

GOVERNMENT OF INDIA
PRADHAN MANTRI GRAM SADAK YOJANA (PMGSY)



PMGSY - RURAL ROADS PROJECT

**Environment and Social Management Framework
(Executive Summary)**

November 2010

**National Rural Roads Development Agency
Ministry of Rural Development**

Abbreviations

AAV	Aggregate Abrasion Value
BoQ	Bill of Quantities
CD Structures	Cross Drainage Structures
CPCB	Central Pollution Control Board
DPR	Detailed Project Report
ECoP	Environmental Code of Practice
GoI	Govt. of India
GP	Gram Panchayat
GS	Gram Sabha
GSB	Granular Sub- Base
HFL	High Flood Level
IRC	Indian Roads Congress
IS	Indian Standards
MoEF	Ministry of Environment and Forests
MoRD	Ministry of Rural Development
MoRTH	Ministry of Road Transport and Highways
MoU	Memorandum of Understanding
NOC	No-Objection Certificate
NREGA	National Rural Employment Guarantee Act
NQM	National Quality Monitor
O & M	Operation and Maintenance
ODR	Other District Roads
OM	Operations Manual
PIU	Project Implementation Unit
PMGSY	Pradhan Mantri Gram Sadak Yojana
POL	Petrol, Oil and Lubricants
PRIs	Panchayat Raj Institutions
PUC	Pollution Under Control
PWD	Public Works Department
RoW	Right of Way
SP	Special Publications
SPCB	State Pollution Control Board
WBM	Water Bound Macadam

Environment and Social Management Framework (ESMF)

Executive Summary

1. Background

1.1 "Empowering" rural India through the strategic provision of all-season road access has emerged as one of the key priorities for the Government of India (GoI). The Eleventh Five Year Plan (2007-2012), and the Tenth Plan before it, recognizes that rural connectivity is a key component of rural development and poverty alleviation in India. The Ministry of Rural Development (MORD) launched the "Pradhan Mantri Gram Sadak Yojana (PMGSY)" – Prime Minister's Rural Road Programme in 2000 to address the problem of poor rural accessibility in a more systematic way.

1.2 The PMGSY originally sought to provide all-season road access for every community with a population greater than 1,000 by 2003, and all villages with population greater than 500 by the end of the Tenth Five Year Plan in 2007. The programme is primarily funded by the GoI through the Central Road Fund (CRF), and funding support from multi-lateral agencies.

1.3 PMGSY now targets include connecting up to 178,000 habitations, involving construction of about 375,000 km of roads in addition to upgrading 372,000 km of existing rural roads that are in poor condition. This entails expenditures of about Rs 1.330 billion (US \$ 33 billion).

2. Project Description

2.1 Through its Country Assistance Strategy, the World Bank commits to a series of loans/credits to support PMGSY. Starting from the Rural Roads Project I (RRP I) approved in 2004 and currently under implementation, the PMGSY Rural Roads Project will be the second World Bank operation to support PMGSY. The proposed project is a US\$ 1.5 billion operation which will use a programmatic approach to support implementation of the PMGSY programme over a five year period in the participating states Jharkhand, Himachal Pradesh, Rajasthan, Meghalaya, Uttarakhand, Uttar Pradesh and Punjab.

2.2 The project will contribute to the finance of civil works expenditures in the seven participating states associated with providing new all weather access to unconnected habitations and upgrading key through routes in rural areas, and will strengthen implementation efficiency and the sustainability of programme roads through improved maintenance. The project will also support a technical assistance programme designed to strengthen the capacity of relevant agencies to implement the programme. The project aims to enhance the effectiveness of the PMGSY programme through improvements in its overall policy-framework and systems.

2.3 The approach enables both the client and the Bank to concentrate on elements that support systemic improvements and focus on monitoring outputs and actions aimed at system enhancements. A series of indicators, called Disbursement-Linked Indicators (DLIs), are the translation of this agreed set of results that will be monitored. Performance against these indicators will determine the level of funding to be disbursed by the Bank (with the maximum annual level also being agreed at appraisal) every year during the project implementation period. The results will be monitored twice a year as the basis for disbursements. Also, a series of independent verification and audit mechanisms will be put in place by the project to complement system enhancements that

are aimed at monitoring efficiency and quality of expenditure within the PMGSY programme.

2.4 The project is structured around two components:

- Component A – PMGSY programme financing contributes to the finance of civil works expenditures in the seven participating states associated with providing new all weather access to unconnected habitations and upgrading key through routes in rural areas. The project will strengthen implementation efficiency and the sustainability of programme roads through improved maintenance.
- Component B – Institutional strengthening will support a technical assistance programme designed to strengthen the capacity of relevant agencies to implement the programme.

3. Environment and Social Management Framework

3.1 To avoid, minimize and mitigate the environmental and social issues that are likely to arise during the planning, design and implementation of sub-project level activities, an Environmental and Social Management Framework (ESMF) has been prepared for the project. Based on the findings of the diagnostic review for environmental and social aspects conducted for PMGSY by the Bank and the experience gained from the on-going World Bank funded Rural Roads Project (RRP I), the ESMF document of RRP I has been modified/revised for use in this project.

3.2 It comprises of four volumes: (i) an ESMF, the main volume that provides an overview on the approach and institutional arrangements for managing environment and social issues in the project; (ii) an Environmental Codes of Practice (ECoPs), containing 20 codes, each covering a guidance note on a specific environmental aspect; (iii) a Social Management Framework, providing guidance on handling land uptake, resettlement and stakeholder participation related issues; and (iv) a Vulnerability Framework to address the needs of the vulnerable population and to enable measures for promoting distributional equity among the project affected persons (PAPs) in a culturally sensitive manner. These four documents together have been referred as ESMF in the various project documents and in this executive summary.

3.3 The ESMF has been prepared using a three-tier approach comprising of the following steps: (i) review of environmental and social conditions and issues in the participating states in context of the project/programme interventions; (ii) consultations with stakeholders; and (iii) use of field/practical experience gained from implementation of the on-going Bank financed RRP I.

3.4 Based on the above approach, a consensus on the following was established:

- (i) The ESMF used for RRP I is largely relevant for the PMGSY Rural Roads Project and can be adapted for the PMGSY Rural Roads Project with necessary modifications, primarily guided by the experience gained in the field.
- (ii) The Environmental Codes of Practice (ECoPs) need strengthening to focus on issues of slope stability, debris management (particularly to address road construction issues in the hill states) and biodiversity management (to better address issues related to flora and fauna in and around protected/critical natural habitats) keeping in mind the geographical and environmental context of the participating states.
- (iii) Stronger focus was needed in the PMGSY programme to strengthen the environmental and social management capacity both at national and state level.

3.5 The ESMF serves as a comprehensive and a systematic guide covering policies, procedures and provisions, which are to be integrated with the over-all project cycle to ensure that the environmental and social issues are systematically identified and addressed at the sub-project level. The provisions under the framework have been prepared in accordance with the relevant statutory provisions of Government of India and for compliance with the applicable World Bank Policies.

3.6 The ESMF provides technical inputs and guidance for the PMGSY road works (new construction, upgrading and maintenance) from an environmental and social management perspective. It identifies key environmental and social issues in context of proposed project interventions and provides for mitigation measures for the identified potential impacts. It also provides guidance on tapping opportunities for enhancing the benefits from the project/programme.

4. Environment and Social Issues and Impacts

A. Potential Environmental Impacts

4.1 Deficiencies in planning and design of sub-projects can lead to insufficient arrangements to conserve natural drainage pattern; inadequate slope stabilization provisions and; improper disposal of construction wastes, including earth cuts in hilly terrain causing landslips/slides, soil erosion, siltation of water bodies and degradation of scenic value. The stability of cut slopes for new and/or widened roads and the disposal of debris/spoils are key concerns in hilly states like Himachal Pradesh, Uttarakhand and Meghalaya.

4.2 New connectivity by providing roads in remote locations may also affect critical natural habitats such as protected areas, wildlife corridors, wetlands and forests. States like Himachal Pradesh, Jharkhand, Meghalaya and Uttarakhand have a significant percentage of their geographical area under forest cover and therefore need more robust planning and design of sub-projects to avoid, minimize and manage adverse environmental impacts.

4.3 In addition, the uptake of land, particularly fertile farmland for road construction/widening; felling of trees; impact on local water bodies; improper management of materials and their sources (such as aggregates, sand, earth and water); increased traffic (in case of upgrading and through-routes) causing safety concerns for both road-users and road-side residents; occupational health related risks faced by construction workers and construction-stage nuisances such as dust and noise require attention. In villages close to urban centers, new commercial and public activities may lead to an increase in the pressure on the local resources. Potential long-term impacts could include changes in land use pattern (from agriculture to real estate or other non-farming purposes) and occupations of the people.

4.4 On the positive side, the strengthening of human capital from enhanced habitation connectivity, increased access to employment, education and other social services are some of the benefits anticipated from the programme/project. It may also contribute towards reducing outward migration from the rural areas in some cases, as has been noted during RRP I implementation.

B. Potential Social Impacts

4.6 The social benefits from a rural road project are specific to the villages targeted under the programme. Construction in PMGSY is usually proposed along the existing tracks and restricted to the width as available in the Revenue Records. The

impoverishment risks and social adversities for rural roads projects are generally minimal because of low land intake.

4.7 Assessments and consultations till date indicate accrual of net gains to the people affected as they will gain better access to their agricultural fields and gain higher land values. Improved access also facilitates productivity enhancements and better participation of female workers in agricultural and other productive activities. Rural communities reported elevation in social status and pride in being connected to the main road network, and having an important community asset in form of the road.

5. Environmental Management

5.1 The ESMF serves as a comprehensive and a systematic guide covering policies, procedures and provisions, which are being/will be integrated with the over-all project cycle to ensure that the environmental aspects are systematically identified and addressed at the sub-project level. The use and integration of ESMF/Environmental Codes of Practice (ECoPs) into the project's operational cycle will help in avoiding and mitigating adverse environmental impacts. It will also help in enhancing positive impacts and facilitate in achieving compliance with the Bank's Safeguard Policies and regulatory requirements of GoI/States.

5.2 The approach ensures effective environmental management in a scenario where multiple sub-projects are located in different parts across the seven participating states and minimizes the need for carrying out a sub-project level environmental assessment (EA) and preparation of Environmental Management Plan (EMP). The ESMF/ECoPs seek to standardize the environment management approach across a large number but similar kind of small scale rural road development works spread across a wide geographical area.

5.3 **Environmental Codes of Practice (ECoPs):** The ECoPs provides technically specified solutions illustrating the general principles of environmentally sound and sustainable planning, design and construction of road structures. Appropriate guidance has been developed to enhance positive impacts and to avoid, minimize and mitigate adverse impacts through 'environmental codes of practice'. These activity-specific codes address planning/design, construction and operation-stage issues associated with: (a) site preparation; (b) construction camps and plant sites; (c) borrow and quarry areas; (d) water management; (e) slope stability and erosion control (including introduction of bio-engineering practices); (f) waste management; (g) drainage; (h) public and worker's

Scope of Environmental Codes of Practice

- ④ To form a field guide/manual for planners, field engineers and contractors for managing environmental issues in rural road works.
- ④ Identify project activities that can have potential environmental impacts and to provide mitigation measures for the same.
- ④ Demonstrate road design and construction practices that are cost-effective and address environmental impacts.
- ④ Illustrate recommended practices to address the environmental concerns during project planning, design and implementation and stage.
- ④ Enable involvement of the rural communities at different stages of the project.
- ④ Achieve PMGSY objectives of rural connectivity through roads that are planned and constructed to blend with the natural surroundings.

health and safety; (i) cultural properties (including handling of 'chance-find'); and (j) tree plantation. In addition, specific codes have been developed to provide guidance on environmental audit (covering pre-construction, construction and operation stages) and public consultation.

5.4 The ECoPs have been revised in the light of the experience gained from RRP 1, feedback from key stakeholders and the need for more attention to environmental issues connected with road construction in hilly areas. The ESMF/ECoPs also provide comprehensive checklists to 'supervise/audit' the management of relevant environmental issues during the various phases of the project: (i) DPR preparation, (ii) Pre-Construction, (iii) Construction, and (iv) Post-Construction.

5.5 **Environmental Screening Exercise.** To provide connectivity to remote villages, particularly in the hill states, some of the sub-projects/roads will pass through or are adjacent to forest areas. Such sub-projects will be subjected to applicable regulatory clearance and scrutiny as per the norms of Govt. of India (GoI)'s and the concerned state governments. However, critical environmental issues such as adverse impacts on ecologically sensitive areas, which may result on account of improper selection, planning/design and construction activities, will be avoided and/or appropriately mitigated (as the case may be) by using results from the Environment Screening Exercise. The screening methodology provided as part of the ESMF/ECoPs will help in determining the magnitude/sensitivity of environmental issues at the sub-project level, particularly in relation to the presence of ecologically sensitive habitats.

5.6 A sub-project level screening will determine the likelihood of any possible direct impact/s on natural habitats, including critical forest areas, in the context of possible selection/design/construction of a sub-project. The core rural road network would be screened not only for the officially demarcated protected areas (such as National Parks and Sanctuaries), but also for areas outside these boundaries that are considered critical for certain species of fauna (tigers and elephants, for instance). This will provide an early warning, using which appropriate decisions could be made early-on in the sub-project development cycle. In such cases, which are likely to be very few (about 1 to 2 percent of the total number of sub-projects), specific guidance on selection, design, mitigation and/or management measures (as applicable in the context of a sub-project) will be provided under the project.

5.7 The said approach will help in identifying and filtering out sub-project/s proposed within the designated wildlife protection areas. Further, it will also ensure that no sub-project even outside a designated protected area with likely possibility of creating significant or irreversible adverse impact on a sensitive habitat/species is taken-up without a proper study/ environment assessment. These critical areas have been studied and mapped by the Wildlife Institute of India (WII) and maps are particularly well developed for the 17 tiger range states, which include states such as Uttarakhand, Uttar Pradesh, Rajasthan and Meghalaya included in this project. NRRDA has collaborated with WII for helping the participating states in conducting this screening exercise. For the works proposed under Tranche 1 of the project, the states are conducting, a manual exercise (non-GIS based) with help from their concerned Department of Forests and Nodal Environment Officers to achieve this objective until a complete system is developed and put into use (some states don't have GIS or even consolidated AutoCAD maps of the core road network, which will be needed to conduct this exercise). NRRDA/SRRDA will implement this screening criterion in collaboration with the WII/MoEF.

6. Social Management

6.1 To improve the over-all social safeguard management and ensure compliance with

OP 4.12 (Involuntary Resettlement) and OP 4.10 (Indigenous Peoples), exclusive operational documents – the Social Management Framework (SMF) and the Vulnerability Framework (VF) - have been prepared for the project.

6.2 In instances where available width is small, additional land may be required for construction of roads, and however negligible be the land requirement, the SMF would apply to ensure compliance with Bank's safeguard and national policies on land acquisition and resettlement. Land acquisition is not financed under the PMGSY but provided by the states - mostly through voluntary donations. However, a couple of PMGSY project states – Punjab and Uttarakhand instituted purchase of land as opposed to voluntary donation, and this represents an important shift in the land transfer modalities under the PMGSY, one that will mitigate potential social challenges associated with voluntary transfers.

6.3 The Social Management Framework lays down the standards for asset donations, ensures that throughout its life, the project fully complies with the principle that involuntary loss of assets or relocation of economic activities or residence, is minimized and fully compensated; and guarantees that adequate procedures exist for prior consultation of all affected persons, assessment of losses and entitlements, grievance redress mechanism, and monitoring of the outcomes.

6.4 In rural India, Scheduled Tribes (STs), along with Schedule Caste (SCs) and poor women are considered vulnerable and are often face difficulties in participating development programme. Given this context, the project has developed the Vulnerability Framework to guide addressing the vulnerability from birth identity and gender, while complying with Bank safeguard policies and national legal framework for Scheduled Tribes. These are present in all participating states, with Meghalaya, followed by Jharkhand reflecting the largest percentage of Scheduled Tribes among the participating states of the project.

6.5 The Vulnerability Framework ensures that the development process generated by the PMGSY fully addresses the needs of the vulnerable populations and enables measures to promote distributional equity among the project affected populations (PAPs) in a culturally sensitive manner. It emphasizes on the importance of participatory approaches, including information sharing, consultation and collaboration, as a way to give voice to, and strengthen the capabilities of PAPs - especially vulnerable groups, to influence the project's outcomes.

6.6 The Grievance Redressal Mechanism, designed as part of SMF provides for two levels to redress complaints – (i) 'informal mechanisms' that provides opportunities to resolve issues, if any during project preparation stage through information dissemination, transect walk and community consultation processes; and (ii) 'formal mechanism', which provides for a three tier system, with Panchayat level Grievance Redress (PGRC) Committee as the first tier, the District level Grievance Redress Committee (DGRC) as the second tier, and the court of law as the third. The petitioner always has the right to access the court of law outside of the GRC process. The petitioner is exempted from all administrative and legal fees incurred in seeking grievance redress through the PGRC and DGRC process.

6.7 While implementation of the original ESMF under RRP I has provided reasonable experience to NRRDA as well as to some of the proposed project states, annual reviews of the functioning of the SMF and VF within the project will improve understanding of their effectiveness in enabling compliance with OP 4.12 and OP 4.10 respectively, and enable modification, when and where necessary.

7. Applicable World Bank Safeguard Policies

The World Bank's safeguard policies applicable to the project are detailed below.

S. No.	World Bank Policy	Applicability	Measures in the Project
1.	Environmental Assessment OP 4.01	The project may have impacts on environmental components such as on water bodies, trees and slopes in case of hilly areas.	Preparation, application (in DPRs) and implementation (during construction stage) of Environmental Codes of Practice (ECoPs) for addressing environmental, health and safety (EHS) issues. In addition, integration of EHS requirements into the Standard Bidding Document will provide enabling mechanism for enforcement.
2.	Natural Habitats OP 4.04	Some sub-projects (about 1 to 2 percent) are likely to be in/close to sensitive natural habitats.	Development of an environment screening tool and conducting of the said exercise to determine the nature and magnitude of impacts on sensitive natural habitats. Appropriate measures to deal with such findings, including non-inclusion of some sub-projects, as may be necessary.
3.	Forests OP 4.36	Some sub-projects are likely to be in/close to forest areas and may need forest land diversion, particularly in the hill states.	SRRDA/PIUs to obtain necessary clearances prior to award of civil works. Use of ECoPs to address impacts, including avoidance/minimization of construction and allied activities in forest areas, as necessary.
4.	Cultural Properties OP 4.11	The project entails risk/damage to cultural properties and has likelihood of chance-finds.	Provisions made for avoidance/protection of cultural properties through design modifications and/or other measures, as may be required. Relocation of religious structures, as and if necessary after proper consultation and agreement with the concerned community.
5.	Indigenous Peoples OP/BP 4.10	Several project states have a significant tribal population, whose well being needs to be protected and promoted.	The VF ensures that the development process generated by the project fully addresses the needs of the vulnerable population, including the Scheduled Tribes.

S. No.	World Bank Policy	Applicability	Measures in the Project
6.	Involuntary resettlement OP/BP 4.12	Some sub-projects may require additional land for constructing the road, possibly causing loss of small strips of agriculture land and in few cases, losses of entire or substantial parts of land holdings and even structures.	The SMF articulates standards for land transfers through purchase/donation to mitigate against harm to the donors, particularly to those designated as vulnerable.

8. Stakeholder Consultation and Disclosure of Documents

8.1 The Environment and Social Management Framework (including the ECoPs and SMF/RPF) of the present project, is in fact a modified/revised version, which is being used for the on-going Bank funded Rural Roads Project (RRP I). Feedback and inputs have been obtained from a range of stakeholders both through formal and informal means on various occasions and levels since the effectiveness of RRP I in 2005 in four of the seven participating states, (namely Himachal Pradesh, Jharkhand, Rajasthan and Uttar Pradesh). The present project also benefits from the substantial and meaningful consultation that was carried out in Uttarakhand, during 2006 to 2008 for the preparation of Rural Roads Project II (now dropped). The revision/modification of ESMF has been based on inputs and feedback received during various national level workshops and consultations/interactions in the participating states, involving various government departments, civil society and representatives of the local government, farmers and road side residents.

8.2 Further, safeguard documents (ESMF/ECoPs/SMF/VF) provide specific guidance on public consultation and disclosure requirements that will continue through the project's operational cycle as part of preparation, design and implementation of each individual sub-project. Stakeholder consultation mechanisms are central to the design and implementation of sub-projects and provide for information sharing, consultation and collaboration measures. These provide procedures for dissemination of information and consultation with communities and the affected people in particular through various stages of the sub-project cycle. While design stage involvement requires stakeholder participation in planning road alignment and providing for local level interventions, implementation phase requirements encourage community contracts for maintenance and road score-cards for a more participatory monitoring.

8.3 Apart from compliance to the applicable GoI policies and regulatory norms, the project will comply with the Bank procedure, BP 17.50. The core network information shall be made available at the project planning stage and project information brochure/s shall be distributed during the project preparation stage. Consultations shall be conducted with the community and the PRI at project preparation and implementation stages. All environment and social safeguard documents have also been disclosed at the NRRDA website and are available at SRRDA and PIU level in the participating states.

9. Mainstreaming Environment and Social Management in the Programme

9.1 To mainstream and enhance the environmental and social management dimension in PMGSY, some key initiatives have been agreed with MoRD, NRRDA and the participating states under the project. It includes:

- a) **Integration of Environmental Aspects in the Operations Manual:** The Operations Manual (OM) of PMGSY (a key document that lays out the detailed procedures) will be modified to better reflect the environmental and social management procedures governing the programme.
- b) **Strengthening of Detailed Project Report Template (DPRs):** The template for DPR, (a key document used for sub-project preparation) which is currently being prepared by NRRDA, will better reflect environmental and social features/ issues as well as other key planning and engineering/design requirements.
- c) **Mainstreaming Environmental Dimensions in the Technical Standards:** The Indian Roads Congress is currently updating the technical book for rural roads. It has been agreed that engineering best practice to avoid and mitigate environmental impacts/issues will be introduced/strengthened in the said book.
- d) **Integration of EHS requirements in the Standard Bidding Document.** Inappropriate construction practices can cause adverse environmental, health and safety (EHS) impacts, especially from the improper scheduling of works, unsafe handling of hazardous materials and haphazard dumping of construction wastes (including earth cuts in hills). To ensure improved environmental management during the construction stage, a section clearly specifying preventive and mitigation measures to be taken by the contractor has been introduced in the Standard Bidding Document (SBD). Compliance with these specifications will be supervised as part of project technical supervision. An environmental supervision protocol included in the ECoPs will be utilized by the SRRDA/PMC/PIU engineers to monitor compliance of the SBD requirements by the contractors.
- e) **Capacity Building.** The existing weak implementation capacity can affect environmental and social outcomes despite safeguard provisions. This dearth in capacity will be addressed through enhanced technical assistance and training, and sharing of environmental and social lessons from similar programme.

Technical assistance component (TA) and training on the management of key environmental issues in the rural roads development programme, such as planning, design and/or construction of roads in ecologically sensitive areas; drainage design and management; slopes and debris management in hilly terrain and materials management, will be provided to the engineers and contractors. This initiative under the project also seeks to help NRRDA and its associated training agencies in developing appropriate and user-friendly training material for use both during and after the project duration.

Capacity building for effective implementation of social aspects in PMGSY will be tailored to the needs of different audiences. Training will incorporate global best practices in gender and vulnerability inclusion, safeguard compliance, road safety and grievance redressal in rural road programme. Moreover, groups undertaking participatory monitoring will be trained in generating and disaggregating data to better understand the programme's impact on vulnerable groups including women.

9.2 Once the technical standards, manuals and templates have been drafted, extensive national level feedback from all concerned key stakeholders will be obtained prior to the finalization of the draft document/s. Till such time that the environment and social provisions are properly integrated in the technical documents and appropriately rolled-out with adequate training support, the ESMF (including ECoPs, SMF and VF) will be used for the project.

10. Institutional Arrangements for Environment and Social Management

10.1 The implementation of the ESMF/ECoPs/SMF/VF will be the responsibility of officers of the executing agencies (Project Implementation Units) in each state under the overall co-ordination and monitoring of the National Rural Roads Development Agency (NRRDA) at the central level and the State Rural Roads Development Agencies (SRRDAs) at state level.

10.2 A Nodal Environment and Social Officer at the NRRDA level has been designated, with responsibility to over-see and co-ordinate various aspects related to environment and social management as envisaged under the project. At the SRRDA level, Nodal Environment and Social Officers have been designated in each of the seven participating states to oversee the implementation of environmental and social aspects. The Environmental and Social Officers of the SRRDA will provide support to all concerned units (Project Implementation Units - PIUs), including on capacity building of the concerned staff to ensure that all significant environmental and social safeguard issues are given due consideration during project preparation, implementation and operation. The SRRDA's environment officer will be assisted by Environment and Social Specialists of the PMC. Each Project Implementation Unit will have also have a designated engineer to oversee environment and social inputs during preparation and implementation.

11. Monitoring

11.1 The supervision and monitoring of environment and social management aspects will be carried out by the Nodal Environmental and Social Officer of the SRRDA with the support of Environment and Social Safeguard Specialists of Project Management Consultants (PMC). This effort will be complimented by National and State Quality Monitors and Performance Auditors, who will carry out periodic reviews to help identify the implementation lags and good practices as they emerge. This information will be used to strengthen implementation through sharing of lessons and for undertaking corrective actions, as and if required.

11.2 Additionally, the project will finance and support the design and roll-out of 'citizen monitoring' to 100 districts under the PMGSY programme. To further strengthen the accountability of the project, a grievance redress mechanism will be established.