E4470 REV

Sustainable Livelihoods and Adaptation to Climate Change Project (SLACC) (P132623)

Environment Assessment and Environment Management Framework

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Abbreviations and Acronyms

CIG	Common Interest Group
CMSA	Community Managed Sustainable Agriculture
CRP	Community Resource Persons
EA	Environmental Assessment
EAP	Environment Action Plan
EGs	Environmental Guidelines
EMF	Environmental Management Framework
EMP	Environmental Management Plan
IEC	Information, Education, Communication
MNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MKSP	Mahila Kisan Swashaktikaran Pariyojana
MoRD	Ministry of Rural Development
NGO	Non Government Organization
NMMU	National Mission Management Unit
NRLM	National Rural Livelihood Mission
NRLP	National Rural Livelihood Project
NTFP	Non-Timber Forest Produce
SHG	Self Help Group
SLACC	Sustainable Livelihoods and Adaptation to Climate Change Project
SMMU	State Mission Management Unit
VO	Village Organization

I. Introduction

1.1 Project Background

1. The Sustainable Livelihoods and Adaptation to Climate Change Project (SLACC) enhances the activities being undertaken under the National Rural Livelihoods Mission (NRLM), which is a national program of the Ministry of Rural Development, Government of India. It brings in the climate change lens into the NRLM and aims to strengthen community based climate planning and adaptation measures into the sustainable livelihood program. The project development objective of the proposed SLACC is to improve adaptive capacity[1] of the rural poor, to climate variability and change affecting farm based livelihoods, through community-based interventions.

1.2 Project Objective/Description

2. The proposed project will support the following three components:

- **Component 1 – Community-based Climate Change Adaptation**: The *objective* of this component is to support community-based risk assessment, planning and implementation of climate adaptation interventions. The key *activities* include: (a) mobilization and capacity building of community institutions on climate change activities; (b) community-led adaptation assessment, participatory planning, and implementation of climate adaptation interventions in drought and flood geographies; (c) financing community adaptation grants to poor rural households (Self Help Groups (SHGs)/Federations) upon approval of a community adaptation plan; and (d) implementation and handholding support to community institutions through local resource agencies. The climate adaptation interventions will be locale-specific, focus on climate risk management and involve interventions both at the household level and/or community level. Funds for implementation of climate adaptation interventions will be provided by the SLACC project as well as through convergence with other Government programs (such as MKSP, MNREGS). The *key outputs* of this component are: (i) community utilization of climate financing mechanism for adaptation interventions in 400 community institutions; (ii) community based climate adaptation measures are implemented by at least 200 community institutions; (iii) enhanced community capacity for planning and implementing climate adaptation plans in 400 community institutions. The *key outcomes* of this component are: (i) strengthened awareness of adaptation and climate change processes at the local level; and (ii) strengthened adaptive capacities to reduce vulnerabilities and risks to climate-induced losses.

- **Component 2 – Scaling and Mainstreaming Community Based Climate Adaptation**: The *objectives* of this component are to build core operational capacity and relevant knowledge base/networks for broader scaling and mainstreaming of climate adaptation

1 Adaptive capacity refers to "the whole of capabilities, resources and institutions to implement effective adaptation measures" (IPCC 2007, Fourth Assessment Report).

interventions. The key *activities* supported include: (a) capacity building of staff and creation of a cadre of Community Resource Persons (CRPs); (b) facilitation of knowledge dissemination on climate adaptation; and (c) policy inputs for scaling-up of the community-based climate adaptation approach. The *key outputs* of this component are: (i) 400 district and sub-district staff trained on climate adaptation; (ii) a cadre of 800 trained CRPs; (iii) differentiated IEC and knowledge products on climate adaptation (community adaptation planning tool and manual, CRP training curriculum, web-based inventory of climate adaptation actions, audio visuals); (iv) a website of a consortium of resource organizations on climate adaptation; (v) donor and NGO workshops on sharing lessons and data exchange; and (vi) guidelines on climate change adaptation developed for national livelihoods implementation framework and policy briefs. The *key outcomes* of this component are: (i) strengthened operational and adaptive capacity of national and state officials and representatives for integrating climate adaptation into livelihood support activities; and (ii) evidence of climate change mainstreaming into national and state livelihood program frameworks.

- **Component 3 – Project Management and Impact Evaluation**: SLACC will augment the state management units to enable coordinated functioning and efficient implementation. The *activities* that the project will invest in include: (a) establishment of climate adaptation units staffed with full-time professionals within the State Mission Management Unit (SMMUs) of the participating states; (b) appointment of state-level implementation teams for providing field implementation support to CRPs and community institutions; (c) establishment of a monitoring system and evaluation arrangements (baseline, mid-term and end-of-term). The *key outputs* of this activity are: (i) climate adaptation units in SMMU; (ii) delivery of services by state level implementation teams as per agreed Terms of Reference; and (iii) evaluation reports (baseline, mid-term and end-of-term). The *key outcome* of this component is efficient and effective management of SLACC components.

1.3 Project Location

3. The SLACC project will be implemented in the states of Bihar and Madhya Pradesh. The key beneficiaries will be the institutions of the rural-poor already supported by the National Rural Livelihoods Mission (NRLM) – including, self-help groups of women and their federations, common interest/producer groups such as farmers' groups, livestock readers' groups, and their higher order collectives such as producer companies. These institutions represent the rural-poor, the majority of whom directly depend on climate-sensitive sectors such as agriculture, livestock and fisheries and have limited adaptive capacity.

1.4 Environment Assessment Study

4. Under the umbrella of the NRLM, the World Bank provided funding support to the National Rural Livelihood Project (NRLP). The NRLP focuses on some blocks in selected districts for creating efficient and effective institutional platforms of the rural-poor enabling them to increase household income through sustainable livelihood enhancements and improved access to financial services. Under the NRLP, an Environmental Assessment (EA) study was undertaken and an Environment Management Framework (EMF) was developed in 2011.

5. The nature of the project requires: (a) a robust, yet simple management system for environmental safeguards that can be implemented across the different levels of each state, drilling down to blocks and villages; and (b) a decentralized, self-managing system that does not rely on top-down monitoring alone, but emphasizes local responsibility and action. The EMF has been customized for SLACC, focusing on specific geographies of the 2 project states - Bihar and Madhya Pradesh, and state-specific interventions (climate adaptation planning and implementation for natural resource based livelihoods). Stakeholder consultation workshops were organized in Bhopal (11 March 2014) and Patna (13 March 2014) in order to elicit views of the key stakeholders (project staff, representatives of community institutions) on the EMF. The EMF has also been disclosed on the websites of the NRLM and the SRLMs of the 2 project states.

II. Environmental Baseline

6. This chapter provides a brief overview of the environmental status and issues in the 2 project states (Madhya Pradesh and Bihar)[2]. Agro-ecological regions are regions that are homogenous in terms of soil, climate and physiography and conducive moisture availability periods i.e., length of growing period. They are land units carved out of agro-climatic zones superimposed on landform which acts as modifier to climate and length of growing period. The agro-climatic diversity of the project area emphasizes the need for locale-specific environmental management. The Environmental Action Plans (EAPs) which will be developed need to be specific to the diverse agro-climatic contexts within the states.

7. Bihar falls under the Middle Gangetic Plain region, while Madhya Pradesh comes under 3 agro-climatic zones -- Eastern, Western and Central Plateau and Hills Regions. Madhya Pradesh has the largest extent of land under forests (8699 thousand hectares), while Bihar has less than 1% of the area under pastures and grazing land, as detailed in Table 2.1[3]. The land use pattern is closely associated with the livelihoods. The overview of land use in the project states points to the need for encouraging local interventions in sustaining forest based livelihoods in Madhya Pradesh, with fodder cultivation and management, in view of the limited fodder resources from pastures and grazing lands in Bihar. Bihar has 59% land being cropped (net sown area) while Madhya Pradesh has more than 20,000 hectares of gross cropped area (net sown area and area sown more than once). Bihar has significant extent of area under seasonal or permanent water logging and Madhya Pradesh has severely eroded land indicated by presence of ravines and gullies. Bihar has the highest consumption of fertilizers per hectare in the country. The status of groundwater development in Bihar and Madhya Pradesh are at the rage 40-50% - indicating that there is scope for further development. Table 2.2 provides details of the agro-ecological zones that the project states fall in, along with information on the main features and constraints in each zone[4].

[2] This is the output of a secondary research exercise aimed at understanding the environmental context of the project area.

[3] Directorate of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India. http://dacnet.nic.in/eands/LUS_2000_2005.htm

[4] K.S. Gajbhiye, C. Mandal. Agro-Ecological Zones, their Soil Resource and Cropping Systems. National Bureau of Soil Survey and Land Use Planning, Nagpur. http://agricoop.nic.in/Farm%20Mech.%20PDF/05024-01.pdf

Table 2.1: Land Use in Project States (2006-2007) (area in thousand hectares)

State	Forests	Not available for cultivation	Pastures & grazing lands	Tree crops	Cultivable wasteland	Fallows	Net sown area
Bihar	622	2083	17	240	46	796	5556
Madhya Pradesh	8699	3397	1348	19	1177	1381	14735

Table 2.2: Agro-ecological Zones in the Project Areas

AEZ	*Location in Project Area*	*Agro-climate*	*Soils*	*Land use*	*Constraints including climate-related risks*
4 Hot Semi-arid Ecoregion with Alluvium Derived Soils	Madhya Pradesh: Bhind, Morena, Gwalior, Datia, Shivpuri	Hot and dry summer and cool winter. Annual precipitation ranges from 500 to 1000 mm with an increasing trend from west to east. It covers 35 to 42 per cent of the mean annual PET demand (1400 and 1900 mm). Annual water deficit is 700-1000 mm. The LGP ranges between 90 and 150 days.	The soils are moderately to very gently sloping, coarse to fine loamy and include highly sodic soils. In the northern part of the region, the terrain is frequently interrupted by stable sand dunes.	Almost 65 per cent of the region is under irrigated agriculture. The remaining part is under traditional rainfed agriculture. In the northern plain, the droughty climate is overcome by tubewell irrigation and the area is intensively cultivated for both kharif and rabi crops, such as rice, millets, maize, pulses, berseem, wheat, mustard and sugarcane. Moderately high yields of wheat and paddy are obtained with irrigation. In some parts of central highlands, like Bundelkhand, less than 25 per cent of the net cropped area is under irrigation, while the rest is under rainfed agriculture. The predominant kharif crops grown under rainfed agriculture are jowar, piegeonpea and soybean, while rabi crops, such as pulses (gram), lentil and wheat are grown on residual moisture with one or two protective irrigations at critical stages of crop growth. In Chambal catchment, the cropping pattern has undergone drastic change replacing millets by wheat, cotton and sugarcane after the introduction of irrigation. The natural vegetation comprises tropical dry deciduous and thorn forests.	Coarser soil texture and low plant available water capacity (AWC); Over exploitation of groundwater, resulting in lowering of groundwater table in some areas; At places, imperfect drainage conditions lead to spread of surface and subsurface soil salinity and/or sodicity.
5 Hot Semi-arid Ecoregion with Medium and Deep Black Soils	Madhya Pradesh: Ujjain, Ratlam, Jhabua, Indore, Dhar, Dewas, Khandwa, Khargone,	The climate of the region is characterized by hot and wet summer and dry winter. The annual precipitation in the region ranges from 500 to 1000 mm. It covers 40 to 50 per cent of the annual PET	Soils are nearly level to gently sloping deep, loamy to clayey black soils. The Kathiawar peninsula and the coastal areas have saline and alkali soils.	Dryland farming is the common practice in the region. The Kharif crops usually cultivated in the area are sorghum, pearlmillet, pigeonpea, groundnut, soybean, maize and pulses. The common Rabi crops are sorghum, safflower, sunflower and gram.	The intermittent dry spell periods; Imperfect drainage limits optimum root ramification and oxygen availability in low-lying areas; Salinity and alkalinity hazards under irrigated

	Mandsaur	demand (1600 to 2000 mm) resulting in gross annual water deficit of 800 to 1200 mm. The LGP ranges from 90 to 150 days in a year.	Soils of the Malwa plateau are clayey, slightly alkaline, calcareous with characteristic swell-shrink properties.	Wheat is grown under irrigated conditions. The natural vegetation comprises dry deciduous forest.	agriculture; Severe salinity and seasonal inundation by sea water in the Kathiawar coast resulting in crop failure.
9 Hot Subhumid (Dry) Ecoregion with Alluvium-Derived Soils	Bihar: Bhojpur, Rohtas, Jahanabad, Patna, Bihar-Sariff, Aurangabad, Gaya, Nawada	Hot summer and cool winter. Annual rainfall of 1000 to 1200 mm, 70 per cent of which is received during July to September. The rainfall covers about 70 per cent of the annual PET demand of 1400 to 1800 mm and leaves an annual water deficit of 500 to 700 mm. The region has LGP of 150 to 180 days.	The soils of the region are generally deep and loamy. The dominant soilscapes constitute gently to moderately sloping alluvium soils. In general, they are neutral in reaction and have moderate clay and low organic carbon content. Itwa soils are sodic in their subsurface.	Traditionally rainfed and irrigated agriculture is common. The crops grown are rice, maize, barley, pigeonpea and jute in kharif season and wheat, mustard and lentil in rabi season. Sugarcane and cotton are grown at places under irrigated conditions. The natural vegetation comprises tropical dry deciduous forests.	Injudicious use of irrigation water may lead to waterlogging and salinity hazards.
10 Hot Sub-humid Ecoregion with Red and Black Soils	Madhya Pradesh: Guna, Sagar, Bhopal, Damoh, Vidisha, Rajgarh, Shajapur, Sehore, Raisen, Jabalpur (Western part), Narsimpur, Hoshangabad, Betul, Tikamgarh, Chhattarpur, Panna, Satna, Rewa, Sidhi, Shahdol, Chhindwara, Seoni, Mandla, Balaghat,	Hot summer and mild winter. The precipitation shows an increasing trend towards east. The mean annual rainfall ranges between 1000 and 1500 mm covering about 80 per cent of the mean annual PET (1300-1600 mm). The LGP ranges from 150-180 days.	The soils are largely medium, deep black soils interspersed with patches of red soils. Gently sloping shallow black soils, gently to very gently sloping red loamy soil, and very gently sloping to nearly level medium black soils. The dominant deep black soils are calcareous, slightly alkaline and have high swell-shrink potential. The red soils generally occur on ridges and on pediment surfaces. They are shallow to moderately deep, clayey, neutral to	Rainfed agriculture is the common practice. Rice, sorghum, pigeonpea and soybean are commonly grown kharif crops. Gram, wheat and vegetables are common rabi season crops. Kharif cropping is totally rainfed, whereas Rabi cropping is partly irrigated at critical stages of growth. The natural vegetation comprises tropical moist deciduous forest.	Cracking clayey soils having narrow workable moisture conditions; Dry tillage and inter tillage practices are difficult to perform; Risk of inundation of the cropped areas during rainy season and risk of acute droughtiness due to prolonged dry spells in Kharif season leading to crop failure at places; Soil loss due to heavy runoff during rainy season resulting in stagnation of water and poor germination; Deficiency of N, P and Zn resulting in nutrient imbalances.

	Jabalpur (Eastern part), Narsimpur, Hishangabad.		slightly acidic in nature occurring on gently to very gently sloping pediment surface in Bundelkhand region.		
11 Hot Sub-humid Ecoregion with Red and Yellow Soils	Bihar: Palamu, Hazaribag, Gumla, Lohardaga Madhya Pradesh: Ambikapur, Bilaspur, Raigarh, Raipur, Rajnangaon, Durg	Hot summers and cool winters. Annual rainfall is 1200 to 1600 mm; of which 70-80 per cent is received between July to September. It meets about 60 per cent of annual PET demand (1400 to 1500 mm). PET exceeds the precipitation from October to June. The LGP ranges between 150 and 180 days in a year.	The dominant soils in the area are moderately to gently sloping red and yellow soils and red loamy soils. They are deep, loamy, non-calcareous and neutral to slightly acidic.	Rainfed agriculture is the traditional farming with cultivation of rice, millets, pigeonpea, moong and blackgram in kharif season. At places, wheat and rice are cultivated under irrigated conditions during rabi season. The natural vegetation comprises tropical moist deciduous forest.	The soils are susceptible to severe water erosion; Partial waterlogging in early stages of crop growth and seasonal droughtiness during advanced stage of crop growth; Subsoil gravelliness and coarse texture, at places, reduce AWC; Deficiency in N, P and micronutrients, such as Zn and B, causes nutrient imbalances.
12 Hot Sub-humid Ecoregion with Red and Lateritic Soils	Bihar: Dumka, Devghar, Giridih, Dhanbad, Ranchi, Singbhum	Hot summers and cool winters. The area receives an annual rainfall of 1000-1600 mm which covers about 80 per cent of the PET leaving deficit of 500 to 700 mm of water per year. Prolonged dry period from December to May (more than 90 days in a year). The LGP varies from 150 to 180 days and at places it is 180 to 210 days.	The dominant soils of the area are represented by gently to very gently sloping red loamy soils, red and yellow soils. They are fine loamy to clayey, non-calcareous, slightly to moderately acidic. The soils are generally shallow on the ridges and plateaus and are under forest cover. The soils in valleys are deep and are generally cultivated.	Rainfed farming is the traditional practice with cultivation of rice, pulses (moong, blackgram and pigeonpea) and groundnut. In rabi season, rice (at places) and wheat are cultivated mostly under irrigated condition. The natural vegetation comprises tropical dry and moist deciduous forests.	The soils are susceptible to severe erosion hazard; Seasonal droughtiness limits optimum crop yields; Subsoil gravelliness and coarse soil texture results in low AWC; Deficiency of N, P and some micronutrients, such as Zn and B causes nutrient imbalances; The soils are subject to moderate to high P fixation (especially the Red and Lateritic soils).
13 Hot Subhumid (Moist) Ecoregion with Alluvium – derived Soils	Bihar: Paschim Champaran, Purab Champaran, Gopalganj, Siwan, Sitamarhi, Muzaffarpur,	Hot, wet summer and cool, dry winter. The area receives an annual rainfall of 1400-1800 mm which exceeds the mean annual PET demand (1300 and 1500 mm). The area experiences a small seasonal	The soils in the area are represented by level to very gently sloping alluvium-derived soils. These occur in association with level to very gently sloping, imperfectly drained	Rainfed agriculture with cultivation of rice, maize, pigeonpea, moong are common in kharif season. In post-rainy (rabi) season, wheat, lentil, pea, sesamum, and at places, groundnut is grown on residual soil moisture with one or two protective irrigations at critical stages. The important cash crops such as	Flooding and imperfect drainage conditions limit soil aeration; Salinity and/or sodicity, occurring in patches, affect crop yields; Deficiency of N, P and Zn results in nutrient imbalances.

	Chhapra, Madhubani, Darbhanga, Samastipur, Saharsa, Begusarai, Munger, Khagaria, Sahibganj, Bhagalpur, Katihar, Madhepura, Purnia, Hazipur, Godda	water deficit of 400 to 500 mm during February to May. The LGP ranges from 180 to 210 days in a year.	soils. The soils are calcareous and moderately alkaline in reaction. They show different degrees of profile development. The Tarai soils at the foothills of central Himalayas are deep, loamy and high in organic matter content.	sugarcane, tobacco, chillies, turmeric, coriander and potato are usually grown with supplemental irrigation. The natural vegetation comprises tropical moist deciduous and dry deciduous forests.

III. Legal and Regulatory Framework for Environmental Management

8. It is important that the livelihood activities of the SHGs and the Producer Organizations are in tune with the laws and regulations of the country and the states. This section presents a brief listing of the various Acts, Rules and Regulations of the Government of India, the state Governments as well as the safeguard policies of the World Bank. On the basis of the alignment of the proposed SLACC interventions with respect to these laws and regulations, a *Regulatory Requirements List* has been developed (detailed in Annex 2).

Table 3.1: National and State Environmental Laws and Regulations

Act or Regulation	***Relevance to SLACC***
National Regulations	
Environment (Protection) Act, 1986 and EIA Notification, 2006	Emission or discharge of pollutants beyond the specified standards is not permissible.
The Air (Prevention and Control of Pollution) Act, 1981	To provide for the prevention, control and abatement of air pollution in India
The Water (Prevention and Control of Pollution) Act 1974	To provide for the prevention and control of water pollution, and for the maintaining or restoring of wholesomeness of water in the country
Indian Forest Act, 1927	To consolidate the law relating to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce
Wildlife (Protection) Act, 1972	Destruction, exploitation or removal of any wild life including forest produce from a sanctuary or the destruction or diversification of habitat of any wild animal, or the diversion, stoppage or enhancement of the flow of water into or outside the sanctuary is prohibited without a permit granted by the Chief Wildlife Warden. The Act provides for protection to listed species of flora and fauna and establishes a network of ecologically-important protected areas (Pas)
Forest (Conservation) Act, 1980	Diversion of forest land for non-forest purposes can be done only after permission from the Central Government.
The Biological Diversity Act, 2002	To provide for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.
Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006	The Act recognizes the rights of forest-dwelling Scheduled Tribes and other traditional forest dweller, over the forest areas inhabited by them, and provides a framework for recording the same. The Act can be summarized as: • *Title rights* - i.e. ownership - to land that is being farmed by tribals or forest dwellers as on December 13, 2005, subject to a maximum of 4 hectares; ownership is only for land that is actually being cultivated by the concerned family as on that date, meaning that no new lands are granted; • *Use rights* - to minor forest produce (also including ownership), to grazing areas, to pastoralist routes, etc.; • *Relief and development rights* - to rehabilitation in case of illegal eviction or forced displacement and to basic amenities, subject to restrictions for forest protection; • *Forest management rights* - to protect forests and wildlife.

Coastal Regulation Zone Notification 2011	The Government of India declares the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action up to 500 meters from the High Tide Line (HTL) and the land between the Low Tide Line (LTL) and the HTL as Coastal Regulation Zone (CRZ) and imposes restrictions on the setting up and expansion of industries, operations or processes, etc., in the CRZ.
Insecticides Act, 1968	A license is required for the sale, stock or exhibition of sale or distribution of any insecticide. The use of certain insecticides are prohibited or restricted under this Act.
The Fertilizer (Control) Order, 1985	Registration is required for selling fertilizer at any place as wholesale dealer or retail dealer
The Seed Act, 1966	Selling, bartering or otherwise supplying any seed of any notified kind or variety, requires that – a) Such seed is identifiable as to its kind or variety; b) Such seed conforms to the minimum limits of germination and purity specified; c) The container of such seed bears in the prescribed manner, the mark or label containing the correct particulars.
Environmental Safeguard Policies of the World Bank	
Environmental Assessment (OP 4.01)	The Bank requires environmental assessment (EA) of projects proposed for Bank financing to ensure that they are environmentally sound and sustainable, and thus to improve decision making.
Natural Habitats (OP 4.04)	The Bank does not support projects that, in the Bank's opinion, involve the significant conversion or degradation of critical natural habitats.
Pest Management (OP 4.09)	In Bank-financed agriculture operations, pest populations are normally controlled through integrated pest management approaches, such as biological control, cultural practices, and the development and use of crop varieties that are resistant or tolerant to the pest. The Bank does not finance formulated products that fall in WHO classes IA and IB, or formulations of products in Class II [111,] if (a) the country lacks restrictions on their distribution and use; or (b) they are likely to be used by, or be accessible to, lay personnel, farmers, or others without training, equipment, and facilities to handle, store, and apply these products properly.
Cultural Property (OP 4.11) (Physical Cultural Resources)	The Bank does not finance projects that will significantly damage non-replicable cultural property, and will assist only those projects that are sited or designed so as to prevent such damage. The project areas do not involve sites having archeological (prehistoric), paleontological, historical, religious, and unique natural values.
Indigenous Peoples (OP 4.10)	The objective at the center of this directive is to ensure that indigenous peoples do not suffer adverse effects during the development process, particularly from Bank-financed projects, and that they receive culturally compatible social and economic benefits. For an investment project that affects indigenous peoples, the borrower should prepare in indigenous peoples development plan that is consistent with the Bank's policy. Any project that affects indigenous peoples is expected to include components or provisions that incorporate such a plan.
Involuntary Resettlement (OP 4.12)	The objective of the Bank's resettlement policy is to ensure that the population displaced by a project receives benefits from it. There is no likelihood of any displacement happening as part of the project activities.
Forests (OP 4.36)	The Bank distinguishes investment projects that are exclusively environmentally protective (e.g., management of protected areas or reforestation of degraded watersheds) or supportive of small farmers (e.g., farm and community forestry) from all other forestry operations. Projects in this limited group may be appraised on the basis of their own social, economic, and environmental merits. The Bank finances plantations only on non-forested areas (including previously planted areas) or on heavily degraded forestland.
Safety of Dams (OP 4.37)	Construction of any dams may not be part of the project. Small dams are normally less than 15 meters in height. This category includes farm ponds, local silt retention dams, and low embankment tanks. For small dams, generic dam safety measures designed by qualified engineers are adequate.
Projects on International	International waterways are not part of the project area.

Waterways (OP 7.50)	
Projects in Disputed Areas (OP 7.60)	Disputed areas are not part of the project area.
State Regulations	
Bihar	
Indian Forest (Bihar Amendment) Act, 1989	The following acts are prohibited in reserved and protected forests: Clearing, kindling fire, trespassing cattle, damaging trees (feeling, girdling, lopping, topping, burning, stripping bark and leaves), Quarrying stone, burning lime or charcoal, collecting any forest produce, clearing or breaking land for cultivation, hunting, shooting, fishing, poisoning water, setting traps or snares, etc.
Bihar Ground Water (Regulation and Control of Development and Management) Bill, 2006	Any user of ground water desiring to sink as well either on personal or community basis in the notified area (not specified so far), needs to apply to the Ground Water Authority for grant of a permit. This is not applicable in the case of wells that are fitted with hand operated pumps or water is proposed to be withdrawn by manual devices. Existing users of ground water are also required to register themselves with the Ground Water Authority.
The Bihar Fish Jalkar Management Bill, 2006	Fishing in rivers is prohibited from 15th June to 15th August. Fishing net or Gill net with less than 4 cm mesh size shall be prohibited in rivers. Fishing of fingerlings of culturable fishes of any species shall be prohibited in rivers and reservoirs; Use of dynamite or explosives, poison and poisonous chemicals for fishing shall be prohibited; Drawing of water from tanks, reservoirs and mauns for irrigation shall be prohibited. The District Fisheries Officer may order for drawing of water for irrigation when the water level is averages a minimum of five feet in these Jalkars; Intentional water pollution, encroachment in Jalkars and disfiguration of the structure of Jalkars is prohibited
Bihar Irrigation Act, 1997	No well exclusively for domestic use, either on personal or community basis can be excavated within the distance specified by the State Government from time to time from the boundaries of an irrigation work without previous sanction by their State Government. No person has a right to fish or ply any vessel in a reservoir, pond or tank or along a canal or channel maintained or controlled by the Government without written permission of the State Government; No person can extract water for any purpose by the installation of pump sets or any other electrical or mechanical devices for pumping water from an irrigation work except with the permission of the Divisional Canal Officer. No person shall deposit any produce of mines or earth or any other material in or near any channel or field drain or other work, whether natural or artificial through which rain or other water flows into any irrigation work; No person shall pollute, or discharge sewage effluent or trade effluent in the water of any irrigation work which may cause injury to the irrigation work or may deteriorate the quality of water of the irrigation work or may give rise to any growth of weeds in the irrigation work.
The Bihar Restoration and Improvement of Degraded Forest Land Taxation Act, 1992	The State Government has the power to levy, assess and collect a tax called the Bihar Restoration and Improvement of Degraded Forest Land Tax for reclamation and rehabilitation of forest land from the user using forest land for non-forest purpose or indulging in developmental activities including mining.
The Bihar Forest Produce (Regulation of Trade) Act, 1984	The purchase, transport, import or export of specified forest produce in a notified area can only be done by the Government or by an appointed agent. The primary collector of a specified produce may transport his specified forest produce [112] within the unit. Retail sale of a specified forest produce is permitted only under a license. Eucalyptus trees grown on land owned by farmers are not considered forest produce.
Bihar Rules for the Establishment of Saw Pits and Establishment and Regulation of Depots, 1983	Permission from the Divisional Forest Officer is required for establishing, maintaining or running a saw pit or depot.

Bihar Saw Mils	No person shall establish, operate a saw mill or saw pit except under license. No saw mil

(Regulation) Act, 1990	can exist within 15 km from a notified forest area.
Bihar Kendu Leaves (Control of Trade) Act 1973	No person other than the Government or an appointed agent can purchase or transport Kendu leaves.
Madhya Pradesh	
Lok Vaniki Act 2001	This act is to give a boost to scientific management of privately owned 'forests' and other 'tree clad areas' in the state. The Act provides an opportunity to the willing landholders to take up management of their tree-clad holdings for optimizing economic returns to themselves and simultaneously ensuring environmental benefits to the society. The Act is voluntary in its application.

IV. Environmental Management Framework

4.1 Learnings from Bank Supported Livelihood Projects

9. The EMF describes the strategy and plan for implementing environmental safeguards and ensuring environmentally sound practices in project supported activities. This EMF draws from valuable experience and learnings on the implementation of environmental safeguards in Bank supported projects on poverty reduction and rural livelihoods in the states of Andhra Pradesh, Madhya Pradesh, Rajasthan, Chhattisgarh, Bihar and Tamil Nadu and also from the National Rural Livelihoods Mission and Program. These include:

i. As the nature and scale of livelihood activities undertaken by individual households is environmentally benign and small in scale, the potential impacts are also localized and manageable. Therefore, rather than place emphasis on micro-managing micro-impacts through appraisal of every individual household activity – it is more meaningful and efficient to: (a) focus on introducing/improving the systems in community institutions for environmental management; and (b) periodically monitor cumulative impacts to provide pointers on required interventions.

ii. The livelihood projects are unique in two ways: (a) they have limited negative environmental consequences; and (b) they have immense, demonstrated potential for interventions that can lead to positive environmental impacts. Thus, the EMF for these projects cannot limit its scope to the mitigation of negative impacts alone. It needs to spell out a strategy for pro-active interventions that will promote environment-friendly livelihoods.

iii. Initiatives on identifying and introducing potential Green Business Opportunities have taken off in a couple of NRLP states. Examples include fuel-efficient cook-stoves (demonstrated in 3 states) and domestic biogas units (scoping done in 2 states). These can be further replicated in SLACC.

iv. The experience from the Bank's livelihood projects has been that promulgation of good environmental management in livelihoods is best achieved through demonstration of eco-friendly practices – initially through pilots followed by scaled-up interventions. Examples on this include the Community Managed Sustainable Agriculture (CMSA) in Andhra Pradesh, the System for Rice Intensification (SRI) in Bihar, and the Responsible Soya initiative in Madhya Pradesh. The strategy for promotion of Green Opportunities is described in the EMF of the NRLP. Through the planning and implementation of the Community Climate Adaptation Plans, SLACC will support the promotion of such green opportunities relevant to climate adaptation.

v. Institutional arrangements and mainstreaming responsibilities and climate change

thinking is critical for implementation: the EMF of SLACC needs to rely more on the institutional arrangement created under SLACC for its implementation.

vi. SLACC's Community Climate Adaptation Plans and the EMPs of these plans will act as the pilot that will help in developing the methodology and scaling-up strategy for EMPs across the wider NRLP.

vii. Role of external agencies: Internalization of EMF in the project is better achieved when the responsibility for regular supervision rests with project staff as compared to a situation where it is outsourced to an external agency. External agencies can provide invaluable technical support for promoting environment-friendly livelihoods and for capacity building.

4.2 Rationale and Objectives

10. The focus of the EMF is to introduce and strengthen environmental management by the institutions of the rural poor so as to contribute to the sustainability of the climate adaptation interventions undertaken. The objectives of the EMF are to:

- **institutionalize** environmental management in the community institutions;
- **mainstream** environment and climate change planning and sustainability into core project activities;
- contribute to livelihood security through better of **management** of natural resources;
- facilitate **adoption** of environment-friendly livelihood activities;
- facilitate **compliance** with Bank's environmental safeguard policies and with laws/regulations of the Government of India and state Governments.

11. The EMF specifies that SHG Federation EMPs will be developed to enable the following:

- Making the EMF **locale-specific** – relevant to the issues and actions needed in the specific village;
- Giving the EMF continued **relevance** as micro-credit is an on-going activity;
- Providing opportunity for village level **norms on resource use** to emerge and/or be strengthened;
- Providing **opportunity** for the SHG federation to take up environmental management (in the context of the livelihoods and well-being of its members) as one of its core functions;
- Functioning as a '**bottom-up' process** for generating demand on Green Opportunities.

12. The EMP will be a simple document detailing:

i. Actions required at individual household level, SHG level, primary federation level including community norms on use of the natural resources and environmental management;

ii. Plan for implementation of required actions including awareness building, training and extension support activities that will be facilitated by the federation;

iii. Institutional arrangements in the federations and SHGs for implementation of the EMP;

iv. Plan for monitoring implementation of the EMP;

v. Sources of support for implementation of the EMP (these include convergence with

existing Government schemes such as MNREGS as well as support from the NRLP).

4.3 Process of EMP Development

13. The Community Climate Adaptation Plans to be developed and implemented by community institutions (self-help group federations and common interest/producer groups/producer companies) under SLACC will include an EMP. The EMP will also ensure compliance with the 'regulatory requirements list'. The EMP will be prepared by the community institution with facilitation by the Climate Smart Community Resource Persons (Climate Smart CRPs) and Cluster Climate Adaptation Coordinators. The EMP will be an integral part of the Community Climate Adaptation Planning process. It will be appraised as part of the appraisal of the Community Climate Adaptation Plan by a team of experts constituted at the district level by the District Climate Adaptation Coordinator. An indicative template for the EMP is provided in Annex 1 and the process is clarified in Figure 4.1. The Operational Guidelines/Manual and Tool that will be developed under the SLACC project on the Community Climate Adaptation Plan will include a section on the EMP.

Figure 4.1: Process of EMP Development and Implementation

Climate Smart CRP with support from Cluster Climate Adaptation Coordinator facilitates development of EMP as part of the Community Climate Adaptation Plan by the community institution

↓

Sources of support for implementation of actions in EMP are identified (e.g., SLACC Community Adaptation Grant, NRLP livelihoods grant, MNREGS, line department schemes, etc.)

↓

EMP is appraised as part of appraisal of Community Climate Adaptation Plan by the district expert team constituted by the District Climate Adaptation Expert

↓

Climate Smart CRP provides/facilitates required support to the community institution for implementation of the EMP

↓

Implementation of the EMP is monitored by the Climate Smart CRP and Cluster Climate Adaptation Coordinators

14. In order to ensure the quality of the EMPs, they will be appraised (as part of the appraisal of the Community Climate Adaptation Plans) using the following criteria:

- Adherence to the regulatory requirements list;
- Comprehensiveness and relevance of the livelihoods, issues and actions identified;
- Implementable plan for identified actions;
- Clear institutional arrangements in VO for EMP implementation;
- Detailed plan for monitoring;
- Identification of relevant indicators.

15. The State Climate Adaptation Coordinator will also review a sample of the EMPs. The purpose of the review is two-fold: (a) to ensure quality in the development of the EMPs; and (b) to identify and provide support for the EMP operationalization. In case the EMP is not of satisfactory quality, the Coordinator will ensure that it is appropriately revised by the community institution through a process facilitated by the Climate Smart CRP/Cluster Climate Adaptation Coordinator.

16. As part of the EMP preparation process, the nature of the support required for the implementation of the mitigation measures is identified. This includes both possible sources for meeting the technical support requirements (line departments, Krishi Vigyan Kendras, NGOs, etc.) and the financial support requirements (SLACC Community Adaptation Grant, NRLP livelihoods grant, MNREGS, line department schemes).

4.4 Environmental Management Toolkit

17. The EMF of the NRLP has a toolkit that has been developed based on the experience of implementation of livelihood projects. The purpose of this toolkit is to guide identification of measures to mitigate potential negative environmental impacts in rural livelihoods. The toolkit will be used by the Climate Smart CRPs as basic reference material in facilitating development of EMPs. The toolkit contains the following:

i. A '**regulatory requirements list**' drawn up on the basis of the existing law and regulations of the Government of India, the state Governments and the safeguard policies of the World Bank. The list is provided at Annex 2. This initial list needs to be validated for each of the states involved in SLACC by the State Implementation Team. State specific regulations that are relevant to the environment-rural livelihood context need to be added to this list.

ii. **Activities that require detailed environmental appraisal** by technically qualified personnel along with a recommendation on the technical qualifications of the personnel who will undertake the detailed environmental appraisal. This list is provided at Annex 3.

iii. **Environmental guidelines for rural livelihoods**: Guidelines are provided for four major livelihoods – agriculture, livestock, non-timber forest produce and fishery. These include a listing of the possible impacts and the relevant mitigation measures.

The guidelines are provided at Annex 4.

18. The toolkit will be integrated into the 'Operational Guidelines/Manual for Community Climate Adaptation Grant' that will be developed as part of SLACC, and will thus be made available to all the Cluster Climate Adaptation Coordinators and Climate Smart CRPs.

V. Institutional Arrangements

19. The key institutions involved in SLACC at the national, state, sub-district (cluster) and village levels are shown in Figure 4.1. The institutional arrangements for the EMF at all these levels are detailed both in the project structure as well as in the community institutions and are presented in Table 5.1 and 5.2.

Table 5.1: Key Institutions in SLACC Implementation

	National	**State**	**District**	**Cluster**	**Village**
NRLM Institutions	National Rural Livelihood Promotion Society – National Mission Management Unit for the NRLM	State Rural Livelihood Missions – Madhya Pradesh Rural Aajeevika Forum, Bihar Rural Livelihoods Promotion Society			
Community Institutions					Primary Federation of Self Help Groups – Village Organization
Technical Support Institutions	Lead Technical Support Agency (LTSA)		Implementation Partner NGOs		
Personnel	Climate Adaptation Expert positioned by LTSA	State Climate Adaptation Coordinator Climate Adaptation Expert positioned by LTSA	District Climate Adaptation Coordinator	Cluster Climate Adaptation Coordinator	Climate Smart Community Resource Person

Table 5.2: Institutional Arrangements for EMF Implementation

Level	*Who*	*Responsibilities*
State	State Climate Adaptation Coordinator	Ensure quality in implementation of the EMF in the state Coordinate closely with relevant thematic counterparts in the SMMU team (livelihoods, capacity building, etc.) for mainstreaming of environmental management and climate adaptation
	Climate Adaptation Expert positioned by LTSA	Validate the approach to development of the EMPs as part of the Community Climate Adaptation Plans (through field testing) Validate the EMF toolkit (regulatory requirements list, environmental guidelines) in consultation with the relevant line departments and technical support institutions (academic institutions, NGOs, etc.) in the state Ensure training of Cluster Climate Adaptation Coordinators and Climate Smart CRPs on the EMF of SLACC Undertake monitoring visits to clusters to get feedback and provide support on EMF implementation Dissemination of best practices and cross learning across clusters
District	District Climate Adaptation Coordinator	Ensure quality in implementation of the EMF at the district level Constitute a district expert team for appraisal of the EMPs along with the appraisal of the Community Climate Adaptation Plans Support Cluster Climate Adaptation Coordinators in development and implementation of EMPs Dissemination of best practices and cross learning across the clusters
Cluster	Cluster Climate Adaptation Coordinator	Ensure quality in implementation of the EMF at the cluster level Support all community institutions in adhering to the 'regulatory requirements list' Support community institutions in development and implementation of EMPs Dissemination of best practices and cross learning across the community institutions
Village	Climate Smart Community Resource Person (Climate Smart CRPs)	Build capacity of community institutions in environmental management in the context of the climate adaptation interventions identified in the village Facilitate the development and implementation of the EMP for the community institutions (with the support of the Cluster Climate Adaptation Coordinator)
SHG Federations	Climate Adaptation Committee	Develop and implement the EMP for the Community Climate Adaptation Plan Organize technical support and training for SHG members on environmental management aspects Undertake monitoring of implementation of EMP and any emerging cumulative environmental impact on a regular basis

VI. Capacity Building

20. The effective implementation of the EMF requires capacity building of the key individuals in the project structure and the community institutions. A tiered approach to capacity building will be followed, as detailed below:

a. An orientation on the EMF of SLACC will be provided by the Lead Technical Support Agency appointed under the SLACC to the State SLACC project team members including District Climate Adaptation Coordinators and Cluster Climate Adaptation Coordinators.

b. Training on environmental management will be integrated into the training of the Climate Smart CRPs. The training will focus on development and implementation of the EMPs as part of the Community Climate Adaptation planning and implementation process. The 'Operational Guidelines/Manual on the Community Climate Adaptation Grant' developed by the Lead Technical Support Agency (LTSA) will form the basic resource material for this training. The training will be provided by the State Climate Adaptation Expert positioned by the LTSA in the SRLM. The trained Climate Smart CRPs will, in turn, train the community institutions through focused small group sessions.

VII. Monitoring:

21. The key officials at the state and sub-district/cluster levels will conduct internal monitoring of the implementation of the EMF. The details of this monitoring are provided in Table 7.1 below:

Table 7.1: Internal Monitoring

Level	***Key responsibility for monitoring***	***Aspects covered under monitoring***	***Sample to be covered annually***
Sub-District/ Cluster	District Climate Adaptation Coordinator	Desk and field review of quality of EMPs of community institutions	100% community institutions
State	State Climate Adaptation Coordinator	Desk and field review of quality of EMPs of community institutions	30% community institutions
	State Climate Adaptation Expert	Desk and field review of quality of EMPs of community institutions	100% community institutions
National	National Climate Adaptation Expert	Desk review of outputs of state monitoring Desk review to check if environmental appraisal by technically qualified personnel is being done for activities identified in the EMF as requiring the same Desk review of outputs of external environmental audit	

22. An external audit of the environmental performance of the EMF will be undertaken in year 2 (mid-term) and year 4 (end-term). The scope of this audit will cover the EMF with the objective of assessing and compiling:

- Overall effectiveness of the design and implementation of the EMF
- Quality and implementation of the EMPs and their effectiveness
- Cumulative impacts of the interventions supported by the SLACC (in key sectors such as agriculture, livestock, etc.)
- Adequacy of institutional arrangements in the project structure and in the community institutions.
- Capacity of the project staff for implementation of the EMF and quality of monitoring.
- Capacity of the community institutions for environmental management
- Adverse environmental impacts of the project-supported activities (individual, as well as cumulative)

- Good practices which have been undertaken
- Recommendations for strengthening the EMF.

23. As a follow-up to the audit reports, and especially in cases where the audit indicates that the implementation of the EMF is weak and/or that there are significant environmental impacts of the project-supported activities, the required remedial actions will be taken by the SMMUs.

VIII. Budget

24. The estimated budget for the EMF implementation in the two states is INR 20,00,000. As the costs of the capacity building, staffing and monitoring are integrated into the overall project costs for these activities, this budget basically covers the cost of the external audit.

Annex 1: Template for Environmental Management Plan (EMP)

1. Profile of Community Institution (location, number of affiliate SHGs and SHG members, year of formation, etc.)

2. Status and issues with respect to the natural resources of the village:

Resource	***Availability (number, extent)***	***Uses***	***No. of families dependent***	***Extent of dependence***	***Issues***
Agricultural land					
Wasteland					
Grazing land					
Forest					
Water bodies					
Groundwater					
Livestock					

3. Details of any Protected Areas (Wildlife Sanctuaries, National Parks) in the vicinity of the village.

4. Details of the groundwater zone that the village is in: Safe / Semi-critical / Critical / Over-exploited.

5. Key livelihoods of the poor in the village and interventions identified for climate adaptation:

Livelihood	***Interventions on Climate Adaptation***
Agriculture	
Livestock	
Fisheries	
Forest-based livelihoods	
Others	

6. Measures identified for sound environmental management of the identified climate adaptation interventions:

Interventions	***Measures identified for climate adaptation***			
	Potential issues in environmental management (resource depletion, pollution, safety, etc.)	*Measures identified for mitigating any negative impacts*	*Measures identified for enhancing any positive impacts*	*Confirm that the planned intervention is in compliance with the Regulatory Requirements List (Confirmed / Not Confirmed)*

7. Plan for implementation of identified measures:

Activity	***Time frame***
Training programmes: Exposure visits: Extension support: Credit support:	
Community norms: Activities / Works:	

8. Support required by community institution for implementation of the EMP:

Activities	***Details of technical support required***	***Details of financial support required***	***Source of support***

9. Institutional arrangements in the community institution for implementation of the EMP:

Names of EMP sub-committee members	***Key responsibilities***

10. Monitoring Plan

Frequency of review meetings by EMP sub-committee:

Frequency of site visits by EMP sub-committee:

Annex 2 : Regulatory Requirements List[5]

There are certain kinds of activities which contravene the laws and regulations of the State Governments, Government of India as well as Safeguard Polices of the World Bank. Such activities are not to be supported under the SLACC. The list below includes attributes that would disqualify an activity from being supported under SLACC and as such shall be treated as the screening tool for proposed activities to be supported under SLACC:

Agriculture

- Digging of irrigation tubewell without taking required[6] permission from the relevant authority will not be supported.
- Digging of tubewell (except for public drinking purpose) in an area identified as an 'over-exploited groundwater basin' will not be supported.
- Digging of irrigation tubewell within a distance of 250 meters from the nearest tubewell will not be supported.
- Purchase, stock, sale, distribution or exhibition of the following pesticides will not be supported:
  - pesticides classified in Class Ia, Ib and II of WHO classification;
  - pesticides banned by the Government of India;
  - pesticides banned by the State Government.
- Purchase, stock, sale, distribution or exhibition of pesticides and chemical fertilizers will not be supported without the requisite licenses.

Livestock

- Grazing of livestock in forest areas without taking required[7] permission from the Forest Department will not be supported.
- Grazing of livestock that have not been vaccinated in forest areas will not be supported.

Forests and Wildlife

- Activities that involve use of forest land for non-forest purposes without the permission of the Forest Department will not be supported.
- Extraction, transport, processing, sale of forest produce including non-timber forest produce without taking required[8] permission from the Forest Department will not be supported.
- Felling of trees without taking required[9] permission from the Forest Department will not be

[5] This initial list needs to be validated by each of the SMMUs in consultation with the respective line departments and technical support agencies (Krishi Vigyan Kendras, NGOs, etc.).
[6] Applicable in all cases except in states/locations where such permission is not required to be taken.
[7] Applicable in all cases (a) except those that are in accordance with the provisions of the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (b) except in states/locations where such permission is not required to be taken from the Forest Department.
[8] Applicable in all cases (a) except those that are in accordance with the provisions of the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (b) except in states/locations where such permission is not required to be taken from the Forest Department.
[9] Applicable in all cases (a) except those that are in accordance with the provisions of the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (b) except in states/locations where such permission is not required to be taken from the Forest Department (c) except for species for which such permission is not required to be taken from the Forest Department.

supported.
- Setting up of saw mills or any other timber processing mills without the permission of the Forest Department will not be supported.
- Activities that involve destruction of wildlife or of wildlife habitat will not be supported.
- Clearing, kindling fire, damaging trees (felling, girdling, lopping, topping, burning, stripping bark and leaves), quarrying stone, etc., in reserved and protected forests will not be supported.

Fisheries
- Fishing in the Government declared prohibited/closed season will not be supported.
- Fishing using nets with mesh size smaller than the permissible size will not be supported.
- Fishing using destructive fishing practices (use of poison, explosives, etc.) will not be supported.
- Culture of invasive species (e.g., African Catfish) will not be supported.

Infrastructure
- Construction of roads, buildings, check dams, embankments, etc., will not be supported without prior approval of the design by a qualified Engineer.
- Embankment / check dam exceeding 3 meters in height will not be supported.
- Activities involving discharge into any water body any industrial waste, sewerage or other polluting substance will not be supported.
- Any industrial activity will not be supported without requisite permission from the Government (State Pollution Control Board).
- Brick making activity using soil from agricultural fields will not be supported.
- Mining activities will not be supported.
- The following activities in the Coastal Regulation Zone (CRZ) will not be supported:
    - discharge of untreated wastes and effluents,
    - withdrawal of ground water except when done manually through ordinary wells for drinking, horticulture, agriculture and fisheries,
    - mining of sands, rocks and other substrata materials,
    - construction activity between the Low Tide Line and High Tide Line in the CRZ-I and III without requisite permission[10].

Activities with Significant Adverse Environmental Impact

All activities likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented, with impacts that may affect an area broader than the site of the activity are not to be supported.

[10] CRZ I: Includes (i) Areas that are ecologically sensitive and important, such as national parks/marine parks, sanctuaries, reserve forests, wildlife habitats, mangroves, corals/coral reefs, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty/historically/heritage areas, areas rich in genetic diversity (ii) Area between Low Tide Line and the high Tide Line; CRZ III: Areas that are relatively undisturbed and include coastal zone in the rural areas (developed and undeveloped).

Annex 3 : Classification of Activities According to Level of Environmental Impact

	Level 1	***Level 2***	***Level 3***
Activities	All activities that are likely to have only short term negative or positive environmental impact and that are taken up at the SHG member level: • Agriculture • Horticulture • Livestock • Fishery • Non-timber Forest Produce	All sub-projects that are likely to have long term negative environmental impacts and that are taken up at the SHG member level: • Brick kiln • Irrigation tube well	All sub-projects that are likely to have significant environmental impacts that require specific technical inputs for proper planning and/or mitigation: 1. Sale, distribution of agro-chemicals by SHG Federations/ Producer Organizations 2. Check dams, embankments, etc.
Implications for identification of mitigation measures	Identification by VO (with facilitation by CRP) as part of preparation of Environmental Management Plan.		Technical appraisal and identification of mitigation measures by: For 1 by District level officer of the Department of Agriculture For 2 by qualified civil engineer – preferably from a District level officer of the Department of Minor Irrigation / Watershed Development

Annex 4 : Environmental Guidelines

1. Irrigation Tubewell			
Possible Issues	***Compulsory actions***	***Good practices at individual level***	***Good practices at VO Level***
Over extraction will deplete ground water. Unprotected / abandoned bore holes are a safety hazard for small children.	Check the regulatory requirements list and ensure compliance, especially with regards to the following: In over-exploited basins, do not support irrigation tube wells. Maintain minimum distance of 250 m between two adjacent tubewells. Take required permission from relevant authority for digging of tubewell.	Use efficient ways of irrigation like drip and sprinkler irrigation. Use pipes for conveying water to avoid seepage and evaporation losses. If field channels are used to convey water, keep them free from weeds to avoid water loss (in arid and semi-arid areas line channels with plastic sheets to avoid seepage loss). Dig percolation pit. Plug / cover boreholes that are open / abandoned.	Organize training on rainwater harvesting, efficient irrigation methods (drip and sprinkler irrigation including the low-cost bucket drip system) and water conservation practices. Facilitate access to Government schemes such as subsidy on drip and sprinkler irrigation, farm ponds under MNREGS, etc. Periodic review to assess any emerging cumulative impact.
Use of hazardous pesticides harms human, livestock and environmental health. Excessive use of chemical fertilizers leads to pollution.	Do not use (a) banned pesticides (b) pesticides that are extremely hazardous or highly hazardous or moderately hazardous. Do not dispose used pesticide containers in the open (fields, near water bodies, etc.) – dispose by sealing and burial.	Follow sustainable agriculture practices (see below) Use pesticides only with recommendation of the Agriculture Extension Personnel as part of an integrated pest management approach. Use the prescribed mask, gloves and goggles to protect the body while handling pesticides. Use efficient spraying equipment to prevent leakage. Always wash with soap after spraying. Use chemical fertilizers only on the basis of recommendations given after soil testing.	Para-extension worker/s to provide extension support to farmers, procure quality inputs, facilitate soil testing, etc. Establish agriculture tool hiring center with equipment such as efficient sprayers, safety gear, weeder, etc. Support enterprises such as shops for selling botanical pesticidal extracts, pheromone traps, vermicompost, etc. Organize awareness programs on safe use of pesticides, fertilizer scheduling, benefits of organic manures, etc. Facilitate access to Government schemes such as subsidy for vermicompost units, training on integrated pest management, etc.

2. Sustainable Agriculture Practices

(Extracted from Guidelines of the *Mahila Kisan Sashaktikaran Pariyojana* (MKSP), Ministry of Rural Development, Government of India)

Pest Management:

- Deep summer ploughing: Summer ploughing exposes the pupae surviving inside the soil. Depth of ploughing should be more than 6 inches.
- Exposed pupae will die due to excess heat (or) eaten away by birds.
- Seed treatment with non-chemical components.
- Clipping of the tips in case of Paddy: Cut seedling tips while transplanting into the main field. This will prevent Stem borer attack as Stem borer lays eggs on the tips of the leaves.
- Alleys in Paddy: Leaving 1 feet path at every 3 metres interval in East –West direction will avoid attack of Hoppers.
- White and Yellow sticky traps: Arrange 15-20 Yellow and White sticky traps per acre. Green leaf hoppers and thrips stick to these traps. Clean these traps once in two days and add sticky material to traps for effective trapping. Height of these traps should be the same as the plant height.
- Bird perches: Arrange 10-15 bird perches per acre immediately after transplanting and remove these at grain filling stage (60 days after transplanting). Bird perches will attract birds and birds will eat pests. Broad costing of yellow rice will attract more birds. Height of bird perches should be more than the height of plants.
- Pheromone traps: Keeping 5-10 Pheromone traps in zigzag way to mass trapping of pests. Lure has to be changed once in a month or after the expiry date.
- Growing of trap crops: Grow yellow flower Marigold (tall growing plants are preferred) and Castor around field, ensure flowering before main crop completes vegetative stage.
- Border crop: Sow 3 rows of tall growing Jowar or Bajra or Maize (without any gap in the row). This will provide enabling environment for friendly insects.
- Application of Botanical extracts: If all the above mentioned principles are followed religiously, there will not be any need to apply botanical extracts.

Disease Management:

- Selection of Seed: Seed should be free from diseases and resistant varieties should be selected.
- Incorporating weeds: Weeds and other voluntary plants should incorporate into soil.
- Reduce/no chemical fertilizer usage: Reduce (or) avoid chemical fertilizers to prevent diseases.
- Crop rotation: Rotate crops particularly with pulses to prevent disease spread.
- Avoid application of Nitrogenous fertilizer during cloudy days.
- Alleys: Alleys provide enough sunlight and wind flow and prevent disease spread

Rodent control:

- Use Rodent traps – 5-10 per acre.
- Keep Papaya pieces all around the field – four Papayas are sufficient for one acre.

- Rodent repellent crops such as Calotropis, Turmeric, Castor plants which are rodent repellants.
- Keep mix of Cement and Wheat or any other flour at rat holes

Nutrient Management:

- Penning with Sheep (or) Cattle: Penning sheep or cattle will improve soil fertility. During summer, penning of sheep and cattle in the whole night is a general practice
- Tank silt application: Application of tank silt will improve soil fertility and water holding capacity
- Application Farm Yard Manure (FYM): Application of 6 tonnes/acre of completely decomposed FYM per acre will improve soil fertility.
- Green manure crops: Green manure crops will improve soil structure and organic matter content. After reaching flowering stage incorporate green manure crops into soil.
- Application of Azolla: Add Azolla to paddy field to fix atmospheric nitrogen; an average half of the nitrogen fertilizer application can be reduced
- Micronutrient deficiency: For nutrient deficiency (Iron, Zinc and Potash) in nursery and in main field, spray cow urine and cow dung and Asafoetida solution.
- Green leaf manure: Green leaf manuring with Pongamia, neem etc will improve soil fertility.
- Efficient composting methods like NADEP composting.
- Intercropping of monocots and dicots.
- Crop rotation with pulse crops.
- Mulching with green leaf and crop residues.

Soil and moisture conservation in Rainfed areas:

- Conservation furrows for every four meters.
- Trenches all-around farm.
- Farm ponds.

Cropping pattern in rain fed areas:

- Trees all around trench on farm boundary.
- Cropping pattern with red gram in between the conservation furrows in 2:1 and 5:1 with millets and groundnut respectively

3. Livestock			
Possible Issues	***Compulsory actions***	***Good practices at individual level***	***Good practices at SHG/VO Level***
Degradation of pasture lands and forests. Fodder scarcity. Water scarcity. Poor hygiene leading to spread of disease.	Do not graze animals in forest land without taking requisite permit from the forest department.	Practice stall feeding – wholly or partially (if possible, cultivate fodder). Chop fodder and use feed trough to prevent wastage of fodder. Always store fodder in clean and dry place. Use supplementary animal feed (crop residues, non-conventional feed, etc.) after technical consultation with the Agriculture Extension Personnel. Practice fodder treatment (with urea, molasses, mineral mixture, etc.) after technical consultation with the Agriculture Extension Personnel. In water-scarce areas, invest in rooftop rain water harvesting to meet water requirement of the livestock. Cattle must be housed outside the living area – preferably in a separate shed. The shed should be at least 15 meter away from drinking water source (hand pump) and should be kept clean. Collect dung and urine for use as manure (compost, liquid manure, etc.). Dispose animal carcasses by burning/burial at least 500 meter away from habitations/water bodies. In case of diseased animals seek technical advice on safe disposal from a qualified Veterinary Doctor.	Operate chaff cutter on pay-and-use basis for benefit of all members. Establish a system for bulk purchase, storage and supply of fodder (fodder bank) for use in periods of scarcity. Undertake pastureland development (soil conservation, seeding, protection, rotational harvesting). Facilitate access to Government schemes such as subsidy for chaff-cutters, distribution of fodder seed, training on fodder management, etc.

4. Fisheries			
Possible Issues	***Compulsory actions***	***Good practices at individual level***	***Good practices at SHG/VO Level***
Unsustainable fishing practices leading to stock depletion and biodiversity loss	Do not fish in the season declared as prohibited/closed by the Government. Do not use nets with mesh size smaller than the permissible size prescribed by the Government.		Coordinate with Fisheries Department (and other technical support institutions) for technical support and training on

	Do not fish using destructive fishing practices (use of poison, explosives, etc.). Do not culture invasive species (e.g., African Catfish). Do not fish in coastal waters with mechanized and motorized trawlers within the prescribed distance/depth specifications of the Government.		sustainable fishing including proper stocking density, feed/fertilizer scheduling, etc.

5. Environmental Guidelines (samples) for Producer Collectives

Agriculture

Compulsory actions

- Take license to sell, stock, exhibit and distribute pesticides from the competent authority.
- If pesticides are to be sold or stocked at more than one place, take separate licenses for every such place.
- Display the license in a prominent part of the premises that is open to public.
- Do not sell pesticides in classes Ia, Ib, and II (WHO Classification of Pesticides by Hazard).
- Do not sell pesticides without ISI Mark Certification.
- Do not stock or sell any insecticide unless it is properly packed, properly labelled (including name of active ingredient, expiry date, toxicity level, etc.) and the package includes information leaflet (including safety guidelines).
- Do not change or remove any inscription or mark made by the manufacturer on the container, label or wrapper of any pesticide.
- For sale of the insecticide Sulphur and its formulations, maintain a separate register showing names and addresses of all the persons to whom it has been sold or distributed and the quantities to be sold or distributed.
- Do not sell or store pesticide in the same building where any articles consumable by human beings or animals are manufactured, stored or exposed for sale. Store in a separate room which is well built, dry, well-lit and ventilated and of sufficient size.
- Immediately after the date of expiry segregate and stamp all such stocks as ‘not for sale’ and keep in a separate place with clear sign displaying that it is date-expired pesticide. Dispose these stocks in an environment friendly manner taking advice from the Pollution Control Board.
- Take license to sell fertilizers from the competent authority (Dy. Director, Agriculture).
- Do not sell fertilizers without ISI Mark Certification.
- For seed production obtain license from the competent authority.

Good practices

- Maintain proper records of procurement and sale of pesticides specifying the brand name and name of active ingredients.
- Stock and promote sale of safety gear to be used while handling pesticides (for example, hand gloves, plastic masks, etc.).

- Stock and sell inputs/equipment for non-chemical pest management (neem oil, pheromone traps, etc.).
- Stock and sell bio fertilizers and organic manures such as neem seed cake, vermicompost, etc.
- Provide soil testing and fertilizer recommendation services to member farmers.
- Coordinate with Department of Agriculture and Krishi Vigyan Kendra to provide training to farmers on integrated pest and nutrient management suitable for the region.

Dairy

Compulsory actions

- Take required permission from Pollution Control Board to establish and operate a milk processing unit;
- Coordinate with Forest Department for permission to member farmers for grazing of livestock in forest area[11].

Good practices

- Encourage fodder management practices among member farmers including – fodder cultivation, rotational grazing, fodder enrichment, etc.
- Encourage composting by member farmers.
- Ensure hygiene in the milk cooling / processing unit premises.
- Dispose waste water from the milk cooling / processing unit premises into a soak pit located at least 15 metres away from any drinking water hand pump or tubewell.
- Coordinate with Department of Agriculture/Animal Husbandry for training/technical support to member farmers on fodder management and composting.

Non-Timber Forest Produce

Compulsory actions

- Take required permission from Forest Department for collection, storage, transport, sale, processing of forest produce including NTFP.
  Coordinate with Forest Department for permission to members for collection of NTFP[12].

Good practices

- Ensure proper storage of NTFP (ventilation, humidity control, etc.) to prevent wastage of produce and to avoid health risk.
- Encourage sustainable NTFP harvesting practices among members.
- Coordinate with Forest Department or other technical support agencies (NGOs) for training/technical support to members on sustainable NTFP harvesting.

[11] Relevant in case of locations where there is use of forest areas for grazing and where such permission is required.
[12] Relevant in cases where such permission is required.