

This is not an ADB material. The views expressed in this document are the views of the author/s and/or their organizations and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy and/or completeness of the material's contents, and accepts no responsibility for any direct or indirect consequence of their use or reliance, whether wholly or partially. Please feel free to contact the authors directly should you have queries.

# **APPLICATION FOR ENVIRONMENTAL CLEARANCE GUIDELINE FOR MINES**

**National Environment Commission**

**Royal Government of Bhutan**

**August 2004**



དཔལ་ལྷན་འབྲུག་གཞུང་།  
རྒྱལ་ཡོངས་མཐའ་འཁོར་གནས་སྐྱབས་ལྷན་ཚོགས་ཡིག་ཚང་།  
**ROYAL GOVERNMENT OF BHUTAN**  
**NATIONAL ENVIRONMENT COMMISSION SECRETARIAT**

FOREWORD

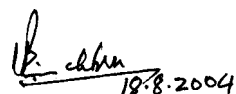
In 1999, the National Environment Commission with technical and financial assistance from the Asian Development Bank (ADB) published six sectoral environmental assessment guidelines for the mining, roads, industries, hydropower, transmission lines and forestry sectors. Several stakeholder consultation workshops and seminars were conducted before the guidelines were published. These guidelines were intended to guide different project proponents through the process of acquiring an environmental clearance for their projects. The Environmental Assessment 2000 (EA Act 2000) was passed by the National Assembly in 2000 and the Regulations under the Act were adopted two years later. Stakeholder feedback and our experiences in implementing the EA Act and the guidelines indicated that there was a need to revise the guidelines in order to make them more practical and relevant to the Bhutanese context and also to streamline them with the provisions of the EA Act 2000. It was also felt that there was a need for two more sectoral guidelines for urban development and tourism as rapid developments in these two sectors was becoming a concern for Bhutan. Therefore, in 2003 the NEC once again revisited these guidelines and revised and updated them to make them more practical and functional documents. Several Environmental Codes of Best Practices (ECOPs) have also been produced to support these environmental assessment guidelines.

The NEC is grateful to the ADB for being so forthcoming with technical and financial assistance to revise and update these guidelines. The revision and updating of these guidelines were accomplished through close consultation with all the various stakeholders. We would also like to express our gratitude and appreciation to all the line ministries and stakeholders for their active participation, support and inputs. We are confident that the revised guidelines will be more useful documents that facilitate and expedite the environmental clearance process as project proponents will now have a better understanding of what information must be provided in order to attain an environmental clearance.

In Bhutan, environmental conservation has been embraced as one of the four pillars of Gross National Happiness - the other three pillars being good governance, socio-economic development and cultural preservation. However, with the expansion of developmental activities in the country, it is becoming very difficult to strike a sustainable balance between environmental conservation and socio-economic development. The number of industries is on the rise every year

while the demand for rural access to market facilities in the form of farm roads and feeder roads is increasing with every Five Year Plan - in the 9th Five Year Plan alone there is a plan to develop 588kms of farm roads. Environmental issues such as waste disposal related to urbanization are also becoming serious concerns for Bhutan. Bhutan is lauded by the international community for its sound environmental policies and the political will to implement these policies. However, environmental problems are becoming more and more visible and instruments like the EA Act 2000 must be implemented effectively to support the government's sound environmental policies and to ensure that Bhutan remains clean and green.

The environmental assessment process endeavors to mitigate and prevent the undesirable impacts of developmental activities. It is in no way intended to hamper socio-economic development in Bhutan but to guide project proponents in making the right investments in land, manpower, technology and mitigation measures to ensure that their projects have the least possible impacts on the environment. With the revision and updating of the old guidelines and the publication of two new guidelines on Urban Development and Tourism and relevant ECOPs, the NEC is hopeful that the private sector, line ministries and competent authorities under the Regulations for Environmental Clearance of Projects find the guidelines more useful, practical, informative and easy to comply with. It is the sincere wish and hope of NEC that all the stakeholders, both public and private will make the best use of these guidelines, which in turn will help in protecting our fragile ecology. Sound implementation of these guidelines will go a long way in minimizing the negative impacts of developmental activities on Bhutan's environment.



18.8.2004

Nado Rinchen  
Deputy Minister for Environment

---

NECS, PO Box 466, Thimphu, Bhutan

Telephone: (975-2) 323384/325856/324323/326993  
Email addresses:

Fax: (975-2) 323385

AFD  
admneec@druknet.net.bt

Technical Division  
EIA Section: eanec@druknet.net.bt  
RMS Section: rmneec@druknet.net.bt  
ICO section: cunec@druknet.net.bt

Policy Coordination Division  
Policy Analysis Section: ppdneec@druknet.net.bt  
Legal Section: legalneec@druknet.net.bt

## Table of Contents

<b>1</b>	<b>Glossary</b> .....	<b>1</b>
<b>2</b>	<b>Introduction</b> .....	<b>6</b>
<b>3</b>	<b>Information Required for Preparing an Application for the Environmental Clearance of a Project</b> .....	<b>8</b>
<b>4</b>	<b>Applicant's Details</b> .....	<b>9</b>
	<i>4.1 Project Objectives</i> .....	<i>9</i>
	<i>4.2 Overall Planning</i> .....	<i>10</i>
	<i>4.3 Mining lease</i> .....	<i>10</i>
	<i>4.4 Project Costs</i> .....	<i>10</i>
	<i>4.5 Project Details</i> .....	<i>11</i>
	<i>4.6 Public Consultation</i> .....	<i>15</i>
	<i>4.7 Project Site Physical Environmental Details</i> .....	<i>16</i>
	<i>4.8 Project Site Ecological Details</i> .....	<i>17</i>
	<i>4.9 Project Social Environment</i> .....	<i>19</i>
	<i>4.10 Project Impacts and Mitigation Measures</i> .....	<i>21</i>
	<i>4.11 Monitoring Program</i> .....	<i>22</i>
	<i>4.12 Checklist for No Objection Certificate</i> .....	<i>22</i>
<b>5</b>	<b>Environmental Assessment Procedures</b> .....	<b>23</b>

## 1 GLOSSARY

*Affected people:* individuals, groups, communities or other organisations whose interests may be directly affected by the location, construction and operation of the project

*Agency:* a ministry, department, municipality established under the Bhutan Municipal Act, 1999 or any autonomous body of the Royal Government of Bhutan

*Applicant:* a person seeking an Environmental Clearance from a Competent Authority or from the National Environment Commission

*Application:* is the output of this guideline which is submitted to either the Competent Authority or the NEC for approval

*Competent Authority.* Any agency of the Royal Government that has the power to issue an Environmental Clearance for a project

*Cultural Heritage:* tradition or culture that should be preserved for future generations

*Development Consent:* the approval that is issued or renewed by a Competent Authority in the form of a licence, lease or permit for land use or construction. The Development Consent can only be obtained after the Environmental Clearance has been issued

*Distribution line:* power lines with voltages below 66 kilovolts

*Environmental Assessment:* all procedures required under Bhutanese law to identify means to ensure that the activities of a project are managed in an environmentally sound and sustainable way

*Environmental Clearance:* the decision issued under Chapter III of the Environmental Act, 2000, issued in writing by the National Environment Commission or the Competent Authority, to let a project proceed, which includes terms to ensure that the project is managed in an environmentally sound and sustainable way

*Environmental Management Plan:* a plan which addresses the ways of mitigating and monitoring the impacts that have been identified by the environmental assessment. The Environmental Management Plan may comprise part of the conditions of the Environmental Clearance that is issued either by the Competent Authority or by the National Environment Commission

*Environmental Parameter:* A component of the surrounding environment which may be altered by a project activity. This includes physical interventions or releases to air, water and soil which may in turn affect vegetation, wildlife, human and aquatic communities

*Environmental Terms:* the requirements and conditions that a project must comply with, as stated in the Environmental Clearance issued either by the NEC or the CA

*Environmental Unit:* a management unit that is established within a project structure that is responsible for implementing, monitoring and reporting on the environmental terms attached to the Environmental Clearance

*Forest:* any land or water body, whether or not under vegetative cover, in which no person has acquired a permanent and transferable right of use and occupancy, whether such land is inside or outside the forest boundary pillars, and includes land registered in a person's name as Tsamdo (grazing land) or Sokzhing (woodlot for collection of leaf litter)

*Holder:* the recipient of an Environmental Clearance under Chapter III of the EA Act, 2000

*Land acquisition:* the acquisition of any land, constructions or other property in accordance with the procedures established under the Land Act, 1979 (or successor legislation)

*Mine:* (noun) an opening or excavation in the ground for the purposes of mining, opening up or providing a mineral bearing substance or ore deposit. It also includes the place where a mining operation is carried out together with buildings premises, machinery, plant, roads and any other access above and below ground uses in connection with a mine

*Mine:* (verb) the intentional searching for and removal of minerals from a mining area, including any operation which is necessary for this activity

*Mining area:* land covered by a mining lease

*Mining lease:* a lease granted by the Ministry of Trade and Industry for commercial exploitation of a mineral

*Mining lease agreement:* a document containing additional terms and conditions relating to a specific mining area and attached to each mining lease

*Monitoring:* a program of systematic measurement or observation of environmental and social parameters. Monitoring requirements includes regular reporting and specifies action to be taken if non-compliance occurs. Monitoring requirements are specified in the Environmental Terms which is attached to the Environmental Clearance. Monitoring consists of *Baseline monitoring* which is carried out prior to a project commencing. Baseline monitoring measures the existing environment and this is compared to later monitoring which establishes the effects caused by the project. *Compliance monitoring* refers

to a system of regular measurements which compares releases from an activity to those that have been specified in the Environmental Terms. The permitted releases are established in environmental standards

*Municipal Corporation:* a Corporation incorporated under the Bhutan Municipal Act, 1999, to implement the provisions of that Act for the benefit of the residents of a community classified as a Municipality by the Royal Government

*Non-listed project:* all projects that are not listed in Annex 2 of the Regulation for the Environmental Clearance of Projects, 2002 including its most recent update

*Ore:* the unrefined or raw material

*Project:* an activity which may have significant effects on the environment

*Project area:* the area that includes the immediate and the proximate area of a project that the project may have an environmental or social impact on. It also includes the mining area

*Protected Area:* is an area which has been declared to be a national park, conservation area, wildlife sanctuary, wildlife reserve, nature reserve, strict nature reserve, research forest, critical watershed or other Protected Areas for the preservation of areas of natural beauty of national importance, protection of biological diversity, management of wildlife, conservation of soil and water and related purposes.

*Screening:* the review process carried out by the National Environment Commission or by the Competent Authority of the Application with regard to whether the project may be (i) issued with an EC (ii) rejected or (iii) require further environmental assessment



*Sustainability*: development that recognises the need to raise the living standards of the present population without compromising the country's resource base, cultural integrity, historical heritage or the quality of life of future generations

*Transmission line*: power lines with voltages above 66 kilovolts

*Wildlife*: includes all mammals, avians, reptiles, amphibians, fishes and invertebrates

## 2 INTRODUCTION

In 1999 the National Environment Commission (NEC) approved six sectoral environmental guidelines on (i) Forestry, (ii) Highways and Roads, (iii) Hydropower, (iv) New and Existing Industries, (v) Mines and Mineral Processing and (vi) Power Transmission Lines. In 2000, the National Assembly passed the Environmental Assessment Act and in 2002, the government approved the Regulation for the Environmental Clearance of Projects (the Regulation). Under the Regulation, both the National Environment Commission (NEC) and the designated Competent Authorities (CA), which are listed in Annex 2 of the Regulation, are authorized to issue Environmental Clearances for projects.

Applicants, CAs and the NEC found the six sectoral guidelines developed in 1999 cumbersome and difficult to comply with. This often led to delays in issuing environmental clearances and therefore the execution of projects. In order to ensure that these guidelines address the requirements of the *Environmental Assessment Act, 2000* and the *Regulation for the Environmental Clearance of Projects, 2002* while at the same time keeping them simple and easy to follow, the NEC, with financial and technical assistance from the Asian Development Bank (ADB), has revised the six guidelines and also developed two new sectoral guidelines: one for tourism and the other for urban development.

The NEC had the overall responsibility for coordinating the program, which was directed by Mr Karma C.Nyedrup of the Environmental Assessment Section. The assistance of numerous officers within the NEC and the following consultants; Karma Jimba, Sonam Tobgay and Charles Adamson is gratefully acknowledged.

This guideline has been developed in close consultation with the relevant agencies that are involved in mining with the intention of making it easier to use. The guideline also integrates requirements needed by other agencies who are involved in approving the project.

Article 9 of the Environmental Act, 2000 states that if the activity is going to be implemented by a Competent Authority, then the Application for Environmental Clearance is to be forwarded to the NEC for approval.

### **3 INFORMATION REQUIRED FOR PREPARING AN APPLICATION FOR THE ENVIRONMENTAL CLEARANCE OF A PROJECT**

The Application for Environmental Clearance (EC) of a project<sup>1</sup> is hereinafter referred to in this Guideline as the “Application.

1. Issuance of an Environmental Clearance is a prerequisite to the issuance of a Development Consent. (Ch II, article 8, Environmental Act, 2000)
2. The Competent Authority under the Ministry of Trade and Industry will issue the Environmental Clearance for projects that are defined in Annex 2 of the Regulation for the Environmental Clearance of Projects, 2002<sup>2</sup>
3. The purpose of the Application is to assist the CA or the NEC review the project and to determine the level of environmental assessment required. It is therefore, important to provide concise and accurate information when completing the Application. When quantifying the environmental impacts, avoid using subjective statements such as “*the project will have minimal environmental impact*”
4. One of the main reasons for delays in making a decision to either issue environmental clearance or reject the Application is lack of adequate information in the Application. If the required information is not provided in detail, the CA or the NEC will have to seek further clarification from the Applicant which extends the review process

---

<sup>1</sup>To establish a project without an Environmental Clearance, or to provide false, misleading or inaccurate information shall be an offence under Article 49 of the EA Act, 2000 and Section 36 and 37 of the Regulation for the Environmental Clearance of Projects, 2002.

<sup>2</sup>Each year the NEC requests the various Competent Authorities to review and add projects to Annex 2. Thus while the Regulation was issued in 2002, Annex 2 has and will continue to be revised. The latest issue of the Regulation needs to be referred to for the most recent update of Annex 2.

5. If the Application is subject to further environmental studies, the Applicant will need to submit Terms of Reference for the subsequent detailed investigations to the NEC for approval (*Article 15, Env Act, 2002*)
6. If any section is not relevant to your project, explain why this is the case then proceed to the next section
7. The numbering of sections for the Application should start from 1. Persons completing the Application are not obliged to maintain the same numbering sequence as used in the Guideline

#### **4 APPLICANT'S DETAILS**

Information that should be provided are:

- (i) Name of the project
- (ii) Name of the Applicant
- (iii) Present mailing address including telephone number, fax, and email (if any)
- (iv) Name of the environmental focal person<sup>3</sup>
- (v) Qualification/designation of the focal person
- (vi) Telephone number of environmental focal person
- (vii) If the Application is prepared by a consultant, give the name and contact details for the company that prepared the Application

Attach copy of Applicant's ID card/s or other company ID.

##### **4.1 Project Objectives**

List the main objective/s of the project in bullet form.

---

<sup>3</sup>Section 23 of the Regulation for the Environmental Clearance of Projects, 2002, may require the Applicant to delegate a focal person to ensure compliance with the terms of the Environmental Clearance. While Section 24 of the Regulation, requires that depending on the size of the project, the project may need to establish an environmental unit responsible for ensuring compliance with the terms of the Environmental Clearance.

## **4.2 Overall Planning**

- (i) Provide the expected date when mine development will be initiated. Some of the activities that may be involved at this time are: site clearing, topsoil removal, overburden removal, construction of approach road, internal roads, facilities, etc.
- (ii) Provide the date when the mine is expected to commence operation
- (iii) Attach an organizational chart of the mining project for the operation period

## **4.3 Mining lease**

Provide information on the lease period and the total lease area as approved by the Department of Geology and Mines.

## **4.4 Project Costs**

Provide the following costs:

- (i) Estimated total project cost
- (ii) Annual operating costs
- (iii) Total environmental management cost e.g. cost for check dams, management of overburden
- (iv) The annual environmental management costs, which would include the salary of the environmental focal person, spraying water for dust suppression, etc.
- (v) The environmental bond, Ngultrums/tonne and the expected amount to be retained in the fund for mine restoration

## **4.5 Project Details**

### **4.5.1 Project Location**

Provide the following information:

- (i) Name of the area where the mine is located
- (ii) Geog
- (iii) Dzongkhag
- (iv) Provide the mine site GPS coordinates or coordinates read from Survey of Bhutan 1:50,000 map

*Note: if the site is not known by a name, provide the name of the proximate area.*

Attach maps as below:

In an appropriate scale map show the site layout depicting the project location and surrounding area up to 5km with details on district and geog boundaries, Protected Area boundaries (if any close to the proposed site), nearby communities, natural drainage system, land use, roads and footpaths, settlements, existing social infrastructure and others

In 1:1000 map or in appropriate scale provide detailed Site Map/Plan that shows buildings relevant to the project, access and haul roads, topsoil and overburden dump areas, proposed labour camp site, workshop and fuel storage areas, tailings dumps, waste disposal areas, the mine area with demarcation pillars, location of explosives magazine, etc. Show the scale of the map with the direction of slope and north

If the project requires development and connection to public utilities, such as access road and power transmission line, show these on the map

#### 4.5.2 Mineral/s to be mined

Based on the mineral<sup>4</sup> that will be mined, complete Table 1. For instance if the mine will produce limestone and talc, both minerals will need to be shown together with the quantity that will be mined Annually.

Table 1: Mining details

Name of mineral/s that will be mined	Estimated annual production (tonnes)	Mining method/s

#### 4.5.3 Machinery and Labour

Prepare two tables, one that shows machinery requirements e.g. excavators and the other labour requirements. Labour requirements are to be segregated into two i.e. for (i) Construction and (ii) Operation.

Table 2: Details of mining machinery

Machine	Capacity (specify)	Quantity (no)	Unit Cost (Nu)	Cost (Nu.)

Table 3: Unskilled workers employed by the project

Type of Labour Skills Required	Numbers	Nationality
<b>Project Construction Period</b>		
<b>Project Operation Stage</b>		

<sup>4</sup>The Mines and Minerals Management Regulations 2002, permits mining of 14 minerals.



Under the column, Type of labour skills required, specify skill such as masons, ordinary labourers etc. Repeat for the operations phase.

#### **4.5.4 Explosives**

Provide details of:

- (i) the quantity of explosives that the mine will require per annum
- (ii) Whether the blaster has formal training or not. If not an appropriate authority should certify the blaster
- (iii) State the type of blasting techniques that the project intends to adopt e.g. (a) Single shot blasting (b) Simultaneous blasting or (c) Sequential blasting; etc.

#### **4.5.5 Mine Development**

Identify the mining development activities that are required such as:

- (i) Length of internal road construction (km or m)
- (ii) Vegetation that will need to be cleared (ha)
- (iv) Details of mining facilities that will need to be constructed including total area needed for such facilities and
- (v) The quantities of topsoil and overburden that will be removed (Mine Operation)

Mining in Bhutan generally involves one of the following: (i) surface mining (strip, open pit, or quarry) where extensive deposits occur at shallow depths; and (ii) underground mining where ore deposits are deeper or concentrated in specific seams or rich veins. The major difference between the two is the amount of overburden produced.

Provide estimates of the following in tonnes:

- (i) The size of the ore/mineral reserve contained within the mining lease
- (ii) Total quantity of overburden that will be produced
- (iii) Total quantity of ore/mineral that will be mined
- (iv) Overburden produced/year
- (v) Ore/mineral mined/year
- (vi) Average stripping ratio (waste to ore)

#### **4.5.6 Mine wastes**

Wastes may arise from ore residues or may result from chemicals that are used in the refining process. List the type and amount of wastes that the mine will produce in Table 4.

*Table 4: Mine wastes or residues*

<b>Type of waste or residue</b>	<b>Quantity</b>	<b>Unit</b>

#### **4.5.7 Storage and Transportation of Ore**

Describe (i) the location of the ore storage area (ii) the size of the ore dump (m<sup>3</sup>) and (iii) the distance (km) that will be required to haul the ore from the site to the storage area.

Ensure that the storage dump is shown on the site map.

#### **4.5.8 Connection to Ancillary Services**

Determine whether the project requires to be connected to any of the following services: (i) water supply (ii) power distribution systems and (iii) roads.

*For access roads and power distribution systems, the Applicant/s will have to submit a separate application for each in line with the Guidelines for Highways and Roads or Transmission and Distribution Lines, 2004.*

#### **4.6 Public Consultation**

Provide details of public consultation<sup>5</sup> held with affected people.

The Applicant must explain to the affected people the expected impacts of the development, where they will occur and how they will be mitigated. Provide a record of the meeting/s and attach 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. Provide signatures or other proof of the consultation/s with the affected people. Describe issues that remain unresolved.

Affected people are the ones who are directly or indirectly affected by the construction and operation of the project. For instance, they may lose their land to the project site, while emissions or discharges during operation may affect their health, etc.

---

<sup>5</sup>As per the Article 16 of the EA Act 2000 and Section 31 of the Regulation for the Environmental Clearance of Projects 2002, Public Consultation is mandatory. Establish the Public Consultation by meeting the requirements shown in Section 31.

## **4.7 Project Site Physical Environmental Details**

### **4.7.1 Landscape and Topography**

Calculate the average topographical slope for the mine site. Determine this from the topographical map by estimating (i) the elevation at the top of the mine lease area in meters (ii) the elevation at the bottom of the lease area in meters and (iii) the distance between these two points in meters. Calculate the slope as  $((\text{Elev}_{\text{top}} - \text{Elev}_{\text{bottom}}) \times 100) / \text{distance}$

### **4.7.2 Climate and Hydrology**

Show (i) the mean maximum daily rainfall and (ii) the mean maximum daily temperature recorded at the project site and the month in which it was recorded. If meteorological data is not available for the project site, the record from the nearest station should be provided. Name the station and the elevation of the station.

List (i) the names of the rivers/streams that the project will drain into (these are to be shown on the maps) and (ii) downstream water users within 1km from the waste discharge point.

### **4.7.3 Dust Emissions**

Mines, quarries and treatment and processing plants will emit dust particles during their operation. State whether dust will be a concern in the workplace and to surrounding communities.

### **4.7.4 Noise Pollution**

Sound levels are high at mines, quarries and treatment and processing plants. Determine whether Sound levels will be of concern to workers at the mine and to the surrounding communities.

## 4.8. Project Site Ecological Details

### 4.8.1 Land Use/Vegetation

Show in a table similar to Table 5, the existing land use of the proposed project site (*Chushing, Kamshing, Tseri, Tsamdo, Sokshing*, Orchard, Broadleaf forest, coniferous forest, Scrubland, Wetland or others). In case of others, specify the type of land use. Should Mixed Forest (Broadleaf + Coniferous) occur allocate this to the Broadleaf category unless it is dominated by Coniferous Forest in which case allocate it to Coniferous Forest. Scrubland also includes disturbed areas of Broadleaf and Coniferous forests that have been recently logged and are now regenerating.

“Affected households” are those who own or occupy the area and are dependent on it for their livelihood. They may or may not be the actual landowner. Land ownership can be private, community, monk body or government.

Table 5: Land use type of the mine lease area

Land use	Area	Ownership	Affected Households

### 4.8.2 Buffer Strip

Show in Table 6 the existing land use in the “buffer area” surrounding the mine. The buffer area is a 200m strip encircling the mine lease. This may either be affected by the mine or the existing land use may present a threat to mining activities. Land use maps can be obtained from the Ministry of Agriculture and Forestry. However, the information shown on the maps will need to be physically crosschecked for accuracy.

Table 6: Land use type within 200m periphery of mine lease area

Land use	Area	Tenure	Affected Households

#### **4.8.3 Protected Areas**

Protected Areas include Wildlife Sanctuaries, National Parks, Nature Reserves, Conservation Areas and Biological Corridors.<sup>6</sup> Information on Protected Areas can be obtained from the Nature Conservation Division, Ministry of Agriculture.

Provide information as to whether (i) the project falls within any designated Protected Area

#### **4.8.4 Wildlife and Flora**

Using one or more of the methods shown below, the Applicant will need to collect information on the occurrence of flora and fauna (animals, birds and vegetation) which has special significance to Bhutan and to this area<sup>7</sup>. State whether the flora or fauna is rarely or commonly observed.

- i. From the nearest Forest Office obtain a list of vegetation, animals and birds that exist in the project area and attach it to this document
- ii. Conduct village interviews on the occurrence of vegetation, animals and birds in the project area and document the findings. Compare the findings to the list provided by the Forest Office. This finding must be attached to this document

<sup>6</sup>Protected Areas are regulated by the Bhutan Forest and Nature Conservation Act, 1995.

<sup>7</sup>See Schedule 1 of the Forest and Nature Conservation Act, 1995, which lists Totally Protected Species.

- iii. During site visits, note the occurrence of vegetation types, animals and birds that occur along the road corridor. Provide a list of flora and fauna recorded along the road during these visits. Attach these findings to this document

Specify which of the methods was used to obtain the information.

#### 4.9 Project Social Environment

##### 4.9.1 Population

The project may create social benefits for the surrounding communities in terms of employment, sale of farm products, etc. Show this in a table similar to Table 7 and provide details of the population that live within the proximity of the project that may benefit from the project. It is important to cite the source of the information and the year that it applies to.

Table 7: Project Beneficiaries

Dzongkhag	Geog	Village	Town	Type of benefit	Population	House holds(no)
Total beneficiaries						

Source of information: .....

#### **4.9.2 Loss of Services, Houses, Infrastructure and Cultural Heritage Sites**

This section assesses whether the project location will lead to loss of any existing houses, infrastructure and cultural or heritage sites. The impacts could either be permanent or temporary.

In tabular form as shown in Table 8, provide details on whether any of the following will be affected by the project and describe the nature of the disturbance: (i) Services (ii) Houses (iii) Infrastructure (iv) Cultural/ heritage site

Services include: telephone, electricity, water supply etc.

Houses can include shops and other buildings.

Infrastructure losses could include; roads, bridges, tracks, power and telephone lines.

Show distance (m) from the cultural or heritage site.

*Locate the structures in the 1:500 map or in appropriate scale map. For listed projects as in Annex 2 of the Regulation for the Environmental Clearance of Projects 2002, show this as a sketch.*

*Table 8: Disturbance to existing infrastructures*

<b>Type of Loss</b>	<b>(no)</b>	<b>Description of disturbance</b>
Services (list)		
Houses		
Infrastructure		
Cultural Sites		Show distance in m from project facility
Heritage Sites		Show distance in m from project facility



### 4.9.3 Aesthetics

Provide information on the possible adverse visual impact that may arise from the mine or mining operations. This may also include aesthetic concerns arising from the release of dust and smoke into the surrounding area.

### 4.10 Project Impacts and Mitigation Measures

From the information provided in the preceding sections, identify the impacts that will occur from these activities and list these in a tabular format similar to that shown below. Impacts can occur from: (i) the *Location* of the project (ii) the *Design* of the project (iii) from *Construction* related activities and (iv) *Operation* of the project. For each negative impact provide mitigation measures and the approximate cost required to implement the mitigation measure.

Table 9: Impacts and Mitigation Measures

Impact	Mitigation measures	Estimated cost of mitigation (Nu.)

The Applicant 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. Where a Contractor is employed the Holder will be held responsible for ensuring the Contractor abides by the Environmental Terms. 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 that are included as part of the Tender Specifications. The CSEMP is to be included as part of the Contract Documents and is to be evaluated as part of the overall tender. The NEC can assist with providing further information in this area.

The Applicant will also have to provide the following plans if these are relevant. These are to be attached to the Application.

- i. The Land Compensation and Resettlement Plan
- ii. Worker Health and Safety Plan

#### **4.11 Monitoring Program**

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<sup>8</sup> which will be attached to the Environmental Clearance.

Regular monitoring will be the responsibility of the Holder of the Environmental Clearance and will also be detailed in the Environmental Clearance.

Either the CA or the NEC may conduct unannounced monitoring and checks.

#### **4.12 Checklist for No Objection Certificate**

In order to obtain an Environmental Clearance for the project, an NOC must be obtained from all relevant parties. Attach these documents to the Application. Below is a checklist of agencies from whom NOCs may be required.

---

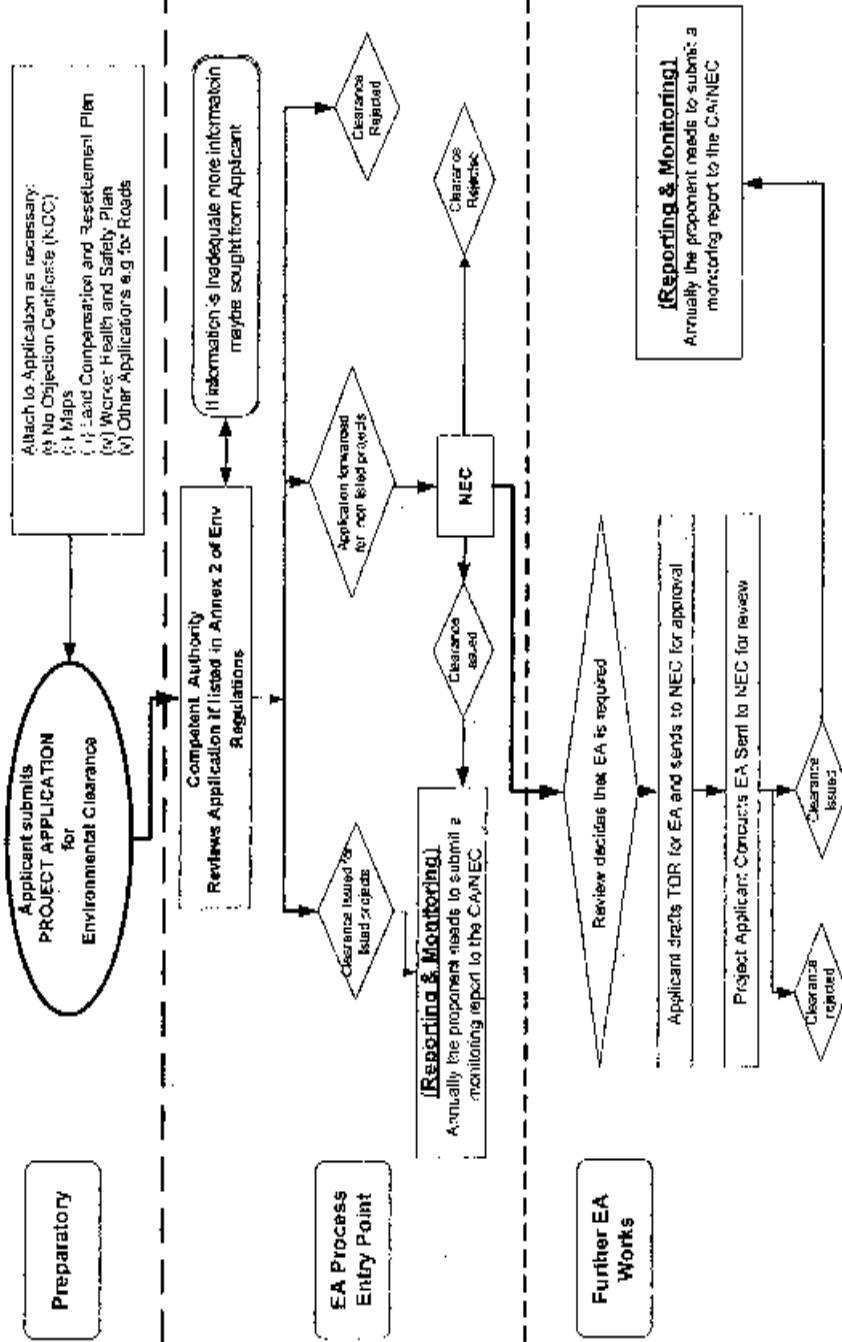
<sup>8</sup>Article 39 of the Environmental Act, 2000, establishes the need to attach environmental terms to the Environmental Clearance.

<b>Agency/concerned people to issue NOC</b>	<b>Why/when</b>
Dzongkhag/City Corporation	Administrative approval from Dzongkhag
DoF	Should the project damage or acquire <i>Tsamdo</i>
DoF	Should the project damage or acquire <i>Sokshing</i>
Department of Culture	Should the project be located within 50 m of a cultural or religious site
Nature Conservation Division	Within boundary of a Protected Area
Municipal Authority	Within 50m of a public park
Private owner	Within 5m of a human dwelling
Private property owners	Should the project need to acquire private property
Department of Health	Within 50m of hospital
Department of Education	Within 50m of school
Department of Energy	Should the project require the relocation of power transmission or distribution lines
Bhutan Telecom Authority	Should the project require relocation of telephone lines
Department of Roads	Should the project require access from highways and feeder roads.

## **5 ENVIRONMENTAL ASSESSMENT PROCEDURES**

A flowchart is attached showing how the Application for Environmental Clearance will be processed.

# ENVIRONMENTAL ASSESSMENT PROCEDURE FOR MINING PROJECTS



Note: For environmental assessment timeline refer Annex 1 of the EA Regulation 2002