

**APPLICATION FOR
ENVIRONMENTAL CLEARANCE
GUIDELINE FOR TRANSMISSION
AND DISTRIBUTION LINES**

National Environment Commission

Royal Government of Bhutan

August 2004



དཔལ་ལྷན་འབྲུག་གཞུང་།
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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.


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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

Distribution system: means a network which is not a transmission system and is connected to another transmission or distribution system

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, that is issued in writing by the National Environment Commission or the Competent Authority, to let a project proceed. The Environmental Clearance includes terms and conditions which the Applicant or the Holder of the Environmental Clearance must abide by 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 *Sokshing* (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)

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.

Project area: 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

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: conveyance of electricity at voltages above 66 kilovolts

Transmission System: means a network operating at nominal voltages of 66 kilovolt and above

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 relevant agencies that are involved in constructing transmission lines and also integrates requirements needed by other agencies that are involved in approving similar projects.

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.

The Application is relevant to both distribution lines (< 66 kV) and transmission lines (> 66 kV). To keep the Guideline simple, both types of lines are commonly referred to as "transmission lines". Thus the term "transmission lines" also includes lower voltage distribution lines.

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

The Application for Environmental Clearance (EC) of a project¹ 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 Environment Clearance of Projects, 2002².
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

¹ “. 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.

² 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

3.1 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 person³
- (v) Qualification/designation of the focal person
- (vi) Telephone number of environmental focal person
- (vii) If a consultant prepares the Application, give the name and contact details for the company that prepared the Application

3.2 PROJECT OBJECTIVES

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

³Section 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.

3.3 Name of the Project Financier

3.4 Project Details

3.4.1 Site Route

The transmission line will traverse the following Geogs.

Table 1: Transmission line route details

Dzongkhag	Geog	Village	Distance (km)
Total distance (km)			

3.4.2 Transmission line Details:

- i. Voltage level: kV
- ii. Tapping point:
- iii. Termination point:
- iv. Length of line: km
- v. Right of Way (RoW) width: m.

3.4.3 Project Cost

- 1. What is the estimated total cost of the Project?:
Ngultrums
- 2. What percentage of the estimated project cost is allocated to environmental management programs?.

3.4.4 Towers/Poles

Total number of towers/poles

How many towers/poles will be located on private land

3.4.5 Excavated Material

Provide the total quantity of excavated material that will be produced by tower construction.....m³

3.4.6 Implementation Schedule

1. How long will the project take to construct?months or years
2. Attach the tentative Project Implementation Schedule to this document.

3.5 Alternative/s to Transmission Line Route

Clearly justify why this alternative is chosen over other alternatives

3.6 The Project Environment

3.6.1 Topography

Plot the transmission line layout on an appropriate scale topographical map. Show the map scale and geographical North.

3.6.2 Land Use/Vegetation

i. Transmission Line

In Table 2 show:

The area that the transmission line Right of Way (RoW) will require. For example if a 130kV line requires a 20m wide RoW, the land area that will be required for a 1000m long line will be; 1000m x 20m = 20,000 m² or 0.2 km². This is the area of the RoW

In areas of steep topography not all of the forest within the RoW will require clearing. The actual area of the RoW that will require clearing to maintain conductor

clearance can be based on an assumed cleared length of the RoW. For this transmission line, the cleared length has been assessed as%. Using this calculate the likely areas of forest that will be actually cleared and carry this figure into Table 2 as “corridor clearing required”

Table 2: Areas of land use along transmission line RoW

Facility	Chu-shing	Kam-shing	Tseri	Tsamdo	Sok-shing	Broad-leaf	Conifer forest	Scrub-land	Total (km ²)
Transmission line RoW									
Actual corridor clearing required			xx	xx					

Note: Scrubland also includes disturbed areas of Broad leaf and Coniferous forest that have been logged and are now regenerating.

ii. Sub-station/s

Complete Table 3 showing the areas of land use and vegetation that will be occupied within the sub-station boundary (m²). Show this for every sub-station.

Table 3: Areas of land use required for sub-stations (m²)

Facility	Chu-shing	Kam-shing	Tseri	Tsamdo	Sok-shing	Broad-leaf forest	Conifer forest	Scrub-land	Total (m ²)
Sub-station 1									
Sub-station 2									
Total area requiring clearance (m ²)									

Note:

Scrubland also includes disturbed areas of Broadleaf and Coniferous forest that have been logged and are now regenerating.

iii. Land Tenure

For those areas in Table 2 and 3, show the ownership of these areas as being either (a) "private" or (b) "public". For private land show the number of households affected. Enter these details in Table 4. This data will be used to work out resettlement requirements and compensation.

Table 4: Land ownership and affected household details

Facility	Chushing		Kamshing		Tseri		Tsamdo		Sokshing		Forest	Scrub-land	Wet-land*	Total
	Owner ship	House holds	Owner	h.h.	Owner	h.h.	Owner	h.h.	Owner	h.h.				
Sub-station 1														
Sub-station 2														
Transmission line														
Total affected households (no)														

Provide the source of this information:

Note: "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.

* Wetland is not paddy field but flat marshland areas which are normally rich habitats for terrestrial and aquatic life

3.6.3 Houses and Infrastructure

Enter the number of houses and other infrastructure that could be lost as a result of the project. Enter this data in Table 5.

Table 5: Losses of houses and other infrastructure

Facility	Houses (no)	Other infrastructure, describe
Sub-station 1		
Sub-station 2		
Sub-station 3		
Transmission line		
Total (no)		XX

Note: Other infrastructures losses could include shops, hotels, offices, health posts, schools, etc

3.6.4 Protected Areas

- a) Will the transmission line cross a Protected Area? “Yes” or “No”..... If yes, provide the information in the following table.

Table 6: Protected Area details for Transmission lines

Name of protected area	Length of transmission line in different zones within the protected area (km)						Total length (km)
	Enclave zone	Buffer zone	Core zone	Seasonal grazing zone	Administrative zone	Multiple Use zone	

Will any of the sub-stations be located in a Protected Area? “Yes” or “No”.....if yes, provide the information in the following table.

Table 7: Protected Area details for Sub-stations

Name of protected area	Area occupied by sub-station in different zones within the protected area (km)						Total length (km)
	Enclave zone	Buffer zone	Core zone	Seasonal grazing zone	Administrative zone	Multiple Use zone	

3.6.5 Access Roads

Will an access road be constructed for the transmission line? Yes or No.....

If yes, is it temporary or permanent.....

If temporary, did you seek alternative means of transportation, such as cableway? “Yes” or “No”.....

Note: If a permanent road is required, the Applicant will be required to submit a separate application for access road construction in line with the Application for Environmental Clearance: Guideline for Highways and Roads,2004

3.6.6 Aesthetics

Will the location of the transmission line significantly impair visual aesthetics? “Yes” or “No”. Explain your answer.....

¹See Schedule 1 of the Forest and Nature Conservation Act, 1995, which lists Totally Protected Species.

3.6.7 Wildlife

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. State whether the flora or fauna is rarely or commonly observed.

For transmission lines that do not enter forestland this may not be relevant.

- i. From the nearest Forest Office obtain a list of vegetation and animals and birds that exist in the project area and attach 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
- 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.

3.6.8 Cultural and Heritage Sites

In Table 8 list any cultural or heritage sites that the RoW for the transmission or distribution line may cross and sub-station/s may occupy.

Table 8: Cultural and Heritage site details

Name of Cultural/ Heritage	Location	Coordinates	Describe the significance of Site the site. Is the site listed with the Department of Culture
	Easting	Northing	

3.7 Public Consultation

Provide details of public consultation⁴ 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 people together with the date of consultation/s, details of their Geog and village, issues raised by them and the agreement/s arrived at between the Applicant and the people to resolve these issues. Provide signatures or other proof of consultation/s with the affected people. Describe issues that remain unresolved.

3.8 Project Impacts and Mitigation Measures

Power transmission line projects will provide a range of both positive and negative impacts. Using the information provided in the earlier sections, list the positive impacts. If possible quantify the impacts; otherwise explain how the project will benefit the local communities.

⁴As 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.

Again using the information provided in the previous sections list the negative impacts that have been identified for the project. A range of negative impacts are illustrated in the following table. Each negative impact should be accompanied by a suitable mitigation measure or, if more than one possibility exists of mitigating the concern, list all the measures that may be used. Estimate the costs of implementing the measure/s to the nearest 1,000 Ngultrums.

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 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

3.9 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 Terms⁵ 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.

3.10n 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.

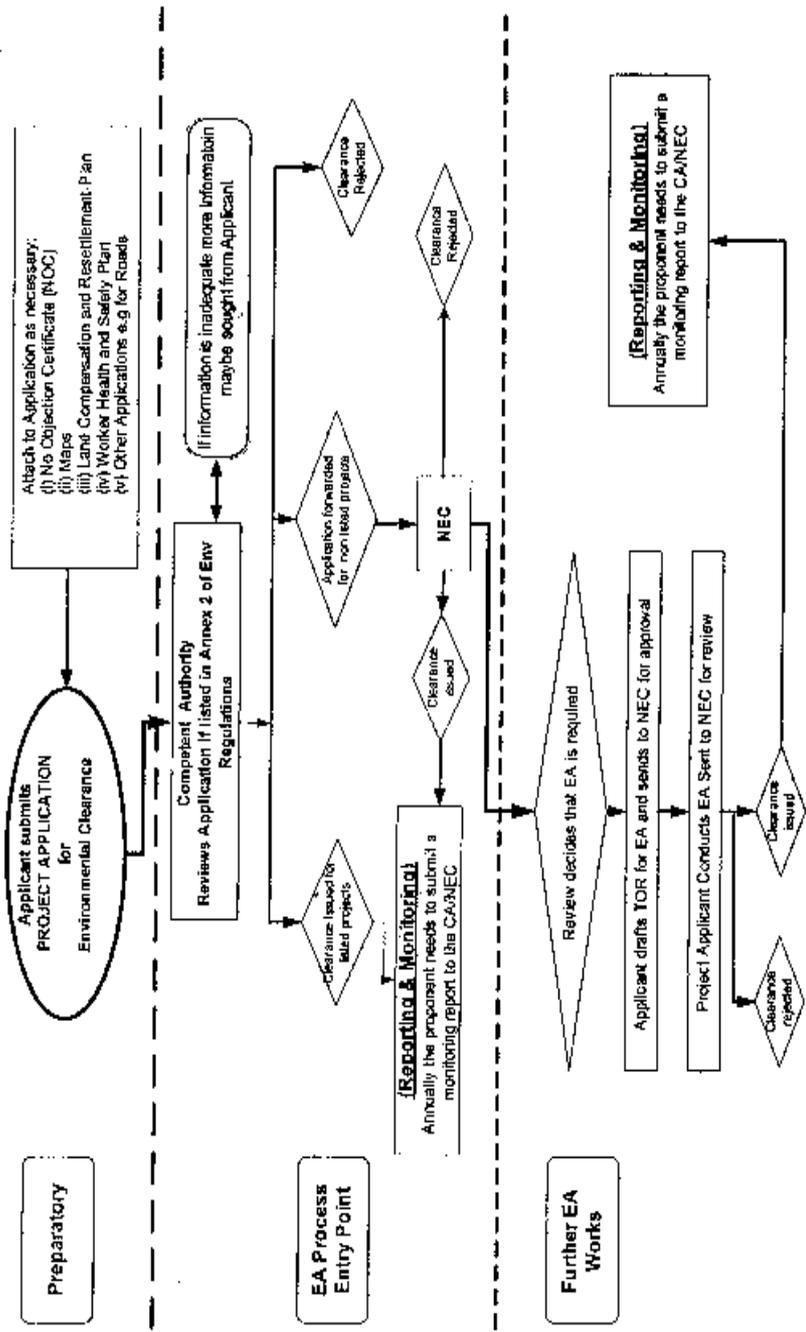
⁵Article 39 of the Environmental Act, 2000, establishes the need to attach environmental terms to the Environmental Clearance.

Agency/concerned people to issue NOC	Why/when
Dzongkhag/City Corporation	Dzongkhag Administrative approval
DoF	Should the project damage or acquire Tsamdo
DoF	Should the project damage or acquire Sokshing
Department of Culture	Should the project be located within 50m 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 50m 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 line
Bhutan Telecom Authority	Should the project require relocation of telephone lines
Department of Roads	Should the project require access from highways and feeder roads

4 ENVIRONMENTAL ASSESSMENT PROCEDURES

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

ENVIRONMENTAL ASSESSMENT PROCEDURE FOR TRANSMISSION AND DISTRIBUTION LINE PROJECTS



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