environmental and social management procedures and processes are designed to avoid, minimize, and mitigate against adverse impacts on natural habitats and physical cultural resources resulting from the program			
Includes appropriate measures for early identification and screening of potentially important biodiversity and cultural resource areas. Supports and promotes the conservation, maintenance, and rehabilitation of natural habitats; avoids the significant conversion or degradation of critical natural habitats, and if avoiding the significant conversion of natural habitats is not technically feasible, includes measures to mitigate or offset impacts or program activities. Takes into account potential adverse impacts on physical cultural property and, as warranted, provides adequate measures to avoid, minimize, or mitigate such effects.	SBIs existing Green Banking Policy, 2007, Renewable Energy Policy, 2015 and operational procedures included in Operations Manual for management environmental and social issues are adequate for P for R operation.	The Operations manual does not specify likely environmental, health and safety concerns and or the specific compliances to be adhered under the GRPV Program. The operation manual also does not provide guidance checklists or the parameters based on which appraisal of the proposal can be carried out or monitored during installation and operation phases particularly related to EHS requirements of the GRPV program.	A generic guidance checklist for addressing the EHS requirements of GRPV program has been developed which can facilitate appraisal and periodical monitoring during installation and operation of GRPV Program. An additional guidance checklist for compliance is also provided, to enable by proponents to understand the EHS requirements of GRPV program and comply accordingly.
Principle 3: Protect public and worker safety against the potential risks associated with (a) construction and/or operations of facilities or other operational practices developed or promoted under			

Table 5.1 - Analysis of SBI's Program Systems in respect of core principles of OP 9.00			
Core Principles (OP 9.0) & Key Planning Elements	**Existing System**	**Gap**	**Action**
the program; (b) exposure to toxic chemicals, hazardous wastes, and otherwise dangerous materials; and (c) reconstruction or rehabilitation of infrastructure located in areas prone to natural hazards.			
Promotes community, individual, and worker safety through the safe design, construction, operation, and maintenance of physical infrastructure, or in carrying out activities that may be dependent on such infrastructure with safety measures, inspections, or remedial works incorporated as needed. Promotes the use of recognized good practice in the production, management, storage, transport, and disposal of hazardous materials generated through program construction or operations; and promotes the use of integrated pest management practices to manage or reduce pests or disease vectors; and provides training for workers involved in the production, procurement, storage, transport, use, and disposal of hazardous chemicals in accordance with international guidelines and conventions. Includes measures to avoid, minimize, or mitigate community, individual, and worker	Annexure V of SBIs POM specifies the EHSS requirements are as follows: • Insurance: The required insurances are to be taken including Workmen Compensation Insurance, Professional Indemnity Insurance etc. The same will be reviewed by LIA and any observations or recommendations by LIA should be rectified by the Borrower. • Ensuring that identified site is not in a sensitive location affecting flora and fauna adversely. • Site preparation to be carried out such that flora and fauna are not adversely affected. • Disposal of solar panels Compliance of EHSS requirement will be ensured by adopting following steps, inter-alia, - • EHSS norms assessment will be carried out during Due Diligence: A copy of plan / manual for compliance of EHSS norms including fire		

Table 5.1 - Analysis of SBI's Program Systems in respect of core principles of OP 9.00			
Core Principles (OP 9.0) & Key Planning Elements	**Existing System**	**Gap**	**Action**
risks when program activities are located within areas prone to natural hazards such as floods, hurricanes, earthquakes, or other severe weather or climate events.	safety during construction and post commissioning will be obtained from Borrower, to analyze agreement with EHSS norms as prescribed by Bank. • Insurance: SBI will ensure that all the required insurances are taken including Workmen Compensation Insurance, Professional Indemnity Insurance etc. • SBI Staff or LIE, appointed by SBI, will monitor that the all the required approvals and clearances (as per the stage of implementation / operation) are obtained for the project. • Site audit will be conducted during implementation and operations period by LIE or SBI's Staff to assess on-site practices to ensure compliance with documented procedures and lending requirements.		
Principle 4: Land acquisition and loss of access to natural resources are managed in a way that avoids or minimizes displacement, and affected people are assisted in improving, or at least restoring, their livelihoods and living standards.			
Avoids or minimizes land acquisition and related adverse impacts;	Program doesn't not envisage acquisition of private lands as the		

Table 5.1 - Analysis of SBI's Program Systems in respect of core principles of OP 9.00			
Core Principles (OP 9.0) & Key Planning Elements	**Existing System**	**Gap**	**Action**
Identifies and addresses economic and social impacts caused by land acquisition or loss of access to natural resources, including those affecting people who may lack full legal rights to assets or resources they use or occupy; - Provides compensation sufficient to purchase replacement assets of equivalent value and to meet any necessary transitional expenses, paid prior to taking of land or restricting access; - Provides supplemental livelihood improvement or restoration measures if taking of land causes loss of income-generating opportunity (e.g., loss of crop production or employment); and - Restores or replaces public infrastructure and community services that may be adversely affected	installation will be largely on rooftop or existing owned land within the same premises.		
Principle 5: Due considerations is given to cultural appropriateness of, and equitable access to, program benefits giving special attention to rights and interests of Indigenous Peoples and to the needs or concerns of vulnerable groups.			
Undertakes free, prior, and informed consultations if Indigenous Peoples are potentially affected (positively or negatively) to determine whether there is broad community support for	Unlikely; the target audience under the program would meet the criteria laid out in the principle particularly as indigenous peoples would be mainstreamed with the main population.		

Table 5.1 - Analysis of SBI's Program Systems in respect of core principles of OP 9.00			
Core Principles (OP 9.0) & Key Planning Elements	**Existing System**	**Gap**	**Action**
the program; Ensures that Indigenous Peoples can participate in devising opportunities to benefit from exploitation of customary resources or indigenous knowledge, the latter (indigenous knowledge) to include the consent of the Indigenous Peoples. Gives attention to groups vulnerable to hardship or disadvantage, including as relevant the poor, the disabled, women and children, the elderly, or marginalized ethnic groups. If necessary, special measures are taken to promote equitable access to program benefits.			
Principle 6: Avoid exacerbating social conflict, especially in fragile states, post-conflict areas, or areas subject to territorial disputes.			
NOT APPLICABLE			

SECTION 6 -- PROGRAM CAPACITY ASSESSMENT

6.1 State Bank of India

39. The program will be implemented through SBI's Credit Policy and Procedure Department, International Banking Group (IBG), and key business units including the Corporate Accounts Group (CAG), Mid-Corporate Group (MCG), National Banking Group (NBG), and the Project Finance Strategic Business Unit (PFSBU). SBI's significant network of branches will also be employed in the program's implementation.

40. SBI's key departments involved, and their roles and responsibilities are as follows:

A. Credit Policy and Procedure Department (CPPD)

41. This department has responsibility for following activities:
- Policy formulation.
- Drafting and finalization of the POM and its amendments.
- Coordinating within the organization for building the internal system capability and implementing the required training of staff for the successful implementation of the Rooftops Program.
- Coordination within the SBI's branch network for setting up sub-accounts.
- Monitoring and Evaluation of the Rooftops Program.
- Coordination for creation of standardized documentation e.g. a standardized appraisal format, standardized term sheets, sub-loan agreements, standardized PPAs etc.
- Data collection and reporting to the WB in the agreed format at agreed intervals.
- Coordination and review of the Rooftops Program with the WB team.

B. International Banking Group (IBG)

42. This department has responsibility for the following activities:
- Submission of the drawdown request to the Loan Department of the WB.
- Timely payment of fees to the WB including the commitment fee and interest on the agreed payment dates.
- Repayment of funds to the WB on the repayment date.

C. Project Finance Strategic Business Unit (PFSBU), CAG, MCG and NBG

43. These departments have responsibility for the following activities:
- Creditworthiness Appraisals and approval of loan facilities for GRPV projects.
- Disbursement of funds to eligible sub-borrowers.
- Monitoring progress of the approved rooftop investment projects.
- Submission of data required by CPPD for overall monitoring of Program and achievement of targets.

44. Within these departments, the eligible branches that will implement the GRPV Projects are:
- The Corporate Accounts Group (CAG) and the Mid Corporate Group (MCG): All branches of these two departments are eligible to undertake the financing of Solar Power Projects, including Solar Rooftop PV projects, as these are specialized branches authorized to handle high value loan proposals.
- National Banking Group (NBG): The Chief General Manager (CGM) for Small and Medium Enterprises (SME)/ and the CGM (of Circles) will identify suitable branches depending on the customer base and the capability of various branches.

45. Project Finance Strategic Business Unit (PFSBU) will appraise/vet the projects as per criteria provided and specified, at specific request of the units which require PFSBU's support for such appraisal.

6.2 Sub-project Appraisal/Due Diligence

46. SBI will carry out its due diligence at each stage from pre-approval to monitoring as summarized in the table below:

Table 6.1 - Stage wise Due-diligence process

Stage	Environment and Social aspects considered
At the initial stage (for project under Project mode or assessment of individual projects in Program mode)	• Statutory Clearances - Pollution Clearance, Project Clearance and other Approvals / Clearances / Permissions wherever applicable to be obtained as per the implementation stage of the project. • Availability of critical infrastructure- position of power evacuation infrastructure, availability of water etc. • Rooftop Solar Power Project - (i) CAPEX Model - building should be owned by developer. (ii) Third Party Model (RESCO Model/Aggregator Model) – Draft of the lease agreement for rooftop with access rights, with owner of building should be examined. • Site visit to be conducted and discreet enquiries to be carried out/landmark to be noted.
Pre-approval credit process (for projects under the Project mode (i.e. single projects) or assessment of individual projects in the Program mode, i.e. aggregated projects)	Technical and Contractual Feasibility • Rooftop o Ownership – the ownership details (with a copy of ownership documents) of the rooftop where project is proposed to be installed. In case the roof is being leased / rented or to be leased/rented, the lease contract/draft or the rental agreement should be obtained and is to be analyzed for the value of the lease/ rental, the tenor of lease, the risk of early termination etc. o Ease of accessing the rooftop during construction and also during the operation & maintenance period. • Rooftop profiling and site assessment to analyze aggregate rooftop area, rooftop area suitable for PV project development, potential for PV capacity etc. • Other Infrastructure o Water requirement and its source of supply, for cleaning of panels. • Approvals and clearances o Copies of all approvals and clearances are required to be obtained before implementation and analyzed for their validity. A plan for obtaining other approvals and clearances (that are required at later stages) is also to be obtained. • Environment, Health and Safety norms Assessment o A copy of the plan / manual for compliance with the agreed Environment Health Social and Safety (EHSS) norms, including fire safety measures adopted during construction and post-commissioning, is to be obtained and analyzed. o Assessing project compliance with the SBI's environmental and social requirements. o Site audits are to be conducted during the implementation and operations period by a lender's independent engineer (LIE) or by SBI's staff (depending on the size of the investment as specified in the guidelines) in order to assess on-site practices and to ensure compliance with documented and agreed procedures.
Assessment	EHSS requirements shall be discussed in the loan proposal.

Table 6.1 - Stage wise Due-diligence process	
Stage	**Environment and Social aspects considered**
Approval	• A draft or a copy of the tripartite agreement/lease agreement among rooftop owner, aggregator and SBI should be provided, wherever applicable. • Licenses/approval from regulatory authorities - Environmental Clearances, Project approval from State Agency for setting up the plant, No Objection Certificate (NoC) from the Pollution Control Board, and/or a Grid Connectivity Agreement with the authority concerned etc.
Disbursement	• Ensure that all the licenses, approvals, agreements with third parties, as required during implementation, have been put in place and all the pre-disbursement conditions of loan approval have been fulfilled or that the sub-loan applicant has obtained written approval from a qualified authority for any deviation.
Post approval credit process (*Follow up, Supervision and Monitoring)*	• Ensure that the end-use of funds is consistent with intended purposes. • Detect any deviation from terms of the loan approval. • Make periodic assessments of the health of the loan advances by calculating and documenting some of the key performance indicators like profitability, activity level, and management of the unit. Follow up will also be undertaken to ensure that the assets created are effectively utilized for productive purposes and are well maintained. • Identify early warning signals, and undertake review and reporting and initiate remedial measures proactively, thereby averting the incidence of incipient deterioration of financial health of the sub-borrower. • Ensure compliance with all internal and external reporting requirements covering the credit area. • Monitor, that the all the required approvals and clearances (as per the stage of implementation / operation) are obtained for the project (this will be done by SBI's staff or a lender's independent engineer, appointed by SBI).
Source: Operations Manual Grid-Connected Rooftop Solar Program, State Bank of India, 2015	

6.3 Reporting Arrangement

47. SBI will submit quarterly reports on actual operating expenses & fees incurred in implementing the Program. This will be duly supported by the required documents.

6.4 Summary of Capacity Assessment

48. The gaps and actions suggested in the previous section in respect of Program Capacity Assessment are summarized below:

Regulatory Framework

49. SBI's Green Energy Policy, 2007, RE policy (including Due Diligence approach), Business Responsibility Policy and RTI Act provide a comprehensive framework in which program activities would take place. Further, as no land acquisition is envisaged, no land or livelihood impacts are expected to arise.

Assessment of Impacts vide due diligence approach by stage

50. Necessary due diligence will be carried out to ensure (**See Section 5, Table 5.1**) that all potential social and environment issues are identified at the concept and pre-appraisal stage of the sub-project.

Institutional Arrangements

51. While CPPD within SBI will be the key nodal department, other departments such as CAG, MCG, NBG and PFSBU will deal with implementation of activities under the Program.

Monitoring

52. SBI's staff or a Lender's Independent Engineer (LIE) (appointed by SBI) will monitor approvals (by stage of implementation) including through site visits, and will provide reports on these visits to the World Bank.

Grievance Redressal

53. The Grievance Redressal Mechanism at present is oriented towards handling complaints and grievances only from SBI's customers. This scope will be expanded, through training the existing team which handles customer complaints at present. Specifically, the training will enable this team to also handle complaints from external third parties who are neither customers nor borrowers, but who feel that they are being adversely impacted by an investment under the Rooftop Solar Program.

SECTION 7 -- RECOMMENDATIONS

54. The section presents the recommendations to address the gaps in Program capacity. These are given below:

55. **Due Diligence processes that will be followed for sub-loans:**

- If land is required (e.g. for constructing overhead mounted panels such as in a covered parking lot etc.), it should already be in possession, with clear title at loan approval or pre-disbursement stage. If the land is encroached or encumbered, the site will not be considered for the sub-project.
- Verification of the title deed and execution of a rooftop lease agreement will be a pre-condition to disbursement.
- It will be confirmed that the roofing material does not include carcinogenic material such as asbestos.
- A generic guidance *checklist for addressing the Environment Health and Safety (EHS) requirements* of the GRPV program can facilitate appraisal and periodic monitoring during installation and operation. An *additional guidance checklist for compliance* is also provided, to enable GRPV developers to understand the EHS requirements of the GRPV program and comply accordingly **(See Annex 3 and 4).**
- The LIE's scope of work should include monitoring of applicable EHS norms including fire safety clearance on the project site during construction and post-commissioning, until three months after the commissioning and operations date.
- In case of any default on EHS requirements, SBI would need to agree to a time-bound risk mitigation and "restoration of compliance" plan with the sub-borrower, and if the non-

compliance status is not reversed, it may lead to a substantial penalty or a need for prepayment of the facility by the non-compliant sub-borrower.

- SBI will facilitate compliance with the law against sexual harassment of women among participating aggregators, through insertion of a clause in the sub-loan agreements to raise awareness and remind sub-borrowers of their legal obligations in this respect.

Monitoring

56. With respect to management of Environmental and Social issues, upon a specific request from the World Bank, SBI will submit reports prepared by:

    - **The Lender's Independent Engineer** (if the sub-project cost is valued at INR 100 crore and above, or if SBI's share of exposure is INR 50 crores and above) till the date of commissioning; or
    - **SBI's own staff** (if total project cost is less than INR 100 crores or SBI's share is less than INR 50 crores).

57. For individual projects funded under the program, the World Bank may specifically request reports on compliance with applicable Environment, Health and Safety norms including a certificate confirming that safety clearance was obtained or enforced by the contractor on project sites both during construction and after commissioning.

Grievance Redressal Mechanism (GRM)

58. SBI's existing GRM is transparent and accessible. SBI will segregate and furnish reports related to the grievances that might arise under this Program, upon request from the World Bank.

ANNEXURES

Annexure 1

Social Screening Checklist

Issues	Findings/Observations
Is developer going for ground mounted solar panel installation with in the premises? Yes or No. If No, skip rest of the checklist	
Any loss of/impact on:	**Y/N, If Y, provide description**
agricultural, residential and other productive assets	
shelter, fixed assets	
crops, trees	
businesses or enterprises	
access to natural resources, communal facilities and services	
In case land is encroached and/or encumbered, the site will not be considered for the sub-project	

Annexure 2

State policies specific to Solar Power/Energy

Name of Policy	Salient features relating to Social/Environment
Gujarat Solar Power Policy, 2009	• Have nodal agencies to identify suitable locations for Solar projects, and prepare a land bank and requirement of creation / upgradation connecting infrastructure to project site i.e. roads, etc. • Facilitation in arranging Right of Way, water supply and obtaining other clearances and approvals which are in the purview of the state government. • Carry out awareness campaigns on energy conservation and use of Renewable sources of energy at all levels, village, Taluka, District, etc. through schools, colleges, educational institutions, community centres and civil society organizations.
Rajasthan Solar Policy 2011	• Government of Rajasthan has prepared land banks in various Districts for setting up of Grid Interactive Solar Power Projects in Rajasthan. The Solar Power Producers can access these land banks for selection of sites for development of Grid Interactive Solar Power Project in Rajasthan. • Rajasthan Renewable Electricity Corporation (RREC) will recommend to the concerned District Collector for reservation of the land identified by the Solar Power Producer. The District Collector will set apart the land for the project for a period of three years after examining it's suitability for allotment under Rajasthan Land Revenue (Allotment of Land for setting up of Power plant based on Renewable Energy Sources) Rules, 2007, as amended from time to time. RREC will act as a Nodal Agency for development of Solar Parks in Rajasthan. A special purpose vehicle (SPV) in form of a subsidiary company of RREC will formulate Policy and Rules in respect of land allotment, sharing of development cost by the Solar Power producers and manufacturers • The process of reservation of land will be completed by the concerned District Collector within the 30 days from the receipt of recommendation of RREC. • After registration of land, the allotment of land to the Solar Power Projects will be done as per the provisions of Rajasthan Land Rules, 2007, as amended from time to time. The Government land required for Solar Power Plant shall be allotted to Solar Power Producer at concessional rate of 10% of the District Level Committee (DLC) rate (agriculture land). • The allotment of land to the Solar Power Projects will be done as per the provisions of **Rajasthan Land Revenue (Allotment of Land for setting up of Power plant based on Renewable Energy Sources) Rules, 2007**, as amended from time to time. • Private Land: Power Producers shall be allowed to purchase private land from the Khatedar for setting up of Solar Power Plants in excess of ceiling limit prescribed in the Ceiling Act, 1973. Conversion of private land to industrial use shall be required for setting up of Solar Power Plant/Solar manufacturing plant before start of work. The conversion charges shall be 10% of charges levied for Industrial purpose under the relevant rules. • Water Availability: Water Resource Department will allocate required quantity of water from Indira Gandhi Nahar Project (IGNP) canal/the nearest available source for development of Solar Thermal Power Plants subject to the availability of water for power generation.
Karnataka Solar	• Has specific provisions under the G.O. on Karnataka Solar Policy (2014-2021) for

Name of Policy	Salient features relating to Social/Environment
Policy 2011-16	solar projects **(See Table 4.1)**.
Madhya Pradesh Solar Policy 2012	• For setting up Solar Power Plant in Madhya Pradesh, maximum land use permission for government land, if available, to the Solar Power Producer shall be 3.0 Hectares per MW. In case the Developer purchases private land for the project, then they will be eligible for an exemption of 50% on stamp duty. • In case of land owned by Revenue Department or any other State Government Department, the New & Renewable Energy Department shall take possession of the land and subsequently give permission for use of land to the concerned Developer (whose project has been accorded administrative approval). • Projects on Private Land: There is no maximum capacity cap on single project installed on private land. For projects proposed to be set up on private land, any developer willing to establish solar power project shall be eligible for incentive subject to registration with the GoMP. Performance Guarantee to be provided will be as per the guidelines specified in the qualification/selection document issued by GoMP Projects on government Land: For projects on government land, maximum/minimum project capacity is limited as prescribed. • Land requirement: For setting up Solar Power Plant in Madhya Pradesh, maximum land use permission for government land, if available, to the Solar Power Producer shall be 3.0 Hectares per MW. • If the government revenue land is recorded as forest land with small and minor trees in the revenue records or it is defined as a forest land as per Revenue Department (GoMP) Circular dated 8-08-2011, then the applicant will have to take permission, as per provisions of Forest Conservation Act 1980, from concerned authorities. • Stamp duty exemption on purchase of private land: In case the Developer purchases private land for the project, then they will be eligible for an exemption of 50% on stamp duty. In case of non-installation of the project on this land, the exemption (given) will be withdrawn and recovery shall be made as per rules. • Government land Use Permission: In case of land owned by Revenue Department or any other State Government Department, the New & Renewable Energy Department shall take possession of the land and subsequently give permission for use of land to the concerned Developer (whose project has been accorded administrative approval).
Andhra Pradesh Solar Policy, 2012 & Amendment	• Operative Period of the policy is from 2012 till 2017. • **It is the responsibility of the Project Developer to acquire the land required for the project.** • A Nodal agency (New and Renewable Energy Development Corporation of A.P. Ltd (NREDCAP) be responsible for clearance, facilitation and implementation of the proposed Solar Power Policy.
Chhattisgarh Solar Policy 2012-2017	• Operative Period of the policy is from 2012 till 2017. • **It is the responsibility of the Project Developer to acquire the land required for the project.** • All the statutory clearances/approvals shall be obtained by the developer of the solar power plant. • Land acquisition and statutory clearances/approvals shall be obtained by the developer of the solar power plant as per policy of the State Government land will be made available depending on the availability. • There would be a nodal agency to facilitate to-

Name of Policy	Salient features relating to Social/Environment
	○ identify suitable locations and create a land bank; ○ facilitate allotment of suitable land/space in control of state government or its agencies; ○ assistance in establishing Right of way, water supply, connectivity through roads, etc.
Draft Uttar Pradesh Solar Policy 2012	• Time frame for commissioning of Solar PV projects will be 13 months. • Facilitation in all clearances approvals, permissions, training and consents required from the State Government/its agencies will be the main task of the Nodal Agency as single window.

Annexure 3

Guidance Checklist for verification of adequacy on Environmental, Health and Safety (EHS) requirements during appraisal and monitoring (Installation and Operation phases) of individual project funded under the Program by SBI

S. No.	EHS Requirements of GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for ensuring compliance of EHS requirements by SBI	Review and Monitoring by SBI for adequacy and compliance of EHS requirements
Proposal Appraisal Phase				
1	Whether GRPV proposal require consent to establish (CTE). If yes, whether the proponent has received CTE from State Pollution Control Board		If Yes, check validity and imposed consent conditions by State Pollution Control Board, if any. If not, ensure first disbursement is released subject to submission of valid consent by proponent.	Assess/Review compliance to consent conditions by proponent through periodic monitoring (till COD) by Independent Engineer (IE) or SBI's staff as per project cost thresholds.
2	Whether GRPV proposal require lopping/pruning of tree branches to ensure shadow free area on roof. If yes, state whether permissions are obtained from competent authorities for periodic lopping/pruning of trees		If Yes, check validity and conditions imposed on proponent by competent authority, if any. If not, ensure first disbursement is released subject to submission of valid permissions for loping /pruning of trees.	Review compliance to permissions including conditions, if any by proponent through site inspections by IE or SBI's staff.
3	Whether roof rights have been secured		If yes, please verify the lease agreement/draft lease agreement /title deed for establishing clear rights over the roof for installation and operations.	Review compliance to permissions including conditions, if any by proponent through Legal Counsel or SBI's staff.
4	Whether proposal has right to access roof through existing staircase on a 24 X 365 (all days of year irrespective of public holidays and Sundays). If not, what alternatives are considered to access like an external staircase or ring ladder etc. dedicated to GRPV		If not, seek details of alternative safe access along with the permission from owner.	Review the safety of the alternate access to roof through site inspections by IE or SBI's staff.

S. No.	EHS Requirements of GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for ensuring compliance of EHS requirements by SBI	Review and Monitoring by SBI for adequacy and compliance of EHS requirements
	etc.			
5	Whether proposal includes estimated water requirements for washing of panels and dependable arrangements to draw or share water from the same water connection or overhead tanks with owner of the building		Seek details of water requirements and its sources along with required permissions from competent authorities, if any required.	Review the adequacy of arrangements through monitoring by IE or SBI's staff.
6	Whether structural safety of the building, present condition of roof for leakages and/ or cracks and adequacy of roof drainage has been assessed		Seek a structural safety and roof condition certificate from a certified/approved Chartered Engineer / Architect/ Competent person along with an action plan for rectifications and responsibilities, if any required. If not ensure certificate is submitted by proponent prior to first disbursement of loan.	Check the validity, review the adequacy of arrangements through by IE or SBI's staff.
7	Whether the proponent has an accreditation of ISO 14000, OHSAS 18001 or has received any recognitions for environmental friendly initiatives or best EHS practices		If Yes, seek details of valid certifications and or recognitions. Accreditation(s) give an indication to institutional capacity of the proponent to EHS requirements.	
Confirm that Roofing material does not contain any carcinogenic material like Asbestos.				
Installation And Operation Phase				
8	Whether GRPV project require consent to operate (CTO). If Yes, whether proposal has received CTO from State Pollution Control Board		If Yes, seek a copy of the valid consent If not, ensure the same is submitted prior to following disbursement of loan.	Assess/Review compliance to consent conditions by proponent through periodic monitoring by IE or SBI's staff.
9	State whether any arrangement has been		Seek details of take-back arrangement with	Undertaking will be taken from the proponent for

S. No.	EHS Requirements of GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for ensuring compliance of EHS requirements by SBI	Review and Monitoring by SBI for adequacy and compliance of EHS requirements
	agreed with manufacturer to take back damaged /discarded panels, batteries etc.		manufacturer and in case such arrangement is not there with manufacturer stipulate condition in the sanction that the disposal of panel should be as per applicable local law for discarding such hazardous waste.	compliance of the condition.
10	Whether any provision to include Diesel Generator (DG) set as power backup has been considered to regulate /govern power demand and ensure synchronized connectivity with Grid as well as solar power generation level If yes, state reasons to prefer DG set over Batteries for power back up Also state whether DG set is considered as part of the GRPV or function as standalone & independent		Seek the details of DG set funded under the project, confirm installed and precautions considered for avoiding backflow of current to DG set from solar panels/grid supply, which can lead to blast at times due to malfunction of relays etc.	If DG set has been funded as part of the GRPV facility, then check whether GRPV has all precautions considered for avoiding backflow of current to DG set from solar panels/grid supply. Assess/Review GRPV has all required consents/permissions and comply with conditions imposed thereof through periodic monitoring by Independent Engineer or SBI's staff.
11	Whether permissions from the owner is available to access the roof through existing staircase or whether external access will be required.		Seek details of arrangements made for safe lifting of the materials to rooftop through existing staircase or temporary/ permanent external access.	Assess adequacy and review the safety procedures followed during material handling through site inspections and periodic monitoring by Independent Engineer or SBI's staff until 3 months after CoD. Follow up with only annual visit reports.
12	Whether earthing of all plant and equipment / components under GRPV as per Indian Electricity Act,1956 and amended up to 2000 has been made,		Seek certification from Chief Electrical Inspector to Government (CIG).	

S. No.	EHS Requirements of GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for ensuring compliance of EHS requirements by SBI	Review and Monitoring by SBI for adequacy and compliance of EHS requirements
	and tested by an approved competent agency			
13	Whether all safety provisions like provision of rubber mats, electric shock chart, first aid box, fire extinguishers to handle all types of fire (ABC type of required capacity), sand buckets, etc. are provided/installed at appropriate locations		Seek details of safety measures/provisions mandatorily provided prior to testing, trial run and commercial operations of GRPV facility.	Assess adequacy and review the safety provisions including exit routes provided and procedures followed during site inspections and monitoring by IE or SBI's staff.
14	Whether provision to provide safety wear like boots, hard hats (helmets), gloves, safety belts for personnel while working at heights among others have been included in the proposal		Seek details of safety measures/provisions mandatorily provided to all work force deployed on site to ensure safety of personnel at work.	Assess adequacy and review the safety provisions provided and procedures followed during site inspections and periodic monitoring by IE or SBI's staff.
15	Whether all personnel deployed for Installation / Operation and Maintenance are provided with basic training in first aid and fire fighting		An undertaking from the proponent that they will ensure that personnel deployed for Installation / O&M has basic knowledge about first aid and fire-fighting instruments.	
16	Whether all personnel deployed for Installation / Operation and Maintenance (unskilled, semi-skilled and skilled) are paid at minimum wages as per applicable Minimum Wages Act		An undertaking from the proponent that they will ensure compliance of applicable Minimum Wages Act.	
17	Whether all personnel deployed for Installation / O&M are covered under workmen compensation		An undertaking from proponent they will ensure that all personnel deployed for Installation/ O&M personnel will be covered	The adequacy of insurances to be checked by LIE or SBI's staff.

S. No.	EHS Requirements of GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for ensuring compliance of EHS requirements by SBI	Review and Monitoring by SBI for adequacy and compliance of EHS requirements
	insurance policy, EPF (Employee Provident Fund) Act, Gratuity Act etc. as may be applicable or relevant		with workmen compensation insurance policy and are provided with benefits of any other applicable acts.	
19	Managing chemicals used in transformers and other ancillary facilities		Ensure that the Standard Operating Procedures (SOPs) are followed and regulatory permissions for recycling and /or disposal under Hazardous Substances Rules are available for compliance.	Verification during the site visit; Check Documentation including receipts from recyclers, etc.

Annexure 4

Guidance Checklist for compliance on Environmental, Health and Safety (EHS) requirements for GRPV Proposal by PROPONENT

S. No.	Environmental, Health and Safety (EHS) Requirements for GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for EHS compliance by proponent and Appraisal, and Monitoring during installation and operation phases by SBI
Proposal Appraisal Phase			
1	Whether GRPV proposal require consent to establish (CTE). If Yes, whether GRPV proposal has received consent to establish (CTE) from State Pollution Control Board		If Yes, furnish a copy of the valid consent along with consent conditions. In case consent is not in place, it should be made available prior to first disbursement of loan.
2	Whether GRPV proposal require lopping/pruning of tree branches to ensure shadow free area on roof.		If Yes, state whether permissions are obtained from competent authorities for periodic lopping/pruning of trees and furnish a copy of the permissions. In case permission is not in place, it should be made available prior to first disbursement of loan.
3	Whether proposal has right to access roof through existing staircase on a 24 X 365 (all days of year irrespective of public holidays and Sundays). If not, what alternatives are considered to access like an external staircase or ring ladder etc. dedicated to GRPV etc.		In case right to access through existing stair case is not available, details of alternative access to roof, agreed upon with owner, is to be provided. If an external staircase has been considered, whether its location has been agreed upon with owner. If Yes, provide a copy of the same along with application.
4	Whether proposal includes estimated water requirements for washing of panels and dependable arrangements to draw or share water from the same water connection or overhead tanks with owner of the building		If not, how water requirement are intended to be met. Whether through a new water connection or through commercial water tankers or installation of new tube well. If tube well is considered, whether location has been agreed upon with owner and permissions obtained from competent authorities.
5	Whether structural safety of the building, present condition of roof for leakages and/ or cracks and adequacy of roof drainage has been assessed by a certified/approved Chartered Engineer / Architect/ Competent		If Yes, furnish a copy of the certificate issued by a competent authority. In case certificate is not in place, it should be made available prior to first disbursement of loan. In case of any inadequacies in roof condition and drainage, arrangements for rectification should be taken up prior to first disbursement

S. No.	Environmental, Health and Safety (EHS) Requirements for GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for EHS compliance by proponent and Appraisal, and Monitoring during installation and operation phases by SBI
	person		of loan.
6	Whether the proponent has an accreditation of ISO 14000, OHSAS 18001 or has received any recognitions for environmental friendly initiatives or best EHS practices		If Yes, furnish details of valid certifications and or recognitions.
7	State the PV technology to be adopted under this proposal		
8	State whether any arrangement has been agreed with manufacturer to take back damaged /discarded panels, batteries etc.		If Yes, state tenure/stage up to which take back arrangements are agreed upon. Otherwise proponent has to be provided an undertaking that 'panel will be disposed as per applicable law for disposal of such hazardous waste'.
9	Whether any provision to include DG set as power backup has been considered to regulate /govern power demand and ensure synchronized connectivity with Grid as well as solar power generation level. If Yes, state reasons to prefer DG set over Batteries for power back up. Also state whether DG set is considered as part of the GRPV or function as stand-alone & independent.		If Yes, and DG set has been considered as part of the funding of the GRPV facility, then furnish the following information prior to first disbursement of loan: • Rated capacity of DG set • Precautions considered for avoiding backflow of current to DG set from solar panels/grid supply • Consent to establish and operate DG set, if rated capacity is above 15KVA, issued by State Pollution Control Board • State whether DG set has all mandatory acoustic enclosures and installed to minimize noise and vibration levels • On site diesel storage facilities (maximum in liters) considered. • In case diesel storage is more than 2500 liters; permissions from competent authorities under Petroleum and Natural Gas Act are required and submitted to SBI. Additional firefighting facilities due to DG set are to be provided to GRPV.
We confirm that Roofing material does not contain any carcinogenic material like Asbestos.			
Installation And Operation Phase			
10	Whether proposal has received consent to Operate (CTO) from State Pollution Control Board		If Yes, furnish a copy of the valid consent along with consent conditions or proponent should advise expected time line for its submission.

S. No.	Environmental, Health and Safety (EHS) Requirements for GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for EHS compliance by proponent and Appraisal, and Monitoring during installation and operation phases by SBI
11	Whether roof rights have been secured		A lease agreement/ rent agreement with the property owner clearly detailing roof rights with the developer for the entire period of the project in years/ months.
12	Whether permissions from the owner are available to lift the panels to roof through existing staircase.		If not, what alternate arrangements are considered for lifting of panels. This should be available for the life of the project for O&M.
13	Whether earthing of all plant and equipment has been made and tested by an approved agency as per latest Indian Electricity Act, 1956.		If Yes, furnish a certificate from Chief Electrical Inspector (CIG) / appropriate approval for safe installation.
14	Whether all safety provisions like provision of rubber mats, electric shock chart, first aid box, fire extinguishers to handle all types of fire (ABC type of required capacity), sand buckets etc. are provided/installed at appropriate locations.		If not, all safety measures/provisions are mandatorily to be provided prior to testing, trial run and commercial operations date of GRPV facility. All exit routes from the roof shall be well lit and free from all obstacles and unlocked, whenever O&M Personnel's are at work/duty.
15	Whether provision to provide safety wear like boots, hard hats (helmets), gloves, safety belts for personnel while working at heights among others have been included in the proposal.		If not, all such required safety wear are to be mandatorily provided to all work force deployed on site to ensure safety of personnel at work. • All personnel involved in material lifting operations shall be provided with safety gear like shoes, hard hats gloves etc. • Safety belts shall be mandatorily provided for persons working at height. Awareness shall be created amongst workforce about safety and strict adherence to wear safety gear at work shall be enforced
16	Whether all personnel deployed for Operation and Maintenance are provided with basic knowledge about first aid and fire fighting		If not, ensure all O&M personnel undergo a basic training in first aid and fire-fighting as part of their induction, training, prior to their deployment on site.
17	Whether all personnel deployed for Installation / O&M (unskilled, semi-skilled and skilled) are paid at minimum wages as per applicable Minimum Wages Act		If not, ensure wages are mandatorily paid as per applicable Minimum Wages Act.
18	Whether all personnel deployed for Installation / O&M are covered under workmen		If not, ensure all O&M personnel are mandatorily covered under workmen compensation insurance policy. Ensure the

S. No.	Environmental, Health and Safety (EHS) Requirements for GRPV Program	Status (State Yes/No/Not Applicable)	Guidance for EHS compliance by proponent and Appraisal, and Monitoring during installation and operation phases by SBI
	compensation insurance policy, EPF Act, Gratuity Act etc. as may be applicable or relevant		benefits of any other applicable acts are available to O&M personnel. Provide a copy of the insurances taken for the personnel.
19	Managing chemicals used in transformers and other ancillary facilities		Ensure that the Standard Operating Procedures (SOPs) are followed and regulatory permissions for recycling and /or disposal under Hazardous Substances Rules are available for compliance.