

Environmental Assessment and Review Framework

August 2017

IND: Second Rural Connectivity Investment Program

Prepared by Ministry of Rural Development, Government of India for the Asian Development Bank

CURRENCY EQUIVALENTS

(as of 19 June 2017)

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INR1.00	=	\$ 0.0155
\$1.00	=	INR 64.47

ABBREVIATIONS

ADB	–	Asian Development Bank
DPR	–	Detailed Project Report
EA	–	Executing Agency
EARF	–	Environmental Assessment and Review Framework
EC	–	Environment Checklist
EMP	–	environmental management plan
EMoP	–	environmental monitoring plan
GoI	–	Government of India
GRC	–	grievance redress committee
GRM	–	grievance redress mechanism
IA	–	Implementing Agency
MFF	–	multi-tranche financing facility
MORD	–	Ministry of Rural Development
NRRDA	–	National Rural Roads Development Agency
PIC	–	Project Implementation Consultant
PMGSY	–	Pradhan Mantri Gram Sadak Yojana
REA	–	Rapid Environmental Assessment (REA) Checklist
RCIP	–	Rural Connectivity Investment Program
SPCB	–	State Pollution Control Board
SRCIP	–	Second Rural Connectivity Investment Program
SPS	–	ADB Safeguard Policy Statement 2009
SRRDA	–	State Rural Roads Development Agency
TSC	–	Technical Support Consultant
UNESCO	–	United Nations Educational, Scientific and Cultural Organization

WEIGHTS AND MEASURES

km	–	kilometer
m	–	meter

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I. INTRODUCTION

1. The Second Rural Connectivity Investment Program (SRCIP) is a multi-tranche financing facility that will support the development of all-weather rural roads connecting habitations under the Pradhan Mantri Gram Sadak Yojana (PMGSY-I) in Assam, Odisha and West Bengal and upgrading of rural roads under PMGSY-II in Madhya Pradesh and Chhattisgarh. The program envisages connecting all population of 250 persons or more in hill states. As of June 2017, the PMGSY had spent Rs. 1.64 trillion covering 511,146.11 km of roads (new connectivity and upgradation), and provided connectivity to 130,961 habitations.¹

2. ADB has provided a number of assistance to the PMGSY since 2003, including a loan of \$400 million for the Rural Roads Sector 1 Project, a multi-tranche financing facility (MFF) of \$750 million for the Rural Roads Sector II Investment Program, and a multi-tranche financing facility (MFF) for the Rural Connectivity Investment Program (RCIP-1).

3. Consistent with ADB's Safeguard Policy Statement 2009 and the experience with RCIP, this environmental assessment and review framework (EARF) has been developed for the rural roads to be prepared after loan approval. The EARF will serve as guide to the Executing Agency² (EA) and Implementing Agencies³ (IA) in screening and categorization, environmental assessment, and preparation and implementation of safeguard plans (i.e., environmental management plan or EMP) for rural roads funded by ADB assistance under GOI's PMGSY-I and PMGSY-II.

4. This EARF identifies the broad scope of the project, which outlines the policy, environmental screening and assessment, and institutional requirements for preparing the environmental assessments to be followed for subsequent batches that are prepared after the Board approval. This EARF also specifies criteria for eligibility to ensure that quality subprojects are identified and delivered.

II. ASSESSMENT OF LEGAL FRAMEWORK AND INSTITUTIONAL CAPACITY

5. The Government of India's environmental impact assessment requirement is based on the Environment (Protection) Act, 1986, the Environmental Impact Assessment Notification, 2006, and its amendment in 2009. In addition, all new road construction or road improvement, including the establishment of temporary workshops, construction camps, hot mix plants, and use of vehicles for construction are governed by the following Environmental Management Acts and Rules:

- (i) Forest (Conservation) Act 1980 (Amended 1988), and Forest (Conservation) Rules, 1981, (Amended 2003);
- (ii) The Wildlife (Protection) Act, 1972 (Amended 1993);
- (iii) The Water (Prevention and Control of Pollution) Act 1972 (Amended 1988), and the Water (Prevention and Control of Pollution) Rules 1974;
- (iv) The Air (Prevention and Control of Pollution) Act, 1981, (Amended 1987), and the Air (Prevention and Control of Pollution) Rules 1982;
- (v) The Noise Pollution (Regulation and Control) Rules, 2000 (Amended 2002);

¹ <http://omms.nic.in/#>

² Ministry of Rural Development (MORD) through the National Rural Roads Development Agency (NRRDA)

³ State Rural Roads Development Agencies (SRRDAs) composed of Chhattisgarh Rural Roads Development Agency; Madhya Pradesh Rural Roads Development Authority; West Bengal State Rural Development Agency; State Road Board in Assam; and Odisha State Rural Roads Development Agency.

- (vi) The Hazardous Waste (Management, Handling and Transboundary Movement) Rules 2008 (Amended 2009), and the Batteries (Management and Handling) Rule 2001; and
- (vii) The Pradhan Mantri Gram Sadak Yojana (PMGSY) Scheme and Guidelines (2004) No. 12025/8/2001-RC, Ministry of Rural Development

6. Specifically, the rural road subprojects will comply with the following:

- (i) Government's Environmental Impact Assessment Notification. In lieu of the requirements of the EIA Notification and to mainstream environmental concerns, specific procedures that were formulated under RCIP-1 will be implemented,
- (ii) *Forest Clearance* from Department of Forests is required for diversion of forest land (if any) for non-forest purpose. Prior permission is required from forests department to carry out any work within the forest areas and felling of road side trees. Cutting of trees need to be compensated by compensatory afforestation as per the requirement of forests department.
- (iii) Placement of hot-mix plants, quarrying and crushers, batch mixing plants, discharge of sewage from construction camps requires *No Objection Certificate (Consent to Establish and Consent to Operate)* from State Pollution Control Board prior to establishment.
- (iv) *Permission* from Central Ground Water Authority is required for extracting ground water for construction purposes, from areas declared as critical or semi-critical from ground water potential.
- (v) Resolution of issues related to land availability and forest/environmental clearance and the need to moderate environmental impacts (Sec. 8.4, PMGSY Scheme and Guideline).

7. Only category "B" projects will be implemented under the Investment Program. No Category A (as per ADB's SPS 2009) subproject will be included in the project. All subprojects will be subject to the following requirements, based on SPS 2009:

- (i) Submission of a completed Rapid Environment Assessment (REA) checklist for Roads and Highways and a categorization form for each state level IEE that is prepared.
- (ii) An environmental assessment through the preparation of Initial Environmental Examination (IEE) report, Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP). Further details on reporting requirements are mentioned under section D.
- (iii) Regular monitoring of implementation of the EMP and submission of monitoring reports and due diligence reports as necessary.

8. Given that existing capacity of the SRRDAs and PIUs for implementing environmental safeguard issues are inadequate, necessary capacity building activities will be carried out. Capacity building activities will mainly comprise training workshops for SRRDA and PIU environmental officers on: i) Completion of Environment Checklists, ii) Preparation of Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP), iii) monitoring of EMP implementation and completion of monitoring checklists prior to, during and post construction; and iv) preparation of monitoring reports.

II. ANTICIPATED ENVIRONMENTAL IMPACTS

9. With the same PMGSY scheme and guideline in the selection of rural road projects to RCIP-1, environmental impacts that will be encountered in SRCIP are most likely to be comparable.⁴ ADB's monitoring and supervision of RCIP-1 anticipated the following impacts for each road development stage:

- (i) During pre-construction phase or before operation of equipment, the applicable certificate, clearances, and permissions that must be secured includes: SPCB-No Objection for establishing and operating batching plant and hot mix plant, Forest Department clearance if the road will be passing forest land, permission from CGWB for water extraction, SPCB clearance for quarrying operation and spoil disposal, and Panchayat Raj Institutions Authority No Objection Certificate. No impacts on critical habitats were noted in RCIP-1 as no road section passed through National Parks/wild life sanctuaries, Reserve Forests/ Protected Forest and Natural Habitat/ Nature Reserves or within 5 km from Archaeological/ Heritage Monument. The design of the rural roads will not pose any significant environmental problem considering its limited embankment height, mostly confined to existing alignment, improvement in drainage, and limited length (usually 3-4 km).
- (ii) During construction, environmental risks are related to clearing of vegetation along the road right-of-way (ROW) due to road widening; dust from materials transport, embankment shaping, and unpaved road travel; noise, and emissions from the construction equipment, hot mix plants, and other vehicles deployed; sedimentation, soil erosion, and run-off to nearby receiving waters (ponds, irrigation canals, lakes, and rivers) due to road formation, earth borrowing or quarrying activities; localized flooding from siltation of drainage canals and waterways; occupation and community health (camp hygiene, lack or non-use of personal protective equipment, lack of warning signs around construction areas, lack of HIV/AIDs awareness); and shifting of electric and telephone poles. Good engineering practices, compensatory plantation, hygiene, and occupational and community safety measures can mitigate such impacts.
- (iii) During post-construction, community safety and increase in vehicular greenhouse gas emissions that will be partly off-set by the mandatory compensatory plantation are the dominant environmental impacts during this stage.

III. ENVIRONMENTAL ASSESSMENT FOR SUB-PROJECTS

10. Any subprojects not meeting the criteria listed below will not be considered under the project:

- (i) Subprojects will be eligible for construction or upgrading in accordance with the PMGSY guidelines, and be included in the respective district core network;
- (ii) The subprojects shall not disturb any cultural heritage designated by the Government or by international agencies, such as the United Nations Environment, Scientific and Cultural Organization (UNESCO), and shall avoid any monuments of cultural or historical importance;
- (iii) The subproject will not pass through any designated wildlife sanctuaries, national parks, other sanctuaries, Notified Ecological Sensitive areas or area of

⁴The same PMSGY scheme and guideline is implemented for all rural roads

international significance (e.g., protected wetland designated by the Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat (Wetland Convention));

- (iv) No category A subproject, as per ADB's SPS will be included in the MFF

11. ADB's Rapid Environmental Assessment (REA) Checklist for Roads and Highways including climate risk screening (appendix 1) will be completed for each state based on preliminary screening of impacts, completed Environment Checklists and/or state level IEE reports prepared and submitted to ADB to confirm categorization.

12. Transect walks will be conducted and environment checklists completed for each road as per the PMGSY guidelines

13. In accordance with the PMGSY guidelines for bridges longer than 50m, separate transect walk will be conducted and Environment Checklist will be prepared.

14. IEE reports will be prepared at the state level based on the Environment Checklists (Appendix 2) prepared by the Project Implementation Consultant (PIC) and reviewed by the Technical Support Consultant (TSC).

15. The IEE reports and their respective EMPs (including monitoring plans) must cover the most environmentally sensitive components in each state. There should be a general EMP and road specific EMP for each road.

16. The projects shall only involve activities that follow GoI laws and regulations, ADB's Safeguard Policy Statement 2009, this EARF and respective sub-project EMPs.

17. **Climate Change Vulnerability Screening.** Integral to the state-wise IEE that will be prepared for sample projects, rural roads that are vulnerable to climate change will be screened and corresponding mitigation measures will be prepared. Climate change risk screening, assessment and mitigation will cover the location and design of projects, the quality of construction materials and type of maintenance they will require and the performance of the project infrastructure in times of climatic events.

IV. CONSULTATION, INFORMATION DISCLOSURE, AND GRIEVANCE REDRESS MECHANISM

18. During the preparation of the DPR and filling up the checklist through the transect walk exercise, the PIU has to ensure that meaningful consultations are held with affected people and their concerns are recorded and included in the project design as required. Meaningful consultations entail: consultation process that is carried out early during project preparation; timely disclosure of project information; consulting in an environment free of coercion or intimidation; is gender inclusive and responsive; incorporating relevant views of the people in the project design and mitigation measures.

19. Aside from consultations, all environmental assessment documents are subject to ADB's Public Communications Policy and will be made available to the public, upon request. The SRRDAs are responsible for ensuring that all Environment Checklist documentation, including the environmental due diligence and monitoring reports, are properly and systematically kept as part of the Investment Project specific records. Ministry of Rural Development (MORD) must make the state wise IEE reports available on its website.

20. **Grievance Redress Mechanism:** Public disclosure and complaints contact person will be designated by the PIU for each subproject to help address all concerns and grievances of the local communities and affected parties. Contact details will form part of the subproject identification display board that will be placed at both ends of the rural road being constructed.

21. If there are environmental issues concerning road subprojects, community consultation process that is transparent, gender responsive and accessible to all stakeholders, in accordance with PMGSY guidelines and SPS 2009 will be conducted. Grievances, if any, will be considered at the village level by the Grievance Redress Committee (GRC) consisting of members of Gram Panchayat, and Pradhan / Up-Pradhan of Gram Panchayat. The GRC will meet for addressing grievances as needed. Grievances not resolved at the village level will be addressed through the district level GRC, with the following members:

- (i) Executive Engineer of the PIU;
- (ii) Member of Zilla Parishad;
- (iii) Member of the grievance committee of the concerned GP; and
- (iv) Representatives of APs will be active participants in the proceedings of grievance redressal.

22. Grievance procedures, which can be easily understood by stakeholders, and preferably in the local language, will be disseminated to affected communities. Issues need to be resolved prior to awarding of civil work contract.

V. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

23. MORD⁵, the Executing Agency, has the responsibility for monitoring implementation of the EMP for all subprojects and undertaking necessary due diligence. MORD will also ensure that ADB is given access to undertake environmental due diligence for all subprojects, when needed. Specifically, MORD will do the following:

- (i) Ensure that each SRRDAs have Environmental Officers;
- (ii) Ensure that the SRRDAs meet all environmental assessment requirements as mentioned in section B and D;
- (iii) Undertake random monitoring of the implementation of the EMP.

24. State Rural Roads Development Agencies. The SRRDAs⁶ will:

- (i) Ensure that DPRs for all subprojects include the completed Environment Checklists;
- (ii) Ensure that a state level IEE report is prepared with the support of the PIC based on a 10% representative sample of the Environment Checklists;
- (iii) Ensure that the Environment Checklists and IEE reports are reviewed by the Environmental Officer⁷ of the concerned SRRDA;

⁵ With assistance from the TSC environmental expert

⁶ With assistance from PIC

⁷ Functions of the Environmental Officers include: (i) review of project design and specifications to ensure their adequacy and suitability with respect to the implementation of EMP and / or Environmental checklist, (ii) collection and dissemination of relevant environmental documents including amendments to environmental protection acts issued by the various agencies, namely, ADB, PMGSY, Government of India / State and local bodies; (iii) interact with the counterpart of the Contractor(s), review work progress/plans and ensure implementation of the EMP; (iv) coordination with the NGOs, community groups and Government departments on environmental issues, provide clarifications/ and obtain clearances during project implementation if any, as required from the regulatory authorities and/or submitting

- (iv) Ensure that all required statutory environmental clearances are obtained and the conditions noted in the clearances are implemented;
- (v) Ensure that the sub-project specific EMPs and respective budget are included in the bidding documents;
- (vi) Ensure that the Environment Checklists and EMP (including general and site specific issues) are made available to the contractors;
- (vii) Undertake routine monitoring of the implementation of the EMP and prepare monitoring reports at least once a year

25. The Project Implementation Unit (PIU) will:

- (i) Complete the Environment Checklists and prepare general and site specific EMPs (including monitoring plan) for each sub-project;
- (ii) Obtain necessary statutory environmental clearance prior to commencement of civil works;
- (iii) Update the respective Environment Checklists and EMPs if there are any changes in alignment of the sub-projects; and
- (iv) Through the Project Implementation Consultants (PIC), conduct monitoring of all sub-projects and prepare monitoring checklists prior to, during and post construction.

VI. MONITORING AND REPORTING

26. To ensure adequate environmental assessment of all sub-projects have been carried out, state level IEE reports based on a 10% representative sample of Environment Checklists will be prepared. The IEE report will include a general and site specific EMP. The timing of preparation and road coverage under each state level IEE will be based on preparation of the respective DPRs.

27. Regular monitoring of EMP implementation will be carried out and pre, during and post construction checklists (Appendix 4) maintained for every road. Based on these documents and selective site visits, monitoring reports will be prepared and submitted to ADB at least once a year. If un-anticipated environmental impacts arise or there is any non-compliance a corrective action plan will be prepared, implemented and reported in the annual monitoring reports.

periodic compliance reports as required by the State Authorities; (v) monitoring sensitive environmental attributes during construction to ensure that the suggested mitigation measures in the EMP are implemented; (vi) documentation of the environmental management/monitoring activities for the regular project implementation progress report; and (vii) conducting environmental training/awareness programs for the contractors, project implementation personnel, and the communities.

APPENDIX 1: RAPID ENVIRONMENTAL ASSESSMENT (REA) CHECKLIST

Instructions:

- (i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (RSES), for endorsement by Director, RSES and for approval by the Chief Compliance Officer.
- (ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.
- (iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:

Sector Division:

Screening Questions	Yes	No	Remarks
A. Project Siting Is the project area adjacent to or within any of the following environmentally sensitive areas?			
▪ Cultural heritage site			
▪ Protected Area			
▪ Wetland			
▪ Mangrove			
▪ Estuarine			
▪ Buffer zone of protected area			
▪ Special area for protecting biodiversity			
B. Potential Environmental Impacts Will the Project cause...			
▪ encroachment on historical/cultural areas; disfiguration of landscape by road embankments, cuts, fills, and quarries?			
▪ encroachment on precious ecology (e.g. sensitive or protected areas)?			
▪ alteration of surface water hydrology of waterways crossed by roads, resulting in increased sediment in streams affected by increased soil erosion at construction site?			

Screening Questions	Yes	No	Remarks
▪ deterioration of surface water quality due to silt runoff and sanitary wastes from worker-based camps and chemicals used in construction?			
▪ increased local air pollution due to rock crushing, cutting and filling works, and chemicals from asphalt processing?			
▪ risks and vulnerabilities related to occupational health and safety due to physical, chemical, biological, and radiological hazards during project construction and operation during project construction and operation?			
▪ noise and vibration due to blasting and other civil works?			
▪ dislocation or involuntary resettlement of people?			
▪ dislocation and compulsory resettlement of people living in right-of-way?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ other social concerns relating to inconveniences in living conditions in the project areas that may trigger cases of upper respiratory problems and stress?			
▪ hazardous driving conditions where construction interferes with pre-existing roads?			
▪ poor sanitation and solid waste disposal in construction camps and work sites, and possible transmission of communicable diseases (such as STI's and HIV/AIDS) from workers to local populations?			
▪ creation of temporary breeding habitats for diseases such as those transmitted by mosquitoes and rodents?			
▪ accident risks associated with increased vehicular traffic, leading to accidental spills of toxic materials?			
▪ increased noise and air pollution resulting from traffic volume?			
▪ increased risk of water pollution from oil, grease and fuel spills, and other materials from vehicles using the road?			
▪ social conflicts if workers from other regions or countries are hired?			
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			

Screening Questions	Yes	No	Remarks
<ul style="list-style-type: none"> risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation? 			
<ul style="list-style-type: none"> community safety risks due to both accidental and natural causes, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning. 			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title:

Sector :

Subsector:

Division/Department:

Screening Questions		Score	Remarks ⁸
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High): _____

Other Comments: _____

Prepared by: _____

⁸ If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

APPENDIX 2: RURAL ROADS ENVIRONMENT CHECKLIST

Road Name:

Block Name:

District Name:

Total Length of the Road:

A. Climatic Conditions

Temperature	High:	Low:
Humidity	High:	Low:
Rainfall	mm/year	
Rainy Season	to	

B. Location of the Road and Generic Description of Environment

No.	Type of Ecosystem	Yes	No	Explanation
1.	Coastal area Mangrove (along roadside)			Distance from Coastline: km () more than 50% () less than 20%
2.	Type of Terrain-(Plain/Hilly/ Mountainous etc.) (Explain the topography of the area and how many km of the road are located in the hilly area)			Altitude:
4.	Forest Area (Explain whether the road passes through forest areas or located along the forest areas and distance from shoulder to the forest area)?			Type of Vegetation: Legal Status of the Forest Area: (Reserved, National Park, Sanctuaries, Unclassified, etc.)
5.	Wildlife (Explain whether there are any wildlife species in the project area)			Name of animals: Endangered species (if any):
6.	Inhabited Area			
7.	Agricultural Land			
8.	Grazing grounds			
9.	Barren Land			

C. Specific Description of the Road Environment

(Note: Questions number 1, 4, 5, 7 and 8 must be answered after discussions with the local community people)

No.	Parameter/ Component	Yes	No	Explanation
1.	Are there any areas with landslide or erosion problems along the road? (If yes, indicate the location (right or left side) and the chainage)			() No Secondary Information is available and Local Community is not aware of this matter
2.	Are there any lakes/swamps beside the road? (If yes, list them indicating the location (right or left side) and the chainage)			
3.	Are there any nallas/streams/rivers etc. along/crossing the road?			

No.	Parameter/ Component	Yes	No	Explanation
	<i>(If yes, list them indicating the location (right, left or crossing) and chainage)</i>			
4.	Are there problems of water stagnation and other drainage issues on or near the road? <i>(If yes, mention chainage)</i>			() No Secondary Information is available and Local Community is not aware of this matter
5.	Is the area along the project road prone to flooding? <i>(If yes, mention flood level and frequency)</i>			() No Secondary Information is available and Local Community is not aware of this matter
6.	Are there any trees with a dbh of 30 cm or more within 10 m on either side from the center line of the road alignment? <i>(If yes, attach list of trees indicating the location (right or left side) and chainage)</i>			
7.	Along the road and within 100m of the road shoulder, are there any faunal habitat areas, faunal breeding ground, bird migration area, or other similar areas? <i>(If yes, specify details of habitat with chainage)</i>			() No Secondary Information is available and Local Community is not aware of this matter
8.	Along the road and within 100m of the road shoulder is there any evidence of floral and faunal species that are classified as endangered species?			() No Secondary Information Available and Local Community is not aware of this matter
9.	Are there any utility structures ⁹ within 10 m on either side from the center line of the road alignment? <i>(If yes, attach list with chainage)</i>			
10.	Are there any religious, cultural or community structures / buildings ¹⁰ within 10 m on either side from the center line of the road alignment? <i>(If yes, attach list with chainage)</i>			

D. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the alignment. <i>(Attach list of people met and dates)</i>			
2.	Any suggestion received in finalizing the alignment			
3.	If suggestions received, were they incorporated into the design?			

E. Please attach the following:

⁹ Water tap, hand pump, electric pole, telephone pole, water pipe and other similar structures.

¹⁰ Mandir, Masjid, Church, religious/cultural/historical monuments, school, health center, public toilet and other similar structures.

- 1) List of trees indicating location (left or right side of the road) and chainage (as required under C. 6)
- 2) List of utility structures indicating location (left or right side of the road) and chainage (as required under C. 9)
- 3) List of community structures indicating location (left or right side of the road) and chainage (as required under C. 10)
- 4) Sketch of strip map of the road covering details of at least 10 m on either side from the center line of the road
- 5) Photographs of the project area showing at least 10 m on either side from center line of road alignment. Every 2 km or less of road must have at least 1 photograph.

APPENDIX 3: RURAL ROADS ENVIRONMENT CHECKLIST FOR BRIDGES LONGER THAN 50 METERS

STATE:

Name of District:

Name of Road:

Bridge No.:

BATCH:

Name of Block:

Package No.:

Length of Bridge:

A: Climatic Condition		
Temperature	High:	Low:
Rainfall Rainy Season	From:	To:
B. Location of the Bridge and Generic Description of Environment		
<i>Item No.</i>	<i>Item</i>	<i>Description and Field Notes</i>
	What is the type of water body where the bridge will be constructed/rehabilitated? <input type="checkbox"/> River/Stream <input type="checkbox"/> Wetland	
	What is the approximate width of the water body? _____ m of wetland, river/stream)	
	What is the temporal flow pattern of the water body? <input type="checkbox"/> Perennial <input type="checkbox"/> Non-perennial	
	Type of terrain <input type="checkbox"/> Plain <input type="checkbox"/> Hilly	
	Dominant land use or vegetation cover where the bridge will be located <input type="checkbox"/> Forest <input type="checkbox"/> Agricultural <input type="checkbox"/> Grassland/shrubland <input type="checkbox"/> Built-up <input type="checkbox"/> Wetland <input type="checkbox"/> Others (Specify _____)	

C. Beneficial Uses of the Water Body		
<i>Item No.</i>	<i>Item</i>	<i>Description and Field Notes</i>
	What are the beneficial uses of the waterbody to the nearby communities? <input type="checkbox"/> Drinking and other domestic uses <input type="checkbox"/> Agricultural (e.g. irrigation, animal bathing) <input type="checkbox"/> Bathing and swimming <input type="checkbox"/> Fishing <input type="checkbox"/> Religious <input type="checkbox"/> Transportation/navigation	
	Based on the answer in Item C.1 please specify and ask local people the locations of the following:	

	Locations for collecting drinking water and bathing ghats ____ meters upstream/downstream LHS/RHS facing the direction of flow	
	ii. Location of animal bathing/drinking a) ____ meters upstream/downstream LHS/RHS facing the direction flow b) List of animals drinking/bathing (e.g. buffalo, duck, goat)	
	iii. Location of fishing area ____ meters upstream/downstream LHS/RHS facing the direction flow	
	iv. Location of irrigation off-take ____ meters upstream/downstream LHS/RHS facing the direction flow	
	v. Location of each temples, shrines, and other places of worship within 100 meters upstream and downstream of bridge, type of religious activity, and schedule. ____meters upstream/downstream LHS/RHS facing the direction flow, type of religious activities (worship, wedding, burial), and when activities are held	

D. Specific Description of the Bridge Environment

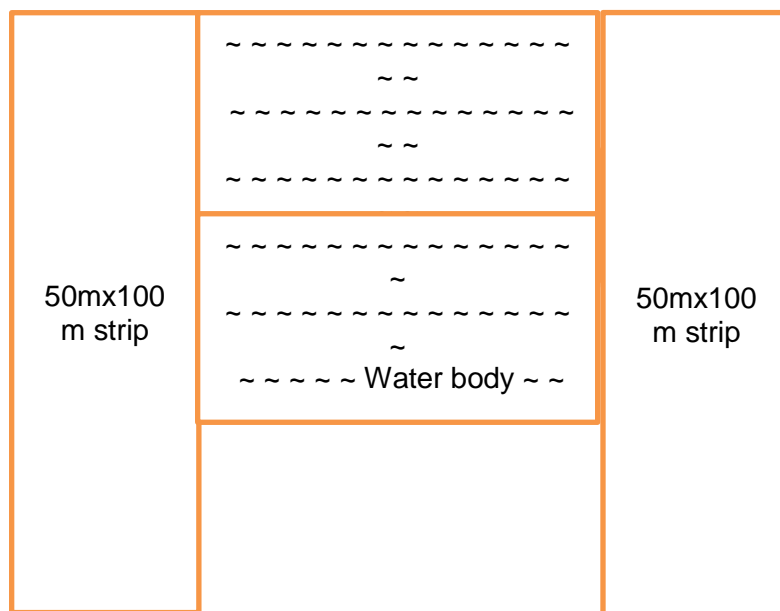
Parameter/Component	Yes	No	Explanation
1.	Are there historical records or personal accounts of flooding caused by the water body (e.g. breach of embankment within 100 meters upstream and downstream of the bridge)? Please explain the occurrence of flooding, the latest flooding, and high flood level.		
2.	Is there any visible riverbank erosion/scouring within 100 meters upstream and downstream of the bridge?		
3.	Are there any utilities (electricity, telephone, water, water supply, drainage) that will be affected?		
4.	Are there any trees with dbh of 30 cm that will be cleared in the upgrading/construction of bridge approaches?		
5.	Is the water body known to be a faunal habitat, threatened flora, and wildlife breeding ground, or migration route?		
6.	Are there any community structures that will be affected in the upgrading/construction of the bridge approaches?		

E. Public Consultation

No.	Consultation Activities	Yes	No	Remarks
1.	Consultation with local community was conducted before finalizing the location of the bridge? <i>(Attach list of people met and dates)</i>			
2.	Any suggestion received in finalization of bridge design and location?			
3.	If suggestions received, were they incorporated into the design?			

F. Please attach the following:

Sketch a map covering 100 meters upstream and downstream of both sides of the bridge and 50 from the banks, showing locations of: drinking off-take (C.2.i), animal bathing and drinking (C.2.ii) fishing area (C.2.iii), irrigation off-takes (C.2.iv), religious activity sites/shrines/temples (C.2.v), flood-prone areas (D.1), bank erosion (D.2), and wildlife (D.6).



Photographs showing the proposed ends of the bridge, and upstream and downstream, taken at the middle of the crossing.

APPENDIX 4: STANDARD ENVIRONMENTAL MANAGEMENT PLAN

Road Name:

Total length:

Block Name:

District Name:

(NOTE: Please refer to the Environment Checklists for individual roads and enter details under column on Location/numbers where indicated. This step will convert this standard EMP into a road specific EMP to be attached to the DPR for each road)

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
I	Design and Preconstruction Stage					
1.	Climate Change Consideration and Vulnerability screening	<ul style="list-style-type: none"> Compliance to climate change vulnerability check point given under EARF and adoption of necessary mitigation measures as may be required Efforts shall be made to plant additional trees for increasing the carbon sink. The tree may be planted with help of PRI (Panchayati Raj Institution) 	All through the alignment of each rural road	Design costs.	PIU, Design consultants	PIU, SRRDA
2.	Finalization of alignment	<ul style="list-style-type: none"> The road will be part of district core network and will comply with PMGSY guidelines Subproject shall not disturb any cultural heritage designated by the government or by the international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance. Subproject will not pass through any designated wild life sanctuaries, national park, notified Eco sensitive areas or area of international significance such as protective wet land designated under Wetland Convention, and reserve forest area. Subproject to comply with local and National legislative requirements such as forest clearance for diversion of forestland and ADB's Safeguard Policy Statement 2009. Alignment finalization considering availability of right of way and in consultation with local people. ROW may be reduced in built up area or constricted areas to minimize land acquisition as per PMGSY Guidelines. 	All through the alignment of each rural road	Design costs	PIU, Design consultants	PIU, SRRDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<ul style="list-style-type: none"> Adjust alignment to the extent feasible to avoid tree cutting, shifting of utilities or community structure. The road shall follow natural topography to avoid excessive cut and fill. 				
3.	Land acquisition	<ul style="list-style-type: none"> Land acquisition, compensation packages, resettlement and rehabilitation, poverty alleviation programs for affected people and all other related issues are addressed through Social Impacts and Resettlement & Rehabilitation report. 	All through the alignment of each rural road	Land to be made available and necessary costs if any to be borne by the state	PIU	PIU, SRRDA, PIC, TSC
4.	Clearing of vegetation and removing trees	<ul style="list-style-type: none"> All efforts shall be taken to avoid tree cutting wherever possible. Requisite permission from forest department shall be obtained for cutting of roadside trees. Provision of Compensatory Afforestation shall be made on 1:3 ratio basis (1:6 for Assam state). Permission shall be taken for diversion of any forest land if involved. Provision shall be made for additional compensatory tree plantation. The vegetative cover shall be removed and disposed in consultation with community. 	All through the alignment of each rural road <i>(Enter chainages where tree cutting and diversion of forest land is required & proposed plantation location if details are available)</i>	Costs for Forestry clearance for diversion of forest land, obtaining tree cutting permit to be borne by state. Costs for compensatory forestry plantation to be borne by state or by PRI – NREGA scheme.	Forestry clearance and permit to be obtained by the PIU. Compensatory plantation to be carried out in coordination with PRI under schemes such as NREGA or local Forestry Department	PIU, PIC, TSC
5.	Shifting of utilities and common property resources	<ul style="list-style-type: none"> The road land width shall be clearly demarcated on the ground. 	<i>(Enter chainages where shifting of utility structures)</i>	Costs to cover shifting and	PIU, contractor, utility agencies	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<ul style="list-style-type: none"> ○ All efforts will be made to minimize shifting of utilities and common property resources ○ Utility and community structure shifting shall be planned in consultations and concurrence of the community ○ Required permissions and necessary actions will be taken on a timely basis for removing and shifting utility structures and common property resources before road construction activities begin. 	<i>and common property resources are required. Enter total numbers of each structure required for shifting/removal)</i>	reconstruction of common property resources must be included under project costs.	(Internal procedures to be discussed and agreed between the above parties)	
6.	Design and planning of embankment construction	<ul style="list-style-type: none"> ○ The alignment design shall consider options to minimize excessive cuts and fills. ○ The cut off material shall be planned to be used for embankment to minimize borrow earth requirement. ○ The design shall be as per relevant IRC provisions for cut and fill, slope protection and drainage. ○ The top soil of the cut and fill area shall be used for embankment slope protection ○ Embankment will be designed above High Flood Level (HFL) in flood prone areas where feasible. 	<p>All through the alignment of each rural road</p> <p><i>(Enter the chainages that are prone to floods)</i></p>	Part of Project Cost	PIU, Design Consultants	PIU, SRRDA
7.	Hydrology and Drainage	<ul style="list-style-type: none"> ○ Provision of adequate cross drainage structure shall be made to ensure smooth passage of water and maintaining natural drainage pattern of the area. ○ The discharge capacity of the CD structure shall be designed accordingly. ○ Provision of adequate drainage structures shall be made in water stagnant/logging areas. ○ The construction work near water body shall be planned preferably in dry season so that water quality of the water channel is not affected due to siltation and rain water runoff. ○ Provision of additional cross drainage structure shall be made in the areas where nearby land is sloping towards road alignment on both the sides. 	<p>Near all drainage crossings, nalas, rivers, streams and ponds.</p> <p><i>(Enter chainages where earthen/structural cross drains, longitudinal drains, streams, ponds and rivers exist)</i></p>	Included in project costs.	PIU, Design consultants	PIU, SRRDA

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<ul style="list-style-type: none"> Provision of concrete road construction in habitat area with drainage of both side of the road shall be made as per the design provision and with adequate slope to prevent any water logging. 				
8.	Establishment of Construction Camp, temporary office and storage area	<ul style="list-style-type: none"> Construction camp sites shall be located away from any local human settlements and forested areas (minimum 0.5 km away) and preferably located on lands, which are not productive (barren/waste lands presently). Similarly temporary office and storage areas shall be located away from human settlement areas and forested areas (minimum 0.5 km). The construction camps, office and storage areas shall have provision of adequate water supply, sanitation and all requisite infrastructure facilities. The construction camps, office and storage areas shall have provision of septic tank/soak pit of adequate capacity so that it can function properly for the entire duration of its use. All construction camps shall have provision of rationing facilities particularly for kerosene/LPG so that dependence on firewood for cooking is avoided to the extent possible. The construction camps, office and storage areas shall have provision of health care facilities for adults, pregnant women and children. Personal Protective Equipments (PPEs) like helmet, boots, earplugs for workers, first aid and fire fighting equipments shall be available at construction sites before start of construction. An emergency plan shall be prepared to fight with any emergency like fire. Provision shall be made for domestic solid waste disposal in a controlled manner. The recyclable waste shall be sold off and non-saleable and biodegradable waste shall be disposed through secured land filling. 	For all roads	To be included in contractor's cost	Contractor	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<ul style="list-style-type: none"> Provision of paved area for unloading and storage of fuel oil, lubricant oil, away from storm water drainage. 				
9.	Traffic Management and Road Safety	<ul style="list-style-type: none"> Identify the areas where temporary traffic diversion may be required. Prepare appropriate traffic movement plan approved by respective PIU for ensuring continued safe flow of traffic, pedestrians and all road users during construction. Wherever, cross drainage structure work require longer construction time and road is to be blocked for longer duration, the PIU/DPR consultant shall define appropriate measures for traffic diversion before the start of the construction. Adequate signboards shall be placed much ahead of diversion site to caution the road users. The road signs should be bold and retro reflective in nature for good visibility both during the day and night. It is proposed for the respective PIU to discuss with the railways division/department for providing adequate safety measures at unmanned railway crossing where applicable. Adequate clearly visible sign shall be provided on both sides of the railway crossing All measures for traffic control and safety in accordance with IRC codes:99-1988 will be followed 	As proposed under DPR and determined by contractor and approved by PIC/PIU/ <i>(Enter the chainages which may require traffic diversions where possible)</i>	To be included in contractor's cost	Contractor	PIU, PIC, TSC
II. Construction Stage						
10.	Sourcing and transportation of construction material	Borrow Earth: <ul style="list-style-type: none"> The borrow earth shall be obtained from identified locations and with prior permission of landowner and clear understanding for its rehabilitation. The re-habilitation plan may include the following: <ul style="list-style-type: none"> Borrow pits shall be backfilled with rejected construction wastes and will be given a vegetative cover. If this is not possible, then excavation sloped will be smoothed and 	<i>(Enter chainage or probable locations of borrow areas. Enter name and location of identified quarries.)</i>	To be included under contractors costs	Contractor	PIC, PIU, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<p>depression will be filled in such a way that it looks more or less like the original ground surface.</p> <ul style="list-style-type: none"> ▪ Borrow areas might be used for aquaculture in case landowner wants such development. ○ The Indian Road Congress (IRC):10-1961 guideline should be used for selection of borrow pits and amount that can be borrowed. ○ Borrowing earth from agricultural land shall be minimized to the extent possible. Further, no earth shall be borrowed from already low-lying areas. ○ A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal). ○ Borrowing of earth will not be done continuously through out the stretch. ○ Ridges of not less than 8m widths will be left at intervals not exceeding 300m. ○ Small drains will be cut through the ridges, if necessary, to facilitate drainage. ○ The slope of the edges will be maintained not steeper than 1:4 (vertical: Horizontal). ○ The depth of borrow pits will not be more than 30 cm after stripping the 15 cm topsoil aside. ○ Fly ash will be used in road embankment as per IRC guidelines wherever thermal power plant is located within 100 km of the road alignment. <p>Aggregate :</p> <ul style="list-style-type: none"> ○ The stone aggregate shall be sourced from existing licensed quarries ○ Copies of consent/ approval / rehabilitation plan for use of existing source will be submitted to PIU. 				

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<ul style="list-style-type: none"> Topsoil to be stockpiled and protected for use at the rehabilitation stage Transportation of Construction Material <ul style="list-style-type: none"> Existing tracks / roads are to be used for hauling of materials to the extent possible. Prior to construction of roads, topsoil shall be preserved and shall be used for other useful purposes like using in turfing of embankment. The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation. In any case, the transportation links are to be inspected at least twice daily to clear accidental spillage, if any. 				
11.	Loss of Productive Soil, erosion and land use change	<ul style="list-style-type: none"> The top soil from the productive land (borrow areas, road widening areas etc.) shall be preserved and reused for plantation purposes. It shall also be used as top cover of embankment slope for growing vegetation to protect soil erosion. Cut and fill shall be planned as per IRC provisions and rural road manual. All steep cuts shall be flattened and benched. Shrubs shall be planted in loose soil area. IRC: 56 -1974 recommended practice for treatment of embankment slopes for erosion control shall be taken into consideration. It shall be ensured that the land taken on lease for access road, construction camp and temporary office of the storage facilities is restored back to its original land use before handing it over back to land owner. 	All though the alignment of each project road	To be included under contractors costs	Contractor	PIU / SRRDA
12.	Compaction and Contamination of Soil	<ul style="list-style-type: none"> To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route. 	All though the alignment of each project road	To be included under contractors costs	Contractor,	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
		<ul style="list-style-type: none"> ○ The productive land shall be reclaimed after construction activity. ○ Fuel and lubricants shall be stored at the predefined storage location. ○ The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils. ○ All efforts shall be made to minimise the waste generation. Unavoidable waste shall be stored at the designated place prior to disposal. ○ To avoid soil contamination at the wash-down and re-fuelling areas, “oil interceptors” shall be provided. Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized re-refiners. 				
13.	Construction Debris and waste	<ul style="list-style-type: none"> ○ Excavated materials from roadway, shoulders, verges, drains, cross drainage will be used for backfilling embankments, filling pits, and landscaping. ○ Unusable debris material should be suitably disposed off at pre-designated disposal locations, with approval of the concerned authority. ○ The bituminous wastes shall be disposed in secure manner at designated landfill sites only in an environmentally accepted manner. ○ For removal of debris, wastes and its disposal MOSRTH guidelines should be followed. Unproductive/wastelands shall be selected with the consent of villagers and Panchayat for the same. The dumping site should be of adequate capacity. It should be located at least 500 m away from the residential areas. Dumping sites should be away from water bodies to prevent any contamination of these bodies. 	All though the alignment of each project road	To be included under contractors costs	Contractor	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
14.	Air and Noise Quality	<ul style="list-style-type: none"> ○ Vehicles delivering loose and fine materials like sand and aggregates shall be covered. ○ Dust suppression measures like water sprinkling, shall be applied in all dust prone locations such as unpaved haulage roads, earthworks, stockpiles and asphalt mixing areas. ○ Mixing plants and asphalt (hot mix) plants shall be located at least 0.5 km away and in downwind direction of the human settlements. ○ Material storage areas shall also be located downwind of the habitation area. ○ Hot mix plant shall be fitted with stack of adequate height (30 m) or as may be prescribed by SPCB to ensure enough dispersion of exit gases. Consent to establish and operate shall be obtained from State Pollution Control Board and comply with all consent conditions. ○ Diesel Generating (DG) sets shall also be fitted with stack of adequate height (as per regulation height of the stack of open to air DG set shall be about 0.5 m for 5 KVA and about 0.7 m for 10 KVA DG sets, above top of sound proofing enclosure of the DG set). Low sulphur diesel shall be used in DG sets and other construction machineries where available. Construction vehicles and machineries shall be periodically maintained. 	Throughout the project road section	To be included under contractors costs	Contractor	PIU, SRRDA
15.	Tree plantation	<ul style="list-style-type: none"> ○ Compensatory Afforestation shall be made on 1:3.ratio basis.(1;6 for Assam state) ○ Additional trees shall be planted wherever feasible. ○ Follow up maintenance of planted saplings will be carried out for a minimum of 3 years 	<i>(Enter the number of trees requird for planting and location of plantation site if available)</i>	Costs to be covered by state or PRI under schemes such as NREGA	PIU to coordinate compensatory forestation with PRI under schemes such as NREGA or local Forestry Department	PIU, PIC, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
16.	Ground Water and Surface Water Quality and Availability	<ul style="list-style-type: none"> Requisite permission shall be obtained for abstraction of groundwater from State Ground Water Board/Central Ground Water Authority if applicable. The contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected. Water intensive activities shall not be undertaken during summer period to the extent feasible. Provision shall be made to link side drains with the nearby ponds for facilitating water harvesting if feasible Where ponds are not available, the water harvesting pits shall be constructed as per the requirement and rainfall intensity. Preventive measures like slope stabilisation, etc shall be taken for prevention of siltation in water bodies. 	Throughout the project road	To be included under contractors costs	Contractor	PIU, PIC, TSC
17	Occupational Health and Safety	<ul style="list-style-type: none"> The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the construction workers. Workers' exposure to noise will be restricted to less than 8 hours a day. Workers duty shall be regulated accordingly. Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp/temporary office/storage areas. Domestic solid waste at construction camp shall be segregated into biodegradable and non-biodegradable waste. 	In all project roads	Costs to be borne by Contractor	Contractor	PIC, PIU, TSC
III	Post Construction and Operation Stage					
18.	Air and Noise Quality	<ul style="list-style-type: none"> Awareness sign board shall be provided for slow driving near the habitat areas to minimize dust generation due to vehicle movement. Speed limitation and honking restrictions may be enforced near sensitive locations. 	Throughout the project section at the location determined by	construction cost	Contractor,	PIC, PIU, TSC

SL. NO.	Project Action/ Environmental Attributes	Mitigation Measures	Location/ numbers	Costs	Responsible for Implementing	Responsible for Monitoring
			contractor and approved by PIU			
19.	Site restoration	<ul style="list-style-type: none"> ○ All construction camp/temporary office/material storage areas are to be restored to its original conditions. ○ The borrow areas rehabilitation will be ensured as per the agreed plan with the landowner. ○ Obtain clearance from PIU before handing over the site to SRRDA. ○ PIC to undertake survivability assessment and report to PIU the status of compensatory tree plantation at a stage of completion of construction with recommendation for improving the survivability of the tree if required 	All locations of construction camps/temporary office/material storage, and borrow areas	To be borne by the contractor	Contractor	PIU, PIC, TSC
20.	Hydrology and Drainage	<ul style="list-style-type: none"> ○ Regular removal/cleaning of deposited silt shall be done from drainage channels and outlet points before the monsoon season. ○ Rejuvenation of the drainage system by removing encroachments/ congestions shall be regularly conducted 	At project road locations with drainage structures	To be covered under road maintenance costs.	PIU	PIU, SRRDA

APPENDIX 5: ENVIRONMENTAL MONITORING PLAN

I. ENVIRONMENTAL MONITORING DURING DESIGN AND PRE-CONSTRUCTION STAGE

Monitoring Responsibility: PIU with Support from PIC

Monitoring Frequency: Once during pre-construction stage

Road Name with Block and District Name:

Road Length:

Report No.:

(Note: This checklist is to be completed by reviewing the respective DPR and checking if the Environment Checklist findings have been incorporated in the DPR)

SL. NO	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
1..	Climate Change Consideration and Vulnerability screening	<ul style="list-style-type: none"> Compliance to climate change vulnerability check point given under EARF and adoption of necessary mitigation measures as may be required Efforts shall be made to plant additional trees for increasing the carbon sink. The tree may be planted with help of PRI (Panchayati Raj Institution) 	All through the alignment of each rural road		
2..	Finalization of alignment	<ul style="list-style-type: none"> The road will be part of district core network and will comply with PMGSY guidelines Subproject shall not disturb any cultural heritage designated by the government or by the international agencies, such as UNESCO, and shall avoid any monuments of cultural or historical importance. Subproject will not pass through any designated wild life sanctuaries, national park, notified Eco sensitive areas or area of international significance such as protective wet land designated under Wetland Convention, and reserve forest area.. Subproject to comply with local and National legislative requirements such as forest clearance for diversion of forestland and ADB's Safeguard Policy Statement 2009. Alignment finalization considering availability of right of way and in consultation with local people. ROW may be reduced in built up area or constricted areas to minimize land acquisition as per PMGSY Guidelines. 	All through the alignment of each rural road		

SL. NO	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		<ul style="list-style-type: none"> Adjust alignment to the extent feasible to avoid tree cutting, shifting of utilities or community structure. The road shall follow natural topography to avoid excessive cut and fill. 			
3.	Land acquisition	<ul style="list-style-type: none"> Land acquisition, compensation packages, resettlement and rehabilitation, poverty alleviation programs for affected people and all other related issues are addressed through Social Impacts and Resettlement & Rehabilitation report. 	All through the alignment of each rural road		
4.	Clearing of vegetation and removing trees	<ul style="list-style-type: none"> All efforts shall be taken to avoid tree cutting wherever possible. Requisite permission from forest department shall be obtained for cutting of roadside trees. Provision of Compensatory Afforestation shall be made on 1:3 ratio basis (1:6 for Assam state). Permission shall be taken for diversion of any forest land if involved. Provision shall be made for additional compensatory tree plantation. The vegetative cover shall be removed and disposed in consultation with community. 	All through the alignment of each rural road <i>(Enter chainages where tree cutting and diversion of forest land is required & proposed plantation location if details are available)</i>		
5.	Shifting of utilities and common property resources	<ul style="list-style-type: none"> The road land width shall be clearly demarcated on the ground. All efforts will be made to minimize shifting of utilities and common property resources Utility and community structure shifting shall be planned in consultations and concurrence of the community Required permissions and necessary actions will be taken on a timely basis for removing and shifting utility structures and common property resources before road construction activities begin. 	<i>(Enter chainages where shifting of utility structures and common property resources are required. Enter total numbers of each structure required for shifting/removal)</i>		
6.	Design and planning of embankment construction	<ul style="list-style-type: none"> The alignment design shall consider options to minimize excessive cuts and fills. The cut off material shall be planned to be used for embankment to minimize borrow earth requirement. The design shall be as per relevant IRC provisions for cut and fill, slope protection and drainage. The top soil of the cut and fill area shall be used for embankment slope protection 	All through the alignment of each rural road <i>(Enter the chainages that are prone to floods)</i>		

SL. NO	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		Embankment will be designed above High Flood Level (HFL) in flood prone areas where feasible.			
7.	Hydrology and Drainage	<ul style="list-style-type: none"> Provision of adequate cross drainage structure shall be made to ensure smooth passage of water and maintaining natural drainage pattern of the area. The discharge capacity of the CD structure shall be designed accordingly. Provision of adequate drainage structures shall be made in water stagnant/logging areas. The construction work near water body shall be planned preferably in dry season so that water quality of the water channel is not affected due to siltation and rain water runoff. Provision of additional cross drainage structure shall be made in the areas where nearby land is sloping towards road alignment on both the sides. Provision of concrete road construction in habitat area with drainage of both side of the road shall be made as per the design provision and with adequate slope to prevent any water logging. 	<p>Near all drainage crossings, nalas, rivers, streams and ponds.</p> <p><i>(Enter chainages where earthen/structural cross drains, longitudinal drains, streams, ponds and rivers exist)</i></p>		
9.	Traffic Management and Road Safety	<ul style="list-style-type: none"> Identify the areas where temporary traffic diversion may be required. Prepare appropriate traffic movement plan approved by respective PIU for ensuring continued safe flow of traffic, pedestrians and all road users during construction. Wherever, cross drainage structure work require longer construction time and road is to be blocked for longer duration, the PIU/DPR consultant shall define appropriate measures for traffic diversion before the start of the construction. Adequate signboards shall be placed much ahead of diversion site to caution the road users. The road signs should be bold and retro reflective in nature for good visibility both during the day and night. It is proposed for the respective PIU to discuss with the railways division/department for providing adequate safety measures at unmanned railway crossing where applicable. Adequate clearly visible sign shall be provided on both sides 	<p>As proposed under DPR and determined by contractor and approved by PIC/PIU/</p> <p><i>(Enter the chainages which may require traffic diversions where possible)</i></p>		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		of the railway crossing All measures for traffic control and safety in accordance with IRC codes:99-1988 will be followed			
10.	Grievance Redress	<ul style="list-style-type: none"> ○ Maintaining records of all environment related grievances raised, if any, and the actions taken to address them through the village level grievance redress committee (GRC) and PIU as applicable 	All project roads.		

II. ENVIRONMENTAL MONITORING DURING CONSTRUCTION STAGE

Monitoring Responsibility: PIU with Support from PIC

Monitoring Frequency : 3 times when progress of works are 0 – 25%, 25 – 75% and 75 – 100%

Project Details:.....

Road Stretch Name :

Monitoring Report Quarter No.:

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
1.	Establishment of Construction Camp, temporary office and storage area	<ul style="list-style-type: none"> ○ Construction camp sites shall be located away from any local human settlements and forested areas (minimum 0.5 km away) and preferably located on lands, which are not productive (barren/waste lands presently). ○ Similarly, temporary office and storage areas shall be located away from human settlement areas and forested areas (minimum 0.5 km). ○ The construction camps, office and storage areas shall have provision of adequate water supply, sanitation and all requisite infrastructure facilities. ○ The construction camps, office and storage areas shall have provision of septic tank/soak pit of adequate capacity so that it can function properly for the entire duration of its use. ○ All construction camps shall have provision of rationing facilities particularly for kerosene/LPG so that dependence on firewood for cooking is avoided to the extent possible. ○ The construction camps, office and storage areas shall have provision of health care facilities for adults, pregnant women and children. 	For all roads		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		<ul style="list-style-type: none"> Personal Protective Equipments (PPEs) like helmet, boots, earplugs for workers, first aid and fire fighting equipments shall be available at construction sites before start of construction. An emergency plan shall be prepared to fight with any emergency like fire. Provision shall be made for domestic solid waste disposal in a controlled manner. The recyclable waste shall be sold off and non-saleable and biodegradable waste shall be disposed through secured land filling. <p>Provision of paved area for unloading and storage of fuel oil, lubricant oil, away from storm water drainage.</p>			
2.	Sourcing and transportation of construction material	<p>Borrow Earth:</p> <ul style="list-style-type: none"> The borrow earth shall be obtained from identified locations and with prior permission of landowner and clear understanding for its rehabilitation. The re-habilitation plan may include the following: <ul style="list-style-type: none"> Borrow pits shall be backfilled with rejected construction wastes and will be given a vegetative cover. If this is not possible, then excavation sloped will be smoothed and depression will be filled in such a way that it looks more or less like the original ground surface. Borrow areas might be used for aquaculture in case landowner wants such development. The Indian Road Congress (IRC):10-1961 guideline should be used for selection of borrow pits and amount that can be borrowed. Borrowing earth from agricultural land shall be minimized to the extent possible. Further, no earth shall be borrowed from already low-lying areas. A 15 cm topsoil will be stripped off from the borrow pit and this will be stored in stockpiles in a designated area for height not exceeding 2m and side slopes not steeper than 1:2 (Vertical: Horizontal). Borrowing of earth will not be done continuously throughout the stretch. Ridges of not less than 8m widths will be left at intervals not exceeding 300m. 	<i>(Enter chainage or probable locations of borrow areas. Enter name and location of identified quarries.)</i>		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		<ul style="list-style-type: none"> Small drains will be cut through the ridges, if necessary, to facilitate drainage. The slope of the edges will be maintained not steeper than 1:4 (vertical: Horizontal). The depth of borrow pits will not be more than 30 cm after stripping the 15 cm topsoil aside. Fly ash will be used in road embankment as per IRC guidelines wherever thermal power plant is located within 100 km of the road alignment. <p>Aggregate :</p> <ul style="list-style-type: none"> The stone aggregate shall be sourced from existing licensed quarries Copies of consent/ approval / rehabilitation plan for use of existing source will be submitted to PIU. Topsoil to be stockpiled and protected for use at the rehabilitation stage <p>Transportation of Construction Material</p> <ul style="list-style-type: none"> Existing tracks / roads are to be used for hauling of materials to the extent possible. Prior to construction of roads, topsoil shall be preserved and shall be used for other useful purposes like using in turfing of embankment. The vehicles deployed for material transportation shall be spillage proof to avoid or minimize the spillage of the material during transportation. In any case, the transportation links are to be inspected at least twice daily to clear accidental spillage, if any. 			
3.	Loss of Productive Soil, erosion and land use change	<ul style="list-style-type: none"> The top soil from the productive land (borrow areas, road widening areas etc.) shall be preserved and reused for plantation purposes. It shall also be used as top cover of embankment slope for growing vegetation to protect soil erosion. Cut and fill shall be planned as per IRC provisions and rural road manual. All steep cuts shall be flattened and benched. Shrubs shall be planted in loose soil area. 	All though the alignment of each project road		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		<ul style="list-style-type: none"> IRC: 56 -1974 recommended practice for treatment of embankment slopes for erosion control shall be taken into consideration. It shall be ensured that the land taken on lease for access road, construction camp and temporary office of the storage facilities is restored back to its original land use before handing it over back to land owner. 			
4.	Compaction and Contamination of Soil	<ul style="list-style-type: none"> To prevent soil compaction in the adjoining productive lands beyond the ROW, the movement of construction vehicles, machinery and equipment shall be restricted to the designated haulage route. The productive land shall be reclaimed after construction activity. Fuel and lubricants shall be stored at the predefined storage location. The storage area shall be paved with gentle slope to a corner and connected with a chamber to collect any spills of the oils. All efforts shall be made to minimise the waste generation. Unavoidable waste shall be stored at the designated place prior to disposal. To avoid soil contamination at the wash-down and re-fuelling areas, "oil interceptors" shall be provided. Oil and grease spill and oil soaked materials are to be collected and stored in labelled containers (Labelled: WASTE OIL; and hazardous sign be displayed) and sold off to SPCB/ MoEF authorized re-refiners. 	<p>All though the alignment of each project road</p> <ul style="list-style-type: none"> 		
5.	Construction Debris and waste	<ul style="list-style-type: none"> Excavated materials from roadway, shoulders, verges, drains, cross drainage will be used for backfilling embankments, filling pits, and landscaping. Unusable debris material should be suitably disposed off at pre-designated disposal locations, with approval of the concerned authority. The bituminous wastes shall be disposed in secure manner at designated landfill sites only in an environmentally accepted manner. 	<p>All though the alignment of each project road</p> <ul style="list-style-type: none"> 		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
		<ul style="list-style-type: none"> For removal of debris, wastes and its disposal MOSRTH guidelines should be followed. Unproductive/wastelands shall be selected with the consent of villagers and Panchayat for the same. The dumping site should be of adequate capacity. It should be located at least 500 m away from the residential areas. Dumping sites should be away from water bodies to prevent any contamination of these bodies. 			
6.	Air and Noise Quality	<ul style="list-style-type: none"> Vehicles delivering loose and fine materials like sand and aggregates shall be covered. Dust suppression measures like water sprinkling, shall be applied in all dust prone locations such as unpaved haulage roads, earthworks, stockpiles and asphalt mixing areas. Mixing plants and asphalt (hot mix) plants shall be located at least 0.5 km away and in downwind direction of the human settlements. Material storage areas shall also be located downwind of the habitation area. Hot mix plant shall be fitted with stack of adequate height (30 m) or as may be prescribed by SPCB to ensure enough dispersion of exit gases. Consent to establish and operate shall be obtained from State Pollution Control Board and comply with all consent conditions. Diesel Generating (DG) sets shall also be fitted with stack of adequate height (as per regulation height of the stack of open to air DG set shall be about 0.5 m for 5 KVA and about 0.7 m for 10 KVA DG sets, above top of sound proofing enclosure of the DG set). Low sulphur diesel shall be used in DG sets and other construction machineries where available. Construction vehicles and machineries shall be periodically maintained. 	Throughout the project road section		
7.	Tree plantation	<ul style="list-style-type: none"> Compensatory Afforestation shall be made on 1:3.ratio basis.(1;6 for Assam state) Additional trees shall be planted wherever feasible. Follow up maintenance of planted saplings will be carried out for a minimum of 3 years 	<i>(Enter the number of trees requird for planting and location of plantation site if available)</i>		

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
8.	Ground Water and Surface Water Quality and Availability	<ul style="list-style-type: none"> Requisite permission shall be obtained for abstraction of groundwater from State Ground Water Board/Central Ground Water Authority if applicable. The contractor shall arrange for water required during construction in such a way that the water availability and supply to nearby communities remains unaffected. Water intensive activities shall not be undertaken during summer period to the extent feasible. Provision shall be made to link side drains with the nearby ponds for facilitating water harvesting if feasible Where ponds are not available, the water harvesting pits shall be constructed as per the requirement and rainfall intensity. Preventive measures like slope stabilisation, etc shall be taken for prevention of siltation in water bodies. 	Throughout the project road		
9.	Occupational Health and Safety	<ul style="list-style-type: none"> The requisite PPE (helmet, mask, boot, hand gloves, earplugs) shall be provided to the construction workers. Workers' exposure to noise will be restricted to less than 8 hours a day. Workers duty shall be regulated accordingly. Septic tank or mobile toilets fitted with anaerobic treatment facility shall be provided at construction camp/temporary office/storage areas. Domestic solid waste at construction camp shall be segregated into biodegradable and non-biodegradable waste. 	In all project roads		
10.	Grievance Redress	<ul style="list-style-type: none"> Maintaining records of all environment related grievances raised, if any, and the actions taken to address them through the village level grievance redress committee (GRC) and PIU as applicable 	All project roads.		

NOTE: Each report must enclose photographs to demonstrate the mitigation measures implemented

III. ENVIRONMENTAL MONITORING DURING POST-CONSTRUCTION OR OPERATION STAGE

Monitoring Responsibility: PIU with Support from PIC

Monitoring Frequency: (Once, one month after completion of construction)

Project Details :.....

Road Stretch Name:

Monitoring Report No.:

SL. NO.	Environmental Attributes	Mitigation Measures	Location	Compliance status (Complied, partly complied, not complied)	Corrective action proposed if any
1.	Air and Noise Quality	<ul style="list-style-type: none"> Awareness sign board shall be provided for slow driving near the habitat areas to minimize dust generation due to vehicle movement. Speed limitation and honking restrictions may be enforced near sensitive locations. 	Throughout the project section at the location determined by contractor and approved by PIU		
2.	Site restoration	<ul style="list-style-type: none"> All construction camp/temporary office/material storage areas are to be restored to its original conditions. The borrow areas rehabilitation will be ensured as per the agreed plan with the landowner. Obtain clearance from PIU before handing over the site to SRRDA. PIC to undertake survivability assessment and report to PIU the status of compensatory tree plantation at a stage of completion of construction with recommendation for improving the survivability of the tree if required 	All locations of construction camps/temporary office/ material storage, and borrow areas		
3.	Tree plantation	<ul style="list-style-type: none"> Follow up maintenance of planted saplings will be carried out for a minimum of 3 years Data on plantation survivability to be collected 	<i>(Enter the number of trees required for planting and location of plantation sites)</i>		
4.	Hydrology and Drainage	<ul style="list-style-type: none"> Regular removal/cleaning of deposited silt shall be done from drainage channels and outlet points before the monsoon season. Rejuvenation of the drainage system by removing encroachments/ congestions shall be regularly conducted 	At project road locations with drainage structures		
5.	Grievance Redress	<ul style="list-style-type: none"> Maintaining records of all environment related grievances raised, if any, and the actions taken to address them through the village level grievance redress committee (GRC) and PIU as applicable 	All project roads.		

NOTE: Each report must enclose photographs to demonstrate the mitigation measures implemented