

TERMS OF REFERENCE

Brief Environmental Study (BES) Study of Buddha Stupa/Monument (बुद्ध मूर्ति), Tokha Municipality-01, Kathmandu District

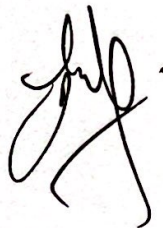
INTRODUCTION

1.1 Outline of the Project

Study of Brief Environmental Study (BES) for Construction of Buddha Stupa/Monument, Tokha Municipality 1, Kathmandu District, Bagmati Province, Nepal.

1.2 Scope of Study

1. Desk Study of all the design, data, drawing, maps and information relevant to the project for preparing ToR and further activities related to BES study of the project.
2. Preparation of Site/ project specific Terms of Reference Document as per IEE and BES working procedure, 2079 as issued by Tokha Municipality and other related federal laws.
3. Carry out assessment of groundwater conditions, local geological assessment, ecological assessment, infrastructure resilience, necessary laboratory testing to prepare ToR and BES report, which shall incorporate all the priority issues of work by categorizing them into physical, biological, socio economic, and cultural aspects of both Beneficial and Adverse types , sustainability for both construction, operation and maintenance stages, as per IEE and BES working procedure, 2079 as issued by Tokha Municipality and other related federal laws.
4. Data collection and examination related to:
 - Physical parameters – walkthrough survey, inventory, literature review (including feasibility study and previous works), map study, national level databases, in-situ test.
 - Biological parameters- identification of species including protected species within the project area, sampling and estimation on influence area.
 - Socio-economic parameters- Semi-structured interview with key informants, questionnaire, map interpretation and walkthrough survey.
5. Impact Identification, Impact prediction, determination of significant impacts
6. Preparation of Environment Management Action Plan
7. Preparation of BES report as per approved ToR.



1.3 Objective of Study

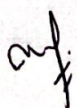
1. To collect baseline data and information on physical, biological, socio-economic, and cultural components of the proposed project in the project-affected area;
2. To review Government of Nepal and international policies and regulatory mechanisms in the context of Construction of monuments;
3. To identify and assess potential positive and negative impacts of the project activities during construction and operation on physical, biological, socio-economic, and cultural resources in the project area, and predict their magnitude, extent and duration. Identify the critical environmental issues and problems that require further studies;
4. To recommend preventive, curative and compensatory mitigation measures, including benefits augmentation, and develop environmental management and monitoring plan;
5. To familiarize stakeholders with the BES through public consultation, public hearing and Focus Group Discussion (FGD) and to incorporate their relevant concerns and issues into the project design and implementation phase;
6. To provide necessary information for decision makers and affected stakeholders about the environmental implications of the proposed project implementation.

STUDY APPROACH AND METHODOLOGY

2.1 STUDY APPROACH

The Consultant will perform a detail study of the project area and project affected areas for the BES. The BES study will investigate all options including the alternative options. As guided by the Environmental Protection Rules (EPR), 2077 the study will follow two subsequent steps; namely Terms of Reference (ToR) stage and detail BES stage. The Consultants will conduct the BES study with full understanding of the purpose and scope of work. The study will be guided by ToR approved by Tokha Municipality and other federal laws. Environmental and social issues raised in ToR will be thoroughly investigated. The following general approach will be followed during the study period.

- Mobilization of technical experts as envisaged in the contract document.
- Selection of tested and proven methods and technologies.
- Effective communication with the client and with all the concerned agencies.
- Optimum utilization of the available study reports, maps, drawings, standards etc.



- Public interaction is a key for BES study. The BES study team will put all its efforts in disseminating project related information and obtain the regular feedback from the stakeholders in a timely manner. Public consultations and public hearing will be conducted as per the existing rules for scoping and BES.

2.2 STUDY METHODOLOGY

Necessary information shall be generated through literature review and field works. Secondary information shall be collected through published reports and interpretation of maps and photographs. Primary level of information shall be generated through questionnaire, checklist, measurement, lab tests, and consultation. Furthermore, local people shall be contacted and interviewed to solicit information. A number of focus group discussions shall be held in the project areas.

2.2.1 Desk study

At the preliminary stage of the study, relevant documents of the project shall be reviewed for ToR documents preparation. Existing policies, legislation, acts, rules, regulations, manuals and guidelines related to energy development project shall be reviewed and taken into account for literature review. At the same time, a series of consultations shall be made with the technical team of the project.

2.2.2 Field visit

Field visit shall be carried out by the Environmental Team of Experts of the Consultant. The main purpose of the field visit shall be to carry out consultation with local people and to inform them about the project activities including likely environmental impacts of the project and to collect information on existing environmental condition of the project study area. Information on existing conditions regarding the physical, biological, socio-economic and cultural environment of the project area shall be collected during the discussions with the local people and through direct observations, sampling and by meeting with key personnel of Municipalities and other local institutions. These activities shall be carried out to identify the issues in the social and environmental aspects of the project area. The Consultant shall also consult/involve concerned and affected persons and parties while identifying the issues/impacts likely to be occurred during the implementation of the project which shall be incorporated in ToR documents.



2.2.3 Desk study and Literature Review

The available published literature, documents and maps (topographic maps, land use maps, aerial photographs, cadastral survey maps etc.) related to the project shall be reviewed. Existing policies, legislation and guidelines related to the solar projects in Nepal shall be reviewed in detail.

The following data shall be collected through literature review.

Physical Components

- Hydrological (including flow and flood data, sediment load and pattern etc)
- Metrological data (including basin and micro-climate)
- Topography and land use
- Regional Geology (including rock type, spots of risks of slope stability, landslides, erosion, etc)
- Indirect assessment of air quality, Sound level at project.


Biological Components

- Flora and fauna
- Biodiversity
- Exotic species
- Forest type
- Endangered, Rare and Protected species
- Protected area or area identified or proposed for protection/ conservation

Socioeconomic and Cultural Components

- Social and economic parameters like demography, literacy, ethnicity, economic status, health and sanitation, basic infrastructure and facilities, etc. of project district and project Municipality.
- Other available relevant socio-economic information of the project areas.

In order to verify the local information, official of the local and district level particularly Municipality offices, District level government offices shall be contacted to solicit site-specific information.



Furthermore, the local, national and international institutions working in the project area shall also be consulted to verify the project site-specific information.

The maps of project area should be interpreted to extract necessary information particularly on physical aspects. Topographic maps, geological maps, land use and land capability maps, and soil maps, groundwater hydro-geological maps should be collected and reviewed.

2.2.4 Questionnaire and Checklists

A structured questionnaire for household survey should be prepared to solicit information on socio-economic conditions, use and management of natural resources, public health and sanitation, community infrastructures and facilities, land acquisition and compensation, gender issues, education and skills, income and expenditure, involvement in economic activities including tourism, etc. A checklist shall also be prepared for the Focus Group Discussion, which should be used to cross check and verify the information obtained from the household questionnaire survey.

2.2.6 Field Visit/Data Collection

A team of the proposed professionals led by the team leaders and other members namely: Environmentalist, Socio-economist/Anthropologist, Engineering Geologist, and along with field enumerators shall visit the site. The objective of this visit would be to collect the overall baseline information regarding the project area and to collect the site-specific information. The data collection efforts shall be in line with the priority/significance of the issues and sensitivity of the receptors. Both the primary data and secondary data shall be collected and analysed for the assessment of the physical environment.

Study and data collection of the physical environment

Both the primary data and secondary data shall be collected and analyzed for the assessment of the physical environment. The field observation and walk through survey shall be adopted to verify information on geological condition, drainage system, slope stability, landslide prone areas, worker's camp, spoil disposal area and other construction related activities.

Study and data collection of the biological environment

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Vegetation and forest resources

Composition, distribution patterns and characteristics of vegetation and forest types and sensitive habitat in the project area shall be assessed from direct field observation, quadrat sampling, transect walk survey, photography, maps, interaction with local people, Forest User Groups (FUG) and collection of information from district forest offices. The total area of the affected forest shall be quantified during the field survey. Detail list of the floral species in the project affected area shall be included in the BES report.

Fauna

The project area shall be surveyed to obtain direct evidences of the wildlife and avifauna, their status and habitat. Consultations with key informants and group discussions shall be organized to obtain local information on wildlife species and habitats. Sensitive habitats of wildlife in the project site shall be studied through indirect evidences of droppings, feathers, pugmarks, scales, habitat, nests, etc. Detail list of the faunal species in the project affected area shall be included in the BES report.

Status of endangered, threatened, rare, and vulnerable species

Status of endangered and protected species shall be categorized after tallying the recorded species with the IUCN Red Data Book, CITES Appendices and Government of Nepal (GoN) Protected list of flora and fauna. Habitats and movement routes of the protected wildlife species in the project impact zones shall be confirmed.

2.2.7 Detail Methodology for Field Investigation

The detail task wise methodologies in assessing physical, biological and socio-economic environment of the project are highlighted below in table.

S N	Sub-tasks	Methods and Tools for Study
A. Physical Environment		
A.1	Topography and watershed	<ul style="list-style-type: none">▪ Study of topographic maps and aerial photographs▪ Direct observation, and assessments of unstable zones, erosion prone areas, etc. of the project affected sites and watersheds, and depiction



S N	Sub-tasks	Methods and Tools for Study
		of features in the thematic maps
A.2	Climate/ Meteorology	<ul style="list-style-type: none"> Collection and review of the time series data on climate particularly on-air temperature, rainfall, wind conditions, relative humidity etc.
A.3	Air Quality, Water Quality and Noise	<ul style="list-style-type: none"> Collection and review of secondary data on air, water and noise quality of the project area if available from earlier reports from the same River basin Collection of primary water quality, and air and noise level data from the key project sites and facilities Assessment of data using applicable statistical tools to develop air quality, water quality and noise level status of the project area.
A.4	Drainage Pattern, Hydrology and River Morphology	<ul style="list-style-type: none"> Study of topographic maps and identification of key drainage features
A.5	Geology and soil	<ul style="list-style-type: none"> Collection and further review of regional and local geological maps of the area and identify the geologically vulnerable areas Collection and review of hazard maps of the project area and identify the geologically hazardous areas
A.6	Land use	<ul style="list-style-type: none"> Delineate the direct impact zones in the topographic maps and aerial photographs Prepare maps delineating different land use categories of the direct impact zones Survey, verification of the land use types and present them on thematic maps
B. Biological Environment		

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S N	Sub-tasks	Methods and Tools for Study
B.1	Terrestrial Ecology (flora)	<ul style="list-style-type: none"> ▪ Use aerial photographs and delineate the different forest/vegetation types and status and transfer it to topographic maps for field survey ▪ Prepare baseline of the terrestrial flora with maps for direct and indirect impact zones to show forest types and distribution, plant categories, status of endangered, rare, threatened, vulnerable and protected plant species, plant biodiversity, lichen flora, biomass volume etc.
B.2	Terrestrial Ecology (fauna)	<ul style="list-style-type: none"> ▪ Collect and further review secondary literatures and terrestrial fauna maps ▪ Identify distinctive and critical habitats for wild animals and wildlife movement area ▪ Field survey of the wildlife in the direct impact zones focusing on mammals, birds, amphibians and reptiles through direct observation of the habitat sites, study of pug marks, fecal droppings, sound, and information from the local communities ▪ Prepare baseline of the terrestrial fauna with maps in the direct and indirect impact zones for subsequent assessment studies with the project
C	Socio-economic and Cultural Environment	<p>Social assessment includes the social, economic and cultural issues and concerns. The consultants will carry out Social Assessment and include it as a chapter in the BES Report. The following methods/tool will be used</p> <p>Household socio-economic questionnaire</p> <p>Census Survey for the inventory of loss and the loss of private Assets</p> <p>Municipality level Check list</p> <p>Settlement level check list to assess community level losses</p> <p>Check list for focus group discussion regarding project impact, mitigation, community development issues, expectation from the Project. This will be used for the local residents in general and the Target groups such as Women, IP, Dalit and other disadvantaged</p>

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S N	Sub-tasks	Methods and Tools for Study
		<p>groups.</p> <ul style="list-style-type: none"> ▪ A questionnaire in English will be developed and later it will be translated into Nepali for administration.

2.2.8 Determination of the Potential Impacts

After the full documentation of the baseline environmental data of the project area, each of the environmental parameters shall be examined against the project activities at different stages of the project development using various methods and tools as required by the environmental parameter in question. Under the broader classification, impacts shall be grouped as Adverse Impacts and Beneficial Impacts.

2.2.9 Data Compilation & Assessment

After the detailed field visit by the professionals, the data on physical, biological and socio-economic parameters shall be compiled and shall be readily available for assessment. The data are kept under the following title.

- Baseline physical Environment
- Baseline Biological Environment
- Baseline Socio-economic and Cultural Environment

2.2.10 Impact Identification, Prediction, and Analysis

- Identification/Quantification of Impacts on physical, biological, socio-economic, and cultural resources
- Recommendation of Mitigation and Compensatory Measures for all the identified impacts and their estimated costs

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- Identification of Monitoring and Auditing indicators to assess the impact and effectiveness of mitigation measures with frequency of monitoring
- Identification of key stakeholders, their roles and responsibilities for Environmental Management of the project

DRAFT REPORT PREPARATION

3.1 BES Report

Based on the information, impacts should be identified and evaluated. Mitigation and compensatory measures for the adverse impacts should be recommended. Environmental Management Plan (EMP) will be prepared which shall focus on mitigation measures, environmental monitoring and auditing requirement including implementation responsibilities, staffing, reporting, budget, and coordination aspects. A draft BES report should be prepared as per guideline given by concern authority.

3.2 Preparation of Environmental Management Plan (EMP)

Environmental Management Plan (EMP) covering the set of mitigation, monitoring, and institutional measures to be taken during pre-construction, construction and operation to eliminate adverse environmental impacts, offset them, or reduce them to acceptable levels and augment beneficial impacts shall be provided in the BES report. The plan shall also include the actions needed to implement these measures.

3.2 Approval of BES report document

After incorporating all the comments from the Client, the Consultant shall forward the BES report to the concern authority for the approval process. The consultant shall incorporate all the comments received from the review committee. Regular follow-up shall be done to facilitate the approval process.

REPORTS AND DELIVERABLES

The table below lists the reporting and presentation requirements to be complied by the consultants for the accomplishment of the study.

SN	Report and Presentation	Number	Remark
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1.	Draft of ToR	2 (with electronic copy)	Review by client
2.	Final ToR Report	3 (with electronic copy)	incorporating comment and suggestion and submission final report
3.	Draft BES Report	2 (with electronic copy)	Review by Client
4.	Final BES Report	3 (with electronic copy)	incorporating comment and suggestion and submission final report

TEAM COMPOSITION AND TASK ASSIGNMENTS

The following specialists shall work to complete this study.

Sn	Qualification	Proposed Post	Experiences
1	Master in Environmental Science	Environmental Expert Team Leader	5 Years
2	Master in Structural Engineering	Structural Engineer	5 Years
3	Master in respective field	Biologist/ Ecologist/ Forestry Specialist/ Natural Resources Management Expert/ Zoologist-Team Member	5 Years
4	Master in Sociology	Sociologist-Team Member	5 Years
5	Masters of Law	Legal Expert- Team Member	5 Years
6	Master in Geology	Geologist-Team Member	5 Years

MODE OF PAYMENT

The amounts shall be paid as per agreement to the consultant assigned for the study. However, the consultant can claim the payment either in a single installment after submission and acceptance of the detailed design and final study report or in installment as follows:

- Final installment, 100% of the total amount upon submission, presentation and approval of final report.

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Budget and Timeline

The expected duration of the project is 3months starting from the contract signing date. The consulting firms are expected to submit a detailed work schedule and budget as part of the technical and financial proposal. This budget should include all the costs of assessment, including travel, logistics, etc.

The financial proposal has to be submitted following the format provided below. It should include the unit rate of the team members, program cost, etc. as necessary.

S.N.	Particulars	Unit	Rate (NRs.)	Amount (NRs.)	Remarks
A.	HR Cost (Key & Non-Key Staff)				
1		man-day			
2		man-day			
3		man-day			
4		man-day			
5		-			
Sub-total (A)					
B.	Program Cost				
1	Transportation Costs	Lump Sum			
2	Materials, Equipment's, Tools and Services	Lump Sum			
3	Stationary and Logistic support	Lump Sum			
4	PLI, meeting/orientation snacks, meeting/orientation allowances, sample test etc.	Lump Sum			
5	Miscellaneous (Communication, printing etc.)	Lump Sum			

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