A. Introduction

1. The environmental assessment and review procedures (EARP) documented under the following sections will be applied to the environmental assessment (EA) and review of the subprojects under the project. In particular, they will be applied while preparing the initial environmental examination (IEE) for Component 1: Development of Selected Farm Roads in the three geogs of Trimsing, Trashigang; Kangpara, Trashigang; and Bongo, Chukha. The EARP is closely linked to, and strengthens the Royal Government of Bhutan’s existing environmental impact assessment (EIA) procedures required under the Environmental Assessment Act 2000, the Regulations for the Environmental Clearance of Projects and the National Environmental Protection Act.

B. Subprojects to be Assessed

2. The Project has five components, which are:

- Component A: Develop Selected Farm Roads
- Component B: Institutionalize Community Management and Maintenance of Farm Roads
- Component C: Provide Small Marketing Infrastructure and Equipment for the Subsistence Poor
- Component D: Improve Skills to Access Financial and Technical Services
- Component E: Grant Management, Monitoring and Evaluation

3. The primary subprojects that will be assessed will be for Component 1 of the project that entails the construction of about 46km of farm roads in three geogs in two dzongkhags.

4. The potential significant environmental impacts associated with the construction of the farm roads are outlined in Table 1.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Potential Negative Environmental Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excavation of road substrate, shoulders and cuttings</td>
<td>• removal of vegetation directly adjacent to the road</td>
</tr>
<tr>
<td></td>
<td>• instability and failure of slope</td>
</tr>
<tr>
<td>Spoil Disposal (including temporary stockpiling of material)</td>
<td>• slope failure</td>
</tr>
<tr>
<td></td>
<td>• clogging natural drainage systems</td>
</tr>
<tr>
<td></td>
<td>• disruption of local hydrology</td>
</tr>
<tr>
<td></td>
<td>• manmade landslides</td>
</tr>
<tr>
<td></td>
<td>• loss of vegetation cover, pastureland and aesthetically unpleasing sites.</td>
</tr>
<tr>
<td>Drainage</td>
<td>• surface runoff along road</td>
</tr>
<tr>
<td></td>
<td>• siltation of water downstream</td>
</tr>
<tr>
<td></td>
<td>• slope failures</td>
</tr>
<tr>
<td></td>
<td>• water seepage</td>
</tr>
<tr>
<td>Use of explosives</td>
<td>• fire and explosion hazard</td>
</tr>
<tr>
<td></td>
<td>• ground and surface water pollution</td>
</tr>
</tbody>
</table>

1 Farm roads are roads that link agricultural production areas to national highways and other roads including feeder roads, primarily to enable the transportation of inputs to the farm and agricultural produce to the market.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Potential Negative Environmental Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncontrolled water discharge</td>
<td>• sedimentation of surface waters</td>
</tr>
<tr>
<td></td>
<td>• slope failures</td>
</tr>
<tr>
<td></td>
<td>• creation of new gullies</td>
</tr>
<tr>
<td></td>
<td>• water seepage</td>
</tr>
<tr>
<td>Air and Noise Pollution</td>
<td>• emission of toxic pollutants</td>
</tr>
<tr>
<td></td>
<td>• high concentration of airborne dust</td>
</tr>
<tr>
<td></td>
<td>• excessive noise disrupting livestock and wildlife</td>
</tr>
</tbody>
</table>

C. Country Environmental Assessment Requirements

5. Bhutan’s first EA guideline was published in 1989. In 1998, the Royal Government published “The Middle-Path” Bhutan’s National Environment Strategy. “The Middle Path” is one of the main environmental policy documents and highlights the need to institutionalize EIAs as a tool for achieving sustainable development in Bhutan. In 1999, another policy document, “Bhutan 2020”, was published by the then Planning Commission. This document also emphasized the need to strengthen the EIA process.

6. In 1999, with financial and technical assistance from the Asian Development Bank (ADB), EA guidelines were issued for six sectors, including highways and roads.

7. The Royal Government of Bhutan enacted the Environmental Assessment Act (the Act) on 14 July 2000. Subsequently, on 4 April 2002, the Regulation for the Environmental Clearance of Projects came into effect. The Act and the Regulation require all projects to undergo the EA process. Therefore, starting an activity or a project without the required environmental clearance is a violation of the Act and the Regulation.

1. Environmental Assessment Act 2000

8. The Act establishes procedures for the assessment of potential effects of strategic plans, policies, programs, and projects on the environment, and for the determination of policies and measures to reduce potential adverse effects and to promote environmental benefits.

9. It makes environmental clearance mandatory for any project or activity that may have adverse impact(s) on the environment. When applying for environmental clearance, a No Objection Certificates (NOC) has to be annexed to the application. For Component 1 of this project, NOCs will be required from the Department of Forest, and from adversely-affected households.

10. Based on the review of environmental information submitted by the project applicant, the National Environment Commission Secretariat (NECS) or the Competent Authority (CA) may issue or deny environmental clearance or determine the need for a full environmental assessment (EA). Where a full EA is determined necessary, the applicant will be asked to prepare EA documents according to the terms of reference approved by the NECS. The NECS will review the EA report and accordingly issue or deny environmental clearance.

11. The NECS or CA issues environmental clearance when it is satisfied that: (a) the effects of the project on the environment are foreseeable and acceptable; (b) the applicant is capable of carrying out the terms of environmental clearance; (c) the project, alone or in connection with other programs/activities, contributes to the sustainable development of the
Kingdom and the conservation of its natural and cultural heritage; (d) adequate attention has been paid to the interests of concerned people; and (e) the project is consistent with the environmental commitments of the Kingdom.

12. Environmental clearance for a project shall be reviewed and may be revised and renewed at least every five years, unless a shorter period is stated. The NECS or CA may review and modify the terms whenever there is (a) unacceptable risk to the environment resulting from the project which was not known at the time the clearance was issued; (b) availability of improved and cleaner technology; and (c) a need to bring the project into compliance with changes to the laws of the country. Non-compliance with environmental terms specified in the issuance of environmental clearance makes the offender liable to penalties that may include compensation for environmental damage, fines, sanctions, and suspension or revocation of environmental clearance in part or full.

2. **Forest and Nature Conservation Act 1995**

13. The Forest and Nature Conservation Act (FNCA) was enacted in 1995. The objective of the FNCA is to “provide for the protection and sustainable use of forests, wildlife and related natural resources of Bhutan for the benefit of present and future generations”. It covers forest management, prohibitions and concessions in government reserved forests, forestry leases, social and community forestry, transport and trade of forestry produce, protected areas, wildlife conservation, soil and water conservation, forest fire prevention, and enforcement and penalties. Schedule I of the Act provides a list of wild animals and plant species that needs full protection in Bhutan. The FNCA also addresses preservation of government reserved forests, allotment of land and land rights in government reserved forests, regulation of activities in lands allotted for private use, collection of forest produce from government reserved forests, compensation for acquired lands, prohibitions, restrictions and concessions in government reserved forests, and forestry leases; Prevention of forest fires, land clearance, and activities potentially impacting soil, water and wildlife resources are issues addressed by the FNCA.

3. **Other Provisions**

14. The Mines and Minerals Management Act 1995, provides the framework for exploring mineral resources in the country. It complements the Environmental Assessment Act 2000 as it has provisions for environmental requirements such as environmental management plans for the proposed mine, Mine Restoration Plans etc. It also requires negative environmental impacts to be avoided or mitigated through the development of proper Mining Plans.

15. All these legislations are aimed at adopting "precautionary principles" to "maintain the health, diversity, and productivity of the environment for future generations." These conditions embody a strong commitment to safeguarding environmental values for the long-term benefit of Bhutan’s citizens.

16. ADB’s EA requirements are consistent with the Environmental Assessment Act 2000 and subsequent Regulations. The Act also recognizes several tiers of impact categorization dependent upon the environmental sensitivity to a proposed activity. The Category B impact status of this Project requires the production of an IEE for Component 1, which incorporates an environmental management plan (EMP).
D. Specific Procedures to be used for Subprojects under the Sector Loan

1. Responsibilities and Authorities, Institutional Arrangements and Reporting

17. The level of government responsible for the construction and maintenance of farm roads is the geogs. However, in acknowledgement of the time required for decentralization to be formalized and capacity developed in the geogs, the \textit{Guideline for Road Classification} allows for dzongkhag support in this interim period.

18. Where a farm road is already planned in the Tenth Five-Year Plan by dzongkhag level, the dzongkhag shall continue to be responsible for the construction, but will make appropriate arrangements with the relevant geog for handover and subsequent maintenance. Table 2 presents the main organizations responsible for the construction of farm roads in Bhutan.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|c|}
\hline
\textbf{Planning: estimation of works, scope and activities} & \textbf{Tenth Five Year Plan Interim Period} & \textbf{Decentralization fully institutionalized} \\
\hline
\hline
Farm roads & √ & & DOA ED & √ & \\
Farm road bridges & √ & & DOA ED, supported by DOR BD & √ & \\
\hline
\textbf{Cost estimation and budgeting} & √ & Backstopping & & & \\
\hline
Procurement & √ & & DOA ED & √ & Technical Backstopping \\
\hline
\textbf{Works implementation and scheduling} & & & & & \\
\hline
Farm roads & √ & & DOA ED & √ & \\
Farm road bridges & √ & & DOA ED, supported by DOR BD & √ & \\
\hline
\end{tabular}
\caption{Delineation of Responsibilities for Construction of Farm Roads}
\end{table}

\text{BD=bridge division; DOA=Department of Agriculture; DOR=Department of Roads; ED=engineering division}

a. Department of Agriculture

19. The Engineering Division under the Department of Agriculture (DOA) has prepared the \textit{Guidelines for Development of Farm Roads} and is currently responsible for coordinating the standards and guidelines for the implementation of farm roads (as defined by draft Ministry of Works and Human Settlements \textit{Guidelines for Road Classification 2009}). Therefore, DOA, in consultation with the Department of Roads (DOR), has produced a \textit{Technical Specification, (Geometric) Technical Guideline} and corresponding standard drawings and bill of quantities for use by designers and implementers of farm road construction.

20. To provide DOA with the necessary information to undertake such reviews, support
is required from stakeholder agencies particularly in keeping up to date with changes in policy relating to decentralization, annual grants and community participation. Data and other records from all stages of the road project cycle will also be needed to overcome challenges and bottlenecks and identifying success and good practice. In this respect, monitoring of the institutionalization of the procedures shall fall with DOA.

b. Department of Roads, Ministry of Works and Human Settlements

21. DOR is mandated under the Road Act to be the coordinating body for all road development activities. The current Road Sector Master Plan (2007- 2027) mainly provides a visual representation of Bhutan’s feeder and higher road network. A holistic master plan, including all farm roads, would greatly facilitate more strategic road alignment planning by dzongkhags and geogs. DOR is also owner of the Environmental Code of Practice, Highways and Roads (April 2000) which outlines the process for development of EMPs for all phases of the project cycle which must be undertaken by the implementing agencies. As per the Guideline for Road Classifications, DOR would provide technical backstopping in terms of in-house on-the-job training and technical guidance to DOA and dzongkhag engineers for bridges on farm roads.

c. Gross National Happiness Commission

22. The Gross National Happiness Commission policy developments include the issue of documents such as Functional and Financial Responsibilities (2009), Community Contract Protocol (under study), and Guidelines for Annual Grants for Local Governments. These documents frame mechanisms under which dzongkhags and geogs can assign budgets for road planning, studies, construction and maintenance. They provide procedures and policies by which community participation will be implemented, including any requirement for voluntary (unpaid) labor.

d. National Environment Commission Secretariat

23. As per the Environmental Assessment Act 2000, implementing agencies must apply for an environmental clearance after conducting an EA/IEE of the road project. The National Environment Commission Secretariat (NECS) has monitoring and enforcing authority. The Regulation for Environmental Clearance of Projects (the Regulation) February 2001 outlines the relevant levels of responsibility for different types of project- including road and bridges, and the application procedures for clearances.

24. Besides these institutional mechanisms setting out the responsibility at various levels, for this project, the project management unit (PMU) within the DOA will be responsible for environmental management and monitoring of the project. Technical assistance in the form of a Road Expert is one of the core elements of the PMU. One of the responsibilities of the expert will be the environmental management and monitoring of the construction activities. The Road Expert will also be responsible for developing the capacity of field staff in environmentally-friendly road construction (EFRC) techniques.

25. Currently, there is a three-tiered monitoring system in place to monitor farm road construction. At the project level, the PMU will be responsible for monitoring the project. Then the dzongkhag environmental officer is responsible for monitoring all environmental activities in the dzongkhag. Lastly, NEC conducts periodic monitoring of all developmental activities around the country.

26. To ensure that a proper IEE is completed for the roads with a practical EMP included, costs for preparing the IEE and survey and design have also been included in the project costing. Funds for implementing the EMP have been provided, to ensure that the
mitigation measures identified for the environment are implemented without any cost constraints.

2. Environmental Criteria for Subproject Selection

27. In selecting the farm roads, the following environmental criteria were used for the first level of screening. If any of these criteria were found applicable to the site, then the farm road would not be accepted as part of the project:

(i) roads in or adjacent to areas classified as being ecologically sensitive 'Category A' requiring the production of an EIA.
(ii) significant loss of natural/primary forest;
(iii) permanent negative effect on a known rare or endangered species; and
(iv) permanent damage to irreplaceable cultural relics and archaeological sites.

28. The IEE process to be applied will further confirm these criteria or recommend further work to complete the assessment. The preparation of the IEE document will be carried out in accordance with the Environmental Assessment Act 2000 and the Regulations for the Environmental Clearance of Projects. All the farm roads will be the subjects of an IEE, which will be supervised by the PMU.

3. Procedures for Environmental Assessment of Subprojects

29. To establish the scale of potential environmental issues, the appropriate mitigation actions, monitoring requirements, and institutional capacity to undertake mitigation and monitoring, NEC’s Application for Environmental Clearance: Guidelines for Highways and Roads will be used. This document serves as the terms of reference for assessing the environmental impacts of road construction. The EARP has been developed based on this guideline, and has been prepared to meet the requirements of ADB’s Environmental Policy. It is also consistent with the requirements of the Environmental Assessment Act and its regulations.

4. Preparation of Initial Environmental Examinations

30. The PMU will hire the services of a local consultant to prepare the IEE for each of the farm roads. The IEEs will be guided by NEC’s Application for Environmental Clearance: Guidelines for Highways and Roads. The Guidelines require the preparation of an Environmental Management Plan (EMP) and a monitoring plan. These documents will be submitted to NEC for an environmental clearance and will also be available to ABB for review and approval, if necessary.

31. Once the IEE and EMP are reviewed and approved, the NEC will issue an environmental clearance with terms and conditions attached. As required by the NEC, copies of the environmental clearance must be available at the office of the project proponent i.e. the geog centers in this case. Copies of the environmental clearance will also be available at the NEC office for public review.

32. The contractor will be required to submit mitigation progress and monitoring checklists every 3 months to the PMU, showing progress on mitigation actions defined in the EMP. At the end of the construction period, a summary report should be prepared by the PMU to verify that mitigation actions were undertaken and were effective, and to list work to be continued by the road users’ group during the operating period. The road users’ group will also undertake monitoring of road operation, and file monitoring reports every year for five years, focusing on identifying the success of environmental mitigation measures as well as maintenance requirements.
5. The Environmental Management Plan

33. As part of the IEE, an outline EMP will be prepared for implementation by the contractor during the construction of the farm roads and by the road users’ group after construction. The PMU will be responsible for supervising the implementation of the EMP and environmental monitoring. The dzongkhag environmental officer will be responsible for ensuring that the PMU is implementing the EMP. The outline EMP is provided by NEC’s Guideline for constructing Highways and Roads and will also include specific requirements of the farm roads. The EMP may comprise part of the conditions of the environmental clearance that is issued by NECS.

6. Monitoring Environmental Performance and Reporting

34. The EMP addresses the ways of mitigating and monitoring the impacts that have been identified by the EA/IEE. Mitigation measures prescribed in the IEE are to be tracked during the course of planning, construction, and operation of the farm road. NEC’s guidelines for developing highways and roads also provide simple templates for drafting the EMP and monitoring and reporting requirements.

35. The PMU will be responsible for ensuring that the environmental terms that are attached to the environmental clearance are carried out. These become the responsibility of the “Holder of the Environmental Clearance” (in this case, DOA). The Contractor will be held responsible for abiding by the environmental terms.

36. The environmental terms are to be attached to the Contract Document so that the Contractor has a clear understanding of the environmental requirements that are to be adhered to during construction. At the time of tendering, the Contractor will be required to prepare a Contractor’s Site Environmental Management Plan (CSEMP) that shows how the Contractor will implement the environmental terms. The CSEMP is to be included as part of the Contract Document and is to be evaluated as part of the overall tender. The NEC will assist with information in this area.

7. Documentation

37. Monitoring responsibilities including other provisions that the Applicant/Holder and Contractor will need to address at the time of submitting a tender for the work will be included as part of the environmental terms which will be attached to the environmental clearance. Regular monitoring will be the responsibility of DOA and will be detailed within the environmental clearance. The NEC may conduct unannounced monitoring and checks. Generally there will be a three-tiered monitoring system:

   (i) PMU monitors the contractors,
   (ii) dzongkhag environment officer (DEO) monitors the construction site, and
   (iii) NEC conducts monitoring exercises to ensure that the DEO and PMU are monitoring the contractor.

38. At least six-monthly EMP implementation reports will be submitted based on ADB’s Environmental Policy. General good practice requires that an IEE monitoring report will be completed according to the following schedule:

   (i) One report at the end of project design,
   (ii) One report every 4 months during construction, and
   (iii) Annually during operation for as long as the monitoring is specified in the EMP.
39. The monitoring report should also contain a summary of the effectiveness or failures of mitigation measures; i.e., the extent to which the mitigation actions had or were reducing the predicted negative impacts to an acceptable level as defined in the EMP. The format of the monitoring report for the three periods will focus on the description of what actions were taken, and when and where they were taken, in relation to the instructions provided in the EMP. The report format should be standardized for each period. General monitoring reports will be highly focused; providing a combination of text, tables, and relevant photos, addressing each mitigation action as defined in the EMP. The EMP will define how frequently mitigation actions will be monitored.

8. Public Consultation and Information Disclosure

40. For the construction of farm roads in Bhutan, where an IEE is required, formal and documented public consultation and information disclosure is required. Details of public consultation held with affected people must be annexed to the IEE. The Applicant must explain to the affected people the expected impacts of the development, where they will occur and how they will be mitigated. Records of the meetings and a list of the names of the affected people together with the date of consultation(s), details of their geog and village, issues raised by the people and the agreement(s) arrived at between the Applicant and the people to resolve these issues must also be provided. Signatures or other proof of consultation(s) with the affected people must be provided. NEC’s guidelines further recommend that unresolved issues also be described.

41. For IEEs this will be done once at the start of the IEE to inform stakeholders of the project components and to encourage input to identify overlooked environmental issues. Advance notice of consultation meetings will be given. Environmental assessment reports will be made publicly available in accordance with ADB’s Public Communications Policy.

9. Reviews

42. The assessment documents prepared as part of the project using the EARP process will be reviewed and approved by both the Government and ADB. The process will be as follows:

(i) Draft IEE documents that include EMPs will be submitted to the NEC for review, approval and issue of environmental clearance

(ii) The approved IEE and EMP documents along with a copy of NEC’s environmental clearance, stating the terms and conditions for the clearance, will be submitted to ADB for review and compliance check against ADB’s Environmental Policy

E. Confirmation that Environmental Assessment and Review Procedures conforms to ADB’s Environmental and Social Safeguard Policies

43. The Royal Government’s existing EA requirements under the Environmental Assessment Act 2000 and the Regulations for Environmental Clearance for Projects provides a framework within which the ADB environmental analysis policy soundly fits. Besides, the NEC’s EA guidelines, including those for highways and roads, were developed with technical and financial assistance from ADB and are in line with ADB requirements and processes.

44. The proposed EARP conforms closely with the ADB’s environmental and social safeguard policies. Specifically, it addresses the requirements for structured stakeholder consultation and places greater emphasis on monitoring and compliance within
environmental standards during project implementation. The EARP is designed to be an ongoing process enabling the evolvement of an effective environmental management and monitoring regime.

F. Staffing Requirements and Budget

45. An important project consideration is the recruitment of an expert in road construction in hilly regions within the PMU to enable the unit to fulfill its environmental monitoring and management responsibilities. The expert will also provide on-site training to local counterparts attached to the geog, dzongkhag and the PMU. The expert will be available as required to assist the local team and to regularly review its work. The DEO, the dzongkhag engineer, and the geog administrative officers will work closely with the expert in supervising and managing the EMPs.

46. During project design, budget allocations have been made to ensure operation of the EARP, including preparation of IEEs, survey and design, monitoring, recruitment of a road expert and the PMU. Table 3 presents the proposed budget to ensure that the farm roads are built with minimum negative damage to the environment.

Table 3: Budget for Environmental Assessment

<table>
<thead>
<tr>
<th>Activity</th>
<th>Amount (US$)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A) consulting services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) preparing IEE and EMP</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>ii) survey and design</td>
<td>40,000</td>
<td></td>
</tr>
<tr>
<td>iii) regional technical expert (road expert)</td>
<td>160,000</td>
<td>208,000</td>
</tr>
<tr>
<td>B) management and coordination of farm road construction by geogs and dzongkhags</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) supervision/staff time</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td>ii) per diem and travel</td>
<td>1,500</td>
<td>6,500</td>
</tr>
<tr>
<td>C) Project Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Project Manager</td>
<td>18,000</td>
<td></td>
</tr>
<tr>
<td>ii) Office Space</td>
<td>9,000</td>
<td></td>
</tr>
<tr>
<td>iii) Operational Costs</td>
<td>18,000</td>
<td></td>
</tr>
<tr>
<td>iv) Car Rental for Expert</td>
<td>15,000</td>
<td></td>
</tr>
<tr>
<td>v) Per Diem</td>
<td>5,400</td>
<td>65,400</td>
</tr>
<tr>
<td>Total Amount</td>
<td></td>
<td>279,900</td>
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</table>