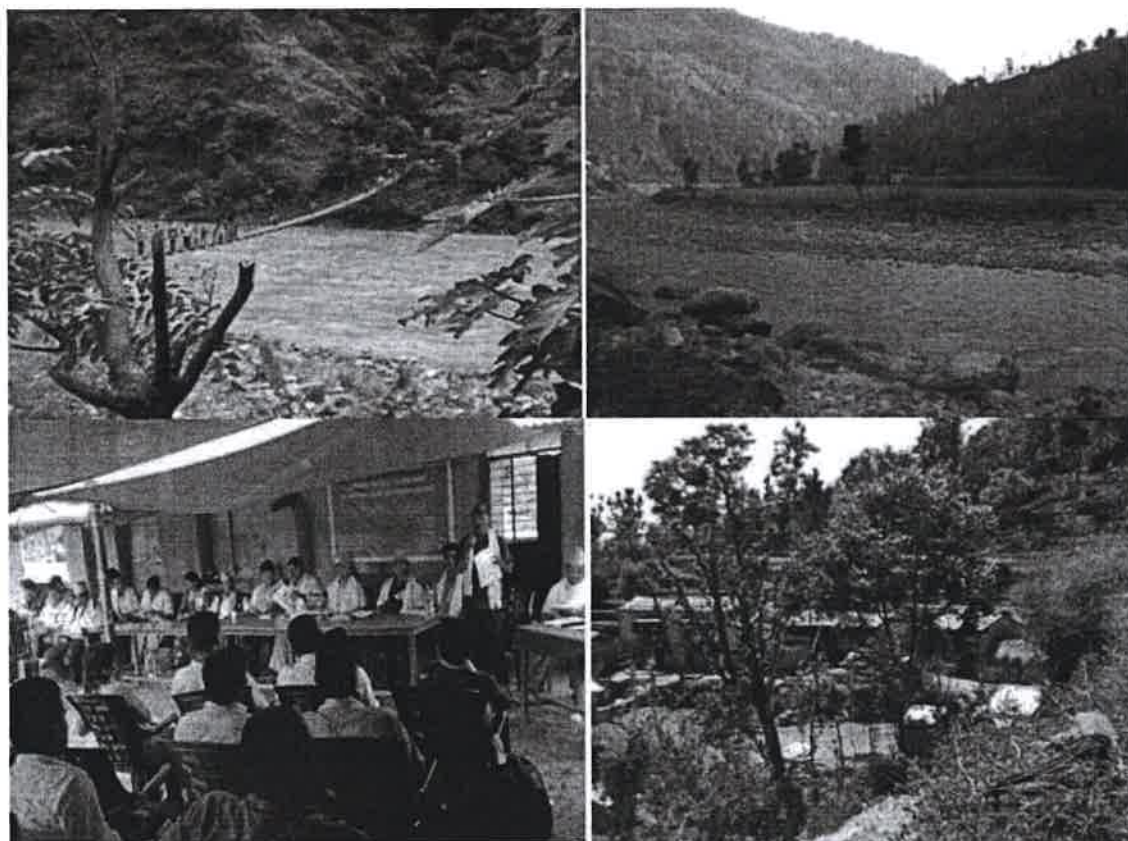


Environmental Impact Assessment

of

Budhi Ganga Hydropower Project (20 MW)

Achham, Nepal



Volume II: Appendices

Submitted to
Ministry of Forests and Environment through
Ministry of Energy, Water Resources and Irrigation

Submitted by
Department of Electricity Development
Budhi Ganga Hydropower Project
Sanogaucharan, Kathmandu

January 2020



Appendix-A: Approved Terms of Reference



Government of Nepal
Ministry of Energy
Department of Electricity Development

Budhi Ganga Hydropower Project

Kalikasthan, Kathmandu

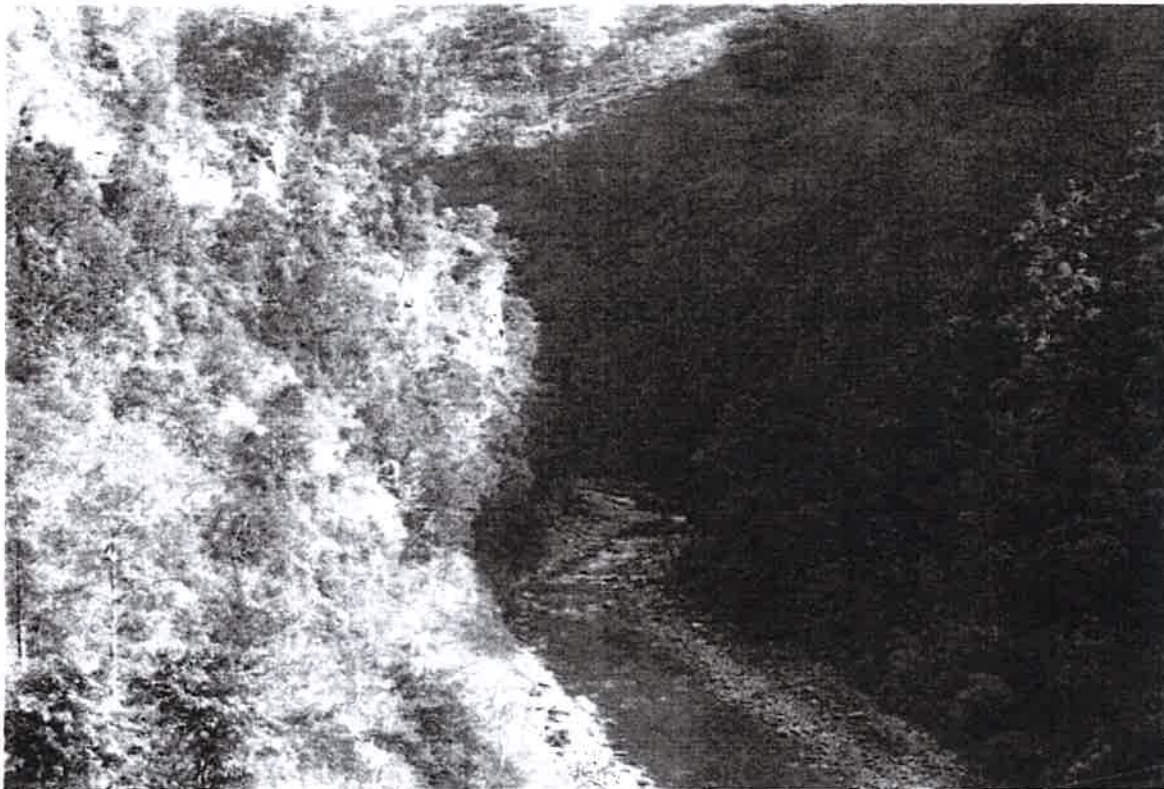
Term of Reference

for

Environmental Impact Assessment of Budhi Ganga Hydropower Project

(20MW)

Achham, Nepal



Submitted to:
Ministry of Population and Environment through
Ministry of Energy

Submitted by:
Department of Electricity Development
Budhi Ganga Hydropower Project
Kalikasthan, Kathmandu



December 2017

Project Name:	Budhi Ganga Hydropower Project (20MW)
Project Number:	5064033
Report for:	Budhi Ganga Hydropower Project

PREPARATION, REVIEW AND AUTHORISATION

Revision #	Date	Prepared by	Reviewed by	Approved for Issue by
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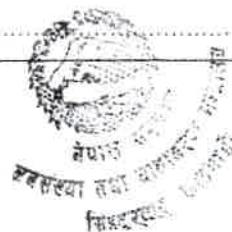


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ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Description
AD	Anno Domini
BS	Bikram Sambat
BHP	Budhi Ganga Hydropower Project
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
°C	Degree Celsius
CBS	Central Bureau of Statistics
CSR	Corporate Social Responsibility
DFO	District Forest Office
DoED	Department of Electricity Development
DoF	Department of Forest
DCC	District Coordination Committee
EIA	Environmental Impact Assessment
EPR	Environment Protection Rule
FDD	Fisheries Development Directorate
GoN	Government of Nepal
HH	Household
IEE	Initial Environmental Examination
ILO	International Labor Organization
KM	Kilometer
KFAED	Kuwait Fund for Arab Economic Development
M	Meter
M ³	Cubic Meter
MoFSC	Ministry of Forest and Soil Conservation
MoEn	Ministry of Energy
MoPE	Ministry of Population and Environment
MW	Mega Watt
mm	Millimeter
NARC	Nepal Agriculture Research Council
NGOs	Non-Governmental Organizations
NDNM	Norwegian Directorate for Nature Management
PAF	Project Affected Families
PRA	Participatory Rapid Appraisal



PRoR	Pondage Run of River
SFD	Saudi Fund for Development
SMEC	Snowy Mountain Engineering Corporation
SMEC-UDAYA JV	SMEC International Pty Ltd in Joint Venture with Udaya Consultancy Pvt. Ltd
ToR	Terms of Reference
UDAYA	Udaya Consultancy Pvt. Ltd.
VDC	Village Development Committee



1. NAME AND ADDRESS OF THE INDIVIDUAL OR INSTITUTION PREPARING THE REPORT

1.1 The Proponent

The Proponent of the project is Department of Electricity Development (DoED), Budhi Ganga Hydropower Project (BHP). This department, established in accordance with the Hydropower Development Policy 1992, is the central agency under the Ministry of Energy (MoEn), Government of Nepal (GoN), for promoting and regulating hydropower development in Nepal. DoED is responsible for processing license applications issued by MoEn, monitoring electricity generation, transmission and distribution projects, promoting and developing multipurpose and bi-national power projects and developing guidelines for project construction, power generation, transmission and distribution. DoED also provides advisory assistance to MoEn in updating and refining the legal and institutional framework required for the efficient and effective development of the power sector. In addition, DoED also carry out studies of different scales of hydropower projects. Budhi Ganga Hydropower Project (BHP) Office has been established under umbrella of DoED for promotion of the study and construction work of the proposed project.

The address of the Proponent is:

Department of Electricity Development
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E-mail: info@bhp.gov.np

1.2 Organization Responsible for Conducting Environmental Impact Assessment (EIA)

As the project proponent, DOED, BHP, is responsible for the Environmental Impact Assessment (EIA) of the proposed project. On behalf of BHP, the EIA is being conducted by joint venture of SMEC International Pty Ltd. Australia and UDAYA Consultancy Pvt. Ltd. Nepal (hereinafter referred to as the Consultant) under the contract agreement with DoED.

SMEC International Pty Ltd is one of the leading International consulting firms that provides Global consultancy expertise in urban, infrastructure and management advisory, including specialized services in the fields of engineering design and environmental studies. UDAYA Consultancy Pvt. Ltd is one of the leading consulting firm of Nepal having extensive experience in the engineering and environmental studies, detailed design of hydropower, road and other infrastructure projects.



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1.3 Rationale for Conducting EIA Study

As per Schedule 2 of the Environment Protection Rule (EPR) 1997 and its amendments, an EIA of hydropower projects with installed capacities over 50 MW is mandatory. Schedule 2A (4) of the EPR mentioned that an EIA is required if the project felled more than 5 ha forest area. Since, approximately 23.5ha forest will be acquired for this project an EIA is required to fulfil the requirement of the EPR. Furthermore the EIA is required to fulfil the requirement of the funding agency, the Kuwait Fund for Arab Economic Development (KFAED) and Saudi Fund for Development (SFD).The consultant is conducting an EIA of BHP, with an installed capacity of 20MW, in accordance with the above mentioned requirements.

The project area does not lie in the national park, wildlife reserve, buffer zone, conservation area, wetlands, historically and archaeologically important sites and or environmentally sensitive/ fragile areas.

1.4 Objectives of Terms of Reference

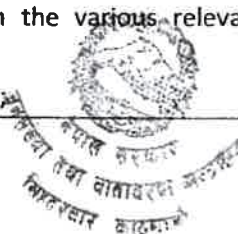
The main objectives of Terms of Reference (ToR) are as follows:

- To identify general requirements for the EIA;
- To identify the requirement of environmental baseline data;
- To reflect the main issues identified during course of EIA scoping in the form of ToR;
- To reflect the issues and areas of concerns of local people identified during public scoping meetings; and
- To provide guidance for the EIA study.

1.5 Objectives of EIA

The principal objective of the proposed EIA is to ensure that BHP is executed in an environmentally sound manner. Its specific objectives are to:

- establish the physical, biological, socio-economic and cultural baseline conditions of the project area;
- identify the positive and adverse environmental impacts of the project;
- analyze the critical impacts of the project;
- examine and select optimal alternatives from the various relevant options available for the project components;
- suggest mitigation measures for adverse impacts;



- prepare environmental management, monitoring and auditing plans;
- involve the public in the decision-making process related to the environment; and
- advise decision makers on the likely social and environmental implications of implementation of the Project.

1.6 ToR Preparation

The ToR for EIA of the BHP was prepared in accordance with the requirements of the EPR 1997 (schedule 4). The ToR covers the generation component of the project including project component road. The transmission line component is not included in the scope of work of the proposed study.



2. PROJECT DESCRIPTION

2.1 The Project

BHP is proposed on the Budhi Ganga River in Achham and Bajura district of Nepal (Figure 2-1). The project area lies between longitudes 81°13'47" to 81°17'50" east and latitudes 29°15'30" to 29°18'35" north.

2.1.1 Principal Features

BHP is planned as a Pondage Run of River (PRoR) scheme with a six hour daily peaking capacity. The project has an installed capacity of 20 MW generated through a gross head of 90m and a design discharge of 31.42 m³/s. Its average annual energy production is estimated at 113 GWh.

2.1.2 General Arrangement

The major components of BHP are arranged on the left bank of Budhi Ganga River (Figure 2-2). Its Headworks, located in Jukaana (Juke) and Rakse community forest area close to Budha bagar settlement, divert water to the above ground Powerhouse proposed near Thapagaun through a hydraulic conveyance system comprising a Power Intake, a Headrace Tunnel, a Surge Shaft, and a Penstock pipe. Water exiting the Powerhouse re-joins the Budhi Ganga River through a Tailrace.

2.1.3 Hydrology

The Budhi Ganga is perennial rain fed River originated from Jugar Danda (5475m) located at about 63km from the proposed Dam site. It is a major tributary of the Seti River which is the westernmost sub-basin of Karnali River. The catchment area at intake site is 1075 sq.km encompasses both the Himalayan and Mahabharat mountains and almost entirely lies in Bajura district. There are six major sub-water basin in the project area. They include Ikri Gaad, Ardoli Gaad and Jijadi Gaad on the right bank and Sarane Gaad, Agali Khola and Bhimkoti Khola from the left bank of Budhi Ganga River. Beside there are several other lower order streams originating from the immediate hill slope. Two of these six major sub water basins, Ikri Gaad and Sarane Gaad are located upstream from the Headworks, Ardoli Gaad and Agali Gaad are located between Headworks to Powerhouse and Bhimkoti Khola and Jijadi Gaad are located downstream of the Powerhouse. The 1:100 year discharge of the river is 2700 m³/s. The design discharge is 31.42 m³/s. The minimum and maximum monthly flow recorded at the Headworks is 13.1m³/s in the month of April and 255.5m³/s in the month of August. The mean monthly flow of the River is 65.6m³/s.

Table 2-1: Long term monthly flows for Budhi Ganga at Dam site

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Mean
Average	13.	14.2	15.7	13.1	19.2	42.2	165.6	255.5	135.3	61.6	27.3	17.2	65.6
Flows(m ³ /s	8												

)



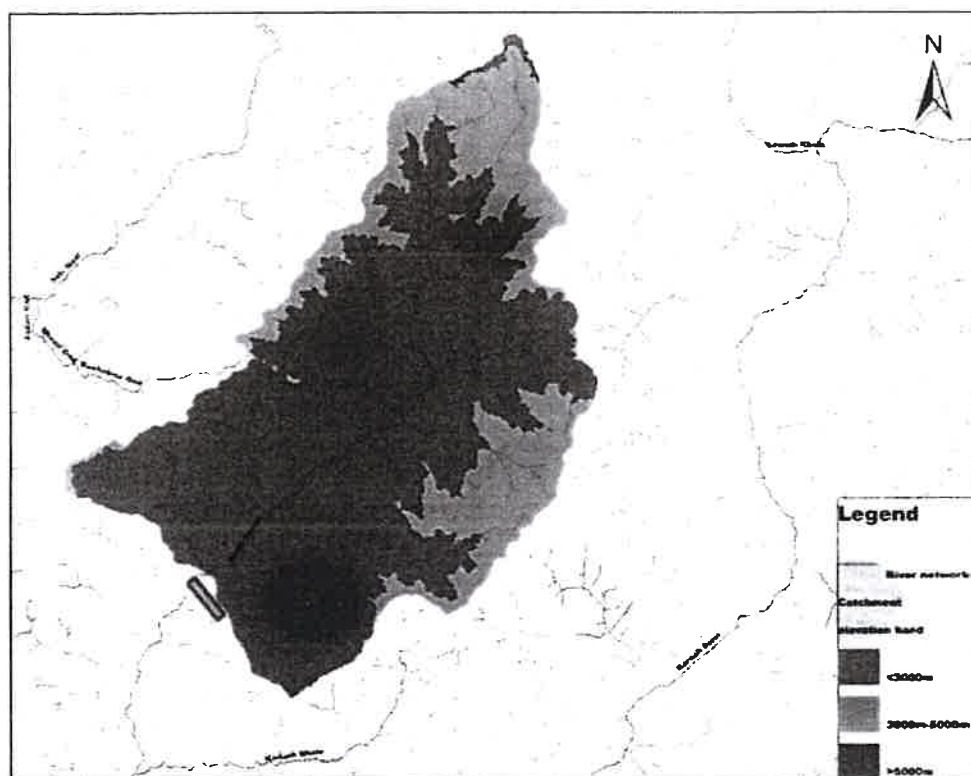


Figure 2-1: Catchment area at Intake of Budhi Ganga

2.1.4 Major Components

2.1.4.1 Headworks

The Headworks consist of a diversion Dam, a river Intake and a surface Desanding Basin. The Dam site is located downstream of confluence of Budhi Ganga with Ikdi Gaad in a narrow gorge with near vertical cliffs on both the banks. The Dam is 25m high (from the river bed level) and 83m long concrete gravity structure with gated spillways and a fish ladder. Present Dam site is located at about 200m downstream of the confluence of river Budhi Ganga and Ikdi Gaad.



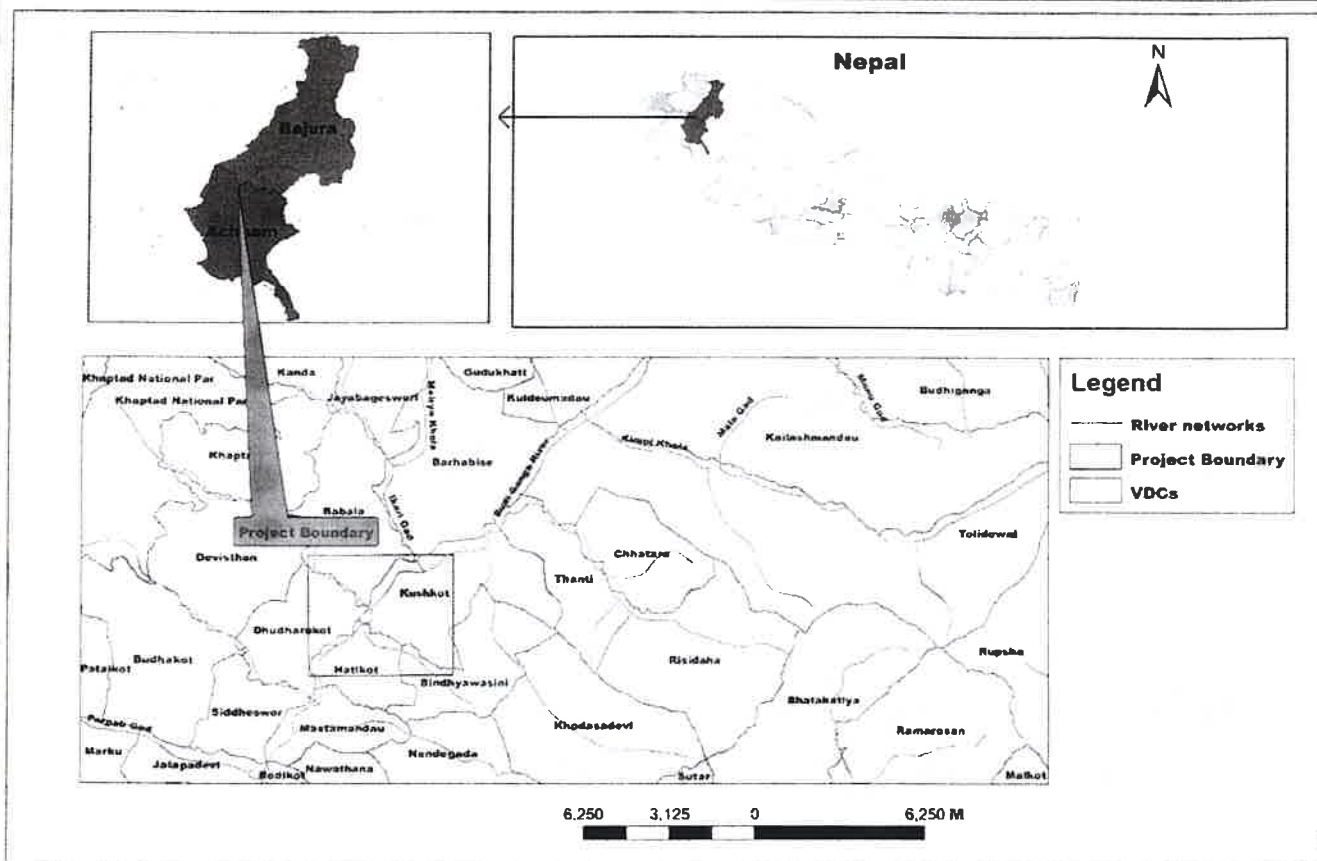


Figure 2-2: Site Location Map (Source: Inception Report for Budhi Ganga Hydropower Project)





Figure 2-3: Layout Map of Budi Ganga Hydropower Project

(Source: Topographical Map issued by Department of Survey, 1997)



The Headworks is located between ward No. 13 of Sanfebagar Municipality (Babala VDC) of Achham district on the right bank and ward No. 4 of Mellekh Rural Municipality (Kushkot VDC) on the left bank. The left river bank is covered with forests while on the right bank, the forest is found on the lower reaches and terraced cultivated land is found in upper reaches. The surface Desanding Basin is located on the left bank in bush land and will be 10m wide and 80m long.



Figure 2-4: Headworks site and Reservoir Area

2.1.4.2 Reservoir

The impounding of the river for creating the required pondage will form a Reservoir that will extend up to 3 km upstream of the dam and will have a surface area of about 8.4 ha and a live pondage volume of 0.236 million cubic meters. The full supply level of the Reservoir will be 717 masl, and its operating level will be 712 masl.

The reservoir is flanked on its left by ward no. 4 of Mellekh Rural Municipality of Achham district and on the right by ward no 13. of Sanfebagar Municipality of the same district and ward-10 of Budhiganga Municipality of Bajura district. The reservoir area is covered by the forest in both the banks. Only small patch of cultivated land is found along both river banks in the reservoir area.



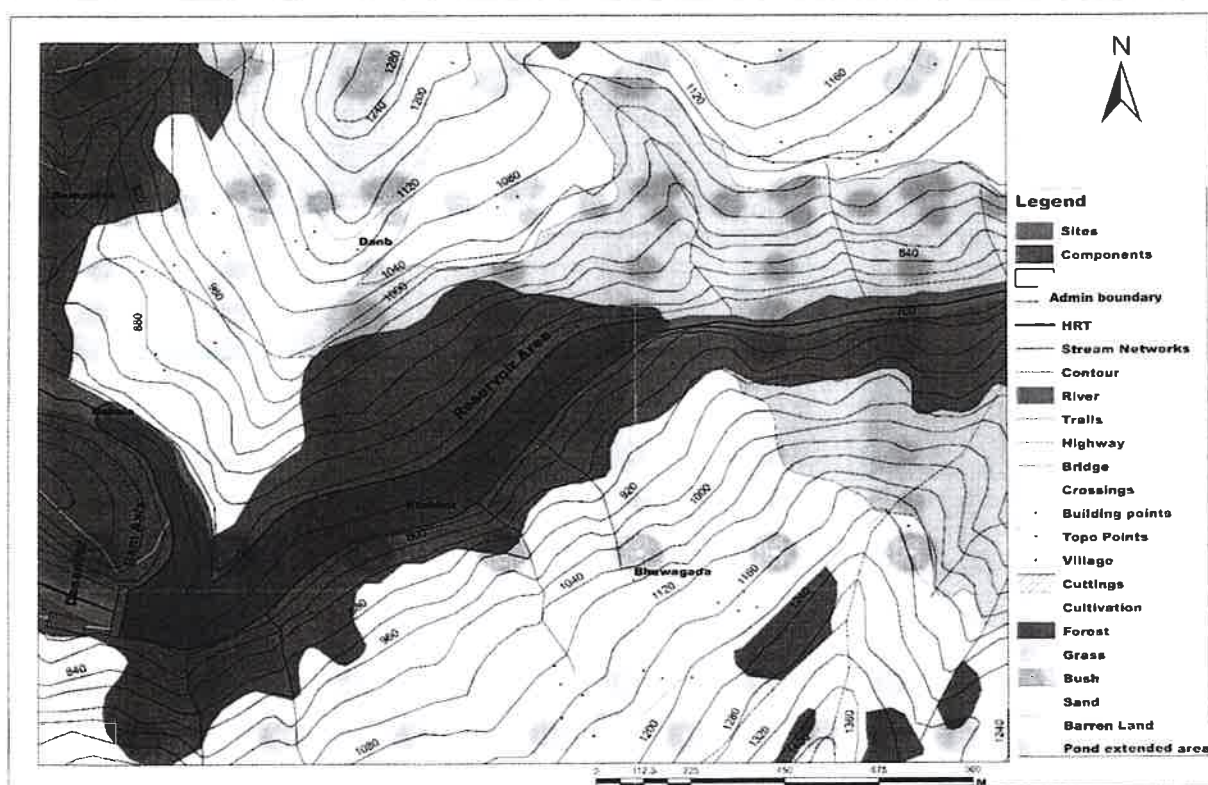


Figure 2.5: Reservoir Area

[Source: Topographical Map issued by Department of Survey, 1992]



2.1.4.3 Headrace Tunnel

The 5.6 km long Headrace Tunnel conveys the design discharge from the Power Intake to the Surge Shaft. The Tunnel will be circular horseshoe shaped with 7.5m diameter. The Headrace Tunnel passes along the left bank of Budhi Ganga River through ward no. 4 and ward no.8 of Mellekh Rural Municipality. The terrain along its alignment is terraced cultivated land, patches of vegetation and rocky areas. The settlements are located at higher elevation than the proposed tunnel alignment and far from the alignment.



Figure 2-6: Landuse along Tunnel Alignment

2.1.4.4 Surge Shaft

The Surge Shaft is a 57m high underground structure housed in a cliff above the Powerhouse. The Surge Shaft is restricted orifice type with 7.5m diameter.

The Surge Shaft is located in ward no.8 of Mellekh Rural Municipality. The terrain in this area is rocky with patches of forest.

2.1.4.5 Penstock

The penstock will be underground structure. The penstock will be 118m long with internal diameter 2.9m. The terrain at proposed penstock site is rocky with grass.

2.1.4.6 Powerhouse

The Powerhouse is proposed on the left bank of the Budhi Ganga River at Thapagaon on flat private cultivated land. It is located in ward No. 8 of Mellekh Rural Municipality, just upstream of the confluence of Budhi Ganga with Bhimkoti Gaad. The Powerhouse is approximately 14m wide by 30m long with a maximum height of 26m. The Powerhouse will be located above ground with two Francis Turbine units 10MW each.



Figure 2-7: Proposed Location of Surge Shaft and Powerhouse

2.1.4.7 Tailrace

The Tailrace will be trapezoidal one and 83m long channel that discharges water from the Powerhouse to the Budhi Ganga River. The channel will be lined with boulders.

2.1.4.8 Outdoor Switchyard

The outdoor switchyard will house three-phase main transformers and a station transformer. The transformers will be placed in separate transformer cells. The switchyard is located in private flat cultivated land and about 60mx39m area will be required for this.

2.1.5 Access

Presently, the Project site is connected with the Sanfe-Martadi National road. The road is of 3.5m wide with an Asphalt pavement. Therefore, construction of access road is not required for this project. However, project component road will be constructed to provide access to different project sites. The existing road condition is suitable for the transportation of construction materials and equipment. The condition of road especially in Sanfe bagar to Budha bagar section might be changed due to frequent movement of project vehicles and equipment. The proponent will do the necessity action to maintain the road to its original condition or in better condition as required.

The project site is about 912km far from Kathmandu. There is an airport at Sanfebagar which is not in service at present. So the only nearest airport to the site is at Dhangadhi of Kailali District. The project area is accessible from Attaria on the East West Highway via Dipayal and onwards to Sanfe bagar. The project site is about 13.5km from Sanfebagar which can be accessed by Sanfe-Martadi road on the right bank of Budhi Ganga. This road is in good condition and has asphalt pavement. The powerhouse site is accessible by the

trail bridge near the Thanti Bazar. Similarly, the Headworks site is accessible by the foot trail of about 300m downstream of the Sanfe-Martadi road nearby Budhabagar on the right bank of Budhi Ganga River. Access to India could be through either Rupaidia near Nepalgunj or from Gulariya of Kailali District (near Dhangadi).

The project will construct about 500m of road for the Headwork site from the Sanfe-Martadi road near Budha bagar from right bank of the river and about 300m from the proposed bridge over Budhi Ganga River to the Powerhouse site which is aligned at the left bank of the River. The project will also construct 2.5km temporary road from the Powerhouse area to the Adit site located on the left bank of the river.

2.1.6 Salient Features

The salient features of BHP, including the features described in the preceding sections, are summarized in 2-1.

Table 2-2: Salient Features of BHP

Description	Characteristics
General	
Project name	Budhi Ganga Hydropower Project
Project location	Achham and Bajura districts. The altitude varies from 623masl at Tailrace to 696masl at the Intake
Project Rural Municipality /Municipality	Budhi Ganga Municipality (बुढीगंगा नगरपालिका) of Bajura, Mellekh Rural Municipality (मेलेख गाउँपालिका) and Sanfebagar Municipality (साँफेबगर नगरपालिका) of Achham
Location of Dam	At the foot hills of Sanfebagar Municipality (Babala VDC)and Mellekh Rural Municipality (Kushkot VDC) Achham
Powerhouse site	Thapagaon, of Mellekh Rural Municipality (Hatikot VDC), Achham
Type of Project	Run-of-River with Daily Pondage
River	Budhi Ganga River
Project area co-ordinates	81°13'47" to 81°17'50" & 29°15'30" to 29°18'35"
Net Head	83.2m
Hydrology:	
Catchment area at dam site	1075 km ²
Design discharge	31.42 m ³ /s
95% Dependable flow	6.32 m ³ /s
Compensation flow	To be decided later
1:100 Years Flood at dam site	1285 m ³ /s
Design Features:	
Type of Weir	Gated Weir
No of Spillway gates	2
Dam height	25m
Dam length	83m
Reservoir	
Minimum Operating Level	712.00 masl
Full Supply Level	717.00 masl
Pondage Fetch from Weir site	3.0 km

Pondage Surface area	8.4 ha
Storage required for 6 hours peaking	0.236 million m ³
Diversion Weir	
Type of weir	Gated Weir
No of Spillway Gates	2
Crest Level of the spillway	el. 705.00 m
Desanding Basin	
No of Basins	2
Size	L = 80m, W = 10 0m, De= 7.0m
Sediment Size	0.20 mm
Headrace Tunnel	
Type	Circular and Horseshoe
Length	5.6 km
Surge Tank	
Type	Restricted Orifice
Finished Diameter	7.5m
Height	57.1m
Steel Penstock	
Type	Underground
Length	118m
Internal Diameter	2.9m
Powerhouse	
Type	Surface
Dimension	L=30m, W=14m, H= 26m
Turbine Settling Level	el. 621.4 m
Total Installed Capacity of Plant	20 MW
Type of Turbine	Francis(VERTICAL Axis)
No of unit	2
Capacity of each unit	10 MW
Switchyard	
Type	Outward Type
Area	60m x 39m
New Project Roads	
Road to Headworks	500m
Road to Powerhouse	300m
Road to Adit	2.5km
Transmission Line(not included in the EIA)	
Voltage of Transmission Line	132 kV
Length of Transmission Line	88.6km
Project Cost (Excluding Transmission Line) in USD	
Total Capital Costs	42.07 million
Benefit Cost Ratio	1.43
Specific Energy Cost	5.4 US cents/KWH
Internal Rate of Return	16.09%
Payback Period	5.12 year
Cost per Kilowatt	2,103 USD/kW

2.1.7 Power Evacuation

The Power evacuation for Budhi Ganga will be made through an 82Km Long 132KV Transmission line from the Budhi Ganga substation (Sanfebagar Municipality, Achham) to

Pahalmanpur (Pahalmanpur VDC of Kailali) substation via Chapartola substation of Simchaur VDC, Doti.

2.2 Construction Planning

2.2.1 Land Requirement

The project will require acquisition of about 42 ha of land for the placement of project structures and facilities including the inundation area. The land uses of the land to be acquired are forest, cultivated land, grass land, river and ford. The required lands will be acquired through designated processes and procedures. The project will also acquire forest land in the Reservoir, Dam site, Desander, Adit and road to Dam and Adit site.

2.2.2 Construction Materials

The project will require construction materials like cement, sand, aggregates and reinforcing steel. Coarse aggregates and sand will be produced locally from materials from designated quarries and borrow areas. Cement and steel will be procured from Nepal or India.

Potential quarry sites for coarse aggregates are present near Budha bagar area, Ardoli Gad, and Budhi Ganga River bank at Thanti Bazar area and Bhimkoti Khola below Powerhouse tailrace. These sites have massive deposition of rock and are located nearly flat surface and or gentle stable slopes. The sites are sufficiently far from forests and settlements. Following table summarizes an initial detail of these potential quarry sites.

Table 2-3: Tentative Details of the Quarry Site

SN	Potential Quarry site	Location	Types material	Approximate Quantity	Remarks
1	Budhabagar	Below the proposed Construction camp (29°17'37.98"N, 81°15'20.14"E)	Coarse aggregate	35x10 ³ m ³	River deposits
2	Ardoli Gd	Confluence of Budhi Ganga and Ardoli Gad (29°16'52.47"N, 81°14'46.74"E)	Boulders	100x10 ³ m ³	Debris brought down by Ardoli Gaad
3	Budhi Ganga River Bank	Thanti Bazaar (29°15'27.52"N, 81°13'51.61"E)	Boulder and coarse aggregates	90x10 ³ m ³	River deposits
4	Bhimkoti Gaad	Downstream of tailrace (29°15'31.88"N, 81°14'8.68"E)	Boulders and coarse aggregates	80x10 ³ m ³	River deposit
5	Ikdi Gaad	Confluence of Ikdi Gaad and Budhi Ganga (29°18'26.39"N, 81°15'55.80"E)	Boulders and coarse aggregates	150x10 ³ m ³	Old river deposits Especially useful for works on reservoir area due to its proximal accessibility



2.2.3

Electromechanical and Hydro Mechanical Equipment

The electromechanical and hydro-mechanical equipment, such as generators, turbines, gates, etc. will be imported. Imported goods will be brought to the project site through freight via Calcutta, the nearest seaport to Rupaia of the India-Nepal border.

2.2.4

Construction Methods

The latest construction technologies using modern equipment and facilities will be adopted to ensure quality in works, timely completion and minimum cost. For economy, local resources will be utilized to the maximum extent possible. Due priority will be given to the recruitment of local people to minimize the requirement of temporary camps, reduce fuel wood and timber requirements, enhance local skills and economy and develop better relationship between the project and local people.

Two construction yards one each at Headworks and powerhouse area is proposed. The construction yard at Headworks site include storage area of construction material like cement sand, aggregate and fuel whereas at powerhouse area cement, sand, aggregate reinforcing steel along with other construction material will be stored. Banker hose is proposed close to road side to the existing road to powerhouse. Crushing plant will be placed in the private land at Ardoli Gaad area.



Figure 2-8: Proposed Quarry Site and Crushing Plant Area

2.2.5

Construction Personnel

The project will require about 300 skilled, semi-skilled and unskilled construction personnel. The skilled personnel will be hired from Nepal or abroad; however, unskilled and semi-skilled construction workers will mostly be hired locally.

2.2.6 Construction Power

For construction power, extension of 11 kV line from the national grid at Thanti Bazar will be undertaken. Diesel generator will also be used as backup power for construction.

2.2.7 Spoil Disposai

The spoil from construction activities, such as foundation excavation, Tunnelling, etc. will be safely disposed at suitable locations. Sensitive areas like forests, agricultural lands, natural water courses and areas prone to landslides and mass wasting will not be used for spoil disposal.

Abandoned river terraces 100m downstream of the Sanfebagar settlement, private barren land and river terrace at about 1km from the Sanfebagar, area near Kholsa are potential sites for spoil disposal (Figure2-2). These sites are located on the right bank of Budhi Ganga River within the project area. They are relatively stable, and no apparent landslides are observed at or around them.

2.2.8 Construction Camp

Contractor camps are proposed near Budhabagar for Headworks area and Thanti Bazar area for powerhouse site. Both sites are located on private land. The Budhabagar site is used for cultivation whereas at Thanti Bazar site is private barren land. Labor camp is proposed just upstream of Budhabagar settlement at right bank of river in community forest land for headwork site and in private barren land for powerhouse site. The owners/engineers camp will be constructed at Thapagaun at left bank of river near powerhouse site. This is private cultivated land.





Figure 2-9: Construction Camp at Powerhouse site



Figure 2-10: Construction Camp at Headworks site

2.2.9 Project Components and Activities

The project components include Dam, Reservoir, Desanding Basin, Headrace Tunnel, Adit, Surge Shaft, Penstock, Powerhouse, Tailrace and Project component road. The construction yards, owner's engineer's camps, contractors and labor camps, disposal sites, quarry area and crushing plant area are also included in project component as the project facilities. The major activities conducted under the project are acquisition of private land and government land, clearance of site including removal of vegetation, excavation and earth work, diversion of river, blasting and tunnelling and construction of project structures and facilities. Removal of quarry, crushing, concreting, storage of construction material, disposal of the spoil, movement of vehicles and construction equipment's are the other activities conducted under this project

2.2.10 Project Schedule

The duration from the commencement of the detail engineering of the project to its commissioning will be about five years. The estimated construction period (contract to commissioning) is three years.

2.3 Operation Phase

The camps and office building located in powerhouse area will be mainly used for the operation and maintenance of the power plant. Similarly the office building and camps at headwork will be used for operation and maintenance of Headworks. The project will require 150 staff for the operation and maintenance.

3. DATA REQUIREMENTS AND ACQUISITION

3.1 General

The EIA will be conducted in accordance with the EPR. The methodology described in the following sections will be adopted to complete the EIA and associated tasks.

3.2 Required Data and Information

At the outset, data and information on the physical, biological, socio-economic and cultural environment of the project area will be collected. Data of the core project area, or the direct impact zone, will be site specific. Information on affected wards of the municipalities will also be collected.

3.2.1 Physical Environment

Data and information related to the following aspects of the physical environment of the project area will be collected:

- Climate: temperature, rainfall and humidity of the project area;
- Air and noise quality;
- Land uses and land use patterns;
- Hydrology: temporal variation of flow in Budhi Ganga River, historical flood data and discharge of tributaries between the weir and powerhouse;
- Sedimentation data: sediment load, pattern, etc. in the river;
- Geology: rock types, slope stability, erosion, landslides, etc;
- Topography of the project area;
- Seismicity at the dam site and reservoir area;
- Spoil materials -total volume, type, volume to be used for construction, disposable volume, etc;
- Water quality: physical, chemical and biological parameters of Budhi Ganga River.

3.2.2 Biological Environment

Data and information related to the following aspects of the biological environment of the Project area will be collected.

Vegetation/Forest

- District-level forest information in general;
- Collection and classification of forest data in direct impact zone as per the Forest Act; such as national forest, community forest, leasehold forest, private forest etc;
- Status and use of forest resources to be affected by the project;
- Species and forest types on different project structures and facilities including the presence and distribution of rare/endangered/protected species;
- Data on tree density, frequency, basal area etc;
- Current use of vegetation-ethnobotany, medicinal plants and other related uses;



- Information on the non-timber forest species found in the project area;
- Estimate the number of trees, wood volume, value and biomass to be felled as a part of site clearance.

Wildlife (Mammal and Birds)

- Mammals and birds in the project area and likely in project sites, including rare/endangered/protected species;
- Important areas of wildlife habitat including habitat type in project sites;
- Mammal and bird migration routes; and
- Loss or alteration of habitats due to the construction and operation of the Project

Reptiles and Amphibians

- Reptilian fauna, especially lizards and snakes, found in the Project area;
- Amphibian found in core project area;
- Important habitat areas; and
- Loss or alteration of habitats due to the construction and operation of the Project.

Fish and Aquatic Life

- Fisheries resources in the Budhi Ganga River and its major tributaries;
- Seasonal fish sampling (wet and dry season) data, fish diversity, species composition, and catch per unit effort;
- Species type and their distributional status;
- Fish migration;
- Aquatic habitat including spawning and rearing areas; and
- Data of phyto and zoo plankton and aquatic insects found in the Budhi Ganga River.

3.2.3 Socio-economic and Cultural Environment

Data and information related to the following aspects of the socio-economic and cultural environment of the Project area will be collected.

Social Features

- Socio-economic data of affected households whose land and/or house or livelihood will be permanently or temporarily affected;
- Demographic features – population size, migration pattern and level, age distribution and sex ratio;
- Caste/ethnicity – caste/ethnic group, Janjati/Dalit, religion, spoken language;
- Education and skill level - schooling, literacy rates, skills and skilled human resources, etc;
- Health and sanitation in general which includes information on health posts, hospitals, prevalent diseases in the project area, incidence of waterborne diseases and infectious diseases and treatment practices;
- Local institutions and activities—Government and non-government agencies, cooperatives, CBOs;



- Women, children, elderly, poor and ethnic minorities;
- Gender discrimination;
- Community infrastructures and services - drinking water supply, irrigation, foot trails, transportation, electricity, communication etc.

Economic Features

- Local price information - land, agriculture and forest products, etc;
- Economy - occupation/employment, agriculture and livestock production, non-timber forest products, tourism trade and commerce, livelihood, poverty etc;
- Migration pattern and remittance flow;
- Income and expenditure of project affected families (PAFs);
- Measurement and valuation of houses, cowsheds and other structure to be acquired by the project;
- Compensation rates for land, agriculture products, forest, houses and other private infrastructure;
- Landholding and ownership;
- Cropping patterns, practices and production;
- Livestock and horticulture;
- Land ownership – list of landowners likely to be affected by land acquisition and relocation;
- Estimation of loss of standing crops due to project construction, by crop type, area and value;
- Present ways and means of transport of people and goods;
- Other development activities; and
- Fishermen, fishing information and dependency of local people on the fish resources.

Cultural Features

- Places of cultural importance – historic, religious, cultural sites and archaeological sites in the project area and the special occasions of celebrations/ gathering including the relative importance of these sites (local, regional or national);
- Cultural life, including language, rituals, and general lifestyle;
- People and their social relation and values;
- Identification of social groups;
- Dispute-resolution institutions and processes;
- Aspiration and attitude of the local people to the development of the project; and
- Cultural practices of the area including unique social and cultural aspects of the area;

Downstream Water Requirements

- Number of villages located downstream that are likely to be affected by the water diversion;
- Size of the affected population;
- Per capita water requirement for domestic use ;



- Irrigation schemes that are in operation;
- Drinking water schemes that are in operation;
- Micro-hydro schemes in operation, if any;
- Effect on water mill/Ghatta in operation
- Fishing activities;
- Other uses of water downstream such as cremation sites, religious bathing places etc.; and
- Effect on irrigation intakes if any in reduced flow zone;

3.3 Data Collection Procedures/Methods

Both qualitative and quantitative data will be collected from primary and secondary sources. Data collection procedures/methods such as literature review, field survey, sampling, laboratory analysis, observation of direct and indirect evidences, inventory, census of directly project affected households, participatory rapid appraisal (PRA), key informant interview, market survey and meetings/consultations with stakeholder will be used to collect data and information listed in the foregoing section.

3.3.1 Desk Study

Desk studies (secondary data collection) will be conducted to collect and review data and information on the technical aspects of the Project and the different categories of the environment. These data and their sources are listed below.

1. Project Related Information
 - Inception Report, Geological and hydrological report and Detailed Engineering Design Report of the Project
2. Physical Environment
 - Climate and hydrology: publications of the Department of Hydrology and Meteorology, GoN.
 - Topography and land use: 1:50,000 topographic maps published by the Survey Department, GoN.
 - Google map of the area; and
 - Geology: Regional geological maps published by the Department of Mines and Geology, GoN, and other literature
3. Biological Environment
 - Forest, wildlife and fish: publications of the Department of National Park and Wildlife Conservation, Fisheries Development Directorate (FDD), Nepal Agriculture Research Council (NARC). District Forest Office of project districts and other institutions
4. Socio-economic and Cultural Environment
 - Demography: National Population and Housing Census, Central Bureau of Statistics, Government of Nepal, November 2012, National Population and Housing Census, Village Development/ Municipalities, Central Bureau of Statistics, Government of Nepal, March 2014 and Nepal Demographic and Health Survey 2016. Ministry of Health; New ERA; and ICF. 2017.

- Infrastructure and development programs: District profiles, development plans and program achievement reports published by District Development Committee (DDC)/District Coordination Committee (DCC), district-level government offices, VDCs/rural Municipality, municipality and other organizations.
- Religion and culture: publications of CBS, DDC/DCC, VDCs/rural municipality, municipality and other institutions.

3.3.2 Field Study

Following the desk studies, field studies (primary data collection) will be conducted to collect relevant data and information on the physical, biological and socio-economic and cultural environments of the Project area. The required data and data collection techniques are listed below for physical, biological, and socioeconomic and cultural environment. The study tools proposed for the EIA is given in Appendix-A.

1. Physical Environment

During the field study, data related to land use, stability, physiographic conditions and water quality will be collected using the following methods:

- Field observations by Environmental Specialist, Environmental Engineer.
- Checklist survey.
- In situ measurement of dissolved oxygen, temperature and other parameters and collection of water sample in air tight bottles for laboratory analysis. The water sample will be collected in pre monsoon season.
- The noise level data will be collected close to proposed dam site at Budhabagar settlement and powerhouse area at different time zones (three different times) in the specified site/ spot using Data Logging Sound Level Meter (Monarch 322). The value for L_{eq} , L_5 , L_{10} , L_{50} , L_{90} , L_{95} , L_{max} , L_{min} and L_d will be calculated using standard formulae

2. Biological Environment

Data on vegetation, wildlife and fish will be collected through the following techniques:

- Field observation by Botanist, Wildlife Specialist and Fish Specialist.
- Point-centered quadrat samplings in representative forest types at locations of project structures and facilities. For grasping the general tree density and sampling intensity the sites will be chosen from different vegetation types depending upon homogeneity and species differentiations.
- The sample size for trees, shrubs and herbs shall be 25m x 25m, 5m x 5m and 1m x 1m respectively. In addition 10mx10m quadrat will be also placed at some sites depending on the topography and vegetation type.
- For wood volume estimation circumference of the trees at breast height (CBH) will be measured at 1.3 m by normal tape from the ground level at breast height (DBH) or directly by diameter tape. Tree height (H) will be taken from standard poles up to measurable height and adjusted for the total height.



- Ethno-botanical and agro-diversity related information shall be obtained through group meetings
- Line transects surveys in different type of habitat.
- Observation of the indirect evidences such as foot print, droppings etc.
- Key informant surveys.
- Stakeholder meetings.
- Fish sampling at five sampling sites using cast net other local gears. The fish sampling will be conducted at five locations during wet and dry season and 200 efforts with cast net will be made for each site. The wet season data collected during scoping work and dry season sample is scheduled in March- April 2018
- Survey of local markets such as Budhabagar, Thanti Bazar and Tassi Bazar to identify different species of fish found in river and also to collect information on local catch.
- Laboratory analysis of phyto- and zooplanktons and aquatic insects.
- Meeting with Community Forest User Groups and District Forest Officers.
- Data sheets, questionnaires and checklists to collect site specific data

3. Socio-economic and Cultural Environment

Census will be conducted to collect data and information on the demography, ethnicity, education and skills, land holding, income expenditure, health etc. of the directly project-affected families. Information on community infrastructure, local price of land and other commodities, measurement and valuation of structures to be acquired, compensation, attitude of the local people, etc. will also be gathered. The data and information will be collected using a household questionnaire, key informant interview guidelines, PRA check list and market survey checklists (Annex-A). All the study tools will be pre-tested outside the core project area and finalized based on the findings of the pre-test. These activities will be performed using the following methods.

- Field observations by Socio-economist and Sociologist supported by database specialist.
- Census of the households directly affected by the project (HH affected by land and house acquisition, loss of business and other properties). The census will be conducted with the help of a household survey questionnaire.
- Ward level PRA in the wards of the core project area.
- Key informant interviews
- Interactions with the local leaders, government officials, teachers and other knowledgeable persons.
- Consultation meeting with women and vulnerable groups and other concerned stakeholders.
- Market survey

3.4 Data Analysis

The collected quantitative data will be processed and analysed using appropriate quantitative tools, formats and software. Similarly, the qualitative data will be processed

and analysed manually. The study team will interact closely with the EIA team members to discuss their analysis and findings. Project impacts will be identified by each expert based on the baseline condition of the project area and project activities.

The wood volume will be calculated using Quarter Girth Formula, Formula (Upreti B.K.) as mentioned in the forest rules, will be used to calculate the wood volume, i.e.

$$\text{Volume} = \text{girth}^2 / 16 \times \text{height} \times \text{form factor}$$

The socio-economic table will be generated as per the output tables provided by the Socio-economist.

3.5 Impact Matrix

An impact matrix will be developed and used to identify project impacts on the physical, biological and socio-economic and cultural resources of the area during Project construction and operation phases. Based on the information and assessment of the studies, project-induced positive and adverse environmental impacts will be identified. The impacts will further be classified in terms of duration (short, medium and long term), magnitude (low, medium and high) and extent (site specific, local and regional) as per National EIA guideline 1993. The impacts will also be categorized as significant and insignificant. Details of the techniques used for impact identification, prediction and evaluation will be mentioned in the EIA report.

3.6 Public Hearing

A public hearing will be conducted in the Project area to inform the local communities on the outcome of the EIA study. A notice for the public hearing will be published in a national daily newspaper. Notice regarding public hearing will be also provided through local newspaper and FM radio. The local people will be notified about the public hearing in advance through the concerned Rural Municipality, Municipality, DCC and other agencies. The venue for the public hearing will be finalized in consultation with the local people during the EIA study.

The public hearing will focus on the findings of the EIA, creating awareness about the project plans and programs, building up mutual consensus on the implementation of the project, identification of issues and consideration of these issues in the EIA report and in the project design. Public views, options and relevant issues raised in the program will be recorded and considered in finalizing the EIA report.

3.7 Consultation with Concerned Agencies

The following organizations will be consulted during the preparation of the EIA:

3.7.1 Central-level Agencies

Ministry of Population and Environment (MoPE), Ministry of Energy (MoEn), Ministry of Forest and Soil Conservation (MoFSC), Department of Electricity Development (DoED) and Department of Forest (DoF).



3.7.2 District-level Agencies

District Administrative Office, District Coordination Committee, District Survey Office, District Land Revenue Office, District Forest Office, District Agriculture Office, District Soil Conservation Office, District Health Office and other concerned district level agencies.

3.7.3 Local-level Organizations

Municipality, Rural Municipality health posts, non-governmental organizations (NGOs), Budhi Ganga concern group and other related organizations.

3.8 Recommendation Letters

During the EIA, recommendation letters from concerned municipality and rural municipality and or concerned wards will be collected as per the stipulations of the EPR. The consent letter of the affected community forest will be collected in EIA. In addition attempt will be made to collect the concerns of District Forest Office of project district in draft EIA report.



4. REVIEW OF PLAN, POLICIES, STRATEGIES, RULES, GUIDELINES AND CONVENTIONS

4.1 General

The EIA will review the national plans, policies and strategies, acts and regulations, guidelines, manuals and conventions listed in the following sections and analyze their provisions in the context of project implementation.

4.2 Constitution, Plan and Policies

- Constitution of Nepal,
- Fourteenth Three Year Plan (2073/74–2075/76 BS), 2016 AD
- Hydropower Development Policy, 2058 BS (2001 AD)
- Forest Policy, 2071 BS (2015 AD)
- National Water Plan, 2058 BS (2002- 2007 AD)
- Water Resources Strategy, 2058 BS (2002 AD)
- Rural Water Supply and Sanitation National Policy 2060 BS(2004 AD)

4.3 Strategies

- National Biodiversity Strategy and Action Plan, 2071-2077 BS (2014-2020 AD)
- Water Resources Strategy, 2058 BS (2002 AD)

4.4 Acts

- Environment Protection Act, 2053 BS (1997 AD)
- Electricity Act, 2049 BS (1992 AD)
- Water Resources Act, 2049 BS (1992 AD)
- Aquatic Animal Protection Act, 2017 BS (1961 AD)
- Land Acquisition Act, 2034 BS (1977 AD)
- Forest Act, 2049 BS (1993 AD)
- Soil and Water Conservation Act, 2039 BS (1982 AD)
- Local Self Governance Act, 2055 BS (1999 AD)
- Labor Act, 2049 BS (1992 AD)
- Explosive Act, 2018 BS (1962 AD)
- Land Reform Act, 2021 BS (1964 AD)
- Child Labor Act, 2056 BS (2000 AD)
- Plant Protection Act, 2029 BS (1972AD)
- Solid Waste Management Act 2068 BS(2011AD)

4.5 Rules/Regulation

- Environment Protection Rules, 2054 BS (1997 AD)
- Electricity Regulation, 2050 BS (1992 AD)



- Water Resources Regulation, 2050 BS (1993 AD)
- Forestry Regulation, 2051 BS (1995 AD)
- Local Self-Governance Regulation, 2056 BS (2000 AD)
- Solid Waste Management Rules 2070 BS(2014 AD)

4.6 Guidelines Manuals and Working Procedures

- National Environmental Impact Assessment Guidelines, 2050 BS (1993 AD)
- Manuals published by the DoED/ USAID/ IRG, 2002 AD
- Community Forest Inventory Guidelines, 2062 BS (2005 AD)
- Environmental Management Guideline (Road), 2054 BS (1997 AD)
- Forest Produce Collection, Sales and Distribution Guidelines, 2056 BS (2000 AD)
- Procedural Guideline for the Use of Forest Land for National Priority Project 2074 (2017AD)
- Working Procedure on Use of Forest Land for Other Purpose, 2006 AD (2063 BS)
- Manuals and guidelines published by the MoEn/RNG/NDNM, 2006 AD
- National Energy Crisis Mitigation and Electricity Development Decade Concept Paper and Action Plan, 2072 BS
- Gender equality and Social inclusion Guideline of Family Health Division, 2013

4.7 Conventions

- Convention on Biodiversity, 2049 BS (1992 AD)
- Convention on International Trade in Endangered Species (CITES) for Wild Flora and Fauna, 2029 BS (1973 AD);
- ILO Convention on Indigenous and Tribal Peoples No.169, 2046 BS (1989AD)
- United Nation Framework Convention on Climate Change, 2049 BS (1992AD)
- Plant Protection convention, 2008 BS (1951AD)
- Kyoto Protocol to the United Nations Framework Convention on Climate Change, 2054 BS (1997 AD).



5. REPORT PREPARATIONS

5.1 Time

The EIA is estimated to be completed in 16 months. A schedule for the study is presented below.



Table 3-1: EIA Schedule

S.N.	Activities	Monthly EIA Schedule (2017-2018)															
		July	Aug	Se	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	Jul	Aug	Se	Oct
1	Scoping and ToR Stage																
1.1	Literature collection and review																
1.2	Preparation of public notice and field visit																
1.3	Publication of 15 days' notice in national daily newspaper for Scoping																
1.4	Field visit, display of copy of notice and collection of indeed of notice																
1.5	Collection of initial baseline data																
1.6	Stakeholder consultation and identification of issues																
1.7	Analysis of the collected data and issues																
1.8	Preparation of Scoping and ToR document																
1.9	Submission of document to DoED for review comment																
1.10	Revision in Scoping and ToR document																
1.12	Submission and approval of Scoping and ToR documents																
2	EIA Stage																
2.1	Preparation of survey tools																
2.2	Field investigation for EIA																
2.3	Data encoding and analysis																
2.4	Draft EIA Report preparation																
2.5	Public hearing																
2.6	Collection of recommendation of municipality and rural municipality																
2.7	Preparation of EIA Report (Final Draft) and submission																
2.8	Review and comment by DoED /MoEN and MoPE																
2.9	Incorporation of comments and approval of EIA report																



5.2 Estimated Budget

The estimated budget for the EIA, including contingencies, is NRs 29.97 million.

5.3 Experts/Specialist

The EIA will be conducted by an interdisciplinary team of experts. The composition of the team will be as follows:

- Team Leader/Environmental Expert
- Environmental Expert/Deputy Team Leader
- Environmental Engineer
- Botanist/Forest Expert
- Zoologist/Aquatic Life Expert
- Sociologist/Anthropologist
- Resettlement Expert/Socioeconomist
- Public Health Expert
- Environmental Economist/Financial Analyst
- Environmental Management Plan Expert
- Enumerators
- Computer Operator
- Drafts Person
- Office Assistants
- Field Helpers
- Statistician

Besides the above mentioned experts the input of geologist and hydrologist required for EIA will be derived from technical team

5.4 Report Format

The EIA Report will be prepared in the format prescribed by Schedule 6 of the Environment Protection Rules, 1997. The report will be prepared on the basis scope determined in scoping document and as per ToR approved by MoPE.

5.5 Contents of Report

The report will contain details of the baseline assessment and the findings, impacts, enhancement and mitigation measures, and institutional requirements for the Project. The main components of the report will include:

- Executive summary (English);
- Executive summary (Nepali)
- Introduction including organization preparing the EIA report with name and address;
- Project description;
- Study methodology
- Policy and legal provisions;



- Description of the baseline information;
- Identification of environmental impacts;
- Alternative analysis;
- Mitigation and enhancement measures;
- Environment management plan including monitoring and auditing plan;
- Public consultation and information disclosure;
- Conclusions and recommendations;
- References; and
- Appendices

Approved ToR, relevant maps, photographs, field data, etc. will be attached in the appendices.



6. SCOPE OF EIA

6.1 General

Based on scoping document the potential environmental issues arising from the construction and operation of the project were identified. The identification was performed considering the construction and operation techniques that would be employed in the project vis-à-vis the baseline environmental conditions in the project area. The issues were discussed in the following sections. The issues were identified using scoping matrix with respect to changes in baseline of physical, biological and socio-economic and cultural environment due to construction and operation of different project components (Appendix A).

6.2 Issues Considered for EIA

The environmental issues to be considered for the pre-construction, construction and operation of the project are listed in the following sections. The issues mentioned below are identified by the expert based on the existing baseline condition and project activities as well as relevant issues raised by the stakeholders in response to public notice and meetings conducted in different locations of the project area. However, the EIA will not be limited to these issues, and any further issues identified during the course of the study will be suitably addressed. The issues given below cover all project components and facilities including Adit Tunnel, Reservoir operation and project components access road and will be presented in appropriate heading. Out of the issues mentioned below for EIA loss of forest, resettlement of some houses, acquisition of private land, disturbance to cremation site, flow reduction and water uses are the priority issues of this project.

6.2.1 Positive Issues

6.2.1.1 Construction Phase

- Increase in economic opportunities such as businesses, house rental etc.;
- Increase in employment opportunities for local people;
- Increase in land value;
- Enhancement of social service facilities; and
- Increase in local skills in the relevant areas.

6.2.1.2 Operation Phase

- Local development from revenue generated by the project;
- Employment opportunities for local people;
- Market development; and
- Increased accessibility to interior villages through project roads.

6.2.2 Adverse Issues

6.2.2.1 Physical Environment

Pre-construction Phase

- Re-routing of foot trails from the construction yards and camp sites; and
- Increase in air and noise pollution.

Construction Phase

- Changes in topography and landscape
- Changes in land use pattern;
- Changes in air quality;
- Changes in water quality due to fluctuations in reservoir level and shoreline erosion as well as water releases downstream;
- Land degradation, land instability, landslides and soil erosion, including bank erosion;
- Storage of construction materials, construction camps, labour camps etc.;
- Waste disposal;
- Spoil disposal;
- Contamination of soil and loss of top soil;
- Noise and vibration;
- Quarrying activities; and
- Changes in river morphology and drainage pattern.

Operation Phase

- Changes in microclimate;
- Changes in hydrology (inundation and flooding) and sedimentation;
- Changes in downstream water quality;
- Waste disposal;
- Changes in discharge of existing springs due to tunnels;
- Downstream erosion from tailrace flow;
- Changes in river morphology and drainage pattern;
- Seismic hazards; and
- Dam safety

6.2.2.2 Biological Environment

Pre- Construction Phase

- Acquisition of forest land;
- Loss of protected species of plants;
- Reduction in available forest habitat for wildlife; and
- Issues of avoidance and conservation of Simal trees.

Construction Phase



- Increased access to forests on the left bank of the river;
- Increased access to forest product markets;
- Harvesting of non-timber forest products;
- Reduction of income to the community forest users from the sale of the forest products;
- Shrinkage of forest area used by community forest users;
- Loss of natural habitat and grazing land;
- Construction-related disturbances to wildlife;
- Rare, endangered and threatened species of flora and fauna;
- Disturbance of wildlife due to movement of labor force and their activities;
- Migratory birds and bird migration;
- Temporary river diversion;
- Loss of terrestrial and aquatic biodiversity due to illegal hunting and excessive fuel wood collection by workforce and new migrant; and
- Increase in fishing activities

Operation Phase

- Increased access to forests on left bank of the river;
- Disturbances on wildlife movement;
- Migratory birds and bird migration;
- Rare, endangered and threatened species of flora and fauna;
- Fish migration;
- Changes in river ecosystem from lotic to lentic in Reservoir area;
- Fish entrainment;
- Fragmentation of habitat and loss of biodiversity;
- Loss of terrestrial and aquatic biodiversity due to illegal hunting and excessive fuel wood collection by workforce and new migrant;
- Loss of terrestrial and aquatic biodiversity especially in reduced flow section ;
- Loss of biodiversity due to possible fold and landslides; and
- Reduction in river flows

6.2.2.3 Socio-economic and Cultural Environment

Pre- Construction Phase

- Acquisition of land, houses, sheds and other properties;
- Resettlement of few houses; and
- Procurement and storage of explosives
- Information disclosure

Construction Phase

- Loss of standing crops;
- Livelihoods;
- Health and sanitation of local people;



- Occupational health and safety hazards;
- Conflict of interest and law and order situation;
- Increased economic activities;
- Increased pressure on existing Sanfe- Martadi national road;
- Community infrastructure and resources;
- Indigenous people, gender and vulnerable groups;
- Blasting and tunneling and its effects on houses and social infrastructures;
- Disturbance to cremation sites and other cultural and religious areas and practices;
- Change in life style;
- Domestic violence and polygamy;
- Social, cultural and religious practices including *Chaupadi* culture;
- Increase in market price of consumable goods;
- Fire hazards;
- Disturbance to domestic animals in the especially the Naumuthe cow;
- Disturbance to foot trails and movement of people and goods due to construction activities and presence of project structures; and
- Financial burden to local people due to the project workers

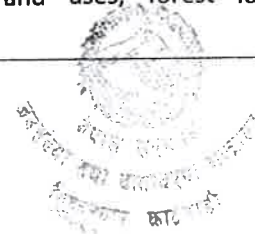
Operation Phase

- Reduction in agriculture production;
- Decrease or withdrawal in economic activities;
- Sudden release of water downstream of the Dam;
- Occupational health and safety hazards;
- Changes in aesthetics and natural beauty due to placement of project structures and facilities;
- Increase in market price of consumable goods due to operation staff and visitors;
- Disturbance to religious and cultural activities of people due to change in flow regime downstream of dam;
- Social, cultural and religious practices including Chaupadi practice;
- Disturbance to domestic animals in the Reservoir area especially the *Naumuthe* cow;
- Livelihoods;
- Changes in water availability to users;
- Disturbance to cremation sites;
- Disturbance to foot trails and movement of people and goods;
- Changes in income of local people involved in fishing due to project operation; and
- Potential reduction in Carbon Emissions from Nepal.

6.2.3

Cumulative Issues

The EIA will also cover cumulative issues of the project with other existing and proposed development in the river basin. Since the Budhi Ganga Khola Small Hydropower Project is also proposed in Budhi Ganga River the study will cover the cumulative impact of both the projects in terms of land acquisition, water diversion and uses, forest loss,



resettlement/relocation and other relevant aspects of the biophysical and socio-economic and cultural environment.



7. IMPACT IDENTIFICATION AND PREDICTION

7.1 General

The EIA study will identify and evaluate the project impacts on the physical, biological and socioeconomic and cultural environments of the project area. Both the pre- construction, construction and operation phases of the project will be considered in the identification for the project component and facilities.

7.2 Evaluation Procedures

The EIA study will identify and evaluate the project impacts on the physical, biological and socioeconomic and cultural environments of the project area. The pre- construction, construction and operation phases of the project will be considered in the identification for the project component and facilities.



8. ALTERNATIVE ANALYSIS

8.1 General

The EIA Team will examine and describe all alternatives that were considered in the course of developing the proposed project and identify other alternatives which would achieve the identified objectives of the project. The alternatives will be examined in order to minimize the adverse impacts and maximize the benefits, with choices being considered in the context of cost effectiveness, labour intensiveness and low risks of environmental hazards.

8.2 Alternatives to be Considered

The study will document no action alternative and other possible alternatives of the Project. Alternatives of Project facilities and structures will also be studied. In general, the following alternatives shall be considered:

- Design alternatives including the need/feasibility of incorporating a fish passage facility in the dam wall.
- Construction alternatives in terms of technology, procedures, schedule and materials.
- Location alternatives.
- No action alternative.
- Operation procedure.
- No forest alternative



9. MITIGATION AND ENHANCEMENT MEASURES

9.1 General

Mitigation measures for all the identified significant impacts will be taken into consideration during preparation of the EIA report. The Proponent will propose mitigation measures to prevent, reduce or compensate for significant adverse impacts to acceptable levels. Measures to enhance beneficial project impacts will also be presented.

9.2 Details of Mitigation Measures

In general, the following areas will be covered while preparing the mitigation plans and programs:

- Protective Measures
- Design Measures
- Compensatory Measures
- Rehabilitation Measures
- Enhancement Measures

The mitigation and enhancement measures will be specific and developed by applying a pragmatic approach which is technically and economically feasible, socially acceptable, and, preferably, of proven effectiveness. These measures will be categorized in terms of the physical, biological and socio-economic and cultural environments for the construction and operation phases. A matrix of impact and mitigation measures will also be prepared.

The cost required for each mitigation measure and enhancement measure will be identified and incorporated in the EIA report. The cost will contain a breakdown for each type of environment, i.e. physical, biological and socio-economic and cultural. These costs will be categorized in terms of the construction and operation phases.

The EIA will review and propose organizations and agencies, such as local, district and central levels institutions, to be consulted while implementing the mitigation programs. The EIA report will define the roles and responsibilities of these agencies, and it will also describe mechanisms for coordination between them during implementation of the Project and proposed mitigation programs.



10. COST BENEFIT OF PROJECT

10.1 General

The costs and benefits of the Project will be assessed and described in the EIA report. The study will also document the possible benefits of the project in terms of environmental conservation in relation to the cost occurred (mitigation cost).

10.2 Methodology for Cost-Benefit Analysis

The cost-benefit analysis will consider the environmental costs and benefits of the Project. In this analysis, the costs will be taken as the expenses incurred in implementing the mitigation measures, while the benefits will be analysed in terms of the conservation of environment resources.

The costs for each mitigation/enhancement measure will be computed based on the estimated quantities or volumes of work involved, and its ratio to the project cost will be shown. An economic valuation of forest loss will also be conducted. Appropriate tools will be used for the cost benefit analysis of the project. The summary of cost benefit shall include the following;

- Cost for environmental mitigation measures,
- Cost for enhancement measures,
- Cost for other social program and corporate social responsibility (CSR),
- Cost of environmental monitoring and auditing,
- Total project cost; and total project benefit,
- Percentage of total environmental cost to the total project cost, and
- Percentage of total environmental cost to the total project benefit.



11. ENVIRONMENTAL MONITORING

11.1 Environmental Monitoring Plan

An environmental monitoring plan will be formulated for the construction and operation phases of the project to monitor its impacts on the physical, biological and socioeconomic and cultural resources of the area. The monitoring plan will include the following details:

- Baseline, compliance and impact monitoring plans.
- Agency responsible for monitoring and agencies to be consulted, if required, during monitoring activities.
- Organizational set-up, budget and manpower requirements for carrying out the environmental monitoring.

The monitoring plans will be prepared in terms of the physical, biological, socioeconomic and cultural environments. The baseline and impact monitoring plans will define the parameters, indicators, methods, schedules and locations for monitoring. Likewise, the compliance monitoring plan will define the parameters, indicators, methods and schedules for monitoring. Compliance and impact monitoring will be categorized in terms of the construction and operation phases.

11.2 Environmental Management Plan

A detailed Environmental Management Plan (EMP) will be prepared for the pre-construction, construction and operation phases of the project. The plan will include activities, impacts, environment protection and enhancement measures, organizations responsible for the implementation of the measures and monitoring activities, schedule, cost and mode of coordination with the line agencies, Municipalities and Rural Municipality and local people. It will identify the human resources requirement for the monitoring, mitigation and enhancement works, quantify the person-months and schedule and develop an action plan for all the proposed measures. It will also include the monitoring procedure/protocol, especially the mechanism for compliance monitoring, by spelling out the responsibilities of each concerned stakeholder. The EMP will be prepared in matrix form also. The EMP shall cover grievances redress plan, benefit sharing plan, decommissioning plan, plantation plan and disaster risk reduction plan along with others as required for EIA.

11.3 Environmental Auditing

An environmental auditing plan will be prepared to audit the effectiveness of the mitigation measures and the effect of unforeseen impacts. The auditing will be carried out after two years of completion of the project as per the EPR. The auditing plans will include the parameters, indicators, locations and methods along with indicative cost and human resource requirements for auditing. It will also identify agencies to be consulted, if required, during auditing activities. The plan will be categorized in terms of physical, biological and socioeconomic and cultural environments. It will also discuss the organizational set up needed to carry out the auditing activities.

12. OTHER MATTERS

12.1 General

The Proponent will comply with all the requirements of the EPR before submitting the EIA report for approval. The EIA report will adequately cover the aspects included in this ToR and mentioned in Schedule 6 of the EPR. In particular, it will include the following:

- Relevant information, references, annexes, maps, photos, tables, charts, graphs, checklists and questionnaires, as applicable.
- A colored map showing the project layout.
- A clear linkage on baseline information, impacts, environmental protection measures, monitoring and auditing plans.
- References in the frame mentioned in item 13 of Schedule 6 of the EPR.
- Proof of public hearings and recommendations of the concerned rural municipality and municipality.
- Approved Terms of Reference.



13. APPENDICES

Appendix-A:

Socio- Economic and Cultural Environment Study Tools



Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Key Informant Interview Guidelines

A. Background Information

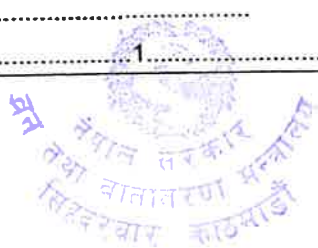
1. District:..... 2. Municipality:.....3. Ward No:..... 4. Village/Tole:.....
5. Name of Respondent:..... 6. Age:.....
7. Sex:.....
8. Education:..... 9. Main Occupation:..... 10. Position (if any):.....
11. Interviewer:..... 12. Date: 13: Checked by:.....

B. Education

1. What is the literacy status of local people of this municipality? Over all literacy:.....%
2. What is the literacy status of *Dalits* of this municipality? Literacy:.....%
3. What is the literacy status of *Janjati* of this municipality? Literacy:.....%
4. What is the overall status of physical facilities of educational institutions of your municipality?
5. What are the major problems of educational institutions of your municipality?
- 1.....2.....
- 3.....
6. What could be done to strengthen the educational facilities of your municipality?
- 1.....2.....
- 3.....
7. Are there NGOs/INGOs working in education sector in your municipality? 1. Yes 2. No.

6.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....		1.....
1.....1.....		
2.....		1.....
1.....1.....		
3.....		1.....
1.....1.....		



C. Health

1. Are the health facilities of your municipality located in accessible location?

1.1 If no, what is the average walking distance to the health facilities.....
hrs.

2. What are the prevalent diseases and their common treatment practice in the area?

<u>Disease</u>	<u>Treatment Practices</u>
1.....	1..... 2.....
3.....	
2.....	1..... 2.....
3.....	
3.....	
1.....	2..... 3.....

3. How do you assess service quality provided by the government health facilities in your municipality? 1. Good 2. Average 3. Poor

3.1. If poor, why?
1.....2.....3.....

4. How the government health facilities of your municipality could be strengthened?

1.....2.....
3.....

5. How do you assess the awareness level of local people regarding STD/HIV AIDS?

1. High 2. Average 3. Low

6. What is the prevalence rate of STD/HIV AIDS in the municipality? STD:.....%. HIV AIDS:.....%.

7. Are there NGOs/INGOs working in the health sector in your municipality? 1. Yes 2. No.

7.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....		1.....
1.....1.....		
2.....		1.....
1.....1.....		
3.....		1.....
1.....1.....		

D. Drinking Water

1. What are the sources of drinking water for the households of the municipality? (Priority order)
 1. Public piped water 2. Private Piped water 3. Spring/well
 5. Others.....
2. How do you assess the quality of the drinking water? 1. Good 2. Average 3. Poor
3. Percentage of population covered by piped water in the municipality.....%
4. Are the drinking water sources sufficient to fulfill the demand of the households? 1. Yes 2. No
 - 4.1 If no, for how many months are local people face scarcity of water.....months
 - 4.2 What could be done to fulfill the water demand of the households?
 - 1.....2.....
 - 3.....
5. What percentage of HHs has constructed toilets in this the municipality?%
6. How do you assess condition of env. sanitation in the municipality? 1. Good 2. Average 3. Poor
7. What could be done to improve drinking water and sanitation condition of your municipality?

Drinking water : 1..... 2.....

3.....

Env. Sanitation : 1..... 2.....

3.....
8. Are there NGOs/INGOs working in the drinking water and sanitation sectors in your municipality?
 - 8.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....		1.....
1.....1.....		
2.....		1.....
1.....1.....		
3.....		1.....
1.....1.....		

E. Gender

1. What are the major activities of women of your municipality?

1.....2.....

3.....

2. Are there cultural/social/religious barriers/areas for women to work in certain areas of certain caste/ethnic groups? 1. Yes 2. No

2.1 If yes, what barriers/area and how break the barriers?

Caste/ethnic group Barriers Suggestions for improvement

1.....1.....1..... 2.....

3.....

2.....1.....1..... 2.....

3.....

3. Are there potential income generating activities for women in your municipality? 1. Yes 2. No

3.1 If yes, what are they?

1.....2.....

3.....

4. Do women of your municipality have special interests/capacity for certain enterprise? 1. Yes 2. No

Areas of interest: 1..... 2.....

3.....

Existing capacity: 1..... 2.....

3.....

5. What are the potential income generating activities (agriculture/ off farm/ forest, local skill based activities etc.) for women in this municipality?

1.....2.....

3.....

6. What are the major issues of women? (Probe for abuse, discrimination, domestic violence, *Chaupadi* and polygyny).

1.....2.....

3.....

7. Are there NGOs/INGOs mainly working for women empowerment in municipality? 1. Yes 2. No.

7.1. If yes, pls provide the following details.

Name of NGOs/INGOs

Program/Activities

Target Group and Area



- 1..... 1.....
 1..... 1.....
 2..... 1.....
 1..... 1.....
 3..... 1.....
 1..... 1.....

F. Livelihood

1. What are the major economic activities local people of your municipality for their livelihood?

Male : 1..... 2.....
 3.....

Female : 1..... 2.....
 3.....

2. What % of HHs of your municipality is able to produce enough food to meet their requirement?
%

- 2.1. How the food deficit households of your municipality fulfill their food requirements?

1..... 2.....
 3.....

3. What percentage of households in your municipality is landless?%

- 3.1 What are the main activities of the landless households for their livelihood?

1..... 2.....
 3.....

- 3.2 What could be done to increase the livelihood of poor and landless households?

1..... 2.....
 3.....

4. What are the main agriculture products of your municipality?

1..... 2.....
 3.....

5. What important commodities are exported from this municipality?

Commodities: 1..... 2.....
 3.....

6. Please provide following inform regarding cropping pattern of your area?

Khet Irrigated: 1..... 2..... 3.....
 4.....

1..... 2..... 3.....
4.....

Khet un-irrigated: 1..... 2..... 3.....

1..... 2..... 3.....

1..... 2..... 3.....

Bari:

1..... 2..... 3.....

1..... 2..... 3.....

1..... 2..... 3.....

7. Are there NGOs/INGOs working to improve livelihood of people in your municipality? 1. Yes 2. No

7.1. If yes, pls provide the following details.

Name of NGOs/INGOs	Program/Activities	Target Group and Area
1.....		1.....
1..... 1.....		
2.....		1.....
1..... 1.....		
3.....		1.....
1..... 1.....		

G. Migration

- What is the status of migration (family member away from home for more than two months for work reason) in your municipality? 1. High 2. Medium 3. Low
- Which are the popular destinations of the migrants? 1..... 2..... 3.....
- What is the seasonal migration pattern to India: Migration Months:..... Stay Period:.....
- What is the status of remittance flow in your municipality? 1. High 2. Medium 3. Low

4.1 Where the households normally use the remittance?

1 Food/clothing 2. Education 3. Health 4. Purchase land/plot 5. HH assets

6. House/construction/repair 7. Repay/loan/interest 8. Others (specify).....
5. What are the positive and negative impacts of migration in your municipality? (Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.)

Positive: 1.....2.....

3.....

Negative: 1.....2.....

3.....

- 5.1 How the negative impacts of migration could be minimized? (Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.)

1.....2.....

3.....

H. Natural Resources

1. What are the main natural resources of your municipality?

1.....2.....

3.....

2. Who are the main users of the resources?

1.....2.....

3.....

3. Is there right (defecto/dejure) to use the resources by the people of your municipality?

1. Yes 2. No

4. Pls provide the following details of natural resources of your municipality ?

Resource	Distance Municipality	from	Accessibility		Availability		
			Accessible	Inaccessible.	High	Average	Low
Forest							
Water							
Grazing land							
Public land							
Mine							
Others.....							

5. Are the households of your municipality satisfied regarding the accessibility of the natural resources? 1. Yes 2. No.

5.1 If no, why? 1.....2.....

3.....

6. Are the households of your municipality satisfied regarding the availability of the natural resources? 1. Yes 2. No.

6.1 If no, why? 1.....2.....3.....



7. Do the people of your municipality have conflict with people of other municipality regarding use of natural resources? 1. Yes 2. No.
8. If yes, for which resource and why? Probe for use of forest resources, grazing, public land, mine and water resources and the cause of conflict?

Natural Resource	Municipality	Cause of Conflict
1.....		1.....
1.....2.....		
2.....		1.....
1.....2.....		

9. Do you have problems from wildlife in your municipality? 1. Yes 2.No
- 9.1 If yes pls provide following information?

Name of Wildlife	Type of Problem	Estimated Annual Loss Rs.)	Remarks

I. Cultural Features

1. What are the major festivals of your area municipality?

1.....2.....

3.....

2. Is any festival is unique in your municipality? 1. Yes 2. No

- 2.1 If yes, which festival and why?

<u>Festival</u>	<u>Reason</u>
-----------------	---------------

1.....1.....

2.....3.....

3. How do you assess the relationship of various ethnic minorities and high caste groups in the your municipality? 1. Good 2. Average 3. Poor

4. Are there important historical, religious, archeological and cultural sites in your municipality?

1. Yes 2. No.

- 4.1. If yes, what are the historical/religious/archeological and cultural sites? Why they are important?

<u>Name</u>	<u>Location</u>	<u>Importance</u>
-------------	-----------------	-------------------

1.....1.....

1.....

2..... 1.....

1.....

3..... 1.....

1.....

5. Do you think the Budhiganga HPP will affect religious, archeological/cultural sites of your municipality? 1. Yes 2. No.

- 5.1. If yes, what are the historical, religious, archeological and cultural sites and how to protect them?

Name	Location	Measures to Protect
.....		
.....		
.....		

J. Development Activities/Programs in the Municipality

1. Has any major development activities/programs implemented in your municipality during the last 12 months? 1. Yes 2. No.

- 1.1. If yes, please provide the following information?

Implementing agency	Activity/program/working area	Beneficiary (target group & HHs)
1.....		
2.....		
3.....		

2. How do you assess the implementation process of development activities/programs?

1. Good 2. Average 3. Poor

3. What should be the right process to implement development activity/program in your municipality?

1..... 2.....

3.....

4. What are the source of information for development activities/other happenings in your municipality?

1..... 2.....

3.....

K. Governmental Institutions and NGOs/CBOs

1. Are there government institutions, important NGOs/CBOs working in your municipality? If, yes pls provide the following information.



S.N.	Name	Type	Focus Area	Major activity/prog.	Target Group	Beneficiaries (%)				
						All	Women	Janjati	Dalit	Others
1										
2										
3										
4										
5										

L. Key Stakeholders of the Municipality

1. Pls provide the names and address of important stakeholders related to development activities/transmission line project of your municipality.

S.N.	Name	Position	Address	Contact No.	Remarks
1					
2					
3					
4					
5					

M. Issues and Concerns

1. Do you know about the Budhiganga HPP? 1. Yes 2. No.
- 1.1. If yes, what do you know about the project?
- 1..... 2.....
- 3.....
- 1.2. Who had provided you the information?
- 1..... 2.....
- 3.....
2. Are there issues related to social, economic and culture regarding the Budhiganga HPP?
1. Yes 2. No.
- 2.1. If yes, what are they?
- | <u>Social</u> | <u>Economic</u> | <u>Cultural</u> |
|---------------|-----------------|-----------------|
| 1..... | 1..... | 1..... |
| 2..... | 2..... | 2..... |
| 3..... | 3..... | 3..... |
3. What do you expect from the Budhiganga HPP?
- 1..... 2.....
- 3.....
4. What is your opinion regarding implementation of the Budhiganga HPP?
- 1..... 2.....
- 3.....

5. How this Budhiganga HPP could be successfully implemented?

1..... 2.....
3.....

6. What are the important felt needs of the local people of your municipality?

1..... 2.....
3.....

7. What could be done to address the needs of the local people?

1..... 2.....
3.....

8. Do you have other Issues/concerns regarding the project?

1..... 2.....
3.....



Budhi Ganga Hydropower Project
Environmental and Social Impact Assessment

Checklist for Ward Level PRA

1. General Information

1. Municipality :

2. Ward no. :

3. Village/Settlement :

4. : Venue

6. Date :

5. : Facilitator

7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

21								
22								

2. Settlement and Caste/Ethnicity

1. Major settlements and caste/ethnicity in the ward

S.N.	Name of Major Settlement	Major Caste/Ethnic Group	Estimated Number of HHs	Distance from Main Project Structure	
				Pr. Struct.	Distance (m)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

2.1. Settlement Pattern

Pattern	Name of Settlement
Dense	
Scattered	

3. Land Use Pattern

1. Please provide following information on land use of the ward

Land Category		% of Ward Area	Area (ha)
Forest/Bush			
Pasture (grazing land)			
Waste land (rock, boulders, erosion etc.)			
Cultivation	Khet un-irrigated		
	Khet irrigated		
	Bari		
Thach land (Kharbari)			
Barren Land			
Other Specify			
Total			

4. Natural Resources

1. What are the main natural resources of your ward?

1..... 2..... 3.....

2. Who are the main users of the resources? 1.....2.....3.....

1..... 2..... 3.....

3. Is there right (dfecto/dejure) to use the resources by the people of your ward?

1. Yes 2. No.

4. Please provide the following details of natural resources of your ward?

Resource	Distance from Ward	Accessibility		Availability		
		Accessible	Inaccessible	High	Average	Low

5. Are the households of your ward satisfied regarding the accessibility of natural resources?

1. Yes 2. No.

5.1 If no, why?

1..... 2.....

3.....

6. Are the households of your ward satisfied regarding availability of natural resources?

1. Yes 2. No.

6.1 If no, why?

1..... 2.....

3.....

7. Do the people of your ward have conflict with people of other ward regarding use of natural resources?

1. Yes 2. No.

8. If yes, for which resource and why? (probe for the naturel resources and the cause of conflict)

Natural Resource

Ward

Cause of Conflict



9. Please provide the following details regarding existing community forests of your ward?

*Physical Condition: G= Good, A= Average, P= Poor

9.1.1 If yes how and which forest? : 1..... 2..... 3.....

10.1 If yes, please provide following information?

5. Education

[illegible]

Status of Physical Facilities: 1= Good, 2= Average, 3= Poor, 4= NA/No

1.1 Are the existing schools will be affected by construction of the Budhiganga HPP?

1. Yes 2. No

1.1 If yes, how and which school?

2. What are the major problems of the public educational institutions of your ward?

S.N.	Name of the School	Major Problems	*Required Support

* Probe for physical facilities (library, water supply, toilets, sufficient chairs and tables, blackboards, playgrounds, school building, class room, science equipments etc.) and other support

6. Health

1. Existing health facilities in the ward?

S. N.	Name and Address of Health Facilities	Type	Year Established	Distance from Major Project Structures		No. of Service Provider		Accessibility to People		Availability of Medicine		Status of Physical Facilities		
				Struct	meter	M	F	Yes	No	Yes	No	Build	DW	Toilet
2	Planned													
3	Under Construction													

Status of Physical Facilities: 1= Good, 2= Average, 3= Poor, 4= NA

2. Are the health facilities will be affected by construction of the Budhiganga HPP?

1. Yes 2. No

1.1 If yes how and which health facilities?

3. What are the prevalent diseases and their common treatment practice in your ward?

Disease

Treatment Practices

1.....

1.....

2.....

3.....

2.....

1.....

2.....

3.....



3..... 1..... 2.....
3.....
4..... 1..... 2.....
3.....
5..... 1..... 2.....
3.....

1. Good 2. Average 3. Poor

4.1. If poor, why? 1..... 2..... 3.....

5. What are the major problems of the health facilities of your ward?

S.N.	Name of Health Facilities	Major Problems	*Required Support

6. How do you assess the service quality provided by the health facilities?

1. Good 2. Average 3. Poor

6.1. If poor, why? 1..... 2..... 3.....

7. How do you assess the awareness level of local people regarding STD/HIV AIDS?

1. High 2. Average 3. Low

8. What is the prevalence rate of STD/HIV AIDS in your ward?

1. STD:.....%. 2. HIV AIDS:.....%.

9. What support is required to improve the service quality of the health institutions of your ward?

1. _____ 2. _____ 3. _____

7. Drinking Water and Sanitation

1. Existing drinking water schemes, schemes under construction and planned in the ward?

[illegible]

Type: 1= Government, 2= Community 3= Others

2. Are the DW schemes will be affected by construction of the Budhiganga HPP t?



1. Yes 2. No

2.1 If yes how and which schemes?

.....

.....

.....

3. Main source of drinking water for the households of the ward and percentage of population covered by the type of sources in the ward.

Source	% of HH Coverage	Water Sufficiency Months	Remarks
Piped water			
well			
Spring			
River			
Others.....			

4. Percentage of HHs use toilet in this the ward?%

5. Location of defecation by the HHs who don't have toilet

1..... 2.....

3.....

6. Existing practices of waste management in the ward?

Type	Practice			Remarks
Solid waste	1.	2.	3.	
Liquid waste	1.	2.	3.	

7. Required support to improve drinking water and sanitation condition of your ward?

Drinking water : 1..... 2.....

3.....

Sanitation : 1..... 2.....

3.....

8. Irrigation

1. Existing irrigation schemes, schemes under construction and planned schemes in the ward?

S. N.	Name and Address of Existing Irrigation Schemes	Type	Distance from Major Project Struct. (m)	Physical Condition			Command area ha	Water Source	Year Constructed	Required Support	Remarks
				G o o d	A v e r a g e	P o o r					
2.	Under construction										
3.	Planned										

[illegible]

2. Are the existing irrigation schemes will be affected by construction of the Budhiganga HPP?

1. Yes 2. No

2.1 If yes how and which irrigation schemes?

[illegible]

9. Watermills/Ghatta/Micro hydro

1. Please provide following details regarding watermills/Ghatta/micro hydro of your ward.

[illegible]

2. Are the existing water mills/*Ghatta*/micro-hydro will be affected by construction of the Budhiganga HPP? 1. Yes 2. No

2.1 If yes how and which mills/*Ghatta*/micro-hydro?.....

.....

10. Existing Foot Trails/Roads in the Project Area

1. Are the existing foot trails/roads *that* will be affected by construction of the Budhiganga HPP?

1. Yes 2. No

2.1 If yes how and which?

.....

11. Institution, Project/Program of Government and NGOs in the Ward

1. Information on existing institution, projects/program and NGO/CBO in the ward.

SN.	Name of Institution/Project	Location	Service Area	Major Activity/Prog.	Number of Beneficiaries	Average Time to Reach	Distance to Major Project Component
-----	-----------------------------	----------	--------------	----------------------	-------------------------	-----------------------	-------------------------------------

1							
2							
3							
4							

12. Gender

1. What are the major activities of women of your ward?

1.....2.....3.....

2. Are there cultural/social/religious barriers/areas for women to work in certain areas of certain caste/ethnic groups? 1. Yes 2. No

2.1 If yes, what barriers/area and how break the barriers?

Caste/ethnic group improvement	Barriers	Suggestions	for
1.....	1.....	1.....2.....	3
2.....	1.....	1.....2.....	3
3.....	1.....	1.....2.....	3

3. Are there potential income generating activities for women in your ward?

1. Yes 2. No

3.1 If yes, what are they?

1.....2.....

3.....

4. Do women of your ward have special interests/capacity to undertake certain enterprise?

1. Yes 2. No

Areas of interest: 1.....2.....3.....

Existing capacity: 1.....2.....3.....

5. What are the potential income generating activities (agriculture/off-farm/ forest, local skill based activities etc.) for women in this ward?

1.....2.....

3.....

6. What are the major issues of women? (Probe for abuse, discrimination, domestic violence, Chaupadi and polygyny).

1..... 2.....
3.....

13. Livelihood

1. Occupational structure of local people of the ward?

Occupation	% of HHs	Remarks
Agriculture		
Employment		
Wages Labor		
Foreign Employment		
Others		

2. What are the major economic activities of local people of your ward for their livelihood?

Male : 1..... 2.....
3.....

Female : 1..... 2.....
3.....

3. What % of HHs of your ward is able to produce enough food to meet their requirement?.....%

- 2.1. How the food deficit households of your ward fulfill their food requirements?

1..... 2.....
3.....

4. What percentage of households in your ward is landless?
.....%

- 3.1 What are the main activities of the landless households for their livelihood?

1..... 2.....
3.....

- 3.2 What could be done to increase the livelihood of poor and landless HHs?

1..... 2.....
3.....

5. What are the main agriculture products of your ward?

6

6. What important commodities are exported from this ward?

1..... 2.....
3.....

7. Are there market centers in your ward?

1. Yes 2. No

7.1 If yes, please provide following information regarding market centers of the ward.

Name of Market Center	Location	No and types of Shops	Major Transaction

7.2. If no please provide following information regarding accessible market centers of the ward.

Name of Accessible Market Center	Location	Walking Distance	No and types of Shops	Major Transaction

8. Is there weekly market in your ward? 1. Yes 2. No

7.1 If yes, please provide following details.

Name of Weekly Market	Location	Walking Distance	Week day	Gathering of People	Major Transaction

9. Are there skilled persons in your ward? 1. Yes 2. No

9.1 If yes pls provide following details.

Type of Skill	No.		Sex		Availability	Remarks
	M	F	M	F		
Driving						
House wiring						
Plumbing						
Carpenter						
Mason						
Tailoring						
Others.....						

14. Migration

1. What is the status of migration (family member away from home for more than two months for work reason) in your ward? 1. High 2. Medium 3. Low
2. Which are the popular destinations of the migrants?

1..... 2.....

3.....



3. What is the seasonal migration pattern to India: Migration Months:..... Stay Period:.....

4. What is the status of remittance flow in your ward? 1. High 2. Medium 3. Low

5. What are the positive and negative impacts of migration in your ward?

Positive: 1..... 2.....
3.....

Negative: 1..... 2.....
3.....

4.1 How the negative impacts of migration could be minimized? (Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.)

1..... 2.....
3.....

6. No. of HHs permanently in-migrated or out-migrated during the last 5 years from your ward.

Migration	Place	Reason for Migration
In-migration		
Out-migration		

7. Please provide following details regarding use of remittance by family members of the migrant HHs?

Use of Remittance	No. of HHs	% of Remittance
Food/clothing		
Education		
Treatment		
Purchase HH Goods		
Purchase Land/Plot		
House Repair/Construction		
Other (specify):		

15. Religion/Language/Cultural Features

1. Please provide following details regarding religion and language of people of your ward?

Religion	% of HHs	Spoken Language	% of HHs
Hindu		Nepali	
Buddhism		Achami	
Christianity		Bajurali	
Muslim		Newari	
Others		Others (specify).....	

2. What are the major festivals of your ward?

1..... 2..... 3.....

3. Is any festival is unique in your ward? 1. Yes 2. No

2.1 If yes, which festival and why?

Festival

Reason

1. 1. 2.
 3.
 2. 1. 2.
 3.
 3. 1. 2.
 3.
4. How do you assess the relationship of various ethnic minorities and high caste groups in the your ward? 1. Good 2. Average 3. Poor
5. Are there important historical, religious, archeological and cultural sites in your ward?
 1. Yes 2. No.

5.1. If yes, what are the historical, religious, archeological and cultural sites and why they are important?

<u>Name</u>	<u>Location</u>	<u>Importance</u>
1.	1.	
1.		
2.	1.	
1.		
3.	1.	
1.		

6. Do you think the proposed project will affect religious, archeological/cultural sites of your ward? 1. Yes 2. No.

6.1. If yes, what are the historical, religious, archeological/cultural sites & how to protect them? Name Distance from P. Struct. Location

Measures to Protect

1. ....	.....	.....
2. ....	.....	.....
3. ....	.....	.....

7. Are there cremation sites along the Budhiganga River stretch in the dewater zone? 1. Yes 2. No

7.1 If yes, Please provide following details?

<u>Name</u>	<u>Distance from Settlement</u>	<u>Used by Ethnic Groups</u>
1.	1.	1.

2..... 1..... 1.....
 3..... 1..... 1.....

16. Development Activities/Programs in the Ward

1. Has any major development activities/programs implemented in your ward during the last 12 months? 1. Yes 2. No.

1.1. If yes, please provide the following information?

<u>Implementing agency</u> <u>HHs)</u>	<u>Activity/program/working area</u>	<u>Beneficiary (group &</u>
---	--------------------------------------	---------------------------------

.....		
.....		
.....		
.....		

2. How do you assess its implementation process of the development activities/programs?

1. Good 2. Average 3. Poor

3. What should be the appropriate process to implement dev. activity/program in your ward?

1..... 2.....
 3.....

4. What are the source of information on new dev. activities/other recent happenings in your ward?

1..... 2.....

17. Major Issues, Expectations and Attitude

1. Do you know about the Budhiganga HPP? 1. Yes 2. No.

1.1. If yes, what do you know about the project?

1..... 2.....
 3.....

2. Who had provided you the information?

1..... 2.....
 3.....

3. Are there issues related to social, economic and culture regarding the Budhiganga HPP?

1. Yes 2. No.

2.1. If yes, what are they?

<u>Social</u>	<u>Economic</u>	<u>Cultural</u>
1.....	1.....	
1.....		
2.....	2.....	
2.....		



- 3..... 3.....
3.....
4. What do you expect from the Budhiganga HPP?
1..... 2.....
3.....
5. What is your opinion regarding implementation of the Budhiganga HPP?
1..... 2.....
3.....
6. How this Budhiganga HPP project could be successfully implemented?
1..... 2.....
3.....
7. What are the important felt needs of the local people of your ward?
1..... 2.....
3.....
8. What could be done to address the needs of the local people?
1..... 2.....
3.....
9. Do you have other issues/concerns regarding the Budhiganga HPP?
1..... 2.....
3.....

18. Key Stakeholders of the Ward

1. Pls provide names & address of key stakeholders related to development activities/HPP of your ward

S.N.	Name	Position	Address	Contact No.	Remarks
1					
2					
3					
4					
5					
6					



बुढीगंगा जलविद्युत आयोजना
वातावरणीय तथा सामाजिक प्रभाव मूल्यांकन
घरधुरी सर्वेक्षण प्रश्नावली

यस प्रश्नावलीमा सोधिएका सबै व्यक्तिगत सूचना तथा तथ्याङ्क ऐन २०१५ अनुसार गोप्य राखिने छन् र तथ्याङ्किय प्रयोजनका लागि मात्र प्रयोग गरिनेछन् ।

१. आयोजना क्षेत्र सम्बन्धि सामान्य जानकारी:

१. जिल्ला..... २. गाउँ पालिका/नगर पालिका ३. वडा नं.....
४. गाउँ/टोल ५. छनौट घर नं
६. आयोजना स्थल: ६.१. हेडवर्क ६.२. विद्युतगृह ६.३ अन्य (खुलाउने).....

२. परिवार सम्बन्धी जानकारी :

१. घरमूलीको नाम:.....
२. उत्तरदाताको नाम: सम्पर्क: मोबाईल नं.
३. लिंग: १. पुरुष २. महिला
४. धर्म:.....
५. जात/जाति:
६. परिवारमा बोलिने भाषा:.....
७. परिवार संख्या:.....
८. तपाईं यस गाउँमा कहिलेदेखि बसिरहनु भएको छ ?
१. जन्मदेखि नै बसोबास गर्दै आएको → १ नं मा जाने २. बसाई सरी आएको
- ८.१. यदि बसाईसरी आएको भए तपाईं यस गाउँमा कहाँबाट आउनु भएको ?
- जिल्ला..... गा. पा. /न.पा.....अन्य(खुलाउने).....
- ८.२. आएको कति वर्ष भयो ? वर्ष.....
- ८.२.३ तपाईं यस गाउँमा बसाईसरी आउनुको कारण के हो ?

१. परिवारसँगै आएको

६. गरिवी

११. दैवीप्रकोप



२. जागिर	७. व्यापार	१२. शिक्षा
३. ज्याला मजदूरी	८. पारिवारीक कलह	१३. विवाह
४. उद्योगधन्दा	९. असुरक्षा	१४. नातेदार/आफन्त
५. यातायात सुविधा	१०. भौतिक सुविधा	१५. अन्य

खुलाउने).....

९. परिवारको प्रकार:

१. एकल परिवार (छुट्टिएर बसेका)

२. संयुक्त परिवार:



१०. पारिवारिक विवरण:

कृपया तपाईंको परिवारका सदस्यहरु (मानो नछुट्टिई वसेका) बारे विस्तृत विवरण दिनुहोस् (घरमुलीबाट शुरु गर्ने)

क्र. सं	नाम	घरमुलीसंगको नाता (१)	लिंग (२)	उमेर (वर्ष)	शिक्षा (३)	वैवाहिक स्थिति (३.१)	पेशा (४)		सिप र तालिम (५)	२ महिना भन्दा बढी समय कामका लागि बाहिर बसेको भए		
							मु.	स.		समय (महिन)	कारण (६)	ठाउँ
१.												
२.												
३.												
४.												
५.												
६.												
७.												
८.												
९.												
१०.												

नोट : ५ वर्ष भन्दा मुनीकालाई ३ देखी ६ सम्मका प्रश्नहरु नसोध्ने ।

संकेत

१. घरमुलीसंग नाता

१. घरमुली २. जहान ३. छोरा/छोरी ४. नाती/नातिना ५. बुवा/आमा
 ६. दाजु,भाई/दिदी, बहिनी ७. भतिजा/भतिजी ८. छोरीज्वाई/बईनीज्वाई/भेनाजु
 ९. भाईबुहारी/छोराबुहारी /भाउजु
 १०. सासु/ससुरा ११. बाजे/बज्यै १२. अन्य नातापर्ने १३. घरेलु कामदार १४. अन्य नाता नपर्ने

२. लिंग

३. शिक्षा:

१. पुरुष २. महिला ३. निरक्षर ४. स्कूल नगएको तर साक्षर ५. १ देखी ५ कक्षा पढेको ६. ६ देखी ८ कक्षा पढेको
 ७. ९ देखी १० कक्षा पढेको ८. एस.एल.सी. उत्तीर्ण ९. प्रमाण पत्र/ १२ ८. स्नैतक
 ९. स्नैतक भन्दा माथी

३.१ वैवाहिक स्थिति

१. अविवाहित २. विवाहित ३. विधुवा/विधुर ४. छुट्टाछुट्टै वसेको ५. पारपाचुके ६. अन्य
 ७. पेशा ११. व्यापार, वाणिज्य र वर्कसप
 १. कृषी १२. विद्या पसल/रेस्टुरेन्ट/लज/होटेल्
 २. पशुपालन



- | | |
|--|--------------------------------|
| ३. घरायसी काम | १६. यातायात |
| ४. भारि बोक्ने | १७. घरायसी कार्य |
| ५. नेपालमा ज्याला मजदुरी | १८. विद्याधी |
| ६. नेपाल बाहिर ज्याला मजदुरी | १९. राजनीति |
| ७. वन पैदावार जम्मा गर्ने र बेच बिखन गर्ने | २०. सामाजिक सेवा |
| ८. नेपालमा नोकरी गर्ने | २१. खनिज उत्खनन (ढुंगा) |
| ९. नेपाल बाहिर नोकरी गर्ने | २२. निर्माण |
| १०. घरेलु तथा साना उद्योग गर्ने | २३. बालक/वृद्ध/अशक्त |
| ११. सीप तालिम | २४. अन्य |
| १. बुझ्नको काम गर्ने | २५. डाइभर |
| २. सिलाई सम्बन्धी काम गर्ने | २६. निर्माण सम्बन्धी काम गर्ने |
| ३. काठको काम गर्ने | २७. सुनको काम गर्ने |
| ४. फलामको काम गर्ने | २८. माटोको भाँडा बनाउने |
| ५. जुता बनाउने | २९. बाँसका सामानहरु बनाउने |
| ६. उनका कपडाहरु बुन्ने काम गर्ने | ३०. कुनै सिप तालिम नभएको |
| ७. बाहिर बस्नको कारण | |
| १. नोकरी (नेपाल भित्र) | २. नोकरी (नेपाल बाहिर)..... |
| ३. अध्ययन | ४. ज्यालामजदुरी |
| ५. अन्य | |



३. कृषि, पशुपालन तथा व्यापार व्यवसाय

३.१ कृषि

के तपाईंको आफ्नो वा परिवारको स्वमित्व वा अधिनमा जग्गा जमीन छ ? १ छ २

छैन

यदी छ भने निम्न विवरणहरु दिनुहोस् ।

जग्गाको स्वामित्व	जग्गा धनी		कुल जग्गा	सिंचित खेत		असिंचित खेत		बारी		पाखो		अन्य (खुलाउने).....	
	म	पु	।	ईका इ	क्षेत्रफल ल	ईका इ	क्षेत्रफल ल	ईका इ	क्षेत्रफल ल	ईका इ	क्षेत्रफल ल	ईका इ	क्षेत्रफल ल
आफ्नै													
अरुको कमाई आएको													
अरुलाई कमाउन दिएको													
ऐलानी/सार्वजनिक													
कुल जम्मा													

३.१.१ तपाईंले आफ्नो खेत सिंचाईगर्न मुख्य कुन कुनो प्रयोग गर्नु हुन्छ ? (सिंचित खेत भये मात्र)

१..... २..... ३.....

३.१.२ तपाईंलाई हाल भईरहेको पानीको स्रोतले तपाईंको खेत सिंचाई गर्न पानी पुग्छ ? १. पुग्छ
२. पुग्दैन

१. यदि पुग्दैन भने कुन कुन महिना पानी पुग्दैन ? १. २.....

३.....

३.१.३ के तपाईंले गत वर्षमा आफ्नो कुनै जग्गा बेच्नुभएको छ ? १. छ → २. छैन

३.१.४ मा जाने

१.१ यदि बेचेको भए खेत बारी पाखो.....अन्य.....

१.२ प्राप्त रकम (रु.) खेत बारी पाखो.....अन्य.....

३.१.४ गत वर्षमा तपाईंले खेती गर्नुभएको जग्गामा कुन कुन खाद्यान्न बाली/नगदे बाली/फलफुलहरु लगाउनु भयो, तिनीहरुको उत्पादन, उत्पादन खर्च एवं आम्दानी बारे बताउनुहोस् ।

खाद्यान्न बालीहरु	बालीहरु १	खेती गरेको जमिन				उत्पादन -४		मूल्य (रु/ इकाई १५	जम्मा आम्दान १ (रु.) ६	लागत त (रु) ७	आफै उपभो ग गरेको ८	जम्मा खुद आम्दान १ (रु)
		खेत २		बारी ३		ईका इ	परिमाण १					
		ईका इ	क्षेत्रफल ल	ईका इ	क्षेत्रफल ल							

												(७+८-६) ९
	धान											
	गहुँ											
	मकै											
	कोदो											
	दाल, गेडागुडी											
	अन्य....											
	जम्मा											
नगदेबालीहरु	आलु											
	तेरी											
	ऊखु											
	तरकारी											
	अन्य											
	जम्मा											
फलफूल	आँप											
	अम्बा											
	आरु											
	नासपाती											
	सुन्तला											
	कागती/अमील											
	केरा											
	अन्य											
अन्य	जम्मा											
	डाले घाँस											
	पराल											
	खर											
	अन्य											
	जम्मा											

३.१.५ के तपाईको जग्गामा भएको गत वर्षको खाद्यान्न उत्पादनले तपाईको परिवारलाई पर्याप्त भयो ?

१. भयो २. भएन

३.१.६ यदि पर्याप्त भएन भने कति महिनाको लागि पर्याप्त भएन ?.....महिना

३.१.७ तपाईको आफ्नो उत्पादित खाद्यान्न अपर्याप्त भएको बेला परिवारलाई तपाई कसरी खुवाउनु हुन्छ ?

- | | |
|----------------------------|----------------------------|
| १. ऋण गरेर | २. दैनिक ज्यालादारी काम |
| ३. घरको जित्सी सामान बेचेर | ४. जंगली खाद्य पदार्थ खाएर |
| ५. भारी बोक्ने काम गरेर | ६. नोकरी (तलब) गरेर |
| | ७. |

अन्य.....

३.१.८ के तपाईको परिवारको ऋण छ ?

१. छ → २. छैन ३.१.१० मा जाने

३.१.९. यदि ऋण छ भने, ऋण लिनुको कारण के हुन् ? (३ भन्दा बढीमा चिन्ह नलगाउने)



१. घर निर्माण/सुधार गर्न

२. खेतीको लागि जग्गा किन्न

३. घडेरी किन्न

४. आप्रवाशनको लागि

५. शिक्षाको लागि

६. औषधोपचारको लागि

७. विहे/व्रतबन्ध आदि काम

८. खाद्यान्न/लत्ताकपडा खरिद गर्न

३.१.१०. तपाईंलाई परिवारको न्यूनतम आधारभूत आवश्यकताहरु पूरा गर्न मासिक आम्दानी कति जति रु. हुनुपर्छ जस्तो लाग्छ ?

(खान, बस्न र अन्य न्यूनतम आवश्यकताको पूर्तिको लागि) मासिक आम्दानी रु.

३.२ पशुपालन :

३.२.१ तपाईंले गाईवस्तु पाल्नु भएको छ ?

१. छ २. —> छैन ३.३ मा जाने

३.२.२ यदि पाल्नुभएको छ भने निम्न विवरण दिनुहोस् ।

क्र.स	पशु/पंशुपंक्षी को प्रकार	संख्या	दुध/अण्डा उत्पादन			पशु/पंक्षी विक्री			पशु/पंक्षी पालनबाट वार्षिक आम्दानी रु. (१+२)= ३	जम्मा उत्पादन लागत (रु) ४	आफै ले उपभोग गरेको (रु) ५	खुद आम्दानी (रु) (४+५-३)=६
			परिमाण माना/गोटा/वर्ष	मूल्य रु./इकाइ	जम्मा मूल्य रु. (१)	परिमाण गोटा/वर्ष	मूल्य रु./इकाइ	जम्मा मूल्य रु. (२)				
१	१.१.गाई (दुध दिने)											
	१.२.गाई (दुध नदिने)											
	१.३.गोरु											
	१.४.वाच्छ/वाच्छी											
२	२.१.भैसी (दुध दिने)											
	२.२.भैसी (दुध नदिने)											
	२.३.रौगा											
	२.४.पाडा/पाडी											
३	बाख्रा/खसी/बोका											

	भेडा / भेडी												
४	सुंगुर / बगुर												
५	कखरा / हाँस												
६	अन्य												

(पशुपंक्षी लाई मारेर मासु बेचेको भए त्यस्तो पशुपंक्षीको पनि यसमा उल्लेख गर्ने ।)

३.३ वोट विरुवाहरु

३.३.१ के तपाईंको स्वामित्वमा कुनै फलफूल र डालेघाँसका वोट विरुवाहरु छन् ?

१. छन् २. छैनन्

३.३.२ यदि छन् भने वोटविरुवा सम्बन्धी निम्न विवरण दिनुहोस् ।

किसिम	वोटविरुवाको जात	जम्मा संख्या		श्रोत			
		५ वर्ष भन्दा कम उमेरका	५ वर्ष भन्दा माथी उमेरका	५ वर्ष भन्दा कम उमेरका		५ वर्ष भन्दा माथी उमेरका	
				किनेर	अन्य	किनेर	अन्य
फलफूल							
डालेघाँस							
अन्य							

४. व्यापार तथा घरेलु उद्योग :

४.१ तपाईंको परिवारका सदस्यहरुमध्ये कसैको आफ्नै कुनै व्यापार वा व्यवसाय छ ?

१. छ २. छैन → भने प्रश्न न. ५ मा जाने

४.१.२ यदि छ भने तलको विवरण दिनुहोस् ।

३.१.२ यदि छ भने तलको विवरण दिनुहोस् ।

व्यापार वा व्यवसाय किसिम	घनीको लिङ्ग		कुल लागत (रु)	हालको मूल्यांकन(रु)	शुरुगरेको वर्ष	रोजगारि पाएका व्यक्ति				मासिक औषत आम्दानी (रु)	जम्मा बार्षिक आम्दानी (रु)
	म	पु				पूर्ण		आंशिक			
						म (१)	पू(२)	म (१)	पू(२)		

व्यापार वा व्यवसायको किसिम

१. खुद्रा/किराना पसल २. चिया पसल ३. होटल/लज ४. घरेलु उद्योग (मिल/अन्य) ५. अन्य =====

५. घर र घरायसी सामग्रीहरुको विवरण

५.१. यो घर तपाईंको आफ्नै हो ?



१. होईन २. हो → प्रश्न न. ५.३ मा जाने

५.२. यदि होईन भने तपाईंले भाडामा लिनु भएको हो ?

१. हो २. अरुको घरमा सितै बसेको

५.३. घरको किसिम: १. कच्ची २. पक्की

५.४. घरको सामग्रीहरु

गारोको किसिम

भुईँको किसिम

छानाको किसिम

१. सिमेन्ट र ईट्टा / ढुंगा

१. माटो

१. खर/पराल

२. माटो र ईट्टा / ढुंगा

२. काठ

२. जस्ता पाता

३. काठ / दाउरा

३. ढुंगा/ईट्टा

३. खर/पराल

४. होलोब्लक (सिमेन्ट)

४. सिमेन्ट/टायल/मार्बल

४. ढुंगा

५. काँचो ईट्टा

५. अन्य (खुलाउने).....

५. सिमेन्ट ढलान

६. गारो नभएको

६. टायल/सिमेन्ट टायल

७. अन्य (खुलाउने)

७. अन्य

५.५. घरको तला

१. भुईँ/एक तला २. दुई तला ३. तिन तला ४. तिन तला भन्दा माथि

५.६. यस घरको हालको अनुमानित मूल्य कति होला ? (घरको मूल्य र कम्पाउण्डको क्षेत्र पनि)

१. घर र कम्पाउण्डको मूल्य (रु.) :

२. घर तथा कम्पाउण्डको क्षेत्रफल: इकाई:....., क्षेत्रफल:

३. घरधनीको लिंग: १. महिला २. पुरुष

५.७. कृपया तपाईंको घरमा भएका मुख्य मुख्य घरायसी सामग्री/सम्पत्तीको विवरण दिनुहोस् ।

सम्पत्ति	के तपाईंको घरमा छ ?		हालको मूल्य कति हो ? (रु.)
	१. छ	२. छैन	
१ फोन			
२ म्याईल फोन			
३ सि.डी./डि.भि.डी/क्यासेटप्लेयर			
४ टेलिभिजन			
५ कम्प्युटर/प्रिन्टर			
६ मोटर साईकल/ स्कूटर			
७ फ्रिज, फ्रिजर			
८ दराज			
९ रेडियो			



१० क्यामेरा, भिडियो क्यामेरा			
११ अन्य.....			
१२. अन्य.....			

६. आम्दानी तथा खर्चको विवरण :

६.१

खर्च :

गत वर्ष तपाईंको घरमा निम्न शिर्षक/बस्तुहरुमा भएको जम्मा खर्चको विवरण दिनु होस् ।

शिर्षक	मासिक रु.	बार्षिक रु.	जम्मा रु.
१. खाना खर्च			
२. लत्ता कपडा			
३. घरभाडा			
४. शिक्षा			
५. यातायात			
६. इन्धन	महिनेल/ ग्याँस		
	दाउरा		
	बिजुली		
	अन्य (खुलाउने).....		
७. टेलिफोन, मोबाईल/पत्रपत्रिका			
८. पानी			
९. बत्ति	महिनेल/ ग्याँस		
	बिजुली		
	अन्य (खुलाउने).....		
१०. औषधि/उपचार			
११. अन्य (खुलाउने)			
जम्मा			

६.२ आम्दानी

विगत १२ महिना यता तपाईंको परिवारले निम्न स्रोतबाट कति आम्दानी गर्नुभयो ?

आम्दानीका स्रोतहरु	रु.	
१. कृषिजन्य उत्पादनबाट		(३.१.४ बाट लिने)
२. पशुपालनबाट		(३.२.२ बाट लिने)
३. उद्योग व्यवसाय		(४.१.२ बाट लिने)
४. ठेक्कापट्टा		
५. व्यापार		
६. होटेल व्यवसाय (रेष्टुरेण्ट, लज)		
७. यातायात व्यवसाय		
८. नोकरी (तलब)		
९. दैनिक ज्याला मजदुरी, भारी बोकेर		
१०. बैदेशिक रोजगारीको कमाई (भारतबाट विप्रेषण)		
११. बैदेशिक रोजगारीको कमाई (अन्य देशबाट विप्रेषण)		
१२. बहाल/ब्याज/लाभांश		
१३. पेन्सन		
१४. सामाजिक सुरक्षा भत्ता (वृद्ध, एकल महिला, अपांग आदि)		
१५. अन्य आम्दानी (खुलाउने)		
जम्मा		

७. ऊर्जा तथा खानेपानीको आपूर्ति



७.१ तपाईको खानेपानीको मुख्य श्रोत के हो ?

१. सार्वजनिक घारा २. पाइपबाट घरमा आपूर्ति ३. कूवा/मूल ४. खोला/नदी ५.

अन्य.....

७.२ तपाईको खानेपानीको श्रोतको गुणअस्तर कस्तो छ ?

१. राम्रो २. ठिकै ३. नराम्रो

७.३ हाल भईरहेको पानीको स्रोतले तपाईको खानेपानी आवश्यकता पुरा गर्छ ?

१. गर्छ २. गर्दैन

७.३.१ यदि पुरा गर्दैन भने कति महिनाको लागि पुग्दैन ?महिना

७.३.२ ति अफग महिनामा खानेपानीको आवश्यकता कसरि पुरा गर्नुहुन्छ ?

- १..... २..... ३.....

७.४ तपाईको गाउँघरमा विजुली बत्ती छ ? १. छ २. छैन

७.५ तपाई प्रायजसो घरमा उज्यालोका लागि के प्रयोग गर्नुहुन्छ ?

१. टुकी (मट्टितेल) २. दियो (तेल) ३. विजुली बत्ती

४. सौर्य ऊर्जा ५. ब्याट्री ६. अन्य.....

७.६ तपाई तापको लागि प्रायजसो निम्न मध्ये के प्रयोग गर्नु हुन्छ ?

१. दाउरा २. ग्याँस ३. मट्टितेल
४. पराल, ढोड आदि ५. विजुली ६. अन्य :

७.७ तपाई खाना पकाउनको लागि प्रायजसो निम्न मध्ये के प्रयोग गर्नु हुन्छ ?

१. दाउरा २. ग्याँस ३. मट्टितेल
४. पराल, ढोड आदि ५. विजुली ६. अन्य :

७.७.१ यदि तपाई दाउरा बाल्नुहुन्छ भने एक महिनामा कति भारी दाउरा बाल्नुहुन्छ ?

१. परिणाम भारीमा २. अन्दाजी (तौल: १ भारी बराबर २५ के.जी) ३. (मूल्य: १ भारी रु.....)

७.७.२ तपाई घरमा बाल्नको लागि प्रायजसो दाउरा कहाँबाट ल्याउनुहुन्छ ?



१. वन २. निजी जग्गा ३. किनेर ४. अन्य

७.७.२.१ यदी वनवाट हो भने निम्न मध्ये कुन वन वाट ल्याउनुहुन्छ ?

१. सरकारी वन २. निजी वन ३. सामुदायिक वन

७.७.३ तपाईं घाँसपात, स्याउला, काठ प्रायजसो कहाँबाट ल्याउनुहुन्छ ?

१. वन २. निजी जग्गा ३. किनेर ४. अन्य

७.७.३.१ यदी वनवाट हो भने निम्न मध्ये कुन वन वाट ल्याउनुहुन्छ ?

१. सरकारी वन २. निजी वन ३. सामुदायिक वन

७.७.४ तपाईंलाई घाँसपात, स्याउला, दाउरा, काठ आदिको लागि पायक पर्ने वन कुन हो ?

१. वनको नाम : गा.पा./न. पा./बडा नं. :

२. ठाँउ : दुरि (घन्टामा)

३. वनको प्रकार: १. सामुदायिक २. राष्ट्रिय ३. कबुलियती ४. निजी ५. धर्मिक ६.

अन्य

८. स्वास्थ्य र सरसफाई

८.१ तपाईं वा तपाईंका परिवारका सदस्यहरु दिशापिसा कहाँ गर्नुहुन्छ ?

१. आफ्नै चर्पीमा २. खोल्सा/खोल्सी ३. वनजङ्गलमा ४. खेत/बारी ५. अन्य

८.१.१ यदि तपाईं चर्पी प्रयोग हुन्छ गर्नुहुन्छ भने कस्तो किसिमको चर्पी प्रयोग गर्नुहुन्छ ?

८.१.२. तपाईं लाई चर्पीवनाउन कले सहयोग गरेको ?

१. आफै २. गैसस ३. सरकार ४. अन्य

८.१.२.१. यदि चर्पीवनाउनु भएकोछैन भने किन न वनाउनु भएको ?

१. आवश्यक छैन २. पैसा छैन ४. अन्य

८.२ तपाईं सडेगलेको वा ठोसपदार्थ/फोहोरमैला कहाँ फाल्ने गर्नु भएको छ ?

१. सुरक्षित ठाउँमा थुपारेर २. जलाएर ३. गाडेर ४. अन्य

८.३ तपाईं फोहोर तरलपदार्थ कहाँ बगाउने गर्नु भएको छ ?

१. ढलबाट २. आफ्नै खेत बारीमा ३. त्यसै बगाउने ४. अन्य

८.४ के तपाईंको परिवारको कुनै सदस्य गत वर्ष सिकिस्त विरामी भएका थिए ?

१. थिए २. थिएनन्

८.५ यदि थिए भने को थिए ?



परिवारका सदस्य

विरामी भएको अवधि

१. बच्चा

२. युवा

३. बृद्ध

८.६ कस्तो किसिमको रोग लागेको र कुन उपचार विधि अपनाउनु भएको थियो ?

रोग	उपचार विधि	उपचार गराएको स्थान
१.....	१..... २.....	१..... २.....
२.....	१..... २.....	
१..... २.....		
३.....	१..... २.....	१..... २.....

९. बुढीगंगा जलविद्युत आयोजनाबाट पर्ने प्रभावहरू :

९.१ जग्गा/जमिन बारे

९.१.१ यस आयोजनाबाट तपाईंको प्रभावित हुने जग्गा जमिनको निम्नलिखित विवरण दिनुहोस् ?

गा.पा./न.पा./वार्ड नं.	ठाउँको नाम	क्रिया नं.	कुल क्षेत्रफल	हान जग्गाको प्रयोग	जग्गाको स्वामित्व	प्रभावित क्षेत्रफल र मूल्य रु. हजारमा					
						क्षेत्र	मूल्य	बारी	मूल्य	अन्य	मूल्य

(नोट : जग्गाको मूल्य चलन चल्तीको भाऊ बमोजिम राख्ने ।)

९.१.२ के तपाईं अथवा तपाईंको परिवारका कुनै सदस्यको नाममा यस आयोजना क्षेत्र भित्र फलफूल र डालेघाँसका बोटविरुवाहरू छन् ? १. छन् २. छैनन्

९.१.२.१ यदि छन् भने ति रुख, बोटविरुवा सम्बन्धी विवरण दिनुहोस् ।

किसिम	बोटविरुवाको जात	जम्मा संख्या		प्रभावित हुन सक्ने संख्या		जम्मा उत्पादन (इकाई)	मूल्य	आम्दानी
		५ वर्ष भन्दा कम उमेरका	५ वर्ष भन्दा माथी उमेरका	५ वर्ष भन्दा कम उमेरका	५ वर्ष भन्दा माथी उमेरका			
फलफूल								
डालेघाँस								

काठ								

१.२ घर/गोठ वारे

१.२.१ के यस बुढीगंगा जलविद्युत आयोजनाबाट तपाईको घर प्रभावित हुन्छ ?

१. हुन्छ २. हुँदैन

१.२.२ यदि हुन्छ भने कति वटा प्रभावित हुन्छन् ? संख्या

१.२.३ आयोजनाबाट प्रभावितहुने तपाईको घरको निम्न विवरणहरु दिनुहोस ?

१. प्रभावित हुने घरको : ल (मिटर) चौ.....

घरको किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

घरको तला : (प्रश्न नं. ५.५ अनुसार भर्ने)

२. प्रभावित हुने घरको : ल (मिटर) चौ.....

किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

घरको तला : (प्रश्न नं. ५.५ अनुसार भर्ने)

१.२.४ के यस आयोजनाबाट तपाईको गोठ प्रभावित हुन्छ ?

१. हुन्छ २. हुँदैन

१.२.५ यदि हुन्छ भने कति वटा प्रभावित हुन्छन् ? संख्या

१.२.५.१ आयोजनाबाट प्रभावितहुने तपाईका प्रभावित हुने गोठको बारेमा निम्न विवरण दिनुहोस:

१. प्रभावित हुने गोठको : ल (मिटर) चौ.....

किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

गोठको तला : (प्रश्न नं. ५.५ अनुसार भर्ने)

२. प्रभावित हुने गोठको : ल (मिटर) चौ.....



किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)

गाढोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

गोठको तला : (प्रश्न नं. ५.५ अनुसार भर्ने)

१०. घर जग्गाको मुआब्जा/पुनर्वास सम्बन्ध

१०.१ तपाईं घर/जग्गाको मुआब्जा निम्न मध्ये कुन चाहनु हुन्छ ?

१. नगद २. जग्गाको सट्टा जग्गा ३. घरको सट्टा घर ४. अन्य

१०.२ यदि तपाईंले मुआब्जा नगदमा पाउनु भयो भने उक्त मुआब्जा रकम के मा प्रयोग गर्नु हुन्छ ?

१. जग्गा किन्ने २. घर बनाउने ३. ऋण तिर्ने
४. ब्यापार गर्ने ५. घरेलु उद्योग ६. अन्य

१०.३ यहाँ बाहेक तपाईंको अन्यत्र कतै घर वा जग्गा छ ?

१. छ २. छैन → भने प्रश्न १०.५ मा जाने

१०.४ यदि छ भने के छ र कहाँ छ ?

किसिम	ठाउँ
घर	
जग्गा	
घडेरी	

१०.५ यदि तपाईंले उचित मुआब्जा पाएमा अन्यत्र बसाई सर्नु हुन्छ ?

१. सधैं २. सधैंन

१०.६ बसाई सर्न चाहनु हुन्छ भने किन ?

१. २. ३.

१०.७ तपाईं वा तपाईंको परिवारका मुख्य समस्याहरु के के हुन ?

१. २. ३.

१०.८ तपाईं वा तपाईंको परिवारका मुख्य आवश्यकताहरु के के हुन ?

१. २. ३.

११. बुढीगंगा जलविद्युत आयोजना प्रतिको अवधारणा

११.१ तपाईंलाई यस प्रस्तावित बुढीगंगा जलविद्युत आयोजना बारेमा केही जानकारी छ ?

१. छ २. छैन

११.१.१ यदि छ भने कुन स्रोतबाट यस आयोजनाको बारेमा जानकारी प्राप्त गर्नुभयो?

१. साथीभाई/नातेदार २. आयोजनाका कर्मचारी ३. रेडियो/टिभि ४. पत्रपत्रिका ५. अन्य

११.२ तपाईंको यस प्रस्तावित बुढीगंगा जलविद्युत आयोजना प्रति कस्तो अवधारण छ ?

१. सकारात्मक २. नकारात्मक ३. तटस्थ ४. केही पनि थाहा छैन ५. कुनै अवधारणा बनाएको छैन

११.२.१ यदि नकारात्मक धारणा भएमा किन होला ? कारण बताईदिनु हुन्छ कि ?

१. २. ३.

११.३ यस प्रस्तावित बुढीगंगा जलविद्युत आयोजनाबाट तपाईंले कुनै कुराको आशा राख्नु भएको छ ?

१. छ १. छैन

११.३.१ यदि छ भने के कुराको आशा राख्नु भएको छ ?

१. राम्रो मुआब्जा २. रोजगारी ३. विद्युत सुविधा ४. स्थानीय क्षेत्रको विकास ५. अन्य

१२. स्थानिय सहभागिता :

१२.१ तपाईं वा तपाईंको परिवारको कुनै सदस्य यस क्षेत्रमा संचालित सरकारी, गैरसरकारी वा अन्य संस्थाहरु/कार्यक्रमहरुमा सहभागीता छ ? १. छ १. छैन

१२.२ यदि सहभागी छ भने निम्न विवरण दिनु होस् ।

संस्था/कार्यक्रमको नाम	सहभागिता को किसिम	संचालन भएको साल	मुख्य काम/उद्देश्य	परिवार सदस्य		सामान्यतः परिवार	सहयोग गर्ने संस्था/निकाय
				महिला	पुरुष		

प्रश्नावली भर्नेको नाम: सही:

मिति:

रजु गर्नेको नाम: सही:

मिति:



बुढीगंगा जलविद्युत आयोजना
वातावरणीय तथा सामाजिक प्रभाव मूल्यांकन
कृषिजन्य र अन्य वस्तुहरुको मूल्य सम्बन्धी बजार सर्वेक्षण फारम

क. गा. पां /न.पा..... ख. वडा नं..... ग. ठाउँ.....
 घ. मिति.....

१. जग्गा मूल्य रु. (रोपनी)

सिंचित खेत

असिंचित खेत

वारी

खरवारी

घडेरी

२. खाद्यान्न मूल्य (रु. /किलो)
 रु./किलो/दर्जन)

३. फलफुल मूल्य (

मास

धान	लिच्ची
गहुं	कागती र निवुवा
मकै	आरु
कोदो	नासपाती
जौ	अम्बा
आलु	कटहर
	केरा
गहत	मेवा
तोरी	आंप
अन्य	अन्य

४. अन्य उत्पादन
 मूल्य प्रति गोटा रु.

मूल्य रु. (लिटर/माना)

५. मासु मूल्य रु. (किलो)

६. पाल्तु जनावर

दूध	कुखुरा	रांगा
दहि	खसी	भैसी
घिउ	रांगा	हल गोरु



	तेल	वंगुर/सुंगुर	गाई
		माछा	खसी/बाखा वंगुर/सुंगुर
७.	निर्माण सामग्री	इकाई	मूल्य रु.
	काठ		
	ईष्टा		
	सिमेन्ट		
	फलामे डण्डी		
	ढुङ्गा		
	बालुवा		
	गिट्टी		
	बाँस		
८.	ज्याला मजदुरी (प्रतिदिन) जम्मा रु.	ज्याला	खाना
	कृषि मजदुर (पुरुष)		
	कृषि मजदुर (महिला)		
	सिकर्मी		
	डकर्मी		
	ज्यामी (पुरुष)		
	ज्यामी (महिला)		
	अन्य.....		
९.	बजार/ठाउँ	बारे	छोटो जानकारि

.....

.....

.....



Appendix B:

Forest Loss Tables Biological Environment Checklist



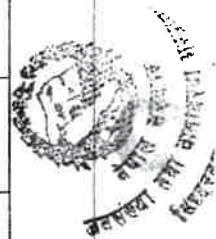
Table-1: Forest loss at different Project Components

SN	PROJECT COMPONENT	TYPE OF FOREST (as per Forest Act)	FOREST AREA (ha)	LOSS OF VEGETATION			CROWN COVER (%)	BASAL AREA (%)	VEGETATION TYPE (Sal, Pine, shrubs, barren etc.)
				Seedling per ha.	Saplings per ha.	No. of trees >10cm DBH			
	Spillway tunnel								
2	Adits								
	Adit-1								
	Adit-2								
	Adit-3								
3	Water Conveyance; Tunnel/canal penstock								
4	Surge tank								
5	Project component road								
	Road to surgtank								
	Road to adit -2								
	Road to adit-3								
6	Spoil disposal site								
	Total					Sum			

Note: Other Components can be added as appropriate/required as per the project layout

Table-2: Total loss in terms of plant species

BOTANICAL NAME	LOCAL NAME	AVG.DBH/ RANGE* (FOR>=10 cm DBH)	LOSS OF VEGETATION**				LOSS OF TREE (number)		STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE (KG.) (Wet) (Dry)	BIOMASS USAGES***
			LOSS OF REGENERATION									
			Seedlings per ha.	Saplings per ha.	Pole class	Tree class	Timber (cft.)	Fuel wood (chatta)				
1.												
2.												
3.												
4.												
5.												
6.												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
17												
Total			300	600	8				9.92			



Budhi Ganga Hydropower Project

Note: • Avg. DBH and Range of DBH to be given for Pole and Tree Class

•• Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree Class >30 cm DBH

••• Possible usages are- fire wood, fodder, etc.



Table-3: Total loss in terms of plant species

BOTANICAL NAME	LOCAL NAME	AVG.DBH/ RANGE* (FOR>=10 cm DBH)	LOSS OF VEGETATION**				LOSS OF TREE (number)			STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE (KG.) (Wet) (Dry)		BIOMASS USAGES***
			LOSS OF REGENERATION		Tree class		Tree class		Timber (cft.)	Fuel wood (chatta)				
			Seedlings per ha.	Saplings per ha.	Pole class	Tree class								
1.														
2.														
3.														
4.														
5.														
6.														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
17														
Total			1500	1300	50	-	115.14							

Note: * Avg. DBH and Range of DBH to be given for Pole and Tree Class

** Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree Class >30 cm DBH

*** Possible usages are- fire wood, fodder, etc.



Table-4 Total loss in terms of plant species

Table-4 Total loss in terms of plant species											
BOTANICAL NAME	LOCAL NAME	AVG.DBH/ RANGE* (FOR>=10 cm DBH)	LOSS OF VEGETATION**				STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE (KG.) (Wet) (Dry)		BIOMASS USAGES***
			LOSS OF REGENERATION		LOSS OF TREE (number)		Timber (cft.)	Fuel wood (chatta)			
			Seedlings per ha.	Saplings per ha.	Pole class	Tree class					
1.											
2.											
3.											
4.											
5.											
6.											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
17											
Total			1400	2200	133	16	983				



Note: * Avg. DBH and Range of DBH to be given for Pole and Tree Class

** Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree Class >30 cm DBH

*** Possible usages are- fire wood, fodder, etc.

Table-5: Total loss in terms of plant species

Table-3. Total loss in terms of plant species										
BOTANICAL NAME	LOCAL NAME	AVG.DBH/ RANGE* (FOR>=10 cm DBH)	LOSS OF VEGETATION**				STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE (KG.) (Wet) (Dry)	BIOMASS USAGES***
			LOSS OF REGENERATION		LOSS OF TREE (number)		Timber (cft.)	Fuel wood (chatta)		
			Seedlings per ha.	Saplings per ha.	Pole class	Tree class				
1.										
2.										
3.										
4.										
5.										
6.										
7										
8										
9										
10										
11										
12										
13										
14										

[illegible]

* Avg. DBH and Range of DBH to be given for Pole and Tree Class

Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree Class>30 cm DBH

*** Possible usages are- fire wood, fodder, etc.

Table-6: Total forest loss

[illegible]

Note:

Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree class>30 cm DBH

***- Possible usages are- fire wood, fodder, etc.**

Table-7: Loss of Non-Timber Forest Product (NTFP)

COMMERCIALY IMPORTANT SPECIES (NTFP)	GOVERNMENT MANAGED		COMMUNITY MANAGED		RELIGIOUS		PRIVATE		MAJOR SPECIES
	Seedlings per ha. (no./ha.)	Saplings per ha (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha (no./ha.)	
1.									
2.									
3.									
4.									
5.									
6.									

Note: - Seedling 0-4 cm DBH; Sapling 4-10 cm DBH;

- Use Govt. approved methodologies, if available. If not, other methodologies can be used.

Table-8: Land Requirement

LAND TYPE	LAND REQUIREMENT (ha.)			PROJECT COMPONENT
	Temporary	Permanent	Total	
1. Agricultural land 2. National forest 3. Community forest 4. Leasehold forest 5. Religious forest 6. Private forest 7. River and flood plain 8. Barren Land				[Spill way tunnel, access to different adits and access to Surge Shaft etc.]
Total				

Note: -Despite this table is developed for accounting loss of forest area, please do fill up the land requirement for "Agriculture Land" and Private Forest"



Table-9: Valuation of Forest Product Loss

9.1: Valuation in terms of plant species

[illegible]

Note: Values shall be calculated at prevailing market rate.

Table-9.2 Total annual income foregone from the loss of Non-Timber Forest Product (NTFP)

COMMERCIALY IMPORTANT SPECIES (other than trees) NTFP	GOVERNMENT MANAGED	COMMUNITY MANAGED (Nrs.)	RELIGIOUS	LEASEHOLD	TOTAL OF ALL TYPES OF FORESTS (Nrs.)	NPV* OF INCOME FOREGONE
1.						
2.						
3.						
4.						
5.						
6.						
Total	Sum	Sum	Sum	Sum	Sum	SUM

* NPV should be based on 35 years of economic life at prevailing Nepal Rastra Bank's discount rate.

Analysis should be based on the existing annual income from the products.

Table-9.3: Value of Total Forest Loss

TYPES OF FOREST	NPV OF FOREGONE NTFP*	VALUE OF INCOME FROM	POLE CLASS Nrs.	VALUE OF TIMBER LOSS**	TREE CLASS Nrs.	VALUE OF FUEL WOOD LOSS** Nrs.	VALUE OF FODDER LOSS** Nrs.	TOTAL
1.								Sum
2.								Sum
3.								Sum
4.								Sum
5.								Sum
6.								Sum

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7.						Sum
8.						Sum
Total		Sum		Sum	Sum	SUM

Note: -Value from table-6.2

-Value from table-6.1

Flora of the Project Area

S.No.	Scientific Name	Local Name	Type (Tree/Shrub/Herb/ Fern	Distribution Status	Protection Status	Economic Importance
1						
2						
3						
4						
5						
6						
7						
8						
9						





Appendix-C:

Permanent/Temporary Land required for the project



Types of Permanent/Temporary Land to be required for the Project

SN	Project Components *	Land type (In hectare)										Total area (In ha.)	Remarks		
		Forest					Cultivated		Barren		River & Flood Plain			Built up/ Residential	
		Gvt.	CF	LHF	Rel.	Pvt.	Govt. (ऐलानी)	Pvt.	Gvt	Pvt.				Public	Pvt.
1	<u>Headworks:</u> Diversion Structure Intake Approach to de-sander De-sander														
2	<u>Water Conveyance:</u> Tunnel Audit Canal Penstock Fore-bay Tailrace														
3	Power House														
4	Access Road														
5	Sub-station/Switchyard														
6	Quarry Sites														
7	Disposal Sits														
8	Camp Sites														
9	Construction Yards and Others														
	Total Area														





Note:

- 1) * - Other components can be added as appropriate/required based on the project layout. The table shall account all the land required by the project
- 2) GIVE SEPARATE TABLES FOR PERMANENT AND TEMPORARY LAND REQUIREMENTS.

Types of Permanent/Temporary Land to be required for the Road Project



SN	Project Components *	Land type (In hectare)											Total area (In ha.)	Remarks	
		Forest					Cultivated		Barren		River & Flood Plain	Built up/ Residential			
		Gvt.	CF	LHF	Rel.	Pvt.	Gvt. (ऐलानी)	Pvt.	Gvt	Pvt.		Public	Pvt.		
1	Road Corridor:														
2	Borrow Area:														
3	Disposal Sites														
4	Storage Facillties														
5	Camp Site														
	Total Area														

Note:

1) * -
Other
component
can be add
as

appropriate/required based on the project layout. The table shall account all the land required by the project

2) GIVE SEPARATE TABLES FOR PERMANENT AND TEMPORARY LAND REQUIREMENTS.



Appendix D:

Land and Property Loss of Project Affected Families



1(A)-Loss of Land of Project Affected Families and Households

S.N.	Owner's Name and Family size	Rural Municipality Concerned Ward No.	Project Component *	Loss of Land in the project area (m ²)					Total land loss	Value of lost land (Rs.)	Total Land owned	% of land loss	Remarks
				Khet	Bari	Pakho/Parti/Ghar Bari [#]	Forest	Others					
	Name/family size												
			Total										

Note:

– Mention the category loss for each family

* – Use separate row for each project component for the family as required

1(B)-Total Loss of Land of Project Affected Families and Households

S.N.	Rural Municipality Concerned Ward No.	Project Component *	Loss of Land in the project area (Ropani/ ha.)					Remarks
			Khet	Bari	Pakho/Parti	Ghar Bari	Others	
	Rural Municipality Concerned Ward No.							
	Rural Municipality Concerned Ward No.							

Note:

* – Use separate row for each



Total									
Total land available in all concerned ward of Rural Municipality									
% of lost land in concerned wards									
Value of Lost Land (Rs.)									

proj
component
**2(A)-Loss
Cereal Cro
Production
Proje**

Affected Families and Households

S.N	Owner's Name and Family size	Rural Municipality Concerned Ward No.	Project Component*	Loss of Cereal Crops due to land Acquisition (Mt)					Total Cereal Crops Production of the family/Percentage of loss (Mt)/%#					Remarks
				Paddy	Wheat	Malze	Millet	Others**	Paddy	Wheat	Malze	Millet	Others**	
	Name/family size													
1.														
			Total											

Note:

* Use separate row for each project component for the family as required

Give values as -Mt/%

Use additional columns as required for other cereal crops

2(B)-Loss of Cash Crops Production of Project Affected Families and Households

S.N.	Owner's Name and Family size	Rural Municipality Concerned Ward No.	Project Component *	Loss of Cash Crops due to land Acquisition (Mt)			Total Cash Crops Production of the family/Percentage of loss (Mt)/% [#]			Remarks
				Potato	Vegetables	Others ^{##}	Potato	Vegetables	Others ^{##}	
	Name/family size									
1.										
			Total							

Note:

* Use separate row for each project

component for the family as required

Give values as –Mt/%

Use additional columns as required for other cereal crops

2(C)-Value of Total Loss of Agricultural Production Due to Land Acquisition

Crops	Total Area (ha.)	Yield (Mt/ha.)	Production (Mt)	Local Market Value (Rs./Mt)	Amount (Rs.)	Remarks
Cereal Crops						
Paddy						
Wheat						
Maize						
Millet						
.....						
.....						
Total-1						
Cash Crops						
Potato						
Vegetables						
.....						
.....						
Total-2						
Grand Total						



3(A)-Loss of Houses and other properties of Project Affected Families and Households

S.N.	Owner's Name and Family size	Rural Municipality Concerned Ward No.	Project Component#	Loss houses			Loss of trees			Remarks
				Res. House*	Cow shed*	Others	Fruit (no.)	Fodder (no.)	Other (no.)	
	Name/family size									
Total										

Note:

* Mention –Number of houses lost (houses owned) –i.e.2 lost(3 owned)

Use separate row for each project component for the family as required

3(B)-Value of Lost of Houses and other properties of Project Affected Families and Households

S.N.	Owner's Name and Family size	Rural Municipality Concerned Ward No.	Project Component#	Value of Lost houses			Value of Lost of trees			Remarks
				Res. House*	Cow shed*	Others	Fruit (no.)**	Fodder (no.)**	Other (no.)**	
	Name/family size									
Total										

Note:

* Mention –Number of houses lost /Value of lost houses (Rs.)

** Mention–Number of trees lost/Value of lost trees (Rs.).

Use separate row for each project component for the family as required





Appendix E:

Power, Energy and Water Balance Tables



S. No.	Month	Avg. Monthly discharge in the river at intake (m ³ /s)	Total d/s Release including env. Flow and others(m ³ /s) #	Diversion for power (m ³ /s)	Production	
					Power MW	Energy GWh
1	January					
2	February					
3	March					
4	April					

11	November					
12	December					
13	Ann. Avg.					

Power and Energy Production

Note: Total release includes-Environmental release, and requirement for Irrigation, water mills and others.

Environmental Release and Water Balance

S. No.	Month	Avg. Monthly discharge in the river at intake (m ³ /s)	Downstream Environmental release (m ³ /s)	Additional d/s Release (m ³ /s)			Diversion for power (m ³ /s)	Total Discharge (m ³ /s)	Production Power MW
				Irrigation	Water Mills	Others			
1	January								
2	February								
3	March								

10	October								
11	November								
12	December								
13	Ann. Avg.								

Power and Energy Production on a day (in a driest month)

S. No.	Hour	Avg. daily discharge in the river at intake (m ³ /s)	Total d/s Release including env. Flow and others(m ³ /s) #	Diversion for power (m ³ /s)	Production	
					Power MW	Energy GWh
1	0-1					
2	1-2					

3	2-3						
.	.						
.	.						
.	.						
.	.						
.	.						
.	.						
.	.						
22	21-22						
23	22-23						
24	23-24						
Daily Avg.							

Note: # - Total release includes - Environmental release, and requirement for irrigation, Water mills, and others.





Appendix F:

Replenished Discahrge Table



Table for replenished discharge in theriver/khola from side streams

S. No	Name of stream and Distance of the stream from Headworks (km)	Incoming Streams (perennial)				Cumulative Discharge at Confluence of each side stream (m ³ /s)	Remarks*
Downstream environmental release from headworks							
		Left Bank		Right Bank			
		Min. monthly avg. flow (m ³ /s)	Catchment area (km ²)	Min. monthly avg. flow (m ³ /s)	Catchment area (km ²)		
	Name of stream-1 (..km)						
	Name of stream-2 (..km)						
	Cumulative discharge from side stream						
	Side off take for other water usages*						
	Tailrace discharge + Cumulative discharge from side streams - side off take						
							purpose of off take

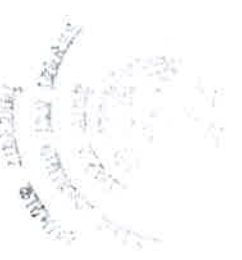
Note:

* – i) Catchment and hydrological characteristics of side streams.

ii) State methodology of discharge estimation.

– If there are more than one off takes, give them in separate rows

EXHIBIT SIDE STREAMS, WITH NAME, IN A COLOURED TOPOGRAPHICAL MAP.



Appendix G:

Biological Environment Checklist



**Budhi Ganga Hydropower Project
Environment Impact Assessment
Biological Environment Checklist**

General Forest/vegetation type of the Project area

a) Project Area

- i) Forest Management (Gov/ private/ community/ leasehold/religious etc)
 - ii) Forest type
 - iii) Dominant species
 - iv) Associated species
 - v) Herbs, shrubs and orchids
 - vi) Current forest management practice according to forest type
 - vii) Future plan for each management categories
 - b) Contiguous Forest outside the project influence area**
 - i) Forest Management (Gov/ private/ community/ leasehold/religious etc)
 - ii) Forest type
 - iii) Dominant species
 - iv) Associated species
 - v) Herbs, shrubs and orchids
- Current forest management practice according to forest type
- vii) Future plan for each management categories
- c) Project Component and facilities**
- i) Forest Management (Gov/ private/ community/ leasehold/religious etc)
 - ii) Forest type
 - i) Species of trees, herbs, shrubs and orchids.

Headworks

Audit Tunnel

Surge tank

Penstock

Powerhouse

Tailrace



Quarry site

Disposal site

Project component Road

c) Potential of NTFPs for both Project component sites and surrounding area

i) Agro Biodiversity

Plants used for horticulture and their significance in terms of biodiversity

List the various plants used for cereals, pulses, oils, vegetable, fodders, ornamentals within the project area status of local varieties and its use trend in future

ii) Ethnobotany- List of the plant species traditionally used by local communities for fruit, medicine, fodder, timber, ornamental and other purposes.

d) Dependency on forest resources

i) Communities and users group that are dependent on these forests,

ii) Number of households depends in each forest management category

iii) Use of resources in terms of timber, fodder, fuel wood, NTFP etc for livelihood

iv) Annual income accrued through usages

e) List the species of conservation significance (GON, IUCN red book, CITES)

Give their status in project area and project component sites.

2. Wildlife

a) Project Area

i) Wildlife habitat

ii) Type of habitat

iii) Vegetation type

iv) Migration corridor

v) Distance from the project component sites

Habitat of wild fauna in project components sites/affected by the project,

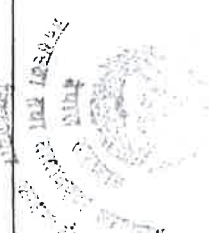
Site description- water body/holes/vegetation cover/ground and soil/rock features

Important habitat Type- Tree/ herbs/shrubs/epiphytes/others

Habitat Use- Active/temporary/migratory corridor/ breeding/feeding/resting etc

Habitat Connectivity and Continuity

Habitat Condition



3. Fish

- a) Name of fish species found in the river and their abundance and distribution
- b) Location of aquatic habitat including run, riffle and pool from Headworks to Powerhouse stretch
(prepare a sketch map showing habitats)
- c) River mapping showing spawning and rearing sites at dam and powerhouse area and in the stretch between the dam to powerhouse site (not in scale)





Appendix H:

Physical Environment Checklist



1. Land Slides

a) Existing situation of land slide at different project components

Headworks

Tunnel

Surge tank

Penstock

Powerhouse

Tailrace canal

Quarry site and disposal site

Camp site

b) Condition of slope stability and soil erosion in and around the project components

Likelihood of triggering existing slide, formation of new landslides, slope instabilities and further aggravating soil erosion, proximity of such sites to existing settlements and possible hazards to the settlements.

2. Topographical features of the project components site and facilities (Flat, moderate sloppy areas, steep slope etc)**3. Land use of the project component site**

Forest land (government, community, private, religious etc)

Barren land (government, private)

Cultivated land (Khet, Bari, Kharbari)

4. Name of the tributaries joining in Budhi Ganga River between Dam to Powerhouse.

Mark tributaries using topographical map







जनसंख्या तथा वित्तव्यय मन्त्रालय

प.स.:-

विषय: EIA सम्बन्धी SD/TOR स्वीकृत गरीएको बारे ।

य.न:- १३५१

श्री लुर्जा मन्त्रालय
सिंहदरबार, काठमाडौं ।

शार्दूल

२)आयाजना निमाणको कसमा हुने Foundation excavation, Tunneling बाट निस्कने Spoil, Muck disposal कोलागि area, quantity स्पष्ट रुपमा उल्लेख गरी त्यस्को Layout map र GPS co-ordinates समेत प्रतिवेदनमा समावेश गर्नुपर्नेछ ।

४) EIA प्रतिवेदनमा Project component road को length लगायका अन्य salient feature, सोबाट पर्ने सक्ने प्रभाव र ती प्रभावहरूका निराकरण/न्यूनीकरणका उपायहरू वृत्तिरूपमा उल्लेख गर्नुपर्नेछ।

६) Social environment को existing environmental condition मा mitigation pattern को अध्ययन समेटनुपर्नेछ ।

9) प्रस्तावित आयोजनाको लागि आवश्यक जग्गाको क्षेत्रफल, प्रकार र स्वामित्व खुले तालिका EIA प्रतिवेदनको Annex मा समावेश गरी प्रतिवेदनको, अन्य आवश्यक स्थानमा सो तालिकालाई refer गर्नुपर्नेछ 0

अर्थः

(शाखा अधिकृत)

श्री कुटीगंगा जलविद्युत आयोजना

(प्रमाणित SD/TOR का प्रतिद्वंद्वी श्री उर्जा मन्त्रालयमा)

कालिकास्थान काठमाण्डौ ।
 ठेगाना: कायात्यका टारि

नॉमल वॉ.:

पढ़ाउने व्यवस्था समेत हुन ।।
प्रयास न.३।उने व्यवस्था समेत हुन ।।

ਰੇਵ ਸਾਈਟ:

कार्यालयको ठेगाना:
सिंहदरबार, काठमाडौं
नेपाल

[illegible]

279628

नया पाल तरकार
सिद्धा

Appendix-B: Study Tools



Budhi Ganga Hydropower Project
Environment Impact Assessment
Biological Environment Checklist

1. General Forest/vegetation type of the Project area

a) Project Area

- i) Forest Management (Gov/ private/ community/ leasehold/religious etc)
 - ii) Forest type
 - iii) Dominant species
 - iv) Associated species
 - v) Herbs, shrubs and orchids
 - vi) Current forest management practice according to forest type
 - vii) Future plan for each management categories
- b) Contiguous Forest outside the project influence area**
- i) Forest Management (Gov/ private/ community/ leasehold/religious etc)
 - ii) Forest type
 - iii) Dominant species
 - iv) Associated species
 - v) Herbs, shrubs and orchids



vi) Current forest management practice according to forest type

vii) Future plan for each management categories

c) Project Component and facilities

i) Forest Management (Gov/ private/ community/ leasehold/religious etc)

ii) Forest type

i)Species of trees, herbs, shrubs and orchids.

Headworks

Audit Tunnel

Surge tank

Penstock

Powerhouse

Tailrace

Quarry site

Disposal site

Project component Road



c) Potential of NTFPs for both Project component sites and surrounding area

i) Agro Biodiversity

-Plants used for horticulture and their significance in terms of biodiversity

List the various plants used for cereals, pulses, oils, vegetable, fodders, ornamentals within the project area status of local varieties and its use trend in future

ii) Ethnobotany- List of the plant species traditionally used by local communities for fruit, medicine, fodder, timber, ornamental and other purposes.

d) Dependency on forest resources

i) Communities and users group that are dependent on these forests,

ii) Number of households depends in each forest management category

iii) Use of resources in terms of timber, fodder, fuel wood, NTFP etc for livelihood

iv) Annual income accrued through usages

e) List the species of conservation significance (GON, IUCN red book, CITES)

Give their status in project area and project component sites.

2. Wildlife

a) Project Area

i) Wildlife habitat

ii) Type of habitat



iii) Vegetation type

iv) Migration corridor

v) Distance from the project component sites

b) Habitat of wild fauna in project components sites/affected by the project,

Site description- water body/holes/vegetation cover/ground and soil/rock features

Important habitat Type- Tree/ herbs/shrubs/epiphytes/others

Habitat Use- Active/temporary/migratory corridor/ breeding/feeding/resting etc

Habitat Connectivity and Continuity

Habitat Condition

3. Fish

a) Name of fish species found in the river and their abundance and distribution

b) Location of aquatic habitat including run, riffle and pool from headworks to powerhouse stretch

(prepare a sketch map showing habitats)

c) River mapping showing spawning and rearing sites at dam and powerhouse area and in the stretch between the dam to powerhouse site (not in scale)



Budhi Ganga Hydropower Project
Environment Impact Assessment
Physical Environment Checklist

1. Land Slides

a) Existing situation of land slide at different project components

Headworks

Tunnel

Surge tank

Penstock

Powerhouse

Tailrace canal

Quarry site and disposal site

Camp site

b) Condition of slope stability and soil erosion in and around the project components



c) Likelihood of triggering existing slide, formation of new landslides, slope instabilities and further aggravating soil erosion, proximity of such sites to existing settlements and possible hazards to the settlements

2. Topographical features of the project components site and facilities (Flat, moderate sloppy areas, steep slope etc)

3. Land use of the project component site

Forest land (government, community, private, religious etc)

Barren land (government, private)

Cultivated land (Khet, Bari, Kharbari)

4. Name of the tributaries joining in Budhi Ganga River between dam to powerhouse. Mark tributaries using topographical map.



FISH DATA COLLECTION SHEET

Sampling Station

Site

Location

Date _____

Time

[illegible]

FISH DATA COLLECTION SHEET

Sampling Station

Site

Location

Date _____

Time

[illegible]

Table-1: Forest loss at different Project Components

SN	PROJECT COMPONENT	TYPE OF FOREST (as per Forest Act)	FOREST AREA (ha)	LOSS OF VEGETATION			CROWN COVER (%)	BASAL AREA (%)	VEGETATION TYPE (Sal, Pine, shrubs, barren etc.)
				Seedling per ha.	Saplings per ha.	No. of trees >10cm DBH			
1	Reservoir								
2	Headworks								
a	Dam								
b	Settling Basin								
c	Road to headworks								
3	Adit								
4	Road to adit								
	Total					Sum			

Note: Other Components can be added as appropriate/required as per the project layout



Table-2. Total loss in terms of plant species

BOTANICAL NAME	LOCAL NAME	AVG. DBH / RANGE* (FOR >=10 cm DBH)	LOSS OF VEGETATION**				STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE (KG.) (Wet) (Dry)	BIOMASS USAGES***
			LOSS OF REGENERATION		LOSS OF TREE (number)		Timber (cft.)	Fuel wood (charts)		
			Seedlings per ha.	Saplings per ha.	Pole class	Tree class				
1.										
2.										
3.										
4.										
5.										
6.										
7.										
8.										
9.										
10.										
11.										
12.										
13.										
14.										
15.										
16.										
17.										
17										
Total			300	600	8		9.92			

Note:

* Avg. DBH and Range of DBH to be given for Pole and Tree Class

** Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree Class >30 cm DBH

*** Possible usages are- fire wood, fodder, etc.



*** Possible usages are- fire wood, fodder, etc.

Table-3: Total forest loss

TYPE OF FOREST	AREA (ha.)	LOSS OF VEGETATION			CROWN COVER (%)	STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE AND GROUND VEGETATION (Kg.)	BIOMASS USAGES*
		LOSS OF REGENERATION		LOSS OF TREE (number)		Timber (cft.)	Fuel wood (chatta)		
		Seedlings per ha.	Saplings per ha.	Pole class	Tree class			(Wet) (Kg.)	(Dry)
1.Govt.									
2.Community									
3.Religious									
4.Leachhold									
5.Private									
Total									

Note: -Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree class>30 cm DBH

* Possible usages are- fire wood, fodder, etc.



Table-4: Loss of Non-Timber Forest Product (NTFP)								
COMMERCIALLY IMPORTANT SPECIES (NTFP)	GOVERNMENT MANAGED		COMMUNITY MANAGED		RELIGIOUS		PRIVATE	MAJOR SPECIES
	Seedlings per ha. (no./ha.)	Saplings per ha (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha (no./ha.)
1.								
2.								
3.								
4.								
5.								
6.								

Note: - Seedling 0-4 cm DBH; Sapling 4-10 cm DBH;
 - Use Govt. approved methodologies, if available. If not, other methodologies can be used.

Table-5: Land Requirement				
LAND TYPE	LAND REQUIREMENT (ha.)			PROJECT COMPONENT
	Temporary	Permanent	Total	
1. Agricultural land				[Spill way tunnel, access to different adits and access to Surge Shaft etc]
2. National forest				
3. Community forest				
4. Leasehold forest				
5. Religious forest				
6.Private forest				
7. River and flood plain				
8. Barren Land				
Total				

Note: - Despite this table is developed for accounting loss of forest area, please do fill up the land requirement for "Agriculture Land" and "Private Forest"



Table-6.2 Total annual income foregone from the loss of Non-Timber Forest Product (NTFP)

COMMERCIALLY IMPORTANT SPECIES (other than trees) NTFP	GOVERNMENT MANAGED	COMMUNITY MANAGED	RELIGIOUS	LEASEHOLD	TOTAL OF ALL TYPES OF FORESTS	NPV* OF INCOME FOREGONE
1.						
2.						
3.						
4.						
5.						
6.						
Total	Sum	Sum	Sum	Sum	Sum	SUM

* NPV should be based on 35 years of economic life at prevailing Nepal Rastra Bank's discount rate.
Analysis should be based on the existing annual income from the products.

Table-6.3: Value of Total Forest Loss

TYPES OF FOREST	NPV OF INCOME FOREGONE FROM NTFP*	VALUE OF TIMBER LOSS** POLE CLASS Nrs.	TREE CLASS Nrs.	VALUE OF FUEL WOOD LOSS** Nrs.	VALUE OF FODDER LOSS** Nrs.	TOTAL
1.						Sum
2.						Sum
3.						Sum
4.						Sum
5.						Sum
6.						Sum
7.						Sum
8.						Sum
Total	Sum	Sum	Sum	Sum	Sum	SUM

Note: - Value from table-6.2

- Value from table-6.1



Flora of the Project Area

S.No.	Scientific Name	Local Name	Type (Tree/Shrub/Herb/ Fern)	Distribution Status	Protection Status	Economic Importance
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						



Budhiganga Hydropower Project Mammals of the Project Area

[illegible]

Budhiganga Hydropower Project Avi Fauna of the Project Area

[illegible]

Budhiganga Hydropower Project

Fish data collection sheet

Sampling Station

Site**Location**

Date _____

Time

[illegible]

Appendix -B

Budhiganga Hydropower Project Environmental and Social Impact Assessment Key Informant Interview Guidelines

A. Background Information

1. District:..... 2. Municipality:..... 3. Ward No:..... 4. Village/Tole:.....
5. Name of Respondent:..... 6. Age:..... 7. Sex:.....
8. Education:..... 9. Main Occupation:..... 10. Position (if any):.....
11. Interviewer:..... 12. Date: 13. Checked by:.....

B. Education

1. What is the literacy status of local people of this municipality? Over all literacy:..... %
2. What is the literacy status of *Dalit*s of this municipality? Literacy:..... %
3. What is the literacy status of *Janjati* of this municipality? Literacy:..... %
4. What is the overall status of physical facilities of educational institutions of your municipality?
5. What are the major problems of educational institutions of your municipality?
1..... 2..... 3.....
6. What could be done to strengthen the educational facilities of your municipality?
1..... 2..... 3.....
7. Are there NGOs/INGOs working in education sector in your municipality? 1. Yes 2. No.

6. 1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

C. Health

1. Are the health facilities of your municipality located in accessible location?
1. 1 If no, what is the average walking distance to the health facilities..... hrs.
2. What are the prevalent diseases and their common treatment practice in the area?

<u>Disease</u>	<u>Treatment Practices</u>
1.....	1..... 2..... 3.....
2.....	1..... 2..... 3.....
3.....	1..... 2..... 3.....
3. How do you assess service quality provided by the government health facilities in your municipality?

1. Good	2. Average	3. Poor
3. 1. If poor, why? 1..... 2..... 3.....		
4. How the government health facilities of your municipality could be strengthened?
1..... 2..... 3.....
5. How do you assess the awareness level of local people regarding STD/HIV AIDS?

1. High	2. Average	3. Low
---------	------------	--------



6. What is the prevalence rate of STD/HIV AIDS in themunicipality?STD.....%. HIV AIDS:.....%.

7. Are there NGOs/INGOs working in the health sector in your municipality?1. Yes 2. No.

7.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

D. Drinking Water

1. What are the sources of drinking water for the households of the municipality? (*Priority order*)

1. Public piped water 2. Private Piped water 3. Spring/Well 5. Others.....

2. How do you assess the quality of the drinking water? 1. Good 2. Average 3. Poor

3. Percentage of population covered by piped water in the municipality.....%

4. Are the drinking water sources sufficient to fulfill the demand of the households? 1. Yes 2. No

4.1 If no, for how many months are local people face scarcity of water..... months

4.2 What could be done to fulfill the water demand of the households?

1..... 2..... 3.....

5. What percentage of HHs has constructed toilets in this the municipality?%

6. How do you assess condition of env. sanitation in themunicipality?1. Good 2. Average 3. Poor

7. What could be done to improve drinking water and sanitation condition of your municipality?

Drinking water : 1..... 2..... 3.....

Env.Sanitation : 1..... 2..... 3.....

8. Are there NGOs/INGOs working in the drinking water and sanitation sectors in your municipality?

8.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

E. Gender

1. What are the major activities of women of your municipality?

1..... 2..... 3.....

2. Are there cultural/social/religious barriers/areas for women to work in certain areas of certain caste/ethnic groups? 1. Yes 2. No

2.1 If yes, what barriers/area and how break the barriers?

Caste/ethnic group Barriers Suggestions for improvement

1..... 1..... 2..... 3.....

2..... 1..... 1..... 2..... 3.....

3. Are there potential income generating activities for women in your municipality? 1. Yes 2. No
3.1 If yes, what are they?

1..... 2..... 3.....

4. Do women of your municipality have special interests/capacity for certain enterprise? 1. Yes2. No



- Areas of interest: 1..... 2..... 3.....
 Existing capacity: 1..... 2..... 3.....
 5. What are the potential income generating activities (agriculture/ off farm/ forest, local skill based activities etc.) for women in this municipality?
 1..... 2..... 3.....

6. What are the major issues of women? (Probe for abuse, discrimination, domestic violence, *Chaupadi* and polygyny).
 1..... 2..... 3.....

7. Are there NGOs/INGOs mainly working for women empowerment in municipality? 1. Yes 2. No.
 7.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

F. Livelihood

1. What are the major economic activities local people of your municipality for their livelihood?

Male : 1..... 2..... 3.....

Female : 1..... 2..... 3.....

2. What % of HHs of your municipality is able to produce enough food to meet their requirement?

2.1. How the food deficit households of your municipality fulfill their food requirements?

1..... 2..... 3.....

3. What percentage of households in your municipality is landless? %

- 3.1 What are the main activities of the landless households for their livelihood?

1..... 2..... 3.....

- 3.2 What could be done to increase the livelihood of poor and landless households?

1..... 2..... 3.....

4. What are the main agriculture products of your municipality?

1..... 2..... 3.....

5. What important commodities are exported from this municipality?

Commodities: 1..... 2..... 3.....

6. Please provide following inform regarding cropping pattern of your area?

Khet Irrigated: 1..... 2..... 3..... 4.....

1..... 2..... 3..... 4.....

Khet un-irrigated: 1..... 2..... 3.....

1..... 2..... 3.....

1..... 2..... 3.....

Bari: 1..... 2..... 3.....

1..... 2..... 3.....

1..... 2..... 3.....

7. Are there NGOs/INGOs working to improve livelihood of people in your municipality? 1. Yes 2. No



7.1. If yes, pls provide the following details.

Name of NGOs/INGOs	Program/Activities	Target Group and Area
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

G. Migration

- What is the status of migration (family member away from home for more than two months for work reason) in your municipality? 1. High 2. Medium 3. Low
- Which are the popular destinations of the migrants? 1..... 2..... 3.....
- What is the seasonal migration pattern to India: Migration Months:..... Stay Period:.....
- What is the status of remittance flow in your municipality? 1. High 2. Medium 3. Low
- Where the households normally use the remittance?

1 Food/clothing	2. Education	3. Health	4. Purchase land/plot	5. HH assets
6. House/construction/repair	7. Repay/loan/interest	8. Others (specify).....		
- What are the positive and negative impacts of migration in your municipality? (*Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.*)

Positive: 1..... 2..... 3.....

Negative: 1..... 2..... 3.....
- How the negative impacts of migration could be minimized? (*Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.*)

1..... 2..... 3.....

H. Natural Resources

- What are the main natural resources of your municipality?

1..... 2..... 3.....
- Who are the main users of the resources?

1..... 2..... 3.....
- Is there right (defecto/dejure) to use the resources by the people of your municipality?

1. Yes 2. No
- Pls provide the following details of natural resources of your municipality ?

Resource	Distance from Municipality	Accessibility	Inaccessible.	Availability	High	Average	Low
Forest							
Water							
Grazing land							
Public land							
Mine							
Others.....							

- Are the households of your municipality satisfied regarding the accessibility of the natural resources? 1. Yes 2. No.

5.1 If no, why? 1..... 2..... 3.....
- Are the households of your municipality satisfied regarding the availability of the natural resources? 1. Yes 2. No.



6.1 If no, why? 1..... 2..... 3.....

7. Do the people of your municipality have conflict with people of other municipality regarding use of natural resources? 1. Yes 2. No.

8. If yes, for which resource and why? Probe for use of forest resources, grazing, public land, mine and water resources and the cause of conflict?

Natural Resource Municipality Cause of Conflict
1..... 1..... 2.....
2..... 1..... 2.....

9. Do you have problems from wildlife in your municipality? 1. Yes 2.No 9.1
If yes pls provide following information?

Name of Wildlife	Type of Problem	Estimated Annual Loss Rs.)	Remarks

I. Cultural Features

1. What are the major festivals of your area municipality? 1..... 2..... 3.....

2. Is any festival is unique in your municipality? 1. Yes 2. No
2.1 If yes, which festival and why?

Festival Reason
1..... 1..... 2..... 3.....

3. How do you assess the relationship of various ethnic minorities and high caste groups in the your municipality? 1. Good 2. Average 3. Poor

4. Are there important historical, religious, archeological and cultural sites in your municipality?
1. Yes 2. No.

4.1 If yes, what are the historical/religious/archeological and cultural sites? Why they are important?

Name Location Importance
1..... 1..... 1.....
2..... 1..... 1.....
3..... 1..... 1.....

5. Do you think the Budhiganga HPP will affect religious, archeological/cultural sites of your municipality? 1. Yes 2. No.

5.1. If yes, what are the historical, religious, archeological and cultural sites and how to protect them?

Name Location Measures to Protect
.....
.....

J. Development Activities/Programs in the Municipality

1. Has any major development activities/programs implemented in your municipality during the last 12 months? 1. Yes 2. No.

1.1. If yes, please provide the following information?

Implementing agency Activity/program/working area Beneficiary (target group & HHs)

1..... 1.....
2.....
3.....
2. How do you assess the implementation process of development activities/programs?
1. Good 2. Average 3. Poor
3. What should be the right process to implement development activity/program in your municipality?
1..... 2..... 3.....



Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA

1. General Information

- | | |
|-----------------------------|----------------------|
| 1. Municipality | 2. Ward no. |
| 3. Village/Settlement | 4. Venue |
| 6. Date | 5. Facilitator |

7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								



2. Settlement and Caste/Ethnicity

1. Major settlements and caste/ethnicity in the ward

S.N.	Name of Major Settlement	Major Caste/Ethnic Group	Estimated Number of HHS	Distance from Main Project Structure Pr. Struct. Distance (m)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

2.1. Settlement Pattern

Pattern	Name of Settlement
Dense	
Scattered	

3. Land Use Pattern

1. Please provide following information on land use of the ward

Land Category	% of Ward Area	Area (ha)
Forest/Bush		
Pasture (grazing land)		
Waste land (rock, boulders, erosion etc.)		
Cultivation		
Khet un-irrigated		
Khet irrigated		
Bari		
Thach land (Kharbar)		
Barren Land		
Other Specify		
Total		

4. Natural Resources

1. What are themain natural resources of yourward?

1..... 2..... 3.....
 2. Who are the main users of the resources? 1..... 2..... 3.....
 1..... 2..... 3.....

3. Is there right (defecto/dejure) to use the resources by the people of your ward?

1. Yes 2. No.

4. Please provide the following details of natural resources of your ward?

Resource	Distance from Ward	Accessibility		Availability		
		Accessible	Inaccessible	High	Average	Low

5. Are the households of your ward satisfied regarding the accessibility of natural resources?

1. Yes 2. No.
 5.1 If no, why?



1. 2. 3.
6. Are the households of your ward satisfied regarding availability of natural resources?
1. Yes 2. No
6.1 If no, why? 1. 2. 3.
7. Do the people of your ward have conflict with people of other ward regarding use of natural resources?
1. Yes 2. No

8. If yes, for which resource and why? (probe for the natural resources and the cause of conflict)

Natural Resource Ward Cause of Conflict

1. 1. 2. 3.

2. 2. 2. 3.

3. 3. 2. 3.

9. Please provide the following details regarding existing community forests of your ward?

Name and Address of Community Forest	Area (ha)	Main Species			Status			Users			*Physical Condition		
		Plant	Wildlife	Handover	Not	Settlement	HHS	G	A	P			

*Physical Condition: G= Good, A= Average, P= Poor

- 9.1 Are the community forests of this area will be affected by construction of the Budhiganga Hydropower Project?
1. Yes 2. No
9.1.1 If yes how and which forest? : 1. 2. 3.
10. Do you have problems from wildlife in your ward? 1. Yes 2. No

10.1 If yes, please provide following information?		Name of Wildlife	Type of Problem	Estimated Annual Loss (Rs.)	Remarks

5. Education

1. Existing educational institutions in the ward?

S.N	Name and Address of School Under Operation	Type	Year Established	Distance from Major Project Structures		No. of Students			No. of Teachers			Status of Physical Facilities		
				Name	Meter	T	M	F	T	M	F	Building	DW	Toilet



* Probe for physical facilities (water supply, toilet, furniture, building, rooms, etc.), equipments and other support

6. How do you assess the service quality provided by the health facilities?
1. Good 2. Average 3. Poor
- 6.1. If poor, why? 1. 2. 3.
7. How do you assess the awareness level of local people regarding STD/HIV AIDS?
1. High 2. Average 3. Low
8. What is the prevalence rate of STD/HIV AIDS in your ward?
1. STD: % 2. HIV AIDS: %.
9. What support is required to improve the service quality of the health institutions of your ward?
1. 2. 3.

7. Drinking Water and Sanitation

1. Existing drinking water schemes, schemes under construction and planned in the ward?

[illegible]

Type: 1= Government, 2= Community 3= Others

2. Are the DW schemes will be affected by construction of the Budhiganga HPP ?
1. Yes 2. No
- 2.1 If yes how and which schemes?

3. Main source of drinking water for the households of the ward and percentage of population covered by the type of sources in the ward.

Source	% of HH Coverage	Water Sufficiency Months	Remarks
Piped water			
well			
Spring			
River			
Others.....			

4. Percentage of HHs use toilet in this theward? %
 1 2 3

6. Existing practices of waste management in the ward?

Type	Practice			Remarks
Solid waste	1.	2.	3.	
Liquid waste	1.	2.	3.	

7. Required support to improve drinking water and sanitation condition of your ward?

Drinking water : 1..... 2..... 3.....

Sanitation : 1 2 3



8. Irrigation

1. Existing irrigation schemes, schemes under construction and planned schemes in the ward?

S.N.	Name and Address of Existing Irrigation Schemes	Type	Distance from Major Project Struct. (m)	Physical Condition	Command Area	Water Source	Year Constructed	Required Support	Remarks
				Good or	Area				
2.	Under construction								
3.	Planned								

Type: 1= Government, 2= Community 3= Others

2. Are the existing irrigation schemes will be affected by construction of the Budhiganga HPP?

1. Yes

2. No

2.1 If yes how and which irrigation schemes?.....

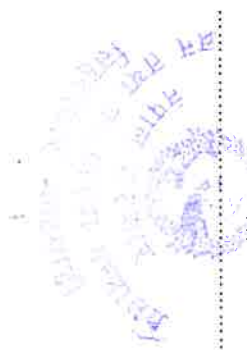
9. Watermills/Ghatta/Micro hydro

1. Please provide following details regarding watermills/Ghatta/micro hydro of your ward.

S.N.	Name and Address of Existing/ Under Construction/Planned Water Mills/Micro-hydro Schemes	Dist. from Major Proj Struct. (m)	Physical Condition		Service Coverage Pop Settlement	Water Requirement /Source	Year Const.	Required Support
			G	A P				
2.	Under Construction							
3.	Planned							

2. Are the existing water mills/Ghatta/micro-hydro will be affected by construction of the Budhiganga HPP? 1. Yes 2. No

2.1 If yes how and which mills/Ghatta/micro-hydro?.....



10. Existing Foot Trails/Roads in the Project Area

- Are the existing foot trails/roads that will be affected by construction of the Budhiganga HPP?
1. Yes 2. No
- If yes how and which?

11. Institution, Project/Program of Government and NGOs in the Ward

- Information on existing institution, projects/program and NGO/CBO in the ward.

SN.	Name of Institution/Project	Location	Service Area	Major Activity/Prog.	Number of Beneficiaries	Average Time to Reach	Distance to Major Project Component
1							
2							
3							
4							

12. Gender

- What are the major activities of women of your ward?
1..... 2..... 3.....
- Are there cultural/social/religious barriers/areas for women to work in certain areas of certain caste/ethnic groups? 1. Yes 2. No
2.1 If yes, what barriers/area and how break the barriers?
Caste/ethnic group Barriers Suggestions for improvement
1..... 1..... 2..... 3.....
2..... 1..... 1..... 2..... 3.....
3..... 1..... 2.....
- Are there potential income generating activities for women in your ward?
1. Yes 2. No
3.1 If yes, what are they?
1..... 2..... 3.....
- Do women of your ward have special interests/capacity to undertake certain enterprise?
1. Yes 2. No
Areas of interest: 1..... 2..... 3.....
Existing capacity: 1..... 2..... 3.....
- What are the potential income generating activities (agriculture/off-farm/ forest, local skill based activities etc.) for women in this ward?
1..... 2..... 3.....
- What are the major issues of women? (Probe for abuse, discrimination, domestic violence, Chaupadiand polygyny).
1..... 2..... 3.....

13. Livelihood

- Occupational structure of local people of the ward?

Occupation	% of HHs	Remarks
Agriculture		
Employment		
Wages Labor		
Foreign Employment		



Others		
--------	--	--

2. What are the major economic activities of local people of your ward for their livelihood?

Male : 1.....	2.....	3.....
Female : 1.....	2.....	3.....
3. What % of HHs of your ward is able to produce enough food to meet their requirement?.....%
- 2.1. How the food deficit households of your ward fulfill their food requirements?

1.....	2.....	3.....
--------	--------	--------
4. What percentage of households in your ward is landless?%

3.1 What are the main activities of the landless households for their livelihood?	1.....	2.....	3.....
3.2 What could be done to increase the livelihood of poor and landless HHs?	1.....	2.....	3.....
5. What are the main agriculture products of your ward?

6.....	7.....	8.....
--------	--------	--------
6. What important commodities are exported from this ward?

1.....	2.....	3.....
--------	--------	--------
7. Are there market centers in your ward?

1. Yes	2. No
--------	-------

7.1 If yes, please provide following information regarding market centers of the ward.

Name of Market Center	Location	No and types of Shops	Major Transaction

7.2. If no pleases provide following information regarding accessible market centers of the ward.

Name of Accessible Market Center	Location	Walking Distance	No and types of Shops	Major Transaction

8. Is there weekly market in your ward? 1. Yes 2. No

7.1 If yes, please provide following details.

Name of Weekly Market	Location	Walking Distance	Week day	Gathering of People	Major Transaction

9. Are there skilled persons in your ward? 1. Yes 2. No

9.1 If yes pls provide following details.

Type of Skill	No.		Sex		Availability	Remarks
	M	F	M	F		
Driving						
House wiring						
Plumbing						
Carpenter						
Mason						
Tailoring						
Others.....						



14. Migration

- What is the status of migration (family member away from home for more than two months for work reason) in your ward? 1. High 2. Medium 3. Low
- Which are the popular destinations of the migrants?
1..... 2..... 3.....
- What is the seasonal migration pattern to India: Migration Months:..... Stay Period:.....
- What is the status of remittance flow in your ward? 1. High 2. Medium 3. Low
- What are the positive and negative impacts of migration in your ward?
Positive: 1..... 2..... 3.....
Negative: 1..... 2..... 3.....
- 4.1 How the negative impacts of migration could be minimized? (Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.)
1..... 2..... 3.....

6. No. of HHs permanently in-migrated or out-migrated during the last 5 years from your ward.

Migration	Place	Reason for Migration
In-migration		
Out-migration		

7. Please provide following details regarding use of remittance by family members of the migrant HHs?

Use of Remittance	No. of HHs	% of Remittance
Food/clothing		
Education		
Treatment		
Purchase HH Goods		
Purchase Land/Plot		
House Repair/Construction		
Other (specify):		

15. Religion/Language/Cultural Features

1. Please provide following details regarding religion and language of people of your ward?

Religion	% of HHs	Spoken Language	% of HHs
Hindu		Nepali	
Buddhism		Achami	
Christianity		Bajurali	
Muslim		Newari	
Others		Others	

2. What are the major festivals of your ward?

1..... 2..... 3.....

3. Is any festival is unique in your ward? 1. Yes 2. No

2.1 If yes, which festival and why?

Festival 1..... Reason 1..... 2..... 3.....

2..... 1..... 2..... 3.....
3..... 1..... 2..... 3.....

4. How do you assess the relationship of various ethnic minorities and high caste groups in the your ward? 1. Good 2. Average 3. Poor

5. Are there important historical, religious, archeological and cultural sites in your ward?

1. Yes 2. No.



5.1. If yes, what are the historical, religious, archeological and cultural sites and why they are important?

<u>Name</u>	<u>Location</u>	<u>Importance</u>
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

6. Do you think the proposed project will affect religious, archeological/cultural sites of your ward?

1. Yes
2. No.

6.1. If yes, what are the historical, religious, archeological/cultural sites & how to protect them?

<u>Name</u>	<u>Distance from P. Struct</u>	<u>Location</u>	<u>Measures to Protect</u>
1.....			
2.....			
3.....			

7. Are there cremation sites along the Budhiganga River stretch in the dewater zone? 1. Yes 2. No

7.1 If yes, Please provide following details?

<u>Name</u>	<u>Distance from Settlement</u>	<u>Used by Ethnic Groups</u>
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

16. Development Activities/Programs in the Ward

1. Has any major development activities/programs implemented in your ward during the last 12 months?

1. Yes
2. No.

1.1. If yes, please provide the following information?

<u>Implementing agency</u>	<u>Activity/program/working area</u>	<u>Beneficiary (group & HHs)</u>
.....		
.....		
.....		

2. How do you assess its implementation process of the development activities/programs?

1. Good 2. Average 3. Poor

3. What should be the appropriate process to implement dev. activity/program in your ward?

1.....	2.....	3.....
1.....	2.....	3.....
1.....	2.....	3.....

17. Major Issues, Expectations and Attitude

1. Do you know about the Budhiganga HPP? 1. Yes 2. No.

1.1. If yes, what do you know about the project?

1.....	2.....	3.....
2.....	2.....	3.....
1.....	2.....	3.....

2. Who had provided you the information?

3. Are there issues related to social, economic and culture regarding the Budhiganga HPP?
1. Yes 2. No.

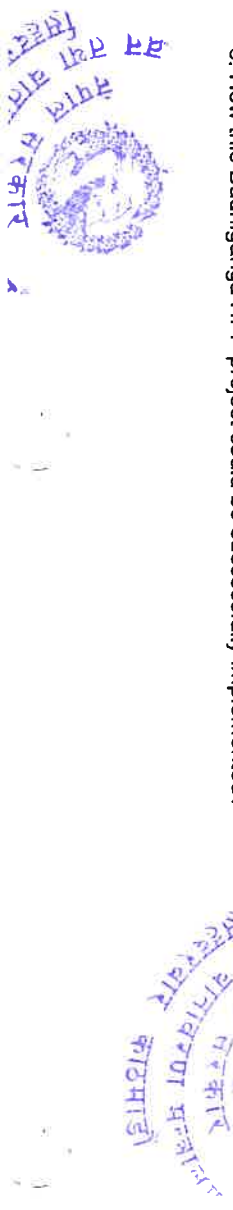
2.1. If yes, what are they?

<u>Social</u>	<u>Economic</u>	<u>Cultural</u>
1.....	1.....	1.....
2.....	2.....	2.....
3.....	3.....	3.....
1.....	2.....	3.....
2.....	3.....	1.....
3.....	1.....	2.....

4. What do you expect from the Budhiganga HPP?

5. What is your opinion regarding implementation of the Budhiganga HPP?

6. How this Budhiganga HPP project could be successfully implemented?



7. What are the important felt needs of the local people of your ward?
 1..... 2..... 3.....
 1..... 2..... 3.....
8. What could be done to address the needs of the local people?
 1..... 2..... 3.....
 1..... 2..... 3.....
9. Do you have other issues/concerns regarding the Budhiganga HPP?
 1..... 2..... 3.....

18. Key Stakeholders of the Ward

1. Pls provide names & address of key stakeholders related to development activities/HPP of your ward

S.N.	Name	Position	Address	Contact No.	Remarks
1					
2					
3					
4					
5					
6					
7					
8					



बुढीगाणा जलविद्युत आयोजना वातावरणीय तथा सामाजिक प्रभाव मूल्यांकन घरधुरी सर्वेक्षण प्रश्नावली

यस प्रश्नावलीमा सोधिएका सबै व्यक्तिगत सूचना तथाङ्क ऐन २०१५ अनुसार गोप्य राखिने छन् र तथाङ्किय प्रयोजनका लागि मात्र प्रयोग गरिनेछन् ।

१. आयोजना क्षेत्र सम्बन्धि सामान्य जानकारी:
 १. जिल्ला..... २. गाउँ पालिका/नगर पालिका..... ३. वडा नं.....
 ४. गाउँ/टोल ५. छनौट घर नं
 ६. आयोजना स्थल: ६.१. हेक्टर ६.२. विद्युतगृह ६.३ अन्य(खुलाउने).....
 २. परिवार सम्बन्धी जानकारी :
 १. घरमूलीको नाम:..... सम्पर्क मोबाईल नं.
 २. उत्तरदाताको नाम:.....
 ३. लिङ्ग: १. पुरुष २. महिला
 ४. धर्म:.....
 ५. जात/जाति:
 ६. परिवारमा बोलिने भाषा:.....
 ७. परिवार संख्या:.....
 - तपाईं यस गाउँमा कहिलेदेखि बसिरहनु भएको छ ?
 १. जन्मदेखि नै बसोबास गर्दै आएको — ६ नं मा जाने २. बसाई सरी आएको
 - द.१. यदि बसाईसरी आएको भए तपाईं यस गाउँमा कहाँबाट आउनु भएको ?
 - जिल्ला..... गा.पा./न.पा..... अन्य(खुलाउने).....
 - द.२. आएको कति बर्ष भयो ? बर्ष.....
 - द.२.३ तपाईं यस गाउँमा बसाईसरी आउनुको कारण के हो ?
- | | |
|--|---|
| <ol style="list-style-type: none"> १. परिवारसँगै आएको २. जागिर ३. ज्याला मजदूरी ४. उद्योगधन्दा ५. यातायात सुविधा ६. परिवारको प्रकार: १. एकल परिवार (छुट्टिएर बसेका) २. संयुक्त परिवार: | <ol style="list-style-type: none"> ६. गरिवी ७. ब्यापार द. पारिवारीक कलह ९. असुरक्षा १०. भौतिक सुविधा ११. दैवीप्रकोप १२. शिक्षा १३. विवाह १४. नातेदार/आफन्त १५. अन्य(खुलाउने)..... |
|--|---|



१०. परिवारिक विवरण:

कृपया तपाईंको परिवारका सदस्यहरु (मानो नछुट्टिई बसेका) बारे विस्तृत विवरण दिनुहोस् (घरमुलीबाट शुरु गर्ने)

क्र. सं	नाम	घरमुली संघको नाता (१)	लिंग (२)	उमेर (वर्ष) (३)	शिक्षा (३)	बैवाहिक स्थिति (३.१)	पेशा (४)		सिप/ तालिम (५)	२ महिना भन्दा बढी समय कामका लागि बाहिर बसेको भए		
							मु.	स.		समय (वर्षका)	कारण (६)	ठाल्ने
१.												
२.												
३.												
४.												
५.												
६.												
७.												
८.												
९.												
१०.												

नोट: ५ वर्ष भन्दा मुनीकालाई ३ देखी ६ सम्मका प्रान्तर नसोजे।

सकेत

१. घरमुलीसँग नाता

१. घरमुली २. जहान ३. छोरा/छोरी ४. नाती/नातिना ५. बुवा/आमा
 ६. दाजु/भाई/बिदी, बहिनी ७. भतिजा/भतिजी ८. छोरीज्वाई/बर्झनीज्वाई/भेनाजु ९. भाईबहिनी/छोराबहिनी/भाजुबु, १०. सासु/ससुरा ११. चाचा/वज्जी १२. अन्य नातापर्ने १३. घरैलु कामदार १४. अन्य नाता नपर्ने

२. लिंग

१. पुरुष २. महिला ३. शिक्षा: १. निरक्षर २. स्कूल नगएको तर साक्षर ३. १ देखी ५ कक्षा पढेको ४. ६ देखी ८ कक्षा पढेको ५. ९ देखी १० कक्षा पढेको ६. एस.एल.सी. उत्तीर्ण ७. प्रमाण पत्र/+ १२ ८. स्नातक ९. स्नातक भन्दा माथी

३.१ बैवाहिक स्थिति

१. अविवाहित २. विवाहित ३. विधवा/विधुर ४. छुट्टाछुट्टै बसेको ५. पारपाचुके ६. अन्य

४. पेशा

१. कृषी ११. व्यापार, वाणिज्य र वर्कसप
 २. पशुपालन १२. विद्या पसल/रेस्टुरेन्ट/लज/होटेल्
 ३. घरायसी काम १३. यातायात
 ४. भारि बोक्ने १४. घरायसी कार्य
 ५. नेपालमा ज्याला मजदुरी १५. विवाधी
 ६. नेपाल बाहिर ज्याला मजदुरी १६. राजनीति
 ७. वन पैदावार जम्मा गर्ने र बेच विखन गर्ने १७. सामाजिक सेवा
 ८. नेपालमा नोकरी गर्ने १८. खनिज उत्खनन् (ढुंगा)
 ९. नेपाल बाहिर नोकरी गर्ने १९. निर्माण
 १०. घरैलु तथा साना उद्योग गर्ने २०. बालक/बृद्ध/अशक्त २१. अन्य

५. शीप तालिम

१. कुशको काम गर्ने ७. डाइभर
 २. सिलाई सम्बन्धी काम गर्ने ८. निर्माण सम्बन्धी काम गर्ने १३. अन्य
 ३. काठको काम गर्ने ९. चुनको काम गर्ने
 ४. फलामको काम गर्ने १०. मोटोको भाँडा बनाउने
 ५. जुता बनाउने ११. बरिखको सामानाहरु बनाउने
 ६. उनका कपडाहरु बुन्ने काम गर्ने १२. कुनै शिप तालिम नभएको

६. बाहिर बस्नुको कारण

१. नोकरी (नेपाल भित्र) २. नोकरी (नेपाल बाहिर)..... ३. अध्ययन ४. ज्यालामजदुरी ५. अन्य



३. कृषि, पशुपालन तथा व्यापार व्यवसाय

३.१ कृषि

के तपाईंको आफ्नो वा परिवारको स्वमित्व वा अधिनमा जग्गा जमीन छ ? १ छ
यदी छ भने निम्न विवरणहरु दिनुहोस् ।

२ छैन

जग्गाको स्वामित्व	जग्गा		सिंचित खेत		असिंचित खेत		बारी		पाखो		अन्य (बुलाउने).....	
	म	पु	ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल
आफ्नै												
अरुको कमाई वाएको												
अरुलाई कमाउन दिएको												
ऐलानी/सार्वजनिक												
कुल जग्गा												

३.१.१ तपाईंले आफ्नो खेत सिंचाइगर्न मुख्य कुन कुनो प्रयोग गर्नु हुन्छ ? (सिंचित खेत भये मात्र)

१..... २..... ३.....

३.१.२ तपाईंलाई हाल भईरहेको पानीको स्रोतले तपाईंकोखेत सिंचाइ गर्न पानी पुग्छ ? १. पुग्छ २. पुग्दैन

१. यदी पुग्दैन भने कुन कुन महिना पानी पुग्दैन ? १. २..... ३.....

३.१.३ के तपाईंले गत वर्षमा आफ्नो कुनै जग्गा बेच्नुभएको छ ? १. छ २. छैन ३. ~~मा जानै~~

१.१ यदि बेचेको भए खेत बारी पाखो अन्य.....

१.२ प्राप्त रकम (रु.) खेत बारी पाखो अन्य

३.१.४ गत वर्षमा तपाईंले खेती गर्नुभएको जग्गामा कुन कुन खाद्यान्न वाली/नगदे वाली/फलफुलहरु लगाउनु भयो, तिनीहरुको उत्पादन, उत्पादन खर्च एवं आम्दानी बारे बताउनुहोस् ।

वालीहरु १	खेती गरेको जमिन				उत्पादन -४		मुल्य (रु/ इकाई) ५	जग्गा आम्दानी (रु.) ६	लागत (रु) ७	आफै उपयोग गरेको =	जग्गा खुद आम्दानी (रु) (७+८-६) ९
	खेत २		बारी ३		ईकाइ	परिमाण					
	ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल							
धान											
गहुँ											
मकै											
कोदो											
दाल, गेडागुडी											
अन्य....											
जग्गा											
आलु											
तोरी											
ऊखु											
तरकारी											
अन्य											
अन्य											
जग्गा											
आँप											
अन्य											
कुल ५											

५.२. यदि होईन भने तपाईंले भाडामा लिनु भएको हो ?

१. हो २. अरको घरमा सितै बसेको

५.३. घरको किसिम: १. कच्ची २. पक्की

५.४. घरको सामग्रीहरु
गारोको किसिम

भुईँको किसिम

छानाको किसिम

१. सिमेन्ट र ईँटा / ढुंगा

१. माटो

१. खर/पराल

२. माटो र ईँटा / ढुंगा

२. काठ

२. जस्ता पाता

३. काठ / दाउरा

३. ढुंगा/ईँटा

३. खर/पराल

४. होलोब्लक (सिमेण्ट)

४. सिमेन्ट/टायल/मार्बल

४. ढुंगा

५. कांचो ईँटा

५. अन्य (खुलाउने).....

५. सिमेण्ट ढलान

६. गारोनभएको

६. टायल/सिमेण्ट टायल

७. अन्य (खुलाउने)

७. अन्य

५.५. घरको तला

१. भुईँ/एक तला २. दुई तला

३. तिन तला

४. तिन तला भन्दा माथि

५.६. यस घरको हालको अनुमानित मूल्य कति होला ? (घरको मूल्य र कम्पाउण्डको क्षेत्र पनि)

१. घर र कम्पाउण्डको मूल्य (रु.) :

२. घर तथा कम्पाउण्डको क्षेत्रफल: इकाई:....., क्षेत्रफल:

३. घरधनीको लिङ्ग: १. महिला २. पुरुष

५.७. कृपया तपाईंको घरमा भएका मुख्य मुख्य घरायसी सामग्री/सम्पत्तीको विवरण दिनुहोस् ।

सम्पत्ति	के तपाईंको घरमा छ ?		हालको मूल्य कति हो ? (रु.)
	१. छ	२. छैन	
१ फोन			
२ मोबाईल फोन			
३ सि.डी./डि.भि.डी./क्यासेटप्लेयर			
४ टेलिभिजन			
५ कम्प्यूटर/प्रिण्टर			
६ मोटर साइकल/स्कूटर			
७ फ्रिज, फ्रिजर			
८ दराज			
९ रेडियो			
१० क्यामेरा, भिडियो क्यामेरा			
११ अन्य.....			
१२ अन्य.....			

६. आम्दानी तथा खर्चको विवरण :

६.१ खर्च :

गत वर्ष तपाईंको घरमा निम्न शिर्षक/बस्तुहरुमा भएको जम्मा खर्चको विवरण दिनु होस् ।

शिर्षक	मासिक रु.	वार्षिक रु.	जम्मा रु.
१. खाना खर्च			
२. लता कपडा			
३. घरभाडा			
४. शिक्षा			
५. यातायात			
६. इन्धन	महिनेल / रयाँस		

	दाउरा				
	बिजुली				
७. टेलिफोन, मोबाईल/प्रपत्रिका	अन्य (खुलाउने).....				
द. पानी					
९. बसि	मट्टितेल/ग्याँस				
	बिजुली				
	अन्य (खुलाउने).....				
१०. औषधि/उपचार					
११. अन्य (खुलाउने)					
जम्मा					

६.२ आम्हानी

दिनात १२ महिना यता तपाइको परिवारले निम्न श्रोतबाट कति आम्हानी गर्‍यो ?

आम्हानीकाश्रोतहरू	रु.	
१. कृषिजन्य उत्पादनबाट		(३.१.४ बाट लिने)
२. पशुपालनबाट		(३.२.२ बाट लिने)
३. उद्योग व्यवसाय		(४.१.२ बाट लिने)
४. ठेक्कापट्टा		
५. व्यापार		
६. होटेल व्यवसाय (रेष्टुरेण्ट, लज)		
७. यातायात व्यवसाय		
द. नोकरी (तलव)		
९. दैनिक ज्याला मजदुरी, भारी वोकर		
१०. बैदेशिक रोजगारीको कमाई (भारतबाट विशेषण)		
११. बैदेशिक रोजगारीको कमाई (अन्य देशबाट विशेषण)		
१२. बहाल/ब्याज/लाभोश		
१३. पेन्सन		
१४. सामाजिक सुरक्षा भत्ता (वृद्ध, एकल महिला, अपांग आदि)		
१५. अन्य आम्हानी (खुलाउने)		
जम्मा		

७. ऊर्जा तथा खानेपानीको आपूर्ति

- ७.१ तपाईंको खानेपानीको मुख्य श्रोत के हो ?
१. सार्वजनिक घारा २. पाइपबाट घरमाआपूर्ति ३. कूवा/मूल २. खोला/नदी ५. अन्य.....
- ७.२ तपाईंको खानेपानीको श्रोतको गुणस्तर कस्तो छ ?
१. राम्रो ३. ठिकै ३. नराम्रो
- ७.३ हाल भईरहेको पानीको स्रोतले तपाईंको खानेपानी आवश्यकता पुरा गर्छ ?
१. गर्छ २. गर्दैन
- ७.३.१ यदि पुरा गर्दैन भने कति महिनाको लागि पुग्दैन ?महिना
- ७.३.२ ति अप्ठुन महिनामा खानेपानीको आवश्यकता कसरि पुरा गर्नुहुन्छ ?
- १..... २..... ३.....
- ७.४ तपाईंको गाउँघरमा बिजुली बती छ ? १. छ २. छैन
- ७.५ तपाईं प्रायजसो घरमा उज्यालोका लागि के प्रयोग गर्नुहुन्छ ?
१. टुकी (मट्टितेल) २. दिप्यो (तेल) ३. बिजुली बती
४. सौर्य ऊर्जा ५. ब्याट्री ६. अन्य.....
- ७.६ तपाईं तान्त्रिकी लागि प्रायजसो निम्न मध्ये के प्रयोग गर्नु हुन्छ ?
१. दाउरा २. ग्याँस ३. मट्टितेल





७.७ पराल, ढोड आदि ५. विजुली ६. अन्य : तपाईं खाना पकाउनको लागि प्रायजसो निम्न मध्ये के प्रयोग गर्नु हुन्छ ?

१. दाउरा २. ग्याँस ३. महिले
४. पराल, ढोड आदि ५. विजुली ६. अन्य :

७.७.१ यदि तपाईं दाउरा बालुहुन्छ भने एक महिनामा कति भारी दाउरा बालुहुन्छ ?

१. परिणाम भारीमा २. अन्धजी (तौल: १ भारी बराबर २५ के.जी) ३. (मूल्य: १ भारी रु.)

७.७.२ तपाईं घरमा बाल्नेको लागि प्रायजसो दाउरा कहाँबाट ल्याउनुहुन्छ ?

१. वन २. निजी जग्गा ३. किनेर ४. अन्य

७.७.२.१ यदी वनबाट हो भने निम्न मध्ये कुनवन बाट ल्याउनुहुन्छ?

१. सरकारी वन २. निजी वन ३. सामूदायिक वन

७.७.३ तपाईंघाँसपात, स्याउला, काठ प्रायजसो कहाँबाट ल्याउनुहुन्छ ?

१. वन २. निजी जग्गा ३. किनेर ४. अन्य

७.७.३.१ यदी वनबाट हो भने निम्न मध्ये कुनवन बाट ल्याउनुहुन्छ?

१. सरकारी वन २. निजी वन ३. सामूदायिक वन

७.७.४ तपाइलाई घाँसपात, स्याउला, दाउरा, काठ आदिको लागि पायक पर्ने वन कुन हो ?

१. वनको नाम : गा.पा./न.पा./वडा नं :
२. ठाँउ : (वन्तामा)
३ वनको प्रकार: १. सामुदायिक २.राष्ट्रिय ३.कबुलियती ४. नीजि ५. धर्मिक ६. अन्य

८. स्वास्थ्य र सरसफाई

८.१ तपाईं वा तपाईंका परिवारका सदस्यहरु दिशापिप्सा कहाँ गर्नुहुन्छ ?

१. आफ्नै चर्पीमा २. खोल्सा/खोल्सी ३. वनजङ्गलमा ४. खेत/बारी ५. अन्य

८.१.१ यदि तपाईं चर्पी प्रयोग हुन्छ गर्नुहुन्छ भने कस्तो किसिमको चर्पी प्रयोग गर्नुहुन्छ ?

८.१.२. तपाईं लाई चर्पीवनाउन कले सहयोग गरेको ?

१. आफै २. गैसस ३. सरकार ४. अन्य

८.१.२.१. यदि चर्पीवनाउनु भएकोछैन भने किन न वनाउनु भएको ?

१. आवश्यक छैन २. पैसा छैन ४. अन्य

८.२ तपाईं सडेगलेको वा ठोसपदार्थ/फोहोरमैला कहाँ फाल्ने गर्नु भएको छ ?

१. सुरक्षित ठाउँमा थुपारेर २. जलाएर ३. गाडेर ४. अन्य

८.३ तपाईं फोहोर तरलपदार्थ कहाँ बगाउने गर्नु भएको छ ?

१. ढलबाट २. आफ्नै खेत बारीमा ३. त्यसै बगाउने ४. अन्य

८.४ के तपाईंको परिवारको कुनै सदस्य गत वर्ष सिकिस्त विरामी भएका थिए ?

१. थिए २. थिएनन्

८.५ यदि थिए भने को थिए ?

परिवारका सदस्य विरामी भएको अवधि

१. बच्चा
२. युवा
३. बृद्ध
कस्तो किसिमको रोग लागेको र कुन उपचार विधि अपनाउनु भएको थियो ?

८.६ रोग उपचार विधि उपचार गराएको स्थान

१. १. २.
२. १. २.
३. १. २.

१. बुढीगंगा जलविद्युत आयोजनाबाट पर्नेप्रभावहरु :

१.१ जग्गा/जमिन बारे

१.१.१ यस आयोजनाबाट तपाईंको प्रभावित हुने जग्गा जमिनको निम्नलिखित विवरण दिनुहोस ?

गा.पा/ न.पा./वार्ड नं	ठाउँको नाम	कित्ता नं.	कुल क्षेत्रफल	हाल जग्गाको प्रयोग	जग्गाको स्वामित्व	प्रभावित क्षेत्रफल र मूल्य रु.हजारमा				
						खेत	मूल्य	बारी	मूल्य	अन्य

(नोट : जग्गाको मूल्य बलन बत्तीको भाउ बमोजिम राख्ने)

१.१.२ के तपाईं अथवा तपाईंको परिवारका कुनै सदस्यको नाममा यस आयोजना क्षेत्र भित्र फलफुल र ङालेघाँसका वोटीवरवाहरु छन् ? १. छन् २. छैनन्

१.१.२.१ यदी छन् भने तिरुख, वोटीवरुवा सम्बन्धी विवरण दिनुहोस् ।

किसिम	वोटीवरुवाको जात	जम्मा संख्या		प्रभावित हुन सक्ने संख्या		जम्मा उत्पादन (इकाई)	मूल्य	आम्दानी
		५ वर्ष भन्दा कम उमेरका	५ वर्ष भन्दा माथी उमेरका	५ वर्ष भन्दा कम उमेर का	५ वर्ष भन्दा माथी उमेरका			
फलफुल								
ङालेघाँस								
काठ								

१.२ घर/गोठ बारे

१.२.१ के यस बुढीगंगा जलविद्युत आयोजनाबाट तपाइको घर प्रभावित हुन्छ ?

१. हुन्छ २. हुँदैन

१.२.२ यदी हुन्छ भने कति वटा प्रभावित हुन्छन् ? संख्या

१.२.३ आयोजनाबाट प्रभावितहुने तपाईंको घरको निम्न विवरणहरु दिनुहोस ?

- प्रभावित हुने घरको : ल (मिटर) चौ.....
घरको किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)
गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)
छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)
घरको तला : (प्रश्न नं. ५.५ अनुसार भर्ने)
प्रभावित हुने घरको : ल (मिटर) चौ.....
किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)
गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)
छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)



घरको तला :

(प्रश्न नं. ५.५ अनुसार भर्ने)

९.२.४ के यस आयोजनाबाट तपाईंको गोठ प्रभावित हुन्छ ?

१. हुन्छ २. हुँदैन

९.२.५ यदी हुन्छ भने कीत वटा प्रभावित हुन्छन् ? संख्या

९.२.५.१ आयोजनाबाट प्रभावितहुने तपाईंका प्रभावित हुने गोठको बारेमा निम्न विवरण दिनुहोस्:

१. प्रभावित हुने गोठको : ल (मिटर) चौ.

किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

गोठको तला : (प्रश्न नं. ५.५ अनुसार भर्ने)

२. प्रभावित हुने गोठको : ल (मिटर) चौ.

किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

गोठको तला : (प्रश्न नं. ५.५ अनुसार भर्ने)

१०. घर जग्गाको मुआब्जा/पुनर्वास सम्बन्धि

१०.१ तपाईं घर/जग्गाको मुआब्जा निम्न मध्ये कुन चाहनु हुन्छ ?

१. नगद २. जग्गाको सट्टा जग्गा ३. घरको सट्टा घर ४. अन्य

१०.२ यदि तपाईंले मुआब्जा नगदमा पाउनु भयो भने उक्त मुआब्जा रकम के मा प्रयोग गर्नु हुन्छ ?

१. जग्गा किन्ने २. घर बनाउने ३. ऋण तिर्ने

४. ब्यापार गर्ने ५. घरेलु उद्योग ६. अन्य

१०.३ यहाँ बाहेक तपाईंको अन्यत्र कतै घर वा जग्गा छ ?

१. छ २. छैन —> भने प्रश्न १०.५ मा जाने

१०.४ यदि छ भने के छ र कहाँ छ?

किसिम ठाँड

घर

जग्गा

घडेरी

१०.५ यदि तपाईंले उचित मुआब्जा पाएमा अन्यत्र बसाई सर्नु हुन्छ ?

१. सधुँ २. सतीन

१०.६ बसाई सर्न चाहनु हुन भने किन ?

१. २. ३.

१०.७ तपाईं वा तपाईंको परिवारका मूख्य समस्थाहरु के के हुन?

१. २. ३.

१०.८ तपाईं वा तपाईंको परिवारका मूख्य आवश्यकताहरु के के हुन?

१. २. ३.

११. बुढीगंगा जलविद्युतआयोजनाप्रतिको अवधारणा

११.१ तपाईंलाई यस प्रस्तावित बुढीगंगा जलविद्युत आयोजनाबारेमा केही जानकारी छ ?



१. छ २. छैन

११.१ यदि छ भने कुन श्रोतबाट यस आयोजनाको बारेमा जानकारी प्राप्त गर्नुभयो?

१. साथीभाई/नातेदार २. आयोजनाका कर्मचारी ३. रेडियो/टिभि ४. पत्रपत्रिका ५. अन्य

११.२ तपाईंको यस प्रस्तावित बूढीगंगा जलविद्युत आयोजनाप्राति कस्तो अवधारण छ ?

१. सकारात्मक २. नकारात्मक ३. तटस्थ ४. केही पनि थाहा छैन ५. कुनै अवधारणा बनाएको छैन
११.२.१ यदि नकारात्मक धारणा भएमा किन होला ? कारण वताईदिनु हुन्छ कि ?

१..... २..... ३.....

११.३ यस प्रस्तावितबूढीगंगा जलविद्युत आयोजनाबाट तपाईंले कुनै कुराको आशा राख्नु भएको छ?

१. छ १. छैन

११.३.१ यदि छ भने के कुराको आशा राख्नु भएको छ ?

१. राम्रो मुआब्जा २. रोजगारी ३. विद्युत सुविधा ४. स्थानीय क्षेत्रको विकास ५.अन्य

१२.स्थानिय सहभागिता :

१२.१ तपाईं वा तपाईंको परिवारको कुनै सदस्य यस क्षेत्रमा संचालित सरकारी, नैइसरकारी वा अन्य संस्थाहरु/ कार्यकमहरुमा सहभागीता छ ? १. छ १. छैन

१२.२ यदि सहभागी छ भने निम्न विवरण दिनु होस् ।

संस्था/कार्यकमको नाम	सहभागीता को किसीम	संचालन भएको साल	मूख्य काम/उद्देश्य	परिवार सदस्य		लाभान्वीत परिवार	सहयोग गर्ने संस्था/निकाय
				महिला	पुरुष		

प्रश्नावली गर्नेको नाम..... सही: भिति:.....

रजु गर्नेको नाम..... सही: भिति:.....



**बुढीगंगा जलविद्युत आयोजना
वातावरणीय तथा सामाजिक प्रभाव मूल्यांकन
कृषिजन्य र अन्य वस्तुहरुको मूल्य सम्बन्धी बजार सर्वेक्षण फारम**

क. गा.पा. /न.पा. ब. वडा नं. ग. ठाउँ घ. भिति

१. जग्गा मूल्य रु. (रोपनी)

सिंचित क्षेत्र
असिंचित क्षेत्र
वारी
खरवारी
घडेरे

२. खाद्यान्न मूल्य (रु. /किलो)

धान
गहुँ
मकै
कोदो
जौ
आलु
मास
गहत
तोरी
अन्य

३. फलफुल मूल्य (रु./किलो/इर्जन)

लिच्ची
कागती र निवुवा
आरु
नासपाती
अम्बा
कटहर
केरा
मेवा
आप
अन्य

४. अन्य उत्पादन मूल्य रु. (लिटर/माना) ५. मासु मूल्य रु. (किलो) ६. पाल्नु जनावर मूल्य प्रति गोटा रु.

दूध
दही
घिउ
तेल

कुखुरा
खसी
राँगा
बंगुर/सुंगुर
माछा

राँगा
भैसी
हलगोरु
गाई
खसी/बाखा
बंगुर/सुंगुर

७. निर्माण सामग्री

इकाई

मूल्य रु.

काठ
हँडा
सिमेन्ट
फलामे इण्डी
कुइना
बालुवा
गिट्टी
बोर

८. ज्याला मजदुरी (प्रतिदिन)

ज्याला

खाना

जम्मा रु.

कृषि मजदुर (पुरुष)
कृषि मजदुर (महिला)
सिकर्मी
डकर्मी
ज्यामी(पुरुष)
ज्यामी(महिला)
अन्य.....

९. बजार/ठाउँ बारे छोटो जानकारी:



Appendix-C: Baseline Data



Table -C1: Rainfall in the nearest station of the project area (Achham- Sanfebagar -232)

Year	Jan	Feb	Mar	Apr	May	Jun	JUL	AUG	SEP	OCT	NOV	DEC
2013	28	38	7	11	93	187	178	DNA	DNA	DNA	DNA	0
2014	63	82	29	10	35	114	336	236	49	42	0	8
2015	73	51	122	76	45	151	193	209	0	77	0	DNA
2016	6.5	29.2	42.6	0	157.7	246.2	DNA	38	21	0	0	16
2017	20	9.5	6	66.5	87.6	140.4	338.1	272	96.9	0	0	0
Sum	190.5	209.7	206.6	163.5	418.3	838.6	1045.1	755	166.9	119	0	24
Average	38.1	41.94	41.32	32.7	83.66	167.72	261.275	188.75	41.725	29.75	0	6

Source: DHM, 2018



Table C-2a : Power and Energy Production

S. No.	Month	Avg. Monthly discharge in the river		Total d/s Release including env. Flow and others(m ³ /s) #		Diversion for power (m ³ /s)	Production	
		at intake (m ³ /s)	Environmental release (m ³ /s)				Power MW	Energy GWh
1	January	9.90		0.99		26	19.64	4.83
2	February	10.75		0.99		26	19.66	4.72
3	March	11.89		0.99		26	19.64	5.85
4	April	10.80		0.99		26	19.64	5.26
5	May	14.83		0.99		26	19.64	7.16
6	June	38.00		12.00		26	19.65	13.00
7	July	137.54		111.54		26	20.01	14.77
8	August	197.02		171.02		26	20.01	14.78
9	September	124.78		98.78		26	19.98	13.11
10	October	46.06		20.06		26	19.70	14.64
11	November	21.09		0.99		26	19.67	10.55
12	December	13.77		0.99		26	19.64	6.73
13	Ann. Avg.	53.04		0.99				

Note: Total release includes-Environmental release, and requirement for irrigation, water mills and others.

Table C-2b : Environmental Release and Water Balance

S. No.	Month	Avg. Monthly discharge in the river		Downstream Environmental release (m ³ /s)		Additional d/s Release (m ³ /s)			Diversion for power (m ³ /s)		Total Discharge (m ³ /s)		Production	
		at intake (m ³ /s)				Irrigation	Water Mills	Others					Power MW	
1	January	9.90		0.99					26				19.64	
2	February	10.75		0.99					26				19.66	
3	March	11.89		0.99					26				19.64	
4	April	10.80		0.99					26				19.64	
5	May	14.83		0.99					26				19.64	
6	June	38.00		12.00					26				19.65	
7	July	137.54		111.54					26				20.01	
8	August	197.02		171.02					26				20.01	
9	September	124.78		98.78					26				19.98	
10	October	46.06		20.06					26				19.70	
11	November	21.09		0.99					26				19.67	
12	December	13.77		0.99					26				19.64	
13	Ann. Avg.	53.04												



**Table C-2c Power and Energy Production on a day (in a driest month-
January)**

<u>S.N</u>	<u>Hour</u>	<u>Avg. daily</u> <u>discharge in the</u> <u>river</u> <u>at intake</u> <u>(m3/s)</u>	<u>Total d/s Release</u> <u>including env.</u> <u>Flow</u> <u>and others(m3/s)</u> <u>#</u>	<u>Diversion</u> <u>for</u> <u>power</u> <u>(m3/s)</u>	<u>Production</u> <u>Power</u> <u>r</u> <u>MW</u>	<u>Energy</u> <u>y</u> <u>GWh</u>
1	0-3	9.90	0.99	26	19.62	0.63
2	3-6	9.90	0.99	26	19.64	0.56
3	6-9	9.90	0.99	26	19.60	0.42
4	9-12	9.90	0.99	26	19.63	0.42
5	12-15	9.90	0.99	26	19.63	0.41
6	15-18	9.90	0.99	26	19.63	0.42
7	18-21	9.90	0.99	26	19.63	0.44
8	21-24	9.90	0.99	26	19.63	0.44
9	24-27	9.90	0.99	26	19.63	0.41
9	24-27	9.90	0.99	26	19.63	0.69
	Daily Avg.	9.90	0.99			

Note: # - Total release includes - Environmental release, and requirement for Irrigation, Water mills, and others.



Table for replenished discharge in theriver/khola from side streams

S. N.	Name of stream and Distance of the stream from Headworks (km)	Incoming Streams (perennial)				Cumulative Discharge at Confluence of each side stream (m³/s)	Remarks *
Downstream environmental release from headworks							
		Left Bank		Right Bank			
		Min. monthly avg. flow (m³/s)	Catchment area (km²)	Min. monthly avg. flow (m³/s)	Catchment area (km²)		
	Agali Gad (2.5 km)	0.44	8.85				
	Simarawa Khola (2.5 km)			2.32	47.20		

	Cumulative discharge from side stream						
	Side off take for other water usages [#]						
	Tailrace discharge + Cumulative discharge from side streams - side off take						purpose of off take

Note:

- * – i) Catchment and hydrological characteristics of side streams.
- ii) State methodology of discharge estimation.
- # – If there are more than one off takes, give them in separate rows

EXHIBIT SIDE STREAMS, WITH NAME, IN A COLOURED TOPOGRAPHICAL MAP.



Sample Plot No: 1
District : Achham
Name of Forest : None
Crown Cover : Less than 5%

Project Structure : Surroundings of Construction yard
VDC and Ward No: Babla-3
Forest Type : Rakta CF
Aspect : SW

Plot Size : 900 Sqm. (30 m x 30 m)
Name of Place : None
Basal Area (%) : 0.1111
Slope : 15°

Table C-3 : Measurement of Forest's Sample Plot Within the project Site and vicinity

S.N	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [m ² /4 (m ²)]	Volume = Basal Area x Tree Height (0.29) [m ³]	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
1	Stral	Bombax ceciba	90	0.2665	15	0.064	0.484			Very less regenerating saplings due to heavy growth of ground vegetation
2	Khamru	Shigum wilgifer	32	0.1019	3.5	0.008	0.014			
3	Khamru	Shigum wilgifer	34	0.1063	4	0.009	0.018			
4	Kharvetu	Ficus sp.	32	0.1019	7.5	0.008	0.014	1		
5	Dudhite	Geogyne pinnata	35	0.1115	5	0.010	0.024	1	1	
b. Shrub Species (5m x 5m)						0.100	0.555			

S.N.	Local Name	Scientific Name	No.	Remarks
1	Kandae Bhamran	Lonicera caerulea	More than 10% area covered by this sp.	
2	Tamare	Croton tigris	20	
3		Shala sp.	3	
4	Jangph Kera	Morus sp.	1	
Total			24	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Thapal	Azadirachta indica	5	More than 10% area of the forest plot covered by this sp.
2	Charu wallo	Oxalis sp.	10	Significant cover on the ground with almost attached
3		Euphorbia hirta	5	
4	Gutha	Dioscorea bulbifera	1	
5	Kharphur	Pogonochloa sp	15	Significant cover on the ground
Total			36	

Sample Plot No: 2
District : Achham
Name of Forest : None
Crown Cover : Less than 5%

Project Structure : Surroundings of Construction yard
VDC and Ward No: Babla-3
Forest Type : Rakta CF
Aspect : SW

Plot Size : 20 x 20m
Name of Place : None
Basal Area (%) : 0.0242
Slope : 12°

S.N	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [m ² /4 (m ²)]	Volume = Basal Area x Tree Height (0.29) [m ³]	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
1	Pespal (Main trunk)	Ficus religiosa	90	0.2665	20	0.064	0.645			Very less regenerating saplings. Due to heavy
2	Pespal (Side trunk)	Ficus religiosa	60	0.1911	18	0.029	0.248			
3	Bhimai	Grewia optiva	42	0.1338	6	0.014	0.042			
4	Khamu	Sapota indica	34	0.1083	5	0.009	0.023	1		
5	Bhimai	Grewia optiva	40	0.1274	5	0.043	0.022			



4	Kolam	Scaphium maculifer	33	0.1019	4	0.008 0.137	0.016 1.016	1		

b. Shrub Species (1m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Kande Bannan	<i>Carsonia comara</i>	1	More than 80% area covered by this sp.
2	Taare	<i>Cordia alliodora</i>	15	
3		<i>Albizia sp.</i>	7	
4	Jungali Kera	<i>Albizia sp.</i>	1	
	Total		30	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Tigpal	<i>Azorella vulgaris</i>	3	More than 5% area of the loose plot covered by this sp.
2	Chari anilo	<i>Oxalis sp.</i>	14	Significant cover on the ground with almost attached
3		<i>Euphorbia hirsuta</i>	4	
4		<i>Phytolacca sp.</i>	1	
5	Kharphasa	<i>Polypogon monspeliensis sp.</i>	15	Significant cover on the ground
	Total		39	

Sample Plot No.: 3
District: A
Name of Forest: None
Crown Cover: 5%

Project Structure: Surroundings of Construction part
VDC and Ward No.: Bhoj-3
Forest Type: Rakha CP
Aspect: S

Pit Size: 30 x 20m
Name of Place: None
Basal Area (%): 0.116
Slope: 40°

a. Tree Species

S.N.	Local Name	Scientific Name	CHH (cm)	Height (m)	Basal Area (sq ft)	Area x Tree Height (cu ft)	Sampling (No.)	Seedling (No.)	Remarks
1	Sadl	<i>Shorea robusta</i>	110	20	0.096	0.963	5	12	Tree is very common of around location difficult with
2	Sadl	<i>Shorea robusta</i>	105	18	0.084	0.790			
3	Sadl	<i>Shorea robusta</i>	110	20	0.135	1.346			
4	Sadl	<i>Shorea robusta</i>	160	23	0.4459	1.539			
5	Sadl	<i>Shorea robusta</i>	160	22	0.3096	2.342			
6	Angali	<i>Phyllanthus emblica</i>	15	6	0.008	0.024			
7	Amala	<i>Phyllanthus emblica</i>	35	8	0.019	0.029			
					0.096	7.833			

b. Shrub Species (1m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Osayano	<i>Woodfordia parviflora</i>	3	Ground coverage 30% by shrubs
2	Osayal	<i>Calceolaria oppositifolia</i>	4	
3	Kande Bannan	<i>Lantana camara</i>	5	
	Total		12	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Uluoson	<i>Peperomia asarifolia</i>	2	Sp. covers of ground by herbs. Habitat: rocky
2	Sya	<i>Impatiens cylindrica</i>	2	
3	Uluoson	<i>Ageratum sp.</i>	7	
4	Ulu anil	<i>Dioscorea bulbifera</i>	1	



	Total	12	
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Sample Plot No.4
District :
Name of Forest :
Cover Co 20 %

Project Structure : Dam site (left bank)
VDC and Ward No.: Kankas-5
Forest Type : Jukasa CF (Deciduous Thicket)
Aspect : NW

Plot Size : 20 x 20m
Name of Place : Kalanautaha
Basal Area (%) : 0.15
Slope : 25°

Sapling, Pole and Tree		DBH (cm)	Diameter (m)	Height (m)	Basal Area		Sapling (Nos.)	Seedling (Nos.)	Remarks
S.N.	Name of Plant Species				cm ²	m ²			
Local	Scientific								
1	Mahoe	<i>Macaranga dentocaulis</i>	32	0.1019	4.5	0.006	0.018	3	5
2	Khimo	<i>Sapota latipes</i>	60	0.1911	12	0.079	0.172	5	4
3	Khimo	<i>Sapota latipes</i>	40	0.1274	71	0.0313	0.045	2	2
4	Khimo	<i>Sapota latipes</i>	36	0.1156	7	0.010	0.036		
Total					0.060	0.271	6	11	

B. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Asaro	<i>Leucaena adusta</i>	1	
2	Asaro	<i>Leucaena adusta</i>	3	
3	Dunke?	<i>Fraxinus</i>	1	
4	Ukhawa	<i>Sida sp.</i>	3	
5	Tekamre	<i>Sarcococa sp.</i>	1	
6	Sitoo	<i>Urtica dioica</i>	1	
Total			10	

C. Herbs Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Bisho	<i>Eclipta prostrata</i>	10	
2	Bargel	<i>Centella asiatica</i>	2	
3	Banawa	<i>Ageratum conyzoides</i>	4	
4	Kama	<i>Syntherisma punctatum</i>	2	
5	Kharjahan	<i>Pycnanthemum sp.</i>	4	
6	Umhuwan	<i>Dioscorea sp.</i>	1	
Total			23	

Sample Plot No.5
District :
Name of Forest :
Cover Cover : 20%

Project Structure : headwork Dam site (left bank), Seeding lands
VDC and Ward No.: Kankas-5
Forest Type : Jukasa CF (Deciduous Thicket)
Aspect : NW

Plot Size : 20 x 20m
Name of Place : None
Basal Area (%) : 0.065
Slope : 10-15°

Sapling, Pole and Tree		DBH (cm)	Diameter (m)	Height (m)	Basal Area		Sapling (Nos.)	Seedling (Nos.)	Remarks
S.N.	Name of Plant Species				cm ²	m ²			
Local	Scientific								
1	Dhawal Yenna	<i>Euphorbia alata</i>	55	0.175	8	0.024	0.096	1	4
2	Dhawal Yenna	<i>Euphorbia alata</i>	50	0.1592	8	0.020	0.080		
3	Phoket?	<i>Euphorbia sp.</i>	45	0.1433	6	0.016	0.048		
4	Mahoe	<i>Macaranga dentocaulis</i>	40	0.1274	6.5	0.013	0.041		



5	Mallo	<i>Medonnetia detonsulata</i> *	45	0.1131	7	0.016	0.026			
6	Robini	<i>Mallotus phillyporus</i> *	35	0.1115	5	0.010	0.024		2	
7	Robini	<i>Mallotus phillyporus</i> *	32	0.1019	4.3	0.008	0.018			
8	Robini	<i>Mallotus phillyporus</i> *	32	0.1019	4.3	0.008	0.018			
9	Kilnro	<i>Sapota integrifolia</i> *	35	0.1115	6.3	0.010	0.024			Shrub of tree size
10	Kilnro	<i>Sapota integrifolia</i> *	35	0.1115	6.3	0.010	0.024		1	
11	Kilnro	<i>Sapota integrifolia</i> *	32	0.1019	6	0.008	0.020			
12	Pichai Khawa	<i>Erythrina indica</i>	32	0.1019	5	0.008	0.020			
13	Changun	<i>Preschottia crenulata</i>	32	0.1019	5	0.008	0.020			

b. Shrub Species (1m x 5m)										
S.N.	Local Name	Scientific Name	No.	Remarks						
1	Kade Bannar	<i>Lonchocarpus</i>	2							
2	Dhanol	<i>Cordia alliodora</i>	1							
3	Dhanol	<i>Woodsfordia frutescens</i>	1							
4	Changun	<i>Pyrenanthes crenulata</i>	1							
5	Auro	<i>Zamia subulnata</i>	1							
6	Ulabon	<i>Sida</i> sp.	2							
Total										

c. Herb Species (1m x 1m)										
S.N.	Local Name	Scientific Name	No.	Remarks						
1	Tapal	<i>Azorella</i> sp.	3	Total ground coverage by Sb and Hb is 89%						
2	Ulabon	<i>Quercus</i> sp.	5							
3	Ulabon	<i>Quercus</i> sp.	7							
Total			15							

Sample Plot No. 6
District : Achham
Nearest River : Kosi
Crown Co 25%

Project Structure : Road to Headworks
VIC and Ward No. : Kuchuk 5
Forest Type : Sub CF (Deciduous riverine)
Aspect : NW

Plot Size : 30 x 30m
Nature of Place : None
Basal Area (%): 0.040
Slope : 15°

d. Tree Species										
S.N.	Local Name	Scientific Name	CHM (cm)	Basal Area (m ²)	Height (m)	Basal Area (m ²)	Volume = Basal Area x Tree Height (m ³)	Seeding (No.)	Seeding (No.)	Remarks
1	Kabo Siro	<i>Albizia lebbek</i>	150	0.4777	22	0.179	1.971			
2	Kabo Siro	<i>Albizia lebbek</i>	85	0.2707	17	0.058	0.489			
3	Kabo Siro	<i>Albizia lebbek</i>	80	0.2548	16	0.051	0.408			
4	Kilnro	<i>Sapota integrifolia</i>	48	0.1529	8	0.016	0.073			
5	Simal	<i>Bombax cecilia</i>	72	0.2393	12	0.041	0.248			
6	Kilnro	<i>Sapota integrifolia</i>	45	0.1333	8	0.016	0.064			
7	Kilnro	<i>Sapota integrifolia</i>	40	0.1248	12	0.051	0.306			
8	Kilnro	<i>Sapota integrifolia</i>	34	0.1063	5	0.009	0.023		20	
9	Kilnro	<i>Sapota integrifolia</i>	32	0.1019	4	0.006	0.016			
10	Kilnro	<i>Sapota integrifolia</i>	40	0.1274	5.3	0.013	0.015			
Total				34.53						

S.N.	Local Name	Scientific Name	No.	Remarks
1	Dhanol	<i>Cordia alliodora</i>	3	
2	Auro	<i>Zamia subulnata</i>	1	
3	Kilnro	<i>Sapota integrifolia</i>	2	
4	Dhanol	<i>Pyrenanthes crenulata</i>	1	
Total				7

c. Herb Species (1m x 1m)



S.N.	Local Name	Scientific Name	No.	Remarks
1	Tripuri	<i>Artemisia sp.</i>	10	
2	Bin Tind	<i>Disporum sp.</i>	2	
	Total		12	

Sample Plot No.7
District : E
Name of Forest : None
Crown Cover : 30%

Project Structure : Upper side of inundation area
VDC and Ward No.: Bhanuwa VDC - ward :
Forest Type : Jada Landan CF
Aspect : E

Pit Size : 30 x 35m
Name of Plot : None
Basal Area (sq.) : 0.0392
Slope : 25°

a. Tree species		Sampling, Pole and Tree					Sampling		Remarks	
S.N	Local	Scientific	CHH (cm)	Diameter (m)	Height (m)	Basal Area [m ² (m ²)]	Volume = Basal Area x Tree Height	Seedling (Nos.)	Seedling (Nos.)	Remarks
1	Sal	<i>Shorea robusta</i>	80	0.244	20	0.051	1.717	5	14	
2	Sal	<i>Shorea robusta</i>	140	0.449	22	0.156	1.717			
3	Sal	<i>Shorea robusta</i>	40	0.124	8	0.013	0.051			
4	Trihal Nara	<i>Leptocarpus gracilis</i>	80	0.244	14	0.010	0.272			
11	Shidore	<i>Mitrasia philippensis</i>	45	0.151	6	0.010	0.643			
						0.287	2.682			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Dhuni	<i>Colerodra oppositifolia</i>	2	
2	Akro	<i>Justicia adnata</i>	2	Shrub cover of 30% in the whole plot
3	Kande Baruna	<i>Zantene camara</i>	5	
4	Ukumun	Side up	3	
	Total		12	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Unknown	<i>Opuntia sp.</i>	10	
2	Brook Kam ?	<i>Scutellaria sp.</i>	2	
3	Ham 1 erill	<i>Ornithoglossum</i>	1	
4	Grass	<i>Leptocarpus gracilis</i>	4	
	Total		17	

Sample Plot No.8
District : E
Name of Forest : None
Crown Cover : 35%

Project Structure : Upper side of inundation area
VDC and Ward No.: Bhanuwa VDC
Forest Type : Jada Landan CF
Aspect : E

Pit Size : 30 m x 25 m
Name of Plot : None
Basal Area (sq.) : 0.0670
Slope : 30°

a. Tree species		Sampling, Pole and Tree					Sampling		Remarks	
S.N	Local	Scientific	CHH (cm)	Diameter (m)	Height (m)	Basal Area [m ² (m ²)]	Volume = Basal Area x Tree Height	Seedling (Nos.)	Seedling (Nos.)	Remarks
1	Simlun	<i>Hydnora adspicata</i>	140	0.449	22	0.156	1.795	1	5	
2	Simlun	<i>Hydnora adspicata</i>	40	0.124	8	0.013	0.051			
3	Simlun	<i>Hydnora adspicata</i>	80	0.244	14	0.051	0.557			
4	Trihal Nara	<i>Leptocarpus gracilis</i>	150	0.477	22	0.179	1.971			
5	Sal	<i>Shorea robusta</i>	90	0.286	21	0.084	0.677	2	8	
6	Sal	<i>Shorea robusta</i>	70	0.229	14	0.039	0.273			
7	Bishun	<i>Cassia grandis</i>	110						8	



1	Tulsi	<i>Artemisia fr.</i>	4	
2	Uppu	<i>Adiantum fr.</i>	5	
3	Babyu	<i>Eucalyptus lemnis</i>	14	
Total			23	

Sample Plot No. 10		Project Structure: Adult		Plot Size: 25 x 25m	
Number of Plots: 1		VLC and Ward No.: Hinhua &		Road Area (sq. ft.): 0.12m	
Number of Plots: 1		Forest Type: Eucalyptus CF		Road Area (sq. ft.): 0.12m	
Crown Cover: Less than 5%		Aspect: SW		Slope: SW	

		Sapling, Pole and Tree		Sapling	
S.N	Name of Plant Species	CHT (cm)	Diameter (in)	Height (m)	Basal Area (sqm)
	Scientific				Area x Tree Height
	Local				Volume = Basal Area x Tree Height
					Sapling
					Seedling (Nos)
S.N	Name of Plant Species	CHT (cm)	Diameter (in)	Basal Area (sqm)	Volume = Basal Area x Tree Height
	Scientific			Area x Tree Height	Sapling
	Local				Seedling (Nos)
				</	

S.N.	Local Name	Scientific Name	No.	Remarks
1	Eurli	<i>Rubus ellipticus</i>	1	
2	Sino	<i>Urtica dioica</i>	3	
Total			4	

c. Herb Species (fls & fr)		Project Structure: Adult		Plot Size: 10 x 10m	
S/N		Local Name		Road Area (sq. ft.): 0.15	
		Scientific Name		Road Area (sq. ft.): 0.15	
		Local Name		Slope: SW	
		Scientific Name		Remarks	
1	Kalo Samura	<i>Ageratum adenoporum</i>	5	Wild banana (Musa sp.) recorded at the vicinity of this plot.	
2	Ban Tuel	<i>Oryzomys sp.</i>	1		
3	...	<i>Urtica macrophylla</i>	4		
4	...		2		
Total			12		

Sample Plot No. 11		Project Structure: Adult		Plot Size: 10 x 10m	
Number of Plots: 1		VLC and Ward No.: Hinhua &		Road Area (sq. ft.): 0.15	
Number of Plots: 1		Forest Type: Eucalyptus CF		Road Area (sq. ft.): 0.15	
Crown Cover: Less than 5%		Aspect: SW		Slope: SW	



6	Sd	Shorea robusta	60	0.1911	18	0.029	0.258		
7	Sd	Shorea robusta	40	0.1274	8	0.013	0.051		
8	Sd	Shorea robusta	58	0.1847	18	0.027	0.241		
9	Sd	Shorea robusta	56	0.1166	7	0.010	0.016		
10	Sd	Shorea robusta	60	0.1911	18	0.029	0.258		
11	Sd	Shorea robusta	56	0.1783	18	0.025	0.200		
12	Sd	Shorea robusta	56	0.1166	7	0.010	0.016		
13	Sd	Shorea robusta	54	0.1720	16	0.023	0.186		
14	Sd	Shorea robusta	36	0.1166	7	0.010	0.016		
		Total				0.247	1.295		

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Sd	Carrotia sp.	2	
2	Budhato	Carrotia sp.	1	
		Total	3	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Sd	Peperomia sp.	2	
2	Sd	Peperomia sp.	2	
3	Jaanti Balam	Peperomia sp.	2	
4	Toragad	Arenaria sp.	2	
5	Kali Bannari	Arenaria adnascens	4	
		Total	15	

Sample Plot No: 12
District : Achham
Name of P.Nidharan
Crown Cover less than 40%

Project Structure : Surroundings of Power House
VDC and Ward No: Haricot 3,7
Forest Type : Subtropical CF
Aspect : NW

Plot Size : 30 x 30m
Name of Place : Shila
Base Area (%) : 0.0273
Slope : 30°

b. Tree Species		Sapling, Pole and Tree		Volume = Base x Height		Sapling Seedling (No.)		Remarks	
S.N.	Local Name	Scientific Name	CBH (cm)	Diameter (m)	Height (m)	Base Area (sq. ft.)	Area x Tree Height	Sapling (No.)	Seedling (No.)
1	Mawa	Erigeron sp.	95	0.3025	22	0.0718	0.2904	1	7
2	Mawa	Erigeron sp.	74	0.2489	20	0.0648	0.4470		
3	Mawa	Erigeron sp.	78	0.2484	20	0.0648	0.4444		
4	Silau	Erigeron sp.	40	0.1274	8	0.0137	0.0510		
5	Mawa	Erigeron sp.	40	0.1274	13	0.0137	0.0764		
6	Mawa	Erigeron sp.	55	0.1752	14	0.0241	0.1664		
7	Silau	Erigeron sp.	35	0.1115	5	0.0098	0.0548		
8	Chiche	Erigeron sp.	33	0.1019	6	0.0082	0.0548		
9	Khimo	Erigeron sp.	40	0.1274	5	0.0127	0.0118		
		Total				0.245	2.099		

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Sd	Carrotia sp.	2	
2	Sd	Carrotia sp.	1	
3	Sd	Carrotia sp.	2	
4	Sd	Carrotia sp.	1	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Sd	Carrotia sp.	4	



2	...	<i>Acacia indica</i>	5	
3	Ban tarai	<i>Dioscorea bulbifera</i>	1	
4	Khaurki	<i>Pipturus maurandium</i>	6	
5	Thirgauli	<i>Azadirachta sp.</i>	2	
6	Gundhar	<i>Albizia coriaria</i>	4	
7	Dahwa	<i>Albizia coriaria</i>	1	
Total			23	

Sample Plot No: 13
 District : Asham
 Name of Forest (as per Forest Deptt)
 Forest Type : Sal
 Crown Cover : 20%

Project Structure : Surroundings of Power House
 VDC and Ward No: Harkis 3,7
 Forest Type : Sal
 Aspect : Unknown

Plot Size : 30 x 30m
 Name of Place : Unknown
 Basal Area (%) : 0.0752
 Slope : 15°

h. Tree species

		Name of Plant Species		Sampling, Plot and Tree					
S/N	Local	Scientific	CRH (cm)	Diameter (m)	Height (m)	Basal Area [sqm (m ²)]	Volume x Basal Area x Tree Height	Sampling	Seedling (Nos.)
1	Sal	Shorea robusta	82	0.2611	16	0.0535	0.4351	14	
2	Sal	Shorea robusta	86	0.2719	20	0.0589	0.5489		42
3	Sal	Shorea robusta	90	0.2866	28	0.0645	0.5449		
4	Sal	Shorea robusta	78	0.2454	18	0.0444	0.4369		
5	Sal	Shorea robusta	74	0.2357	16	0.0436	0.3488		
6	Sal	Shorea robusta	72	0.2293	15	0.0413	0.3096		
7	Sal	Shorea robusta	86	0.2703	18	0.0617	0.5549		
8	Sal	Shorea robusta	87	0.2771	20	0.0603	0.6650		
9	Sal	Shorea robusta	74	0.2357	17	0.0436	0.3706		
10	Sal	Shorea robusta	72	0.2293	16	0.0413	0.3302		
11	Sal	Shorea robusta	70	0.2229	16	0.0390	0.3131		
12	Sal	Shorea robusta	71	0.2261	18	0.0401	0.3612	4	
13	Sal	Pinus roxburghii	70	0.2229	14	0.0390	0.2731		6
14	Sal	Pinus roxburghii	72	0.2293	16	0.0413	0.3302		
						0.675	5.501		

h. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	...	...	1	
2	...	...	3	
Total			3	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Kharai	<i>Pycreus robustus</i>	3	
2	...	...	2	
3	...	...	2	
4	...	...	4	
5	...	...	15	
Total			15	

Sample Plot No: 14
 District : Asham
 Name of Forest (as per Forest Deptt)
 Forest Type : Sal
 Crown Cover : 10%

Project Structure : Surroundings of Power House
 VDC and Ward No: Harkis 3,7
 Forest Type : Sal
 Aspect : Unknown

Plot Size : 30 x 30 m
 Name of Place : Unknown
 Basal Area (%) : 0.0541
 Slope : 20°

h. Tree species

S.N	Name of Plant Species		Sampling, Pole and Tree					Remarks
	Local	Scientific	CRH (cm)	Diameter (m)	Height (m)	Basal Area [m ² (m ²)]	Volume x Basal Area x Tree Height (M ³)	
1	Sal	Shorea robusta	62	0.1975	12	0.0306	0.1836	2
2	Sal	Shorea robusta	70	0.2229	14	0.0390	0.2731	6
3	Sal	Shorea robusta	67	0.2154	12	0.0315	0.2144	
4	Sal	Shorea robusta	35	0.1752	10	0.0241	0.1304	



5	SBH	<i>Lebanus alternata</i>	64	0.3166	1.21	0.0786	0.2309		
6	SBH	<i>Pinus roxburghii</i>	21	0.2193	1.4	0.0413	0.2689		
7	SBH	<i>Pinus roxburghii</i>	70	0.2229	15	0.0399	0.2926	6	12
8	SBH	<i>Pinus roxburghii</i>	66	0.2182	12	0.0347	0.2041		
9	SBH	<i>Pinus roxburghii</i>	71	0.2337	16	0.0436	0.3448		
						0.332	2.151		

b. Shrub Species (15m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Dhanyao	<i>Boerhaavia javanica</i>	1	
2	Karpaka	<i>Albizia coriaria</i>	2	
3	...		2	
4	...		2	
			6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Kalo Bantura	<i>Agrostis alayensis</i>	4	
2	Sukla	<i>Chloranthus sp.</i>	2	
3	Puan Tadi	<i>Chloranthus multiflorus</i>	1	
4	Puan Tadi	<i>Chloranthus sp.</i>	1	
5	Kinikiki	<i>Pogonochloa eriantha</i>	5	
			14	

Sample Plot No. 15
District : Indragiri
Name of Forest Block (as found/length)
Crown Co 5%

Plot Size : 10 x 10m
Name of Place : Indragiri
Forest Type : Unknown
Aspect : Unknown

Plot Size : 10 x 10m
Name of Place : Indragiri
Basal Area (%): 0.069
Slope : 15°

a. Tree Species		Sampling, Pole and Tree					Seedling		Remarks
S.N.	Local Name	Name of Plant Species	CBF (cm)	Diameter (m)	Height (m)	Basal Area (sqm)	Area x Tree Height	Seedling (Nos.)	
1	Sire	<i>Albizia chinensis</i>	64	0.3166	12	0.0368	0.2309		
2	Sire	<i>Albizia chinensis</i>	64	0.3166	12	0.0368	0.2309		
3	Sire	<i>Albizia chinensis</i>	64	0.3166	12	0.0368	0.2309		
4	Kalawa	<i>Albizia chinensis</i>	74	0.3369	14	0.0443	0.3115	1	3
5	Sel	<i>Albizia chinensis</i>	74	0.3369	14	0.0443	0.3115	2	6
6	SBH	<i>Albizia chinensis</i>	70	0.2339	14	0.0399	0.2521		
				1.2942		0.322	1.308		

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Dhanyao	<i>Boerhaavia javanica</i>	1	
2	Karpaka	<i>Albizia coriaria</i>	2	
3	...		2	
4	...		2	
			6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Kalo Bantura	<i>Agrostis alayensis</i>	4	
2	Sukla	<i>Chloranthus sp.</i>	2	
3	Puan Tadi	<i>Chloranthus multiflorus</i>	1	
4	Tiripati	<i>Chloranthus sp.</i>	2	



5	Kanali	<i>Pyrenanthes crotolaria</i>	5
	Total		17

Sample Plot No. 16
District : Achham
Name of Forest Belal ko Jhal(Jungle)
Crown Co 5%

Project Structure : Semi-hill of young forest
VDC and Ward No.: Haribor-8
Forest Type : unknown
Aspect : unknown

Plot Size : 10 x 10m
Name of Place : Unknown
Basal Area (%):0.024
Slope : 20°

a. Tree species		Sampling, Pole and Tree					Sapling Seedling (Nos.)	Remarks
S/N	Local	Name of Plant Species	CRH (cm)	Diameter (m)	Height (m)	Basal Area [m ² (m ²)		
1	Siro	<i>Abutilon procera</i>	84	0.2473	17	0.0062	0.4775	
2	Siro	<i>Abutilon procera</i>	25	0.1242	10	0.0241	0.1304	
3	Siro	<i>Abutilon procera</i>	40	0.1712	11	0.0237	0.1576	
4	Khalu	<i>Shorea robusta</i>	40	0.1314	7	0.0142	0.0446	
5	Khalu	<i>Shorea robusta</i>	42	0.1336	8	0.0140	0.0657	
6	Sel	<i>Shorea robusta</i>	41	0.1306	8	0.0134	0.0515	
7	Khalu	<i>Sesbania aculeata</i>	34	0.1043	7	0.0092	0.0322	1
8	Mauwa	<i>Erythrina indica</i>	40	0.1274	7	0.0127	0.0446	4
9	Mauwa	<i>Erythrina indica</i>	42	0.1318	8	0.0140	0.0462	
10	Sel	<i>Shorea robusta</i>	36	0.1146	8	0.0103	0.0413	20
11	Sel	<i>Shorea robusta</i>	38	0.1210	9	0.0115	0.0517	
12	Sel	<i>Shorea robusta</i>	39	0.1242	8	0.0121	0.0484	
13	Sel	<i>Shorea robusta</i>	34	0.1083	7	0.0092	0.0322	
						0.228	1.877	

b. Shrub species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	...	<i>Sida sp.</i>	2	
2	...	<i>Oenothera sp.</i>	1	
3	Dhawal	<i>Calceolaria apiculata</i>	2	
4	Dhawal	<i>Woodfordia fruticosa</i>	1	
		Total	6	

c. Herb species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Unknown	<i>Oenothera sp.</i>	10	
2	Sirka	<i>Cynodon dactylon</i>	2	
3	Ban Taul	<i>Dioscorea bulbifera</i>	1	
4	Gandhi	<i>Ageratum conyzoides</i>	4	
5	Kanali	<i>Pyrenanthes crotolaria</i>	5	
		Total	22	

Sample Plot No.17
District : Achham
Name of Forest Belal ko Jhal(Jungle)
Crown Co Less than 5%

Project Structure : Semi-hill of young forest
VDC and Ward No.: Haribor-4
Forest Type : Subtropical CF
Aspect : SW
CPA

Plot Size : 20 x 15m
Name of Place : Subtropical ?
Basal Area (%):0.0111
Slope : 20°

a. Tree species		Sampling, Pole and Tree					Sapling Seedling (Nos.)	Remarks
S/N	Local	Name of Plant Species	CRH (cm)	Diameter (m)	Height (m)	Basal Area [m ² (m ²)		
1	Khalu	<i>Sequoia doliver</i>	40	0.1214	3	0.0127	0.0191	



1	Sd	Shorea robusta	14	0.1083	4	0.0092	0.0184	4	8	
3	Sd	Shorea robusta	18	0.1210	7	0.0115	0.0402	4		
4	Bhadulo	Guarea sp						1		
5	Manna	Empicarpus nifidus				0.0134	0.0778			

b. Shrub Species (1m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	...	Sida sp.	3	
2	...	Persea sp.	2	
3	Dhyan	Albizia julibriss	8	
	Total			

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Gulka	Dioscorea bulbifera	1	
2	Khankh	Peperomia crinitum	8	
3	...	Sida sp	2	
4	Sym	Peperomia rubra	6	
5	...	Peperomia rubra	20	
	Total			

Sample Plot No.: 18
 District: Kathmandu
 Name of Forest: ...
 Crown Co. Less than 25%

Project Structure: Sharp and area
 Plot and Type No.: Herb-4
 Name of Forest: ...
 Aspect: SW

Plot Size: 10 x 10m
 Name of Forest: ...
 Basal Area (%): 0.28
 Slope: 25°

b. Tree species											
1	Sd	Shorea robusta	60	0.1911	15	0.0287	0.2150	11	48		
2	Sd	Shorea robusta	56	0.1783	14	0.0250	0.1748				
3	Sd	Shorea robusta	31	0.1614	9	0.0207	0.0912				
4	Sd	Shorea robusta	46	0.1529	14	0.0185	0.1284				
5	Sd	Shorea robusta	44	0.1401	14	0.0154	0.1079				
6	Bhadulo	Phala sp.	46	0.1403	7	0.0146	0.0590				
7	Sd	Shorea robusta	64	0.2038	15	0.0286	0.2446				
8	Sd	Shorea robusta	60	0.1911	14	0.0287	0.2006				
9	Sd	Shorea robusta	54	0.1720	9	0.0212	0.1045				
10	Sd	Shorea robusta	52	0.1656	14	0.0215	0.1597				
11	Sd	Shorea robusta	60	0.1911	18	0.0287	0.2580				
12	Sd	Shorea robusta	33	0.1051	5	0.0087	0.0217				
13	Sd	Shorea robusta	50	0.1592	18	0.0199	0.1791				
14	Sd	Shorea robusta	43	0.1369	10	0.0147	0.0756				
15	Sd	Shorea robusta	32	0.1019	5	0.0082	0.0294				
16	Sd	Shorea robusta	31	0.1031	6	0.0087	0.0290				
17	Sd	Shorea robusta	48	0.1529	12	0.0183	0.1101				
18	Bhadulo										
						0.138	2.167			3	50

b. Shrub Species (1m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	...	Persea sp.	2	
2	Katpilla	Marrubium coccifol	1	
3	Kanda Bannara	Laburnum camara		



4	...	Side sp.	2	
Total			6	

c. Herb Species (In x Jm)				
S.N.	Local Name	Scientific Name	No.	Remarks
1	Kharab	<i>Ageratum conyzoides</i>	10	
2	Suka	<i>Crotalaria sp.</i>	4	
3	Suka	<i>Ipomoea pes-caprae</i>	6	
4	Gritha	<i>Dioscorea bulbifera</i>	1	
Total			17	

Sample Plot No: 19
District : Arunachal Pradesh
Name of P.Nat Uluvaun :
Crown Co Less than 20%

Project Structure : Sample tank area
VDC and Ward No.: Hantke-4
Forest Type: Subtropical CF?
Aspect : SW

Plot Size : 10 x 10m
Name of Place : Uluvaun
Basal Area (%): 0.132
Slope : 30°

a. Tree species									
S.N		Name of Plant Species		Sapling, Pole and Tree					
	Local		Scientific	DBH (cm)	Diameter (in)	Height (m)	Basal Area (sqft)	Volume x Basal Area x Tree Height	Sapling (m ³)
1	Sai		Shorea robusta	33		10	0.1013		9
2	Sai		Shorea robusta	41		10	0.156		32
3	Sai		Shorea robusta	32		4.5	0.0064	0.0181	
4	Sai		Shorea robusta	38		10	0.0575	0.0575	
7	Sai		Shorea robusta	39		7	0.0121	0.0824	
8	Sai		Shorea robusta	41		9	0.0134	0.0902	
9	Sai		Shorea robusta	53		13	0.1683	0.1354	
10	Sai		Shorea robusta	32		4.5	0.0062	0.0181	
11	Sai		Shorea robusta	38		15	0.0442	0.0672	
12	Sai		Shorea robusta	33		5	0.0087	0.0317	
							0.132		
							0.683		

b. Shrub Species (In x 5m)				
S.N.	Local Name	Scientific Name	No.	Remarks
1	...	<i>Dioscorea sp.</i>	2	
2	Karjuka	<i>Morinda coccinea</i>	1	
3	Kandil Rainura		2	
4	Tharal	<i>Lantana camara</i>	1	
Total			6	

c. Herb Species (In x Jm)				
S.N.	Local Name	Scientific Name	No.	Remarks
1	Kharab	<i>Pogonatum crinitum</i>	12	
2	Suka	<i>Crotalaria sp.</i>	2	
3	Suka	<i>Ipomoea pes-caprae</i>	12	
4	Gritha	<i>Dioscorea bulbifera</i>	1	
Total			27	

Sample Plot No: 20
District : Arunachal Pradesh
Name of P.Nat Uluvaun :
Crown Co 15%

Project Structure : Sample tank area
VDC and Ward No.: Hantke-4
Forest Type: Subtropical CF?
Aspect : SW

Plot Size : 10 x 10m
Name of Place : Uluvaun
Basal Area (%): 0.2364
Slope : 25°

a. Tree species										
S.N		Name of Plant Species		Sapling Pole and Tree		Basal Area		Sapling		
Local		Scientific		DBH (cm)		Height (m)		Remarks		
1	Sai	<i>Shorea robusta</i>		60		0.1911		15		
Total										
						0.2364				
						0.2150				



2	Sd	Shorea robusta	56	0.1263	14	0.0250	0.1248		
3	Sd	Shorea robusta	57	0.1624	9	0.0207	0.0912		
4	Sd	Shorea robusta	44	0.1401	14	0.0154	0.1079		
5	Sd	Shorea robusta	60	0.1911	18	0.0247	0.2380		
6	Sd	Shorea robusta	33	0.1051	5	0.0087	0.0317		
7	Sd	Shorea robusta	50	0.1392	18	0.0199	0.1791		
8	Sd	Shorea robusta	43	0.1369	10	0.0147	0.0756		
9	Sd	Shorea robusta	57	0.1815	15	0.0259	0.1940		
10	Sd	Shorea robusta	35	0.1688	14	0.0224	0.1566		
11	Sd	Shorea robusta	32	0.1019	4	0.0082	0.0163		
12	Sd	Shorea robusta	32	0.1579	12	0.0183	0.1101		
13	Sd	Shorea robusta	48		12	0.2348	1.680	3	
14	Balsalis								

b. Shrub Species (fm x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Dhatura	<i>Cathabasis apocynifolia</i>	1	
2	Burquina	<i>Morerna coccifera</i>	2	
3	bande Binamra	<i>Ignatium commara</i>	1	
Total			4	

c. Tree Species (fm x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Kharis	<i>Pongamaderum ezrinum</i>	10	
2	Sonka	<i>Chilodanthus sp.</i>	4	
3	Sira	<i>Impatiens colindresii</i>	6	
4	Tierpat	<i>Azorella sp.</i>	2	
Total			22	

Sample Plot No. 21
 District : Acharya
 Name of P.M.S. Bureau
 Coen Co 2016

CPA

Pole Size : 10 x 10m
 Name of Plot : Uthkura
 Basal Area (%): 0.25
 Slope : 25°

a. Tree Species

Sampling, Plot and Tree										
		Name of Plant Species	CHH (cm)	Diameter (m)	Height (m)	Basal Area [m ² (m ²)]	Volume = Basal Area x Tree Height	Sapling (No.)	Seedling (No.)	Remarks
S.N	Local	Scientific								
1	Sd	Shorea robusta	33	0.1051	5	0.0134	0.0660	8	20	
2	Sd	Shorea robusta	41	0.1306	4.5	0.0082	0.0181			
3	Sd	Shorea robusta	32	0.1019	10	0.0082	0.0181			
4	Sd	Shorea robusta	38	0.1210	10	0.0115	0.0575			
5	Sd	Shorea robusta	42	0.1338	9	0.0149	0.0632			
6	Sd	Shorea robusta	40	0.1274	8	0.0127	0.0510			
7	Sd	Shorea robusta	35	0.1146	7	0.0103	0.0391			
8	Sd	Shorea robusta	41	0.1306	9	0.0134	0.0692			
9	Sd	Shorea robusta	36	0.1146	9	0.0103	0.0641			
10	Sd	Shorea robusta	38	0.1210	8	0.0115	0.0640			
11	Sd	Shorea robusta	39	0.1242	7	0.0121	0.0624			
12	Sd	Shorea robusta	43	0.1368	9	0.0149	0.0641			
13	Sd	Shorea robusta	32	0.1068	4.5	0.0082	0.0181			
14	Sd	Shorea robusta	48	0.1847	15	0.0368	0.2099			
15	Marng	Forficandula ruficincta	50	0.1592	9	0.0199	0.0596			
16	Sd	Shorea robusta	33	0.1051	5	0.0087	0.0317			

b. Shrub Species (fm x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Balsalis	<i>Cassia sp.</i>	2	



2	Karpur	<i>Mercuria corymbifl.</i>	1	
3	Kande Banarua	<i>Lantana camara</i>	1	
4	Ajwain	<i>Justicia adhaucoid</i>	2	
	Total		4	

c. Herb Species (lin x lin)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Turpat	<i>Artemisia sp.</i>	3	
2	Sisu	<i>Melastoma sp.</i>	4	
3	Sisu	<i>Justicia corymbiflora</i>	11	
4	Grima	<i>Desmodium nudiflorum</i>	1	
	Total		18	

Sample Plot No: 22
District : Achham
Name of Place : Thapagaun
Forest : Thapagaun CF
Cover : 30%

Project : Structure : Surge tank area
VDC : and Ward No. : Thakla, 37
Forest : Thapagaun CF
Aspect : W

Plot Size : 10 x 10m
Name of Place : Thapagaun
Basal Area (%) : 0.1828
Slope : 20°

Tree species		Sampling Plot and Tree					Sampling		Remarks
S.N.	Tree of Plant Spec	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [m ²]	Volume x Basal Area x Tree Height	Sampling (Nos.)	
1	Small	<i>Bumelia cecilia</i>	65	0.2070	11	0.0356	0.1850	3	
2	Small	<i>Shorea robusta</i>	62	0.1975	11	0.0306	0.1683	4	
3	Small	<i>Shorea robusta</i>	55	0.1752	10	0.0241	0.1304		
4	Khimo	<i>Shorea robusta</i>	55	0.1752	9	0.0241	0.1084		
5	Small	<i>Shorea robusta</i>	36	0.1183	12	0.0250	0.1436		
6	Small	<i>Shorea robusta</i>	34	0.1083	5	0.0092	0.0230		
7	Small	<i>Shorea robusta</i>	35	0.1125	4	0.0121	0.0943		
8	Small	<i>Shorea robusta</i>	39	0.1242	7	0.0121	0.0424		
	Total					0.1828	0.8937		

b. Shrub Species (lin x lin)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Bajlajuth	<i>Stida sp.</i>	2	
2	Bajlajuth	<i>Citrus sp.</i>	1	
3	Kande Banarua	<i>Lantana camara</i>		
4	Karpurita	<i>Mercuria corymbifl.</i>	3	
5	Sisu	<i>Urtica dioica</i>	1	
	Total		8	

c. Herb Species (lin x lin)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Grima	<i>Desmodium nudiflorum</i>	1	
2	Sisla	<i>Chelidonium sp.</i>	4	
3	Uryu	<i>Adiantum sp.</i>	5	
4	.....	<i>Clematis sp.</i>	2	
5	.....	<i>Clematis sp.</i>	2	
	Total		14	

Sample Plot No: 23
District : Achham
Name of Place : Thapagaun
Forest : Thapagaun CF
Cover : 35%

Project : Structure : Surge tank area
VDC : and Ward No. : Thakla, 37
Forest : Thapagaun CF
Aspect : W

Plot Size : 10 x 10m
Name of Place : Thapagaun
Basal Area (%) : 0.1572
Slope : 20°

Tree species		Sampling Plot and Tree					Sampling		Remarks
S.N.	Tree of Plant Spec	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [m ²]	Volume x Basal Area x Tree Height	Sampling (Nos.)	



1	Total	Forma elliptica	43	0.1656	4	0.0215	0.0061	2	10	
2	Scal	Shorea robusta	56	0.1783	6	0.0259	0.1124			
3	Scal	Shorea robusta	46	0.1529	11	0.0183	0.1609			
4	Scal	Shorea robusta	44	0.1601	7	0.0154	0.0519			
5	Scal	Shorea robusta	42	0.1338	8	0.0140	0.0562			
6	Scal	Shorea robusta	43	0.1369	7	0.0147	0.0515			
7	Khamayn	Fraxinus cuneata	70	0.2229	6	0.0390	0.1170			Tree not branches
8	Scal	Shorea robusta	34	0.1083	3	0.0092	0.0230			
						0.1872	0.6901			

b. Herb Species (1m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Kashu Phantim		1	
2	Kernipia	Lemanea coccinea	3	
3	.....	Oenanthe sp.	2	
4	Total		6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Ramusa	Agrostis adspersum	6	
2	.....	Lemanea sp.	4	
3	Gumla	Phytolacca sp.	1	
4	Gundhe	Ageratum conyzoides	5	
5	Sukha	Crotalaria sp.	4	
	Total		20	

Sample Plot No.: 74
District: Achham
Name of Field Worker
Crown Co 30%

Project Structure: Stump mark new
VDC and Ward No: Hanibok-37
Forest: Indubara CF
Aspect: W

Plot Size: 10 x 10m
Name of Place: Mr. Thapagaun
Basal Area (%): 0.130
Slope: 20°

a. Tree Species

S.N.	Tree of Plant Type	Scientific Name	CRF (cm)	Diameter (m)	Height (m)	Basal Area (cm ²)	Volume x Basal Area x Tree Height (m ³)	Seeding (Nos.)	Seedling (Nos.)	Remarks
1	Shrub	Shorea robusta	64	0.1529	12	0.0136	0.157	2	6	
2	Scal	Forma elliptica	38	0.0982	5	0.0087	0.0317			
3	Total	Shorea robusta	33							
4	Scal	Shorea robusta	44	0.1401	9	0.0154	0.0944			
5	Scal	Shorea robusta	45	0.1433	7	0.0161	0.0564			
6	Scal	Shorea robusta	43	0.1369	7	0.0147	0.0515			
7	Scal	Shorea robusta	43	0.1369	7	0.0147	0.0515			
8	Bhimad	Crotalaria sp.	50	0.1592	13	0.0199	0.138			
						0.1380	0.5996			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Phayiro	Woodfordia fruticosa	1	
2	Katipia	Lemanea coccinea	2	
3	.....	Oenanthe sp.	4	
	Total			

c. Herb Species (1m x 1m)



S.N.	Local Name	Scientific Name	No.	Remarks
1	Simla	<i>Cordia alliodora</i> sp.	1	
2	Grimla	<i>Dioscorea bulbifera</i>	4	
3	...	<i>Uraria</i> sp.	5	
4	Kharabla	<i>Peperomia heterophyllum</i>	1	
Total			11	

Sample Plot No.: 25
District : Asham
Name of Forest known
Crown Co. 35%

Project Structure : Surge tank area
VDC and Ward No.: Hambo, J7
Forest : Simla
Aspect : W

Plot Size : 10 x 10m
Name of Place : N.T. Talsangam
Basal Area (%) : 0.119
Slope : 25°

a. Tree species		Sampling, Pole and Tree					Sampling		Remarks
S.N.	Local Name	Scientific Name	CBH (cm)	Diameter (m)	Height (m)	Basal Area (m ²)	Volume = Basal Area x Tree Height	Seedling (Nos.)	
1	Small	<i>Shorea robusta</i>	44	0.1401	6	0.015	0.046	2	5
2	Small	<i>Shorea robusta</i>	44	0.1401	8	0.015	0.062		
3	Small	<i>Shorea robusta</i>	46	0.1529	10	0.018	0.092		
4	Small	<i>Shorea robusta</i>	32	0.1019	4	0.008	0.016		
5	Small	<i>Shorea robusta</i>	46	0.1465	9	0.017	0.016		
6	Small	<i>Shorea robusta</i>	24	0.083	4	0.009	0.018		
7	Small	<i>Shorea robusta</i>	87	0.2114	10	0.046	0.239		
Total						0.119	0.489		

b. Shrub Species (1m x 5m)		No.	Remarks
S.N.	Local Name	Scientific Name	
1		<i>Cordia alliodora</i> sp.	2
2		<i>Uraria</i> sp.	1
3		<i>Peperomia heterophyllum</i>	1
4		<i>Peperomia heterophyllum</i>	2
Total			6

c. Herb Species (1m x 1m)		No.	Remarks
S.N.	Local Name	Scientific Name	
1	Small	<i>Cordia alliodora</i> sp.	1
2	Grimla	<i>Dioscorea bulbifera</i>	4
3	Grimla	<i>Uraria</i> sp.	4
4	...	<i>Peperomia heterophyllum</i>	5
5	...	<i>Peperomia heterophyllum</i>	14
Total			28

Sample Plot No.: 26
District : Asham
Name of Forest known
Crown Co. 30%

Project Structure : Surge tank area
VDC and Ward No.: Hambo, J7
Forest : Simla
Aspect : W

Plot Size : 10 x 10m
Name of Place : N.T. Talsangam
Basal Area (%) : 0.131
Slope : 20°

a. Tree species		Sampling, Pole and Tree					Sampling		Remarks
S.N.	Local Name	Scientific Name	CBH (cm)	Diameter (m)	Height (m)	Basal Area (m ²)	Volume = Basal Area x Tree Height	Seedling (Nos.)	



S.N	Local	Scientific	CRH (cm)	Diameter (in)	hgt (m)	leafy (m ² /h)	Area x Tree Height (Nos)	Seedling (Nos)	Remarks
1	Junon	Secodendrum	15	0.1115	12	0.029	0.132	4	
2	Sadl	Shorea robusta	35	0.1115	6	0.010	0.059	1	
3	Sadl	Shorea robusta	38	0.1210	6	0.011	0.014		
4	Sadl	Shorea robusta	48	0.1559	12	0.018	0.110		
5	Sadl	Shorea robusta	61	0.1943	10	0.020	0.148		
6	Sadl	Shorea robusta	49	0.1961	8	0.019	0.076		
7	Sadl	Shorea robusta	45	0.1453	8	0.016	0.064		
						0.133	0.445		

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Budabo	Crataegus sp.	3	
2		Ironia sp.	3	
3	Karpata	Moronea roseifl.	2	
4	Dhawal	Woodfordia fruticosa	1	
	Total		7	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Sotia	Centropogon sp.	2	
2	Dumura	Ageratum adenophorum	2	
3	Chandab	Centropogon sp.	3	
4	Kilambh	Persea indica rosea	8	
	Total		16	

Sample Plot No.: 27
District : Achham
Name of Forest Reserve
Cover Ca 30%

Project Structure : N- Surge tank and PH
VDC : and Ward No.: Thembok, 17
Forest : Indubakra CP
Aspect : W

Plot Size : 20 x 20m
Name of Forest : Indubakra
Basal Area (%) : 0.1570
Slope : 40°

a. Tree species

S.N	Local	Scientific	CRH (cm)	Diameter (in)	Height (m)	Basal Area (m ² /h)	Volume = Basal Area x Tree Height (Nos)	Seedling (Nos)	Seedling (Nos)	Remarks
1	Sadl	Shorea robusta	22	0.122	6	0.013	0.072	28	25	
2	Sadl	Shorea robusta	21	0.1161	14	0.0401	0.4315			
3	Sadl	Shorea robusta	71	0.2261	18	0.0424	0.5991			
4	Sadl	Shorea robusta	73	0.2325	20	0.0413	0.8261			
5	Sadl	Shorea robusta	72	0.2293	20	0.0413	0.8261			
6	Sadl	Shorea robusta	70	0.2229	17	0.0390	0.3979			
7	Sadl	Shorea robusta	95	0.2025	22	0.0719	0.2483			
8	Sadl	Shorea robusta	67	0.2134	13	0.0157	0.2788			
9	Sadl	Shorea robusta	64	0.2018	14	0.0156	0.2159			
10	Sadl	Shorea robusta	76	0.2450	21	0.0469	0.5798			
11	Sadl	Shorea robusta	77	0.2125	20	0.0421	0.5991			
12	Sadl	Shorea robusta	68	0.2166	16	0.0348	0.5568			
13	Sadl	Shorea robusta	51	0.2036	16	0.0324	0.5196			
14	Sadl	Shorea robusta	71	0.2125	21	0.0432	0.5991			
15	Sadl	Shorea robusta	71	0.2125	21	0.0432	0.5991			
16	Sadl	Shorea robusta	33	0.1019	5	0.0082	0.0415			
						0.428	6.480			

b. Shrub Species (5m x 5m)





S.N.	Name of Plant	Scientific	CHH (cm)	Diameter (cm)	Height (m)	Basal Area (sqm)	Volume = Basal Area x Tree Height (Nm ³)	Sampling	Seedling (Nm ³)	Remarks
1	Malabo	Microseris parviflora	24	0.1083	4.5	0.0087	0.0153	1	4	
2	Malabo	Microseris parviflora	27	0.1019	4.5	0.0082	0.0153	2	4	
3	Malabo	Microseris parviflora	47	0.1497	13.5	0.0176	0.1119	3	4	
4	Malabo	Microseris parviflora	45	0.1413	14.5	0.0164	0.1169	3	4	
5	Malabo	Microseris parviflora	46	0.1465	14.5	0.0168	0.1121	3	4	
6	Malabo	Microseris parviflora	45	0.1336	14.5	0.0140	0.1018	3	4	
7	Malabo	Microseris parviflora	60	0.1911	18	0.0347	0.2580	3	4	
8	Malabo	Microseris parviflora	33	0.1051	5.5	0.0087	0.0218	3	4	
9	Malabo	Microseris parviflora	35	0.1115	6	0.0096	0.0239	3	4	
10	Malabo	Microseris parviflora	38	0.1210	7	0.0115	0.0402	3	4	
11	Malabo	Microseris parviflora	35	0.1115	6	0.0096	0.0239	3	4	
12	Malabo	Microseris parviflora	32	0.1019	5	0.0082	0.0239	3	4	
13	Malabo	Microseris parviflora	45	0.1433	16	0.0161	0.1289	3	4	
14	Malabo	Microseris parviflora						3	4	
15	Malabo	Microseris parviflora						3	4	
16	Malabo	Microseris parviflora						3	4	
Total						0.1648	1.0148	3	6	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Dhaura	Cardinalis agrostifolia	1	
2	Aurora	Justicia subcordata	2	
3	Karpurita	Mertensia coccinea	1	
4	Stano	Urena dioica	2	
Total			6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Litoyi	Pteris sp.	4	
2	Sagpalo Malai	Arisaema sp.	2	
3	Kasau	Urtica dioica	4	
4	Bulayo	Ziziphus buxifolia	8	
Total			18	

Sample Plot No. 30
District: Bafra
Name of Forest Officer:
Forest Type: Jankana Jarana CF
Cover: 5%

Pine Size: 30, 15m
Name of Place: Near Eddi Dahan
Basal Area (%): 0.044
Slope: 15°

a. Tree Species

S.N.	Name of Plant	Scientific	CHH (cm)	Diameter (cm)	Height (m)	Basal Area (sqm)	Volume = Basal Area x Tree Height (Nm ³)	Sampling	Seedling (Nm ³)	Remarks
1	Malabo	Microseris parviflora	45	0.1113	5	0.0141	0.0861	1	2	
2	Malabo	Microseris parviflora	50	0.1352	6	0.0197	0.0861	1	2	
3	Malabo	Microseris parviflora	33	0.1019	5	0.0082	0.0239	1	2	
4	Malabo	Microseris parviflora	35	0.1115	4	0.0096	0.0195	1	2	
5	Malabo	Microseris parviflora	35	0.1115	5	0.0096	0.0214	1	2	
6	Malabo	Microseris parviflora	43	0.1338	7	0.014	0.049	1	2	
7	Malabo	Microseris parviflora	34	0.1083	4.5	0.0092	0.0207	1	2	
8	Malabo	Microseris parviflora	32	0.1019	4	0.0082	0.0163	1	2	
9	Malabo	Microseris parviflora	34	0.1083	7	0.0092	0.0122	1	2	
10	Malabo	Microseris parviflora	35	0.1115	11	0.0124	0.1240	1	2	
11	Malabo	Microseris parviflora	46	0.1433	7	0.0176	0.0402	1	2	
12	Malabo	Microseris parviflora	34	0.1019	7	0.0092	0.0239	1	2	
13	Malabo	Microseris parviflora	34	0.1019	7	0.0092	0.0239	1	2	
14	Malabo	Microseris parviflora	34	0.1019	7	0.0092	0.0239	1	2	
15	Malabo	Microseris parviflora	34	0.1019	7	0.0092	0.0239	1	2	
16	Malabo	Microseris parviflora	34	0.1019	7	0.0092	0.0239	1	2	
Total						0.2001	0.7385	14	26	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
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1	Diakro	<i>Wendlandia frutescens</i>	1	
2	Appl	<i>Mimusops rubiginosa</i>	1	
3		<i>Phyllanthus sp.</i>	2	
4		<i>Hydnora sp.</i>	2	
5	Haritara	<i>Marrubium coccineum</i>	2	
6	Thunberg	<i>Calanthe apiculata</i>	1	
7	Champani	<i>Persea indica</i>	1	
Total			11	

5. Herb Species (In x 10)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Guthi	<i>Onoclea bulbifera</i>	1	
2	Champani	<i>Hydnora sp.</i>	3	
3	Kero	<i>Calanthe sp.</i>	4	
4	Thunberg	<i>Adiantum sp.</i>	2	
Total			10	

Sample Plot No. 31

District : Jharkhand
Name of Forest : Jharkhand
Forest : Jharkhand Community
W

Project : Jharkhand
VDC : and Ward No : Khatu
Forest : Jharkhand Community
W

Plot Size : 10 x 10m
Name of Place : Near Eklai Doham
Bread Area (%) : 0.35
Slope : 10°

6. Tree species

Sampling, Pole and Tree										Sampling (Tree)	
S.N.	Local Name	Scientific Name	CHH (cm)	Diameter (m)	Height (m)	Bread Area (sqm)	Volume of Bread	Seedling (No.)	Remarks		
1	Sad	<i>Shorea robusta</i>	66	0.2166	20	0.0306	0.1683				
2	Sad	<i>Shorea robusta</i>	62	0.1975	11	0.0377	0.1534				
3	Sad	<i>Shorea robusta</i>	59	0.1879	11	0.0377	0.1534				
4	Shubra	<i>Medicago polypodioides</i>	32	0.1019	5	0.0082	0.0304				
5	Sad	<i>Shorea robusta</i>	62	0.1975	11	0.0377	0.1534				
6	Shubra	<i>Medicago polypodioides</i>	35	0.1115	6	0.0098	0.0393				
7	Shubra	<i>Medicago polypodioides</i>	32	0.1019	5	0.0082	0.0304				
8	Sad	<i>Shorea robusta</i>	38	0.1210	7	0.0115	0.0402				
9	Sad	<i>Shorea robusta</i>	64	0.2038	11	0.0377	0.1534				
10	Sad	<i>Shorea robusta</i>	56	0.1783	11	0.0250	0.1379				
11	Sad	<i>Shorea robusta</i>	42	0.1388	7	0.0149	0.0492				
12	Sad	<i>Shorea robusta</i>	40	0.1388	7	0.0149	0.0492				
13	Sad	<i>Shorea robusta</i>	25	0.1752	11	0.0241	0.1325				
14	Shubra	<i>Medicago polypodioides</i>	42	0.1975	9	0.0106	0.1177				
15	Sad	<i>Shorea robusta</i>	63	0.2006	11	0.0377	0.1534				
16	Sad	<i>Medicago polypodioides</i>	48	0.1529	8	0.0143	0.0714				
17	Shubra	<i>Medicago polypodioides</i>	35	0.1115	5	0.0098	0.0393				
18	Sad	<i>Shorea robusta</i>	35	0.1115	5	0.0098	0.0393				
19	Total	<i>Shorea robusta</i>	34	0.1083	3.5	0.0092	0.0715				
						0.1083	2.155				

S.N.	Local Name	Scientific Name	No.	Remarks
1	Guthi	<i>Onoclea bulbifera</i>	2	
2	Budak	<i>Carex sp.</i>	1	
3	Ke	<i>Leptocarpus</i>	1	
4	Ke	<i>Leptocarpus</i>	1	
5	Ke	<i>Leptocarpus</i>	1	
6	Ke	<i>Leptocarpus</i>	1	
7	Ke	<i>Leptocarpus</i>	1	
8	Ke	<i>Leptocarpus</i>	1	
9	Ke	<i>Leptocarpus</i>	1	
10	Ke	<i>Leptocarpus</i>	1	

S.N.	Local Name	Scientific Name	No.	Remarks
1	Guthi	<i>Onoclea bulbifera</i>	10	
2	Guthi	<i>Onoclea bulbifera</i>	2	
3	Guthi	<i>Onoclea bulbifera</i>	4	
4	Guthi	<i>Onoclea bulbifera</i>	2	
Total			18	

Sample Plot No. 32
District : Jharkhand
Name of Forest : Jharkhand
Forest : Jharkhand Community
W

Project : Jharkhand
VDC : and Ward No : Khatu
Forest : Jharkhand Community
W

Pole Size : 10 x 10m
Name of Place : Near Eklai Doham
Bread Area (%) : 0.35
Slope : 10°



S.N.	Height, Pole and Tree Size of Plant Spec Local Name	Scientific Name	CHT (cm)	Diameter (m)	Height (m)	Basal Area (sqm)	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
1	Sapling	<i>Madhura phillyrifera</i>	38	0.1176	5	0.0087	0.0317	13	35	
2	Sapling	<i>Shorea robusta</i>	37	0.1061	5	0.0082	0.0317			
3	Sapling	<i>Shorea robusta</i>	32	0.1019	4.3	0.0082	0.0318			
4	Kakade	<i>Homalium sp.</i>	32	0.1656	9	0.0315	0.0969			
5	Sapling	<i>Shorea robusta</i>	40	0.1774	7	0.0127	0.0446			
6	Sapling	<i>Shorea robusta</i>	46	0.2166	10	0.0368	0.1441			
7	Sapling	<i>Shorea robusta</i>	32	0.1019	5	0.0082	0.0304			
8	Sapling	<i>Shorea robusta</i>	41	0.1306	6	0.0154	0.0492			
9	Dobkade	<i>Geranoe pinnata</i>	43	0.1433	7	0.0161	0.0464			
10	Dobkade	<i>Geranoe pinnata</i>	40	0.1274	6	0.0127	0.0382			
11	Sapling	<i>Madhura phillyrifera</i>	30	0.1592	3	0.0149	0.0396			
12	Sapling	<i>Terminalia alata</i>	43	0.1336	7	0.0149	0.0492	2		
13	Sapling	<i>Shorea robusta</i>	35	0.1752	11	0.0244	0.1325			
14	Sapling	<i>Shorea robusta</i>	55	0.1752	11	0.0244	0.1325			
15	Sapling	<i>Shorea robusta</i>	42	0.1336	11	0.0149	0.0772			
16	Sapling	<i>Shorea robusta</i>	40	0.1374	7	0.0127	0.0446			
17	Sapling	<i>Shorea robusta</i>	40	0.1274	11	0.0127	0.0770			
18	Sapling	<i>Shorea robusta</i>	32	0.1019	11	0.0082	0.0446			
						0.2249	1.0714			

b. Shrub Species (cm x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Ashu	<i>Leucosiphon</i>	2	
2	Dhuro	<i>Woodfordia fruticosa</i>	1	
3	Dhuro	<i>Cardinalis oppositifolia</i>	1	
4	Kanpala	<i>Morus coccinea</i>	2	
	Total		5	

c. Herb Species (cm x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Gutha	<i>Dioscorea bulbifera</i>	1	
2	Kharbi	<i>Psychotria rosea erubescens</i>	12	
3	Tripuri	<i>Ageratum sp.</i>	2	
4	Budkara	<i>Centropus adpressus</i>	2	
	Total		17	

Sample Plot No.: 33
District : Ashim
Name of F.V.I. Officer :
Cover Co 30 %

Project Structure : Upper surface of Reserve area

VDC : Kulek, Archaun

Forest Type : Jharkana Community forest

Aspect : W

Plot Size : 10 x 10m
Name of Place : Khorre Tikal Dobhan
Basal Area (%) 10.337
Slope : 15°

a. Tree Species

S.N.	Height, Pole and Tree Size of Plant Spec Local Name	Scientific Name	CHT (cm)	Diameter (m)	Height (m)	Basal Area (sqm)	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
1	Sapling	<i>Shorea robusta</i>	32	0.1274	22	0.0467	0.2792	14	26	
2	Sapling	<i>Madhura phillyrifera</i>	32	0.1274	13	0.0156	0.1202			
3	Sapling	<i>Shorea robusta</i>	54	0.2028	13	0.0413	0.4127			
4	Sapling	<i>Shorea robusta</i>	72	0.2591	20	0.0413	0.826			
5	Sapling	<i>Shorea robusta</i>	63	0.1975	12	0.0306	0.1836			
6	Sapling	<i>Shorea robusta</i>	67	0.2134	12	0.0337	0.3144			
7	Kakade	<i>Homalium sp.</i>	42	0.1336	7	0.0149	0.0492			
8	Sapling	<i>Shorea robusta</i>	34	0.1083	7	0.0092	0.0322			
9	Sapling	<i>Shorea robusta</i>	55	0.1752	11	0.0244	0.1325			
10	Sapling	<i>Shorea robusta</i>	30	0.1592	11	0.0149	0.1745			
11	Sapling	<i>Shorea robusta</i>	40	0.1274	7	0.0127	0.0446			
12	Sapling	<i>Shorea robusta</i>	45	0.1336	11	0.0149	0.0772	14		
13	Sapling	<i>Shorea robusta</i>	42	0.1336	7	0.0127	0.0446			
14	Sapling	<i>Madhura phillyrifera</i>	55	0.1752	8	0.0244	0.0663			
15	Sapling	<i>Shorea robusta</i>	54	0.1083	5.5	0.0092	0.0313			
16	Sapling	<i>Madhura phillyrifera</i>	34	0.1083	10	0.0347	0.1714			
17	Sapling	<i>Shorea robusta</i>	66	0.2102	10	0.0347	0.1714			
18	Sapling	<i>Shorea robusta</i>	33	0.1019	3	0.0082	0.0304			
19	Budkara	<i>Centropus sp.</i>				0.3934	2.4409	14	26	



h. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1		<i>Marrubium cuneifolium</i>	2	
2		<i>Sarcococa sp.</i>	3	
3		<i>Calanthe apiculata</i>	1	
4		<i>Sida sp.</i>	3	
5		<i>Dynerium sp.</i>	2	
Total				11

S.N.	Local Name	Scientific Name	No.	Remarks
1	Gundhe	<i>Ageratum conyzoides</i>	3	
2	Gundhe	<i>Physalis peruviana</i>	1	
3	Burhara	<i>Physalis peruviana</i>	4	
4	Uryi	<i>Chenopodium</i> sp.	2	
Total				12

Sample Plot No: 34
District : Rajura
Name of P.Nag (Owner) :
Crown Co 35 %

Project Structure : Upper surface of Reserve area
VDC : Bahrabale
Forest Type : Jukara Lamkara CF
Aspect : E
MP

Plot Size : 10 x 10m
Name of Place : Near Elufi Dohban
Basal Area (%) : 0.402
Slope : 10°

S.N.	Height, Plot and Tree No. of Plant Spec	Scientific	CHH (cm)	Diameter (m)	Height (cm)	Basal Area (sqm/ha)	Volume + Basal Area (m ³ /ha)	Sapling Height (ft)	Sapling Seedling (Nos)	Remarks
1	Shrub	<i>Shorea robusta</i>	32	0.106	6	0.008	0.028	17	21	
2	Shrub	<i>Shorea robusta</i>	34	0.106	22	0.009	0.028			
3	Shrub	<i>Shorea robusta</i>	84	0.2075	5	0.006	0.018			
4	Shrub	<i>Shorea robusta</i>	32	0.1019	22	0.008	0.028			
5	Shrub	<i>Shorea robusta</i>	82	0.261	4.5	0.004	0.009			
6	Shrub	<i>Shorea robusta</i>	33	0.1051	6	0.009	0.029			
7	Shrub	<i>Shorea robusta</i>	35	0.1115	18	0.010	0.029			
8	Shrub	<i>Shorea robusta</i>	75	0.2389	11	0.045	0.403			
9	Shrub	<i>Medicago polymorpha</i>	72	0.2393	7	0.041	0.327			
10	Shrub	<i>Shorea robusta</i>	42	0.136	8	0.014	0.049			
11	Shrub	<i>Shorea robusta</i>	42	0.136	7	0.014	0.049			
12	Shrub	<i>Shorea robusta</i>	40	0.124	7	0.013	0.045			
13	Shrub	<i>Shorea robusta</i>	40	0.124	7	0.0127	0.0445			
14	Shrub	<i>Shorea robusta</i>	50	0.1592	11	0.0199	0.1695			
15	Shrub	<i>Shorea robusta</i>	35	0.1115	11	0.0098	0.0536			
16	Shrub	<i>Shorea robusta</i>	36	0.1210	7	0.0115	0.0407			
17	Shrub	<i>Shorea robusta</i>	42	0.136	11	0.0140	0.0772			
18	Shrub	<i>Shorea robusta</i>	34	0.106	11	0.0092	0.0506			
				0.362		2.497				

h. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	No.	Remarks
1	Redondo	<i>Calanthe apiculata</i>	2	
2	Redondo	<i>Calanthe apiculata</i>	1	
3	Redondo (Kedra)	<i>Marrubium cuneifolium</i>	2	
4	Aluno	<i>Jussiaea dubia</i>	2	
Total				7

S.N.	Local Name	Scientific Name	No.	Remarks
1		<i>Ageratum conyzoides</i>	4	
2		<i>Physalis peruviana</i>	1	
3		<i>Physalis peruviana</i>	3	
4		<i>Physalis peruviana</i>	2	
Total				12



Table C4: Flora of the Project Area

S.No.	Botanical Name	Local Name	Family	Remarks
1	<i>Acacia catechu</i>	Khayar	Leguminosae	SS, PA
2	<i>Achyranthes aspera</i>	Datiwan	Acanthaceae	PA
3	<i>Adiantum capillus-veneris</i>		Pteridaceae	SS, PA
4	<i>Aegle marmelos</i>	Bel	Rutaceae	PA
5	<i>Aeginetica indica</i>		Orobanchaceae	SS, PA
6	<i>Ageratum conyzoides</i>	Gandhe	Compositae	SS, PA
7	<i>Ageratina adenophora</i>	Bannara	Compositae	SS, PA
8	<i>Albizia lebeck</i>	Kalo Siris	Leguminosae	PA
9	<i>Albizia procera</i>	Seto Siris	Leguminosae	PA
10	<i>Alnus nepalensis</i>	Uttis	Betulaceae	SS, PA
11	<i>Alangium sp.</i>		Alangiaceae	PA
12	<i>Amaranthus spinosus</i>	Lundekanda	Amaranthaceae	PA
13	<i>Ariesaema</i>	Sarpako Makai	Araceae	SS, PA
14	<i>Artemisis sp</i>	Titepati	Compositae	SS, PA
15	<i>Artemisia indica</i>	Titepati	Compositae	SS, PA
16	<i>Atrocarpus lakoocha</i>	Badahar	Moraceae	PA
17	<i>Asparagus racemosus</i>	Kurilo	Liliaceae	PA
18	<i>Bridelia retusa</i>	Gayo	Euphorbiaceae	PA
19	<i>Bauhinia vahlii</i>	Bhorla	Leguminosae	SS, PA
20	<i>Bauhinia malabarica</i>		Leguminosae	PA
21	<i>Bauhinia variegata</i>	Koiralo	Leguminosae	PA
22	<i>Begonia sp.</i>	Magarkanche	Begoniaceae	SS, PA
23	<i>Bidens pilosa</i>	Kuro	Compositae	PA
24	<i>Boehmeria rugulosa</i>	Daar	Urticaceae	SS, PA
25	<i>Bombax ceiba</i>	Simal	Bombacaceae	SS, PA
26	<i>Butea minor</i>	Bhuleyro	Leguminosae	PA
27	<i>Callicarpa macrophylla</i>		Verbenaceae	PA
28	<i>Callicarpa arborea</i>	Guelo	Verbenaceae	SS, PA
29	<i>Calotropis gigantea</i>	Aank	Asclepiadaceae	PA
30	<i>Cannabis astiva</i>	Gaanja	Cannabinaeae	PA
31	<i>Cappilipedium assimile</i>	Musekhari	Compositae	PA
32	<i>Carex sp</i>		Cyperaceae	PA
33	<i>Casearia sp.</i>	Badkaulo	Flacourtiaceae	SS, PA
34	<i>Cassia tora</i>	Chakramardi	Leguminosae	SS, PA
35	<i>Cassia occidentalis</i>	Taapre	Leguminosae	SS, PA
36	<i>Centella asiatica</i>	Ghodtaapre	Umbelliferae	SS, PA
37	<i>Cheilanthes dalhouisiae</i>	Sinka	Polypodiaceae	PA
38	<i>Cheilanthes sp.</i>	Sinka	Polypodiaceae	PA
39	<i>Colebrokia oppositifolia</i>	Dhursul	Labiatae	SS, PA
40	<i>Cissampelos sp.</i>	Batulpate	Menispermaceae	SS, PA
41	<i>Crassocephalum crepidioides</i>		Compositae	PA
42	<i>Cuscuta reflexa</i>	Amarlata	Cuscutaceae	PA



43.	<i>Cynodon dactylon</i>	Dubo	Gramineae	SS, PA
44.	<i>Cynoglossum sp.</i>	Kuro	Boraginaceae	PA
45.	<i>Cyperus rotundus</i>	Mothe	Cyperaceae	PA
46.	<i>Cyperus sp.</i>		Cyperaceae	PA
47.	<i>Dalbergia sissoo</i>	Sissoo	Leguminosae	SS, PA
48.	<i>Desmodium sp</i>	Bhatte	Leguminosae	SS, PA
49.	<i>Desmostachys bipinnata</i>	Kush	Gramineae	PA
50.	<i>Dendrocalamus sp.</i>	Banabans	Gramineae	PA
51.	<i>Dioscorea bulbifera</i>	Githha	Dioscoreaceae	SS, PA
52.	<i>Dioscorea deltoidea</i>	Vyakur	Dioscoreaceae	SS, PA
53.	<i>Diploknema butyracea</i>	Chiuri	Sapotaceae	PA
54.	<i>Dryopteris cochleata</i>	Nihuro	Polypodiaceae	SS
55.	<i>Dryopteris vittata</i>			PA
56.	<i>Dicranopteris linearis</i>		Polypodiaceae	PA
57.	<i>Eclipta prostrata</i>	Bhringiraj	Compositae	PA
58.	<i>Englehardtia spicata</i>	Pahadi Mauwa	Juglandaceae	SS, PA
59.	<i>Equisetum arvense</i>	Ankhle jhar	Equisetaceae	PA
60.	<i>Eriophorum cosmosum</i>			PA
61.	<i>Erythrina stricta</i>	Haldu	Leguminosae	PA
62.	<i>Eulaliopsis binata</i>	Babiyo	Gramineae	PA
63.	<i>Euphorbia hirta</i>		Euphorbiaceae	SS, PA
64.	<i>Ficus auriculata</i>	Timilo	Moraceae	PA
65.	<i>Ficus benjamina</i>	Sami	Moraceae	PA
66.	<i>Ficus benghalensis</i>	Bar	Moraceae	PA
67.	<i>Ficus nerifolia</i>	Dudhilo	Moraceae	PA
68.	<i>Ficus lacor</i>	Kabhro	Moraceae	PA
69.	<i>Ficus semicordata</i>	Khanayo	Moraceae	PA
70.	<i>Ficus religiosa</i>	Peepi	Moraceae	SS, PA
71.	<i>Ficus sp 1.</i>		Moraceae	SS, PA
72.	<i>Ficus sp 2</i>		Moraceae	SS, PA
73.	<i>Ficus hispida</i>	Kharseto	Moraceae	PA
74.	<i>Garuga pinnata</i>	Dabdabe	Burseraceae	SS, PA
75.	<i>Gonatanthus sp.</i>	Jaluko	Araceae	SS, PA
76.	<i>Grewia optiva</i>	Syalphusro	Tiliaceae	SS, PA



77.	<i>Gnaphalium affine</i>		Composite	PA
78.	<i>Homalium nepalense</i>	Kakkade	Flacourtiaceae	PA
79.	<i>Heteropogon contortus</i>	Khar	Gramineae	SS, PA
80.	<i>Hibiscus rosa-chinensis</i>	Bahramase	Malvaceae	PA
81.	<i>Hedychium sp.</i>		Zingiberaceae	PA
82.	<i>Hypericum sp.</i>		Hypericaceae	PA
83.	<i>Haldina cordifolia</i>	Haldu	Rubiaceae	PA
84.	<i>Imperata cylindrica</i>	Siru	Gramineae	SS, PA
85.	<i>Indigofera sp.</i>		Leguminosae	PA
86.	<i>Ipomea sp.</i>	Besaram		PA
87.	<i>Inula cappa</i>	Gai Tihare	Compositae	SS, PA
88.	<i>Jasminum multiflorum</i>	Jai		PA
89.	<i>Jatropha curcus</i>	Sajwan	Euphorbiaceae	SS, PA
90.	<i>Kydia sp.</i>		Malvaceae	SS, PA
91.	<i>Justicia adhatoda</i>	Asuro	Acanthaceae	SS, PA
92.	<i>Lagestrornia parviflora</i>	Botdhaiyaro	Lythraceae	SS, PA
93.	<i>Lantana camara</i>	Kande Banmara	Verbenaceae	SS, PA
94.	<i>Litsea monopetala</i>	Kutmiro	lauraceae	PA
95.	<i>Lygodium japonicum</i>	Kukurjhar	Schizaceae	PA
96.	<i>Macaranga pustulata</i>	Malato	Euphorbiaceae	SS, PA
97.	<i>Mangifera indica</i>	Aaap	Anacardiaceae	PA
98.	<i>Mallotus philippinensis</i>	Sindure	Euphorbiaceae	SS, PA
99.	<i>Melia azadiractah</i>	Bakenu	Meliaceae	PA
100.	<i>Mentha arvensis</i>	Pudina	Labiatae	PA
101.	<i>Mimosa rubicaulis</i>	Arelu	Leguminosae	SS, PA
102.	<i>Murraya coenigii</i>	Karipatta	Rutaceae	SS, PA
103.	<i>Mussaenda sp.</i>	Dhobibmi	Rubiaceae	PA
104.	<i>Nephrolepis cordifolia</i>	Pani Amala	Davalliaceae	SS, PA
105.	<i>Osbeckia nepalense</i>	Rato Chulsi	Melastomaceae	SS, PA
106.	<i>Onychium japaonicum</i>	Unyu		SS, PA
107.	<i>Oroxylon indicum</i>	Tatelo	Bignoniaceae	SS, PA
108.	<i>Osyris sp.</i>	Nundhiki	Santalaceae	PA
109.	<i>Oxalis corniculata</i>	Chariamilo	Oxalidaceae	SS, PA



110.	<i>Parthenium houstonianum</i>		Compositae	PA
111.	<i>Perilla frutescens</i>	Slam	Labiatae	PA
112.	<i>Phyllanthus emblica</i>	Amala	Euphorbiaceae	SS, PA
113.	<i>Pinus roxburghii</i>	Rani Salla	Pinaceae	SS, PA
114.	<i>Plumeria rubra</i>	Apocynaceae	Apocynaceae	PA
115.	<i>Polygonum flaccidum</i>	Pire	Polygonaceae	PA
116.	<i>Pyrus pashia</i>	Mayal	Rosaceae	PA
117.	<i>Pyracantha crenulata</i>	Ghangharu	Rosaceae	SS, PA
118.	<i>Piper longum</i>	Pipla	Piperaceae	PA
119.	<i>Pogonanthum crinitum</i>	Kharuki	Gramineae	SS, PA
120.	<i>Pogostemon bengalensis</i>	Rudilo	Labiatae	PA
121.	<i>Polygonum sp.</i>		Polygonaceae	PA
122.	<i>Prunella vulgaris</i>		Labiatae	PA
123.	<i>Premna barbatra</i>	Gineri	Verbenaceae	PA
124.	<i>Pteris biaurita</i>		Polypodiaceae	PA
125.	<i>Pteris vittata</i>	Unyu	Polypodiaceae	SS, PA
126.	<i>Quamoclit pennata</i>	Jayanti lahara	Convolvulaceae	PA
127.	<i>Reinwardtia indica</i>	Pyauli	Linaceae	PA
128.	<i>Ricinus communis</i>	Ader	Euphorbiaceae	PA
129.	<i>Rubus ellipticus</i>	Aiselu	Rosaceae	SS,L,R
130.	<i>Rumex hastatus</i>	Halhale	Polygonaceae	PA
131.	<i>Saccharum spontaneum</i>	Ukhu	Gramineae	PA
132.	<i>Salvia sp</i>		Labiatae	PA
133.	<i>Sapium insigne</i>	Khirro	Euphorbiaceae	SS, PA



134.	<i>Sarcococca sp.</i>		Buxaceae	PA
135.	<i>Schima wallichii</i>	Chilaune	Theaceae	PA
136.	<i>Schleichera oleosa</i>	Kusum	Sapindaceae	PA
137.	<i>Scuteellaria repens</i>	Bansilam	Labiatae	PA
138.	<i>Selaginella sp.</i>	Ajamaributi	Selaginellaceae	PA
139.	<i>Semecarpus anacardium</i>	Bhalayo	Anacardiaceae	SS, PA
140.	<i>Shorea robusta</i>	Sal	Dipterocarpaceae	SS, PA
141.	<i>Sida rhombifolia</i>	Bankapaskuro	Malvaceae	SS, PA
142.	<i>Smilacina sp.</i>	Smilacinaceae	Smilacinaceae	PA
143.	<i>Smilax sp.</i>	Kukurdaino		PA
144.	<i>Sonchus sp.</i>		Compositae	SS, PA
145.	<i>Solanum xanthocarpum</i>	Kantakari	Solanaceae	SS, PA
146.	<i>Solanum nigrum</i>	Kaaligedi	Solanaceae	PA
147.	<i>Spondias pinnata</i>	Amaro	Anacardiaceae	PA
148.	<i>Syzygium cuminii</i>	jamun	Myrtaceae	SS, PA
149.	<i>Smilax macrophylla</i>	Kukurdaino	Smilaceae	PA
150.	<i>Strobilanthes sp.</i>	Khursaniphool	Acanthaceae	PA
151.	<i>Terminalia chebula</i>	Harro	Combretaceae	PA
152.	<i>Terminalia alata</i>	Saaj	Combretaceae	PA
153.	<i>Themeda triandra</i>	Khar	Graminae	SS, PA
154.	<i>Toona ciliata</i>	Tooni	Meliaceae	SS, PA
155.	<i>Trichilia connaroides</i>	Ankhitare	Meliaceae	PA
156.	<i>Thysanolaena maxima</i>	Amriso	Gramineae	PA
157.	<i>Urena sp.</i>		Malvaceae	SS, PA
158.	<i>Urtica dioica</i>	Sino	Urticaceae	SS, PA
159.	<i>Vitex negundo</i>	Simali	Verbenaceae	SS, PA
160.	<i>Wendlandia coriacea</i>		Rubiaceae	PA
161.	<i>Woodfordia fruticosa</i>	Dhaiyaro	Lythraceae	SS, PA
162.	<i>Xanthium strumarium</i>	Kapalekuro	Compositae	SS, PA
163.	<i>Xeromphis spinossa/Randia</i>	(Mainkanda)	Rubiaceae	SS, PA
164.	<i>Zizyphus mauritaniana</i>	Bayar	Rhamnaceae	PA

Note: PA- Project Area, SS=Site specific



Table C-9: Population density and diversity of zooplanktons in Budhi Ganga River

S N	Scientific name	April 2018 Number/Liter	
		Headworks site	Powerhouse tailrace area
Order : Rotifera			
1	<i>Colurella uncinata</i>	30	40
2	<i>Keratella cochlearis</i>	50	20
3	<i>Filinia sp</i>	0	20
4	<i>Asplanchna sp.</i>	30	20
5	<i>Trichocerca capucina</i>	20	20
6	<i>Ascomorpha sp.</i>	70	50
7	<i>Brachionus angularis</i>	40	0
8	<i>Asplanchna priodonta</i>	40	20
9	<i>Monostyla cornuta</i>	50	30
	sub-total A	330	220
Order : Copipeda			
10	<i>Paracyclops sp.</i>	20	20
11	<i>Diplopus sp</i>	15	0
12	<i>Mesocyclops cp</i>	50	30
13	<i>Cyclops sp</i>	50	60
	Sub-total	135	110
Order: Cladocera			
14	<i>Ceriodaphnia sp.</i>	30	0
15	<i>Bosmina longirostris</i>	0	20
16	<i>Diaphanosoma sp</i>	40	25
17	<i>Daphnia sp</i>	50	60
	sub-total B	120	105
	Total (A+B)	585	435



Table C-5 : Traditional and Ethno-botanical Uses of Forest Resources

S N	Botanical Name	Local Name	Use Categories							Remarks
			M	F	T	E	O	R	FI	
1.	<i>Acacia catechu</i>	Khayar	V				V			
2.	<i>Ageratina</i>	Bannara	V							
3.	<i>Achyranthes aspera</i>	Datiwan	V							
4.	<i>Aegle marmelos</i>	Bel	V							
5.	<i>Albizia lebbeck</i>	Kalo Siris			V					
6.	<i>Albizia procera</i>	Seto Siris			V					
7.	<i>Alnus nepalensis</i>	Uttis			V					
8.	<i>Amaranthus spinosus</i>	Lundekanda	V							Green Vegetable
9.	<i>Ariesaema sp.</i>	Sarpako Makai								Food of famine
10.	<i>Artemisia sp</i>	Titepati	V							
11.	<i>Artemisia indica</i>	Titepati	V					V		
12.	<i>Atrocarpus lakoocha</i>	Badahar		V						
13.	<i>Asparagus raceamosus</i>	Kurilo	V							
14.	<i>Bridelia retusa</i>	Gayo		V						
15.	<i>Bauhinia vahili</i>	Bhorla								Leaves for local umbrella
16.	<i>Bauhunia malabarica</i>		V							
17.	<i>Bauhinia variegata</i>	Koiralo	V							Flowers for pickle
18.	<i>Begonia sp.</i>	Magarkanche								Cultural
19.	<i>Boehmeria rugulosa</i>	Daar								Wooden containers
20.	<i>Bombax ceiba</i>	Simal		V						Pillow cotton
21.	<i>Calotropis gigantea</i>	Aank	V							
22.	<i>Cannabis astiva</i>	Gaanja	V							Narcotic
23.	<i>Cappilipedium assimile</i>	Musekhari	V							
24.	<i>Cassia tora</i>	Chakramardi	V							
25.	<i>Cassia occidentalis</i>	Taapre	V							
26.	<i>Centella asiatica</i>	Ghodkaapre	V							
27.	<i>Cheilanthes sp.</i>	Sinka	V							Piercing of ears
28.	<i>Cissampelos sp.</i>	Batulpate	V							
29.	<i>Cuscuta reflexa</i>	Amarlata	V							
30.	<i>Cynodon dactylon</i>	Dubo	V					V		



31.	<i>Cyperus rotundus</i>	Mothe	V								
32.	<i>Dalbergia sissoo</i>	Sissoo	V	V							
33.	<i>Desmostachys bipinnata</i>	Kush		V				V			
34.	<i>Dendrocalamus sp.</i>	Banabans			V		V				
35.	<i>Dioscorea bulbifera</i>	Gittha								Wild edible	
36.	<i>Dioscorea deltoidea</i>	Vyakur								Wild edible	
37.	<i>Diploknema butyracea</i>	Chiuri				V					
38.	<i>Dryopteris cochleata</i>	Nihuro								Wild green vegetable	
39.	<i>Eclipta prostrata</i>	Bhringiraj	V								
40.	<i>Englehardtia spicata</i>	Pahadi Mauwa			V						
41.	<i>Erythrina stricta</i>	Haidu			V						
42.	<i>Eulaliopsis binata</i>	Babiyo			V		V				
43.	<i>Ficus auriculata</i>	Timilo		V							
44.	<i>Ficus benjamina</i>	Sami		V							
45.	<i>Ficus benghalensis</i>	Bar	V					V			
46.	<i>Ficus nerifolia</i>	Dudhilo			V						
47.	<i>Ficus lacor</i>	Kabhro		V							
48.	<i>Ficus semicordata</i>	Khanayo			V						
49.	<i>Ficus religiosa</i>	Peepi	V					V			
50.	<i>Ficus hispida</i>	Kharseto		V							
51.	<i>Garuga pinnata</i>	Dabdabe		V							
52.	<i>Grewia optiva</i>	Syalphusro		V							
53.	<i>Haldina cordifolia</i>	Haidu			V						
54.	<i>Heteropogon contortus</i>	Khar								Roofing	
55.	<i>Hibiscus rosa-chinensis</i>	Bahramase					V				
56.	<i>Hedychium sp.</i>									Wild ornamental	
57.	<i>Hypericum sp.</i>									Wild ornamental	
58.	<i>Jasminum multiflorum</i>	Jai				V					
59.	<i>Jatropha curcus</i>	Sajiwani	V			V					
60.	<i>Justicia adhatoda</i>	Asuro	V								
61.	<i>Lagestromia parviflora</i>	Botdhaiyaro			V						
62.	<i>Litsea monopetala</i>	Kutmiro		V							
63.	<i>Mangifera indica</i>	Aaap			V	V					
64.	<i>Mallotus philippinensis</i>	Sindure	V								

65.	<i>Melia azadiractah</i>	Bakenu	V		V						
66.	<i>Mentha arvensis</i>	Pudina	V				V				
67.	<i>Mimosa rubicaulis</i>	Arelu	V								
68.	<i>Murraya coenigii</i>	Karipatta	V				V				
69.	<i>Nephrolepis cordifolia</i>	Pani Amala								Landslide protection	
70.	<i>Osbeckia nepalense</i>	Rato Chulsi								Wild ornamental	
71.	<i>Oroxylon indicum</i>	Tatelo						V			
72.	<i>Osyris sp.</i>	Nundhiki	V								
73.	<i>Perilla frutescens</i>	Silam					V				
74.	<i>Phyllanthus emblica</i>	Amala	V				V				
75.	<i>Pinus roxburghii</i>	Rani Salla			V		V				
76.	<i>Plumeria rubra</i>	Apocynaceae						V			
77.	<i>Pyrus pashia</i>	Mayal								Wild edible fruit	
78.	<i>Pyracantha crenulata</i>	Ghangharu								Wild edible fruit	
79.	<i>Piper longum</i>	Pipla	V							Roofing	
80.	<i>Pogonanthum crinitum</i>	Kharuki									
81.	<i>Pogostemon bengalensis</i>	Rudlio	V								
82.	<i>Premna barbata</i>	Gineri			V						
83.	<i>Pteris vittata</i>	Unyu									
84.	<i>Quamocit pennata</i>	Jayanti lahara						V			
85.	<i>Reinwardtia indica</i>	Pyauli						V			
86.	<i>Ricinus communis</i>	Ader	V				V				
87.	<i>Rubus ellipticus</i>	Aiselu									
88.	<i>Saccharum spontaneum</i>	Ukhu					V				
89.	<i>Salvia sp</i>							V			
90.	<i>Sapium insigne</i>	Khirro								Fish poison	
91.	<i>Schima wallichii</i>	Chilaune				V					
92.	<i>Schleichera oleosa</i>	Kusum				V					
93.	<i>Shorea robusta</i>	Sal				V					
94.	<i>Smilax sp.</i>	Kukurdaino							V		
95.	<i>Sonchus sp.</i>										
96.	<i>Solanum xanthocarpum</i>	Kantakari	V								
97.	<i>Solanum nigrum</i>	Kaaligedi	V								
98.	<i>Spondias pinnata</i>	Amaro	V							Wild edible fruit	



99.	<i>Syzygium cumini</i>		V		V								
100.	<i>Smilax macrophylla</i>	Kukurdaino							V				
101.	<i>Strobilanthès sp.</i>	Khursaniphool											
102.	<i>Terminalia chebula</i>	Harro	V		V								
103.	<i>Terminalia alata</i>	Saaj			V								
104.	<i>Therneda triandra</i>	Khar										Roofing	
105.	<i>Toona ciliata</i>	Tooni		V	V								
106.	<i>Trichilia connaroides</i>	Ankhitare			V								
107.	<i>Thysanolaena maxima</i>											Broom	
108.	<i>Urtica dioica</i>	Sino	V										
109.	<i>Vitex negundo</i>	Simali	V										
110.	<i>Woodfordia fruticosa</i>	Dhaiyaro	V										
111.	<i>Zizyphus mauritaniana</i>	Bayar											Wild edible fruit

Medicinal, F=Fodder, T=Timber, E=Economical, O=Ornamental, R=Religious, FI=Fiber



Table C-6: Mammals of the project area

S N	Name of mammals		Habitat use	Distribution status	Protected status		Distributional status				Method of confirmation
	Scientific	Common			CITES Category	IUCN Redlist	Project Area	Dam & Reservoir	Adit	Powerhouse	
1	<i>Canis aureus</i>	Jackal	F and A	Common	CITES III	LC	+	+	+	+	Observation
2	<i>Felis chaus</i>	Jungle cat	F, A and G	Common	-	LC	+	+	+	+	Local information and literature review
3	<i>Hystrix indica</i>	Porcupine	F, G and A	Common	-	LC	+	+	+	+	Local information and literature review
4	<i>Macaca mulatta</i>	Rhesus monkey	F, G, C and A	Common	CITES II	LC	+	+	+	+	Observation
5	<i>Martes flavigula</i>	Yellow throated marten	F and A	Common	CITES III	LC	+	+	+	+	Local information and literature review
6	<i>Panthera pardus</i>	Leopard	F	Uncommon	CITES I	-	+	+	+	+	Local information and literature review
7	<i>Semnopithecus hector</i>	Common langur	F, G, C and A	Common	CITES I	NT	+	+	+	+	Observation
8	<i>Bandicota bengalensis</i>	Lesser Bandicoot Rat	A	Common	-	LC	+	+	+	+	Local information and literature review
9	<i>Herpestes auropunctatus</i>	Small Indian Mongoose	F, G and A	Common	-	LC	+	-	-	-	Local information and literature review
10	<i>Neomohedus goral</i>	Ghoral	F and C	Uncommon	CITES-I	NT	+	+	+	+	Local information and literature review
11	<i>Sus scrofa</i>	Eurasian Wild Boar	F	Common	-	LC	+	+	+	+	Local information and literature review
12	<i>Miniopterus schreibersii</i>	Common Bent -Winged Bat	F and C	Common	-	NT	+	-	-	-	Local information and literature review
13	<i>Muntiacus muntjak</i>	Barking deer	F	Uncommon	-	LC	+	+	+	+	Local information and literature review

Note:

Protected status

- F : Forest
 G : Grass and Shrubs
 A : Agriculture area
 C : Rocky area and cliffs
 + : Present
 - : Not present
- CITES I : Species threatened with extinction
 CITES II : Species not necessary threatened but could become so.
 CITES III : Species required international cooperation to control trade
 LC Least concern
 NT Near threatened

Remarks:

Although listed by CITES and other organization these species are common and widely distributed in Nepal
 LLR: Local information and Literature Review



Table-C-12: Fish Diversity and Species Composition in Project Area (April 2018)

Sampling Station	Location	Scientific Name	Common Name	No. of Fish Caught	Size Range (Cm)	Wt. Range (Gm)	Average Wt. of the Total Catch (Gm)	Species Composition %
1	Budhi Ganga with Sarane Gad Confluence area	<i>Schizothorax progasus</i>	Chuche Asala	6	18-22	60-90	450	27.27
		<i>Schizothorax plagiotomus</i>	Buche Asala	9	16-23	40-100	630	40.90
		<i>Schizothorax richardsonii</i>	Buche Asala	2	13-19	25-70	95	9.09
		<i>Pseudecheneis sulcata</i>	Kabre	1	9.5	15	15	4.55
		<i>Labeo angra</i>	Thed	1	14	30	30	4.55
		<i>Neolissochilus hexagonolepis</i>	Katle	1	14	25	25	4.55
		<i>Tor putitora</i>	Mahseer	2	13-14	25-28	53	9.09
		Sub - Total		22			1298.00	100.00
2	Budhi Ganga with Ikri Gad Confluence area	<i>Schizothorax progasus</i>	Chuche Asala	5	15-19	20-33	132.5	18.52
		<i>Schizothorax plagiotomus</i>	Buche Asala	12	18-24	60-120	1080	44.44
		<i>Schizothorax richardsonii</i>	Buche Asala	4	17-19	50-70	240	14.81
		<i>Garra gobyia</i>	Buduna	1	13	30	30	3.70
		<i>Neolissochilus hexagonolepis</i>	Katle	3	16-18	40-60	150	11.12
		<i>Tor putitora</i>	Mahseer	1	9	10	12.5	3.70
		<i>Tor tor</i>	Mahseer	1	11	15	15	3.70
		Sub - Total		27			1660.00	100.00
3	Budhi Ganga with Ardole Gad Confluence area	<i>Schizothorax progasus</i>	Chuche Asala	4	19-21	60-70	260	12.50
		<i>Schizothorax plagiotomus</i>	Buche Asala	13	20-22.5	65-90	1007.5	40.63
		<i>Naziritor chelynoides Bangana (Labeo) dero</i>	Karange Gardi	2	12-14	20-30	50	6.25
		<i>Neolissochilus hexagonolepis</i>	Katle	2	11-15	20-34	54	6.25
		<i>Tor putitora</i>	Mahseer	2	8-10	12-15	27	6.25
		<i>Pseudecheneis sulcata</i>	Kabre	1	14	30	30	3.13
		<i>Garra gobyia</i>	Buduna	4	13-17	25-50	150	12.50
		Sub - Total		32			1838.50	100.00
4	Budhi Ganga with Bhimkoti Gad Confluence area	<i>Schizothorax progasus</i>	Chuche Asala	4	11-23	20-100	250	10.26
		<i>Schizothorax plagiotomus</i>	Buche Asala	15	17-21.5	50-70	900	38.46
		<i>Schizothorax richardsonii</i>	Buche Asala	6	19-28	60-200	780	15.38
		<i>Neolissochilus hexagonolepis</i>	Katle	3	10-16	15-45	90	7.69
		<i>Bangana (Labeo) dero</i>	Gardi	5	29-32	220-350	1425	12.82



		<i>Tor putitora</i>	Mahseer	2	13-16	25-45	72	5.13
		<i>Tor tor</i>	Mahseer	2	10-12	15-20	35	5.13
		<i>Naziritor chelynooides</i>	Karange	1	13	25	37.5	2.56
		<i>Garra gotyla</i>	Buduna	1	14	28	28	2.56
		Sub - Total		39			3617.50	100.00
		<i>Schizothorax</i>	Chuche Asala	6	17-20	50-70	360	11.54
		<i>progastus</i>	Buche Asala	22	18-20	60-70	1430	42.31
		<i>Schizothorax</i>	Buche Asala	22	18-20	60-70	1430	42.31
		<i>plagiostomus</i>	Buche Asala	7	29-33	250-350	2100	13.46
		<i>Schizothorax richardsonii</i>	Buche Asala	7	29-33	250-350	2100	13.46
		<i>Neolissochilus</i>	Katle	1	13	25	25	1.92
		<i>hexagonolepis</i>	Katle	1	13	25	25	1.92
		<i>Bangana (Labeo) dero</i>	Gardi	3	14-32	60-350	615	5.77
		<i>Tor putitora</i>	Mahseer	4	11-14	25-70	190	7.69
		<i>Labeo dyochellus</i>	Kalach	2	16-17	47-50	97	3.85
		<i>Garra gotyla</i>	Buduna	3	13-16	25-30	82.5	5.77
		<i>Labeo angra</i>	Thed	2	15-18	35-40	75	3.85
		<i>Pseudecheneis sulcata</i>	Kabre	2	15-18	35-60	95	3.85
		Sub - Total		52			5069.50	100.00
		Total		172			13483.50	



Table C-7: Birds of the project area

S N	Name of birds		Habitat	Relative occurrence	Distribution status			Protected status		Method of confirmation
	Scientific	Common			Project Area	Project Sites		IUCN	CTES	
						Dam and Reservoir area	Powerhouse			
1	<i>Ardea cinerea</i>	Grey Heron	R	Occasional	+	-	-	LC	-	Local information and literature review
2	<i>Haliastur hindus</i>	Brahminy Kite	R	Occasional	+	-	-		-	"
3	<i>Spilornis cheela</i>	Crested Serpent-eagle	R	Occasional	+	+	-	LC	-	"
4	<i>Icthyophaga malabaricus</i>	Black Eagle	O,R	Occasional	+	-	-	LC	-	"
5	<i>Nisaetus nipalensis</i>	Mountain Hawk Eagle	F,R	Occasional	+	-	-		-	"
6	<i>Neophron percnopterus</i>	Egyptian Vulture	F,R	Common	+	-	-	EN	-	"
7	<i>Falco tinnunculus</i>	Common Kestrel	R,F	Common	+	-	-	LC	-	"
8	<i>Lophura leucomelanos</i>	Kailij Pheasant	F	Common	+	+	+	LC	-	"
9	<i>Vannellus cinereus</i>	Grey Headed Lapwing	R	Occasional	+	-	-		-	"
10	<i>Vannellus indicus</i>	Red Wattled Lapwing	R	Occasional	+	-	-		-	"
11	<i>Columba rupestris</i>	Hill Pigeon	F	Occasional	+	-	-	LC	-	"
12	<i>Streptopelia chinensis</i>	Spotted Dove	O,F	Common	+	+	+		-	"
13	<i>Streptopelia decaocta</i>	Eurasian Collared-dove	O,F	Common	+	+	+	LC	-	"
14	<i>Psittacula cyanocephala</i>	Blossom Headed Parakeet	F	Common	+	+	+	LC	-	Observation
15	<i>Psittacula krameri</i>	Rose Ringed Parakeet	F	Common	+	+	+	LC	-	Observation
16	<i>Hierocoryx varius</i>	Common hawk Cuckoo	F	Common	Occasional	+	+		-	Local information and literature review
17	<i>Cuculus coromus</i>	Common Cuckoo	F	Abundant	+	+	+	LC	-	Observation
18	<i>Cuculus micropterus</i>	Indian Cuckoo	F	Common	+	+	+	LC	-	Observation



19	<i>Bubo bubo</i>	Great Horned Owl	Gorges of River	Common	+	-	-		Local information and literature review
20	<i>Mylus migrans</i>	Black Kite	O	Common	+	+	+	LC	Observation
21	<i>Columba livia</i>	Rock Dove	O and Villages	Common	+	+	+	LC	CITES III Observation
22	<i>Streptopelia orientalis</i>	Rufous Turtle Dove	O, F	Common	+	-	-		Observation
23	<i>Streptopelia chinensis</i>	Spotted Dove	O, F	Common	+	+	+		Local information and literature review
24	<i>Coracias benghalensis</i>	Indian Roller	F, O	Common	+	+	-	LC	"
25	<i>Alcedo atthis</i>	Common King Fisher	R	Common	+			LC	"
26	<i>Pycnonotus cafer</i>	Red - vented Bulbul	O and Villages	Common	+	+	+	LC	Observation
27	<i>Urocissa erythrorhyncha</i>	Red - billed Blue Magpie	F	Common	+	+	+	LC	Observation
28	<i>Apus affinis</i>	House Swift	O and Villages	Common	+	+	+		Observation
29	<i>Lanius schach</i>	Long - tailed Shrike	Houses , Huts	Common	+	-	-	LC	Local information and literature review
30	<i>Dicrurus leucophaeus</i>	Ashy Drongo	F	Common	+	+		LC	"
31	<i>Acridotheres tristis</i>	Common Myna	O and Villages	Abundant	+	+	+	LC	Observation
32	<i>Corvus macrorhynchos</i>	Jungle Crow	O and Villages	Common	+	+	+	LC	Observation
33	<i>Corvus splendens</i>	House Crow	O and Villages	Common	+	+	+	LC	Observation
34	<i>Pycnonotus cafer</i>	Red - Vented Bulbul	O and Villages	Common	+	+	+	LC	Observation
35	<i>Alurus striatus</i>	Striated Bulbul	O	Occasional	+			LC	Observation
36	<i>Phylloscopus cantator</i>	Yellow Throated Warbler	F	Occasional	+	+	+		Local information and literature review
37	<i>Copsychus saularis</i>	Oriental - robin	F	Common	+	+	+	LC	Observation



38	<i>Motacilla alba</i>	White Wagtail	R	Common	+	-	-	LC	-	Local information and literature review
39	<i>Motacilla flava</i>	Western Yellow Wagtail	R	Common	+	-	-	LC	-	"
40	<i>Passer montianus</i>	Tree Sparrow	O and Villages	Abundant	+	+	+		-	Observation
41	<i>Passer domesticus</i>	House Sparrow	House and huts	Abundant	+	+	+		-	Observation
42	<i>Gypus barbatus</i>	Lammerger	Open areas	Occasional	+	+	+		-	Local information and literature review
43	<i>Arundinax aedon</i>	Thick-billed Warbler	F	Common	+	-	-	LC	-	"
44	<i>Turdoides striata</i>	Jungle Babbler	F	Common	+	-	-	LC	-	"
45	<i>Abroscopus superciliosus</i>	Yellow-billed Warbler	F	Common	+	-	-	LC	-	"
46	<i>Merops orientalis</i>	Asian Green Bee-eater	O, Grass land	Occasional	+	-	-	LC	-	"
47	<i>Hirundo rustica</i>	Ban Shallow Martin	F	Common	+	-	-		-	"

Note:

Habitat

F: Forest

O: Open grass and shrub land

R: River

+: Present

-: Not present

ILIR: Local information and Literature Review

Remarks:

Although listed by CITES and other organization these species are common and widely distributed in Nepal

Protected status

CITES I: Species threatened with extinction

CITES II: Species not necessary threatened but could become so.

CITES III: Species required international cooperation to control trade

LC Least concern

NT Near threatened

EN- Endangered



Table C-10: Aquatic Insects found in Budhi Ganga River

S N	Species	Dry season, April 2018	
		Headworks site	Powerhouse tailrace area
Order : Plecoptera			
1	<i>Leuctra sp</i>	+	+
2	<i>Nemoura venosa</i>	+	+
3	<i>Isogenus modusta</i>	+	+
4	<i>Neoperia sp.</i>	+	-
Order : Ephemeroptera			
5	<i>Epeoeus sp</i>	+	-
6	<i>Ephemerella sp.</i>	+	+
7	<i>Heplagemis sp</i>	+	+
8	<i>Baetis sp.</i>	+	-
9	<i>Rhithrogena sp.</i>	+	+
10	<i>Stenonema sp.</i>	+	+
Order : Trichoptera			
11	<i>Phryganea sp</i>	-	+
12	<i>Lantocarus sp</i>	+	+
Order : Coleptera-			
13	<i>Enochrus nebulosus</i>	+	-
14	<i>Donacia sp.</i>	+	+
15	<i>Amphizoa sp</i>	+	+
16	<i>Promoresia sp.</i>	+	+
Order : Hemiptera			
17	<i>Gerris monticola</i>	+	+
18	<i>Belstoma sp</i>	+	+
Order : Diptera			
19	<i>Antocha sp</i>	+	+
20	<i>Elliplera sp</i>	+	+
21	<i>Pedicia sp</i>	+	+
22	<i>Holorusia sp</i>	-	+
23	<i>Cybister convexus</i>	+	-
	Total	21	18



Table -C-11: Fish diversity in Budhi Ganga River and its feeder Streams

S.No	Scientific Name of Fish	Local Name of Fish	Migratory species	Fish sampling		Local Information	Economic Importance	Protected Status
				August 2016	April 2018			
				Collected	Collected	Reported		
1	<i>Anguilla bengalensis</i>	Rajbam	LDM	+			1,M	NT
2	<i>Barilius bendelisis</i>	Fageta	R	+			1,L	LC
3	<i>Barilius barila</i>	Fageta	R	+			1,L	LC
4	<i>Barilius shacra</i>	Fageta	R	+			1,L	LC
5	<i>Bagarius bagarius</i>	Gonch	LDM			V	1,M	NT
6	<i>Botia almorhae</i>	Baghi	R			V	2, 1, L	LC
7	<i>Clupisoma garua</i>	Jalkapur	LDM			V	1,L	LC
8	<i>Garra gotyla</i>	Buduna	R	+	+		1,M	LC
9	<i>Garra annandalei</i>	Nakatuwa	R			V	1, M	LC
10	<i>Glyptothorax cavia</i>	Kapre	R	+			1, M	LC
11	<i>Glyptothorax pectinopterus</i>	Singhe	R			V	1, M	LC
12	<i>Bungana (Labeo) dero</i>	Gardi	MRM	+	+		1, H	LC
13	<i>Labeo angra</i>	Thed	MRM		+		1, H	LC
14	<i>Labeo dyocheilus</i>	Kalach	MRM		+		1, H	LC
15	<i>Neolissochilus hexagonolepis</i>	Katie	MRM	+	+		1, H	NT
16	<i>Schistura beavani</i>	Gadela	R			V	1, H, 2	
17	<i>Noemacheilus rupecola</i>	Gadela	R			V	1,L	
18	<i>Naziritor chelynoides</i>	Karange	MRM	+	+		1,L	VU
19	<i>Pseudecheneis sulcata</i>	Kabre	R	+	+		1, M	
20	<i>Psilorhynchus pseudecheneis</i>	Tite	R			V	1, L, 3	LC
21	<i>Schizothorax progastus</i>	Chuche Asala	MRM	+	+		1, H	
22	<i>Schizothorax plagiostomus</i>	Buche Asala	MRM	+	+		1, H	
23	<i>Schizothorax richardsonii</i>	Buche Asala	MRM	+	+		1, H	VU
24	<i>Tor putitora</i>	Mahseer	LDM	+	+		1, H	EN
25	<i>Tor tor</i>	Mahseer	LDM	+	+		1, H, 2, 3	DD

Note

LDM Long distance migratory

MRM- Mid range migratory

R- Resident species

Economic Importance

1= Food value

H= High food value

M=Medium Food value

L=Low food value

2= Sport value

3= Medicine

Conservation Status

EN- Endangered

VU- Vulnerable

NT- Near Threatened

LC- Least concern

DD- Data deficient



Table C-8: Population density and diversity of Phytoplankton in Budhi Ganga River

S N	Species	April 2018 Number/Liter	
		Headworks site	Powerhouse tailrace area
A	Class-Bacillariophyceae		
1	<i>Amphora ovalis</i>	100	75
2	<i>Diatom sp</i>	50	0
3	<i>Synedra alna</i>	200	100
4	<i>Synedra acus</i>	70	100
5	<i>Cocconeis sp</i>	150	50
6	<i>Melosira granulata</i>	200	150
7	<i>Melosira islandica</i>	150	100
8	<i>Fragilaria capucina</i>	250	200
9	<i>Navicula gracilis</i>	50	90
10	<i>Cymbella cistula</i>	60	0
11	<i>Cymbella tumida</i>	125	0
12	<i>Nitzschia palia</i>	40	50
13	<i>Pinnularia gibba</i>	75	60
14	<i>Surirella elegans</i>	90	75
	Sub-total	1,510	1050
B	Class-Cynophyceae		
15	<i>Microchate sp.</i>	200	150
16	<i>Oscillatoria princeps</i>	125	150
17	<i>Anabaena sp</i>	100	70
18	<i>Aphanizomenon</i>	110	50
19	<i>Lyngbya limnetica</i>	70	50
20	<i>Nostochopsis labatus</i>	90	100
21	<i>Oscillatoria lemosa</i>	75	60
	Sub-total	770	630
C	Class-Chlorophyceae		
22	<i>Scenedemus sp</i>		
23	<i>Microspora floccose</i>	250	200
24	<i>Ulothrix zonata</i>	150	125
25	<i>Ulothrix variabilis</i>	50	0
26	<i>Spirogyra sp.</i>	60	50
27	<i>Characium limneticum</i>	75	75
28	<i>Chaetophora incersata</i>	100	25
29	<i>Stigeoclonium tenue</i>	50	0
30	<i>Spirogyra webari</i>	100	75
31	<i>Pediastrum sp</i>	90	50
	Sub-total	925	600
D	Class-Xanthophyceae		
32	<i>Tribonema minus</i>	250	0
33	<i>Characiopsis sp.</i>	50	100
	Sub-total	300	100
		3,505	2380



Table C-13: Fish Diversity and Species Composition in Project Area (August 2016)

Sampling Station	Location	Scientific Name	Common Name	No. of Fish Caught	Size Range (Cm)	Wt. Range (Gm)	Average wt. of the Total Catch (Gm)	Species Composition %
1	Budhi Ganga with Sarane Gad Confluence area	<i>Schizothorax progastus</i>	Chuche Asala	3	10.5-13	20-30	75	23.08
		<i>Schizothorax plagiostomus</i>	Buche Asala	4	11-14	20-30	100	30.77
		<i>Pseudoeutretis sulcata</i>	Kabre	2	9.5-12	15-20	35	15.38
		<i>Neolissochilus hexagonolepis</i>	Katie	2	13-13.5	25	50	15.39
		<i>Tor tor</i>	Mahseer	1	8	12	12	7.69
		<i>Tor pultora</i>	Mahseer	1	14	30	30	7.69
		<i>Sub - Total</i>		13			302.00	100.00
		<i>Schizothorax progastus</i>	Chuche Asala	2	11-15	20-33	53	10.53
		<i>Schizothorax plagiostomus</i>	Buche Asala	7	11-17	20-50	245	36.84
		<i>Garra gotyla</i>	Buduna	1	13	30	30	5.26
2	Budhi Ganga with Ikt Gad Confluence area	<i>Borilius shocra</i>	Fageeta	1	9.5	15	15	5.26
		<i>Borilius bendelisis</i>	Fageeta	2	7-9	10-15	25	10.53
		<i>Neolissochilus hexagonolepis</i>	Katie	2	16-18	40-60	100	10.53
		<i>Tor pultora</i>	Mahseer	3	6-9	10-15	37.5	15.79
		<i>Tor tor</i>	Mahseer	1	9	13	13	5.26
		<i>Sub - Total</i>		19			518.50	100.00
3	Budhi Ganga with Ardole Gad	<i>Schizothorax progastus</i>	Chuche Asala	3	19-21	60-70	195	9.68
		<i>Schizothorax plagiostomus</i>	Buche Asala	6	20-22.5	65-90	465	19.35
		<i>Maxilitor cheilnoides</i>	Karange	4	12-14	20-30	100	12.90
		<i>Bangana (Labeo) dero</i>	Gadli	5	18-20	60-70	325	16.13



	Confluence area	<i>Neolissochilus hexagonolepis</i>	Katie	3	11-15	20-34	81	9.68
		<i>Tor putitora</i>	Mahseer	2	8-10	12-15	27	6.45
		<i>Borilius bendelisis</i>	Fageta	3	9-11	15-20	52.5	9.68
		<i>Glyptothorax cavia</i>	Kape	1	14	30	30	3.23
		<i>Garra gobylo</i>	Buduna	4	13-17	25-50	150	12.90
		Sub - Total		31		1425.50	100.00	
4	Budhi Ganga with Bhimkoti Gad Confluence area	<i>Schizothorax progastus</i>	Chuche Asala	4	11-16	20-40	120	11.43
		<i>Schizothorax plagiostomus</i>	Buche Asala	9	17-21.5	50-70	540	25.71
		<i>Neolissochilus hexagonolepis</i>	Katie	4	12-17	20-50	140	11.43
		<i>Bongana (labeo) dero</i>	Gardi	6	14-22	30-90	360	17.14
		<i>Tor putitora</i>	Mahseer	3	10-13	15-25	60	8.57
		<i>Nozitor cheilynoides</i>	Karange	5	13-17	25-50	187.5	14.29
		<i>Borilius bendelisis</i>	Fageta	2	8-10	13-16	29	5.71
		<i>Borilius borlia</i>		1	11	12	12	2.86
		<i>Garra gonyia</i>	Buduna	1	14	28	28	2.86
		Sub - Total		35		1476.50	100.00	
		<i>Schizothorax progastus</i>	Chuche Asala	7	14-18	30-55	297.5	14.89
		<i>Schizothorax plagiostomus</i>	Buche Asala	10	12-22	20-70	450	21.28
5	Budhi Ganga with JiladiGad Confluence area	<i>Schizothorax richardsonii</i>	Buche Asala	3	8-16	13-40	79.5	6.38
		<i>Neolissochilus hexagonolepis</i>	Katie	3	13-21	25-70	142.5	6.38
		<i>Bongana (labeo) dero</i>	Gardi	2	15-21	33-70	103	4.26
		<i>Labeo angra</i>	Theed	2	16-19	40-60	100	4.26
		<i>Tor putitora</i>	Mahseer	2	13-22	25-70	95	4.26
		<i>Nozitor cheilynooides</i>	Karange	4	15-18	33-55	176	8.51
		<i>Borilius bendelisis</i>	Fageta	2	9-11	10-12	22	4.26
		<i>Borilius borlia</i>	Fageta	1	12	12	12	2.13



	<i>Burillus shucra</i>	Fageeta	3	7-13	10-20	45	6.38
	<i>Garra gotyla</i>	Buduna	3	15-16	28-30	87	6.38
	<i>Tor tor</i>	Mahseer	2	13-15	25-32	57	4.26
	<i>Anquilla bengalensis</i>	Rai bham	1	71	860	860	2.12
	<i>Pseudocheneis sulcata</i>	Kabre	2	30	300	300	4.26
	<i>Sub - Total</i>		47			2826.50	100.00
	<i>Total</i>		145			6549.00	



Table -C-14: Ecology and Life history of Long Distance Migratory Fishes of Budhi Ganga River

Species	Migration pattern												Spawning Season	Spawning Substrate	Food Source	Growth Rate	Age at Spawning	Incubation for eggs	Size at Maturity	Behaviour
	J	F	M	A	M	J	J	A	S	O	N	D								
<i>Tor putitora</i> (Golden Mahseer)					↓	↓	↓	↓	↓	↓	↓	↓	Sept-Oct	Gravel bed	Fruits algae, aquatic insect, fish fry, adult fish	15cm at first year	2.5 years	12-48 hours at temp.30 C	45cm	Fishes are seen in group circling and jumping
<i>Tor tor</i> (Deep bodied Mahseer)					↓	↓	↓	↓	↓	↓	↓	↓	Sept-Oct	Gravel bed	Adult fish, aquatic insect, algae, fish fry	15cm at 1st year	2.5 years	12-48 hrs at tem.30C	55cm	Schooling circling and jumping behaviour
<i>Anguilla bengalensis</i> (Fresh Water Eel)	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	June-July	Mud ,sand	Fish fry, aquatic insect, mollusc and shrimp	26cm at first year				Crevice dweller avoid direct light piling snapping wriggling overland movement
<i>Bogarius bogarius</i> (Catfish/Gonch)				↓	↓	↓	↓	↓	↓	↓	↓	↓	July -August	Mud, sand and decaying vegetables	Fish, crabs, mollusc, shrimp, tadpole and frog	28cm at first year	3 years	-	80cm	Rest in deep pool singly or in group, produce monotonous
<i>Cupiosoma garua</i> (Jalkapoor)				↓	↓	↓	↓	↓	↓	↓	↓	↓	June-July	Fine sand pebble	Fish fry, shrimp, crustaceans, fingerlings, tadpole frog etc.	18 cm at first year	2 years	-	25 cm	ermitary noise Schooling and jumping behaviour

Upstream ↓ Downstream



Table -C-15 : Biological data of Resident Species found in Budhi Ganga River

Species	Spawning season	Spawning substrate	Food source	Age at spawning	Growth Rate	Incubation time	Size by spawning	Behavior
<i>Pseudorasbora parva</i> (Torrent catfish)	May-June	Gravel, sand and pebbles	Aquatic insects, earthworm	2 years	6.5 cm in a year	10 days at 19 °C	8 cm	Live in cohesive schools, exhibit mass migration to falling springs and creeks
<i>Glyptothorax curvipectus</i> (River Cat)	May-June	Gravel and sand	Aquatic insects	2 years	3.5 cm in a year	8-12 days at 18 °C	9 cm	Live in cohesive schools, exhibit mass migration to creeks for spawning
<i>Glyptothorax curvipectus</i> (River Cat)	June	Gravel, sandy bed, rooted vegetation	Aquatic insects, Mayfly larva	2 years	3.5 cm in a year	8-12 days depending on temperature	13 cm	Live in school of 15 to 50. They come out to migrate in huge mass during monsoon flood
<i>Gerra gonyia</i> (Rock Carp)	May-June	Gravel, sand and pebbles, algae bed	Algae, slime moss	2 years	4.5cm in a year	7-10 days depending on temperature	7.5 cm	Live in school. Mass migration to spawning tributaries, rice fields and springs
<i>Gerra anandalei</i> (Stone Roller)	Sept.-Oct.	Gravel, sand, Mytilus blooms	Algae	2 year	5 cm in a year	10 days at 24°C	12 cm	Exhibit local migration in monsoon for spawning season in rice fields, irrigation canal and water mill facility areas.



Species	Migratory pattern												Spawning season	Spawning substrate	Food Source	Growth rate	Age at Spawning	Incubation for eggs	School size	Behaviour
	J	F	M	A	M	J	J	A	S	O	N	D								
<i>Schizothorax progastus</i> (Point nosed snow trout)		↓	↓	↓	↓					↓	↓	↓	Sept-Oct and March-April	Gravel beds	Mud, Aquatic insect, fish fry, algae, drift food	6 to 12 cm at first year	1 year (Size 25-35cm)	15days at temperature 19 C	20-40	Seen in school of 20-40 fishes during spawning females are cridled by male
<i>Schizothorax plagiostomus</i> (Snow trout)		↓	↓	↓	↓					↓	↓	↓	Sept-Oct and March-April	Gravel beds	Mud aquatic insects, fish fry, algae, drift food	6 to 12 cm at first year	2 years(Size 20-35 cm)	15days at temperature 19 C	25-60	Seen in group during spawning, grazing and creeping
<i>Schizothorax richardsonii</i> (Snow trout)		↓	↓	↓	↓					↓	↓	↓	Sept-Oct and March-April	Gravel beds	Mud aquatic insects, fish fry, algae, drift food	7-12cm at 1st year	2 years(Size 20-28 cm)	15 days at temperature 19	25-60	Seen in group of 40-50 fishes creeping grazing in sett river
<i>Neolisichilus hexagonolepis</i> (Copper Mahseer)					↓	↓	↓	↓	↓	↓	↓	↓	Sept-Oct	Gravel beds	Aquatic Insects, algae, fish fry	8-12 cm at 1st year	2years(Size 20-28cm)	12 days at temperature 19 C	22-55	Seen in group of 10-15 fishes swim, dart and jump to cross obstacles.
<i>Labeo angara</i> (Minor carps/Theel)				↓	↓	↓	↓	↓	↓	↓	↓	↓	June -July	Gravel beds	Filamentous algae, portion of higher plants, decaying organic matter	-	2years	-	10-12	Resting in deep pools
<i>Bangana dero</i> L. <i>dyochilus</i> (River Rohu)			↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	June -July	Gravel beds	Filamentous algae, microscopic plants, vegetables detritus & mud	-	2 years	-		Took rest in deep pools , live together with gonch
<i>Puntius chilinoideus</i> (Karang)			↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	May-June	Gravel & pebble beds	Microscopic plants, vegetable matter, detritus	-	2 years	-	6-8	Resting in pools

Upstream
↓
Downstream



93.	<i>Shorea robusta</i>	Sal			✓	✓				
94.	<i>Smilax sp.</i>	Kukurdaino						✓		
95.	<i>Sonchus sp.</i>									
96.	<i>Solanum xanthocarpum</i>	Kantakari	✓							
97.	<i>Solanum nigrum</i>	Kaaligedi	✓							
98.	<i>Spondias pinnata</i>	Amaro	✓							Wild edible fruit
99.	<i>Syzygium cumini</i>		✓		✓					
100.	<i>Smilax macrophylla</i>	Kukurdaino						✓		
101.	<i>Strobilanthes sp.</i>	Khursaniphool								
102.	<i>Terminalia chebula</i>	Harro	✓		✓					
103.	<i>Terminalia alata</i>	Saaj			✓					
104.	<i>Themeda triandra</i>	Khar								Roofing
105.	<i>Toona ciliata</i>			✓	✓					
106.	<i>Trichilia connaroides</i>	Ankhitare			✓					
107.	<i>Thysanolaena maxima</i>									Broom
108.	<i>Urtica dioica</i>	Sisno	✓							
109.	<i>Vitex negundo</i>	Simali	✓							
110.	<i>Woodfordia fruticosa</i>	Dhaiyaro	✓							
111.	<i>Zizyphus mauritaniana</i>	Bayar								Wild edible fruit

Medicinal, F=Fodder, T=Timber, E=Economical, O=Ornamental, R=Religious, Fi=Fiber



Table D-1a Forest loss at different project components

SN	Project Component	Types of Forest (as per Forest Act)	Forest Area(ha)	Loss of vegetation			Crown Cover (%)	Basal Area (%)	Vegetation Type
				Seedling / ha.	Saplings / ha.	No. of trees >10cm DBH /ha			
1	Reservoir	Juke and Rakse CF of Achham and Jukeban Lamkana CF of Bajura district	6.51	930	583	591.3	5-45	0.023 - 0.3988	Sal, Malato, Mauwa, Sindure Khirro, Kokkade, Badkaulo, Bhalayo, Daar, Amala, saaj
2	Headworks								
a	Dam	Rakse CF and Juke CF	0.07	280	150	25	20	0.015	Malato, Khirro,
b	Settling Basin	Juke CF	1.25	117	16	216.66	20	0.0265	Khirro, Pahadi Mauwa, Faledo, Malato, Rohini, Ghangharu
c	Road to headworks	Rakse CF	0.35	467	117	150	25	0.0676	kalo Siris, Khirro, Kokkade, Sindure
3	Adit	Imiltukra CF	2.47	303	469	1089.66	5-40	0.14-0.25	Saal, Malato, Mayal, Khirro, Uttis
4	Road to adit	Imiltukra CF and Sukethana	1.5	544	352	240	5	0.1073	Malato, Mayal, Uttis, Saal
	Total		12.15						



Table D-1 b: Total Loss in terms of plant species

Botanical Name	Local Name	Avg DBH/Ran ge* (FOR>10c m DBH)	Loss of Vegetation **					Standing Wood Volume		Biomass for Standing Tree (KG.) (Wet) (Dry)	Biomass Uses***	
			Loss of Regeneration		Loss of Tree(Number)			Wood volume m3	Timber(Cft)			Fuel wood (Chatta)
			Seedling	Sapling	Pole Class	Tree Class						
Macaranga pustulata	Malato	18.76	10.78	4.61	213	92	67.79	2390.95	4.78	52876	Low quality timber	
Englehardtia spicata	Pahadi Mauwa	15.07	12.33	3.06	237	0	27.47	968.8669	1.9377338	21426.6	Low quality timber	
Toona ciliata	Tooni	13.18	22.53	3.01	59	0	4.57	161.1839	0.3223678	3564.6	Low quality timber	
Mallotus philippinensis	Sindure	14.13	10.78	30.8	533	0	47.11	1661.5697	3.3231394	36745.8	Low quality timber, medicinal	
Sapium insigne	Khirro	15.4	9.23	20.01	296	0	24.83	875.7541	1.7515082	19367.4	Low quality fire wood, fish poisoning	
Shorea robusta	Saal	17.01	286.41	161.69	2341.09	118	295.89	10436.04	20.8720806	230794.2	one of the best Timber	
Homalium nepalense	Kokkade	12.35	40.03	9.23	148	0	6.18	217.9686	0.4359372	4820.4	Low quality implement and fuelwood	
Rhus sp.	Bhalayo	11.15	0	0	30	0	0.29	10.2283	0.0204566	226.2	Low quality fuelwood	



Table D-1c: Total Forest Loss

Types of Forest (as per Forest Act)	Forest Arae(ha)	Loss of vegetation**				Crown Cover (%)	Standing Wood Volume		Biomass for Standing Tree Kg (Wet & Dry)	Biomass Uses*
		LOSS OF REGENERATION		LOSS OF TREE(Number)			Timber(Cft)	Fuel wood (Chatta)		
		Seedling /ha	Sapling/ha	Pole Class	Tree Class					
Community	12.15	8996	6055	4480	328	5-45%	29310.425	58.61	648203.02	Timber, fuelwood, agricultural implements, fodder, etc
Total	12.15	8996	6055	4420	328	5-45%	29310.425	58.61	648203.02	

Note: ** Seedling 0-4cm DBH; Sapling 4-10cmDBH; Pole class 10-30cm DBH; Tree class > 30cm DBH

*** Possible usage are -fire, wood, fodder, etc

Other type of forest will not be affected by the project



Table D-1 d: Loss of Non-timber forest products

S.No.	Non timber Forest Species	Community Forest	
		Seedling /ha	Sapling/ha
1	Dhaiyaro	12	2
2	Asuro	5	0
3	Sisno	10	0
4	Amala	3	1
5	Jamun	3	1
6	Aiselu	4	0

Note:

Other type of forest will not be affected by the project



Table D-1e: Valuation of Forest Product Loss

S.No.	Botanical Name	Local Name	Value of Timber (Pole and Tree)
1	<i>Macaranga pustulata</i>	Malato	4,57,500
2	<i>Englehardtia spicata</i>	Pahadi Mauwa	3,55,555
3	<i>Toona ciliata</i>	Tooni	2,65,500
4	<i>Mallotus philippinensis</i>	Sindure	7,99,500
5	<i>Sapium insigne</i>	Khirro	59,200
6	<i>Shorea robusta</i>	Saal	14,753,000
7	<i>Homalium nepalense</i>	Kokkade	2,22,000
8	<i>Rhus sp.</i>	Bhalayo	6,000
9	<i>Bombax ceiba</i>	Simal	3,30,000
10	<i>Boehmeria rugulosa</i>	Daar	88,500
11	<i>Garuga pinnata</i>	Dabdabe	88,500
12	<i>Erythrina sp.</i>	Phaledo	4,500
13	<i>Pyracantha crenulata</i>	Ghangharu	4,500
14	<i>Albizzia lebbeck</i>	Siris	1,33,500
15	<i>Pyrus pashia</i>	Mayal	1,77,000
16	<i>Alnus nepalensis</i>	Uttis	4,44,000
	Total		15,334,200

Note :-Valuation is based on the local value per trees as fixed by the administrative authority for some of the trees and average is taken for non-specified ones



Appendix-D: Impact Tables



1 (A) - Loss of Land of Project Affected Families and Households

S.No.	Project Component	Name of Land Owner	GP_NP	Sex	Age	Religion	Caste	Family Size	Irr_Khet (Ha)	Unir_Khet (Ha)	Bari (Ha)	Pakho (Ha)	Total (Ha)	Affected (Ha)	Value	%Loss
1	Inundation Area	Gore Saud	Budhiganga NP-10	M	73	Hindhu	Chhetri	7	0.10	0.86	0.00	0.10	1.07	0.12	870675	11.56
2	Inundation Area	Jaumati Buda	Budhiganga NP-10	M	72	Hindhu	Chhetri	13	0.20	0.00	0.00	0.81	1.02	0.43	3063225	42.70
3	Inundation Area	Lal Bdr. Buda	Budhiganga NP-10	M	55	Hindhu	Chhetri	14	0.51	0.00	0.00	0.15	0.66	0.19	1314825	28.20
4	Inundation Area	Buddhi Singh Saud	Budhiganga NP-10	M	76	Hindhu	Chhetri	12	0.36	0.41	0.00	1.27	2.04	0.16	1113900	7.76
5	Inundation Area	Sher Bdr. Buda	Budhiganga NP-10	M	66	Hindhu	Chhetri	12	0.41	0.00	0.05	0.51	0.97	0.15	1089225	15.98
6	Inundation Area	Bile Saud	Mellekh GP-4	M	75	Hindhu	Chhetri	7	0.00	0.00	0.00	0.05	0.05	0.05	352500	98.28
7	Inundation Area	Manjite Saud	Mellekh GP-4	M	52	Hindhu	Chhetri	5	0.15	0.00	0.35	0.35	0.85	0.20	1410353	23.46
8	Inundation Area	Rinari Saud	Mellekh GP-4	M	70	Hindhu	Chhetri	10	0.15	0.00	0.41	0.51	1.07	0.27	1875300	24.90
9	Power House and AR	Dale Saud	Mellekh GP-4	M	65	Hindhu	Chhetri	8	0.12	0.00	0.24	0.65	1.01	0.53	3704775	52.03
10	Power House and AR	Jogi Saud	Mellekh GP-4	M	58	Hindhu	Chhetri	9	0.53	0.00	0.11	0.10	0.74	0.59	4166550	79.86
11	Power House and AR	Nalyatya Saud	Mellekh GP-4	M	57	Hindhu	Chhetri	7	0.22	0.13	0.21	0.12	0.68	0.15	1089225	22.72
12	Power House and AR	Narajite Saud	Mellekh GP-4	M	71	Hindhu	Chhetri	9	0.42	0.21	0.2	0.43	1.26	0.55	3881025	43.69
13	Power House and AR	Rana Singh Saud	Mellekh GP-4	M	67	Hindhu	Chhetri	11	0.34	0.13	0.32	0.12	0.91	0.17	1219650	19.01
14	Power House and AR	Ammare Saud	Mellekh GP-8	M	68	Hindhu	Chhetri	7	0.14	0.21	0.22	0.10	0.67	0.03	215025	4.55
15	Power House and AR	Bal Bdr. Saud	Mellekh GP-8	M	35	Hindhu	Chhetri	9	0.10	0.20	0.05	0.25	0.61	0.25	1762500	40.95
16	Power House and AR	Bude Saud	Mellekh GP-8	M	71	Hindhu	Chhetri	7	0.20	0.31	0.03	0.00	0.53	0.22	1536900	40.81
17	Power House and AR	Dhananam Saud	Mellekh GP-8	M	45	Hindhu	Chhetri	7	0.51	0.00	0.00	0.76	1.27	0.74	5234625	58.38
18	Power House and AR	Dhane Saud	Mellekh GP-8	M	78	Hindhu	Chhetri	8	0.15	0.25	0.00	0.00	0.41	0.05	366600	12.78
19	Power House and AR	Dharma Singh Navak	Mellekh GP-8	M	69	Hindhu	Chhetri	7	0.34	0.11	0.24	0.15	0.84	0.15	1078650	18.21
20	Power House and AR	Gagan Singh Saud	Mellekh GP-8	M	72	Hindhu	Chhetri	9	0.10	0.00	0.00	0.51	0.61	0.43	3042075	70.68
21	Power House and AR	Gagane Saud	Mellekh GP-8	M	27	Hindhu	Chhetri	7	0.31	0.00	0.05	0.25	0.61	0.21	1508700	35.05
22	Power House and AR	Jaharsingh Saud	Mellekh GP-8	M	68	Hindhu	Chhetri	11	0.42	0.00	0.13	0.31	0.86	0.14	965850	15.93



23	Power House and AR	Jayanath Yogi	Sanfebagar NP-4	M	44	Hindhu	Chhetri	14	0.20	0.25	1.02	0.76	2.24	0.27	1875300	11.88
24	Power House and AR	Jhapatsingh Nayak	Mellekh GP-8	M	55	Hindhu	Chhetri	12	0.22	0.00	0.43	0.54	1.19	0.18	1269000	15.13
25	Power House and AR	Kallane Saud	Mellekh GP-8	M	70	Hindhu	Chhetri	6	0.15	0.00	0.00	0.10	0.25	0.05	317250	17.69
26	Power House and AR	Karbire Saud	Mellekh GP-8	M	44	Hindhu	Chhetri	7	0.76	1.02	0.00	0.76	2.54	0.09	606300	3.38
27	Power House and AR	Mannaje Saud	Mellekh GP-8	M	70	Hindhu	Chhetri	6	0.46	0.00	0.00	0.61	1.07	0.30	2139675	28.41
28	Power House and AR	Nain Singh Lohar	Mellekh GP-8	M	64	Hindhu	Dalit	10	0.15	0.00	0.00	0.10	0.25	0.20	1427625	79.60
29	Power House and AR	Padma Devi Kunwar	Sanfebagar NP-4	F	68	Hindhu	Chhetri	6	0.20	0.00	0.10	0.25	0.56	0.07	518175	13.13
30	Power House and AR	Preme Lohar	Mellekh GP-8	M	56	Hindhu	Dalit	10	0.15	0.00	0.00	0.10	0.25	0.21	1462875	81.57
31	Power House and AR	Ram Singh Kunwar	Sanfebagar NP-4	M	55	Hindhu	Chhetri	6	0.20	0.00	0.05	0.10	0.36	0.08	564000	22.46
32	Power House and AR	Ranjite Lohar	Mellekh GP-8	M	54	Hindhu	Dalit	15	0.15	0.00	0.00	0.12	0.27	0.17	1226700	63.82
33	Power House and AR	Sansare Saud	Mellekh GP-8	M	39	Hindhu	Chhetri	8	0.02	0.08	0.02	0.10	0.22	0.04	299625	19.43
34	Power House and AR	Sarjane Saud	Mellekh GP-8	M	55	Hindhu	Chhetri	9	0.36	0.05	0.36	0.00	0.76	0.43	3024450	56.21
35	Power House and AR	Sete Lohar	Mellekh GP-8	M	52	Hindhu	Dalit	9	0.10	0.00	0.00	0.34	0.44	0.19	1311300	42.10
36	Power House and AR	Tule Singh Kunwar	Sanfebagar NP-4	M	33	Hindhu	Chhetri	5	0.15	0.25	0.51	0.41	1.32	0.08	560475	6.01
37	Power House and AR	Ujjale Saud	Mellekh GP-8	M	53	Hindhu	Chhetri	5	0.06	0.00	0.18	0.00	0.24	0.15	1053975	62.52
38	Adit and AR	Dal Bdr. Saud	Mellekh GP-8	M	55	Hindhu	Chhetri	10	1.12	0.41	0.00	0.00	1.53	0.03	246461	2.29
39	Adit and AR	Jhuma Devi Saud	Mellekh GP-8	F	59	Hindhu	Chhetri	5	0.41	0.41	0.00	0.00	0.81	0.20	1385614	24.14
40	Adit and AR	Mane Thakulla	Mellekh GP-8	M	70	Hindhu	Chhetri	17	0.51	0.76	0.00	0.00	1.27	0.37	2587117	28.85
41	Adit and AR	Kallane Thakulla	Mellekh GP-8	M	74	Hindhu	Chhetri	10	0.25	0.36	0.10	0.00	0.71	0.71	4988058	99.33
42	Adit and AR	Narapati Saud	Mellekh GP-8	M	76	Hindhu	Chhetri	10	0.25	0.10	0.31	0.00	0.66	0.09	628458	13.48
43	Adit and AR	Dhikira Devi Saud	Mellekh GP-8	F	65	Hindhu	Chhetri	8	0.00	0.20	0.00	0.00	0.20	0.08	556266	38.77
44	Adit and AR	Ramba Devi Thakulla	Mellekh GP-8	F	72	Hindhu	Chhetri	10	1.27	0.51	0.00	0.76	2.54	0.09	626244	3.49
45	Adit and AR	Khamba Saud	Mellekh GP-8	M	48	Hindhu	Chhetri	7	0.36	1.02	0.41	0.00	1.78	0.36	2511915	20.01
46	Adit and AR	Gopi Saud	Mellekh GP-8	M	58	Hindhu	Chhetri	10	0.10	0.15	0.00	0.05	0.31	0.25	1745171	81.09



47	Adit and AR	Khakindra Saud	Mellekh GP-8	M	40	Hindhu	Chhetri	9	1.20	0.00	0.13	0.12	1.45	0.44	3128790	30.61
48	Adit and AR	Kalusing Saud	Mellekh GP-8	M	29	Hindhu	Chhetri	9	0.15	0.25	0.00	0.00	0.41	0.23	1631518	56.86
49	Adit and AR	Gokul Saud	Mellekh GP-8	M	43	Hindhu	Chhetri	5	0.15	0.00	0.00	0.36	0.51	0.09	634500	17.69
50	Adit and AR	Binira Saud	Mellekh GP-8	F	57	Hindhu	Chhetri	10	0.25	0.25	0.00	0.10	0.61	0.18	1244325	28.91
51	Adit and AR	Prasade Saud	Mellekh GP-8	M	76	Hindhu	Chhetri	5	0.20	0.00	0.00	0.15	0.36	0.15	1036343	41.28
52	Adit and AR	Bane Saud	Mellekh GP-8	M	65	Hindhu	Chhetri	10	0.25	0.25	0.00	0.25	0.76	0.19	1362680	25.33
53	Adit and AR	Kanje Saud	Mellekh GP-8	M	26	Hindhu	Chhetri	10	0.25	0.00	0.00	0.00	0.25	0.11	789396	44.02
54	Adit and AR	Ram Bahadur Thakulla	Mellekh GP-8	M	57	Hindhu	Chhetri	9	0.15	0.20	0.00	0.05	0.41	0.11	754350	26.29
55	CampSite and AR	Dhana Bdr. Bogati	Sanfebagar NP-10	M	57	Hindhu	Chhetri	5	0.05	0.12	0.00	0.05	0.22	0.12	824850	52.76
56	CampSite and AR	Dhana Bdr. Mahata	Sanfebagar NP-10	M	75	Hindhu	Chhetri	6	0.15	0.00	0.05	0.10	0.31	0.09	623925	28.99
57	CampSite and AR	Duse Mahata	Sanfebagar NP-10	M	68	Hindhu	Chhetri	8	0.12	0.00	0.08	0.32	0.52	0.04	282000	7.69
58	CampSite and AR	Gor Bdr. Mahata	Sanfebagar NP-10	M	46	Hindhu	Chhetri	9	0.20	0.00	0.00	0.31	0.51	0.40	2791800	77.84
59	CampSite and AR	Jagat Bdr. Mahata	Sanfebagar NP-10	M	60	Hindhu	Chhetri	10	0.15	0.00	0.00	0.15	0.31	0.06	440625	20.47
60	CampSite and AR	Jahar Singh Mahata	Sanfebagar NP-10	M	67	Hindhu	Chhetri	11	0.11	0.07	0.31	0.12	0.61	0.02	133950	3.11
61	CampSite and AR	Laxman Mahata	Sanfebagar NP-10	M	52	Hindhu	Chhetri	4	0.15	0.00	0.05	0.00	0.20	0.05	373650	26.04
62	CampSite and AR	Nanda Singh Mahata	Sanfebagar NP-10	M	65	Hindhu	Chhetri	7	0.22	0.11	0.13	0.23	0.69	0.10	719100	14.78
63	CampSite and AR	Nara Bdr. Mahata	Sanfebagar NP-10	M	56	Hindhu	Chhetri	13	0.41	0.00	0.00	0.08	0.48	0.10	676800	19.86
64	CampSite and AR	Nath Bogati	Sanfebagar NP-10	M	77	Hindhu	Chhetri	8	0.10	0.00	0.32	0.45	0.87	0.56	3976200	64.70
65	CampSite and AR	Prem Bdr. Mahata	Sanfebagar NP-10	M	66	Hindhu	Chhetri	7	0.31	0.11	0.00	0.13	0.55	0.07	521700	13.45
66	CampSite and AR	Ramnath Bogati	Sanfebagar NP-10	M	54	Hindhu	Chhetri	6	0.45	0.13	0.11	0.23	0.92	0.16	1124475	17.34
67	CampSite and AR	Ramnath Mahata	Sanfebagar NP-10	M	55	Hindhu	Chhetri	6	0.10	0.00	0.00	0.00	0.10	0.03	232650	32.43
68	CampSite and AR	Sagare Bogati	Sanfebagar NP-10	M	47	Hindhu	Chhetri	7	0.15	0.00	0.00	0.51	0.66	0.66	4624800	99.18
69	CampSite and AR	Tile Bogati	Sanfebagar NP-10	M	45	Hindhu	Chhetri	8	0.10	0.00	0.00	0.10	0.20	0.19	1321875	92.13
70	Office Camp	Dhangiri Bogati	Sanfebagar NP-10	M	48	Hindhu	Chhetri	3	0.31	0.12	0.00	0.45	0.88	0.68	4803870	77.43
71	Dam Site and AR	Bhakte Bataia	Sanfebagar NP-13	M	57	Hindhu	Chhetri	10	0.15	0.14	0.13	0.13	0.55	0.42	2939850	75.46



72	Dam Site and AR	Dan Singh Batala	Sanfebagar NP-13	M	80	Hindhu	Chhetri	4	0.12	0.21	0.00	0.54	0.87	0.36	2569725	41.90
73	Dam Site and AR	Dilli Singh Saud	Sanfebagar NP-13	M	47	Hindhu	Chhetri	8	0.15	0.00	0.05	0.10	0.31	0.10	669750	31.12
74	Dam Site and AR	Jogi Batala	Sanfebagar NP-13	M	65	Hindhu	Chhetri	6	0.05	1.37	0.03	0.36	1.81	0.16	1092750	8.58
75	Dam Site and AR	Maha Batala	Sanfebagar NP-13	M	53	Hindhu	Chhetri	6	0.36	0.00	0.00	0.36	0.71	0.39	2763600	55.04
76	Dam Site and AR	Maha Singh Batala	Sanfebagar NP-13	M	45	Hindhu	Chhetri	10	0.51	0.00	0.00	1.02	1.53	0.01	52875	0.49
77	Dam Site and AR	Maipati Batala	Sanfebagar NP-13	M	40	Hindhu	Chhetri	6	0.15	0.00	0.05	0.25	0.46	0.02	162150	5.02
78	Dam Site and AR	Mannaje Batala	Sanfebagar NP-13	M	76	Hindhu	Chhetri	10	0.15	0.05	0.25	0.00	0.46	0.17	1202025	37.24
79	Dam Site and AR	Nanda Batala	Sanfebagar NP-13	M	40	Hindhu	Chhetri	6	0.05	0.00	0.00	1.42	1.48	0.19	1353600	13.01
80	Dam Site and AR	Piram Batala	Sanfebagar NP-13	M	75	Hindhu	Chhetri	7	0.08	0.00	0.03	0.22	0.33	0.23	1593300	68.09
		TOTAL:						669	20.91	11.80	7.81	21.30	61.82	17.34	122247979	28.05



2 (A) - Loss of Cereal Crops Production of Project Affected Families and Households

S.No.	Project Component	Name of Land Owner	GP_NP	Total Cereal Crops Production (MT)					Loss of Cereal Crops Production (MT)					% of Total Loss of Cereal Crops				
				Paddy	Wheat	Maize	Millet	Total	Paddy	Wheat	Maize	Millet	Total	Paddy	Wheat	Maize	Millet	Total
1	Inundation Area	Gore Saud	Budhiganga NP-10	1.53	0.62	0.39	0.25	2.79	0.15	0.07	0.04	0.03	0.29	9.5	11.6	10.6	13.6	10.5
2	Inundation Area	Jaumati Buda	Budhiganga NP-10	1.46	0.59	0.37	0.23	2.65	0.51	0.25	0.14	0.12	1.03	35.3	42.7	39.2	50.1	38.8
3	Inundation Area	Lal Bdr. Buda	Budhiganga NP-10	0.95	0.38	0.24	0.15	1.72	0.22	0.11	0.06	0.05	0.44	23.3	28.2	25.9	33.1	25.6
4	Inundation Area	Buddhi Singh Saud	Budhiganga NP-10	2.92	1.18	0.74	0.47	5.31	0.19	0.09	0.05	0.04	0.37	6.4	7.8	7.1	9.1	7.0
5	Inundation Area	Sher Bdr. Buda	Budhiganga NP-10	1.39	0.56	0.35	0.22	2.52	0.18	0.09	0.05	0.04	0.37	13.2	16.0	14.7	18.8	14.5
6	Inundation Area	Bile Saud	Mellekh GP-4	0.07	0.03	0.02	0.01	0.13	0.06	0.03	0.02	0.01	0.12	81.2	98.3	90.2	115.4	89.2
7	Inundation Area	Manjite Saud	Mellekh GP-4	1.22	0.49	0.31	0.20	2.22	0.24	0.12	0.07	0.05	0.47	19.4	23.5	21.5	27.5	21.3
8	Inundation Area	Rinari Saud	Mellekh GP-4	1.53	0.62	0.39	0.25	2.79	0.32	0.15	0.09	0.07	0.63	20.6	24.9	22.8	29.2	22.6
9	Power House and AR	Dale Saud	Mellekh GP-4	1.45	0.59	0.37	0.23	2.63	0.62	0.30	0.17	0.14	1.24	43.0	52.0	47.7	61.1	47.2
10	Power House and AR	Jogi Saud	Mellekh GP-4	1.06	0.43	0.27	0.17	1.93	0.70	0.34	0.20	0.16	1.40	66.0	79.9	73.3	93.8	72.5
11	Power House and AR	Nalyatya Saud	Mellekh GP-4	0.98	0.39	0.25	0.16	1.77	0.18	0.09	0.05	0.04	0.37	18.8	22.7	20.8	26.7	20.6
12	Power House and AR	Narajite Saud	Mellekh GP-4	1.81	0.73	0.46	0.29	3.29	0.65	0.32	0.18	0.15	1.30	36.1	43.7	40.1	51.3	39.7
13	Power House and AR	Rana Singh Saud	Mellekh GP-4	1.31	0.53	0.33	0.21	2.37	0.21	0.10	0.06	0.05	0.41	15.7	19.0	17.4	22.3	17.3
14	Power House and AR	Ammare Saud	Mellekh GP-8	0.96	0.39	0.24	0.15	1.75	0.04	0.02	0.01	0.01	0.07	3.8	4.6	4.2	5.3	4.1
15	Power House and AR	Bal Bdr. Saud	Mellekh GP-8	0.88	0.35	0.22	0.14	1.59	0.30	0.15	0.08	0.07	0.59	33.8	40.9	37.6	48.1	37.2
16	Power House and AR	Bude Saud	Mellekh GP-8	0.77	0.31	0.19	0.12	1.39	0.26	0.13	0.07	0.06	0.52	33.7	40.8	37.4	47.9	37.1
17	Power House and AR	Dhananam Saud	Mellekh GP-8	1.83	0.74	0.46	0.29	3.32	0.88	0.43	0.25	0.20	1.76	48.2	58.4	53.6	68.5	53.0
18	Power House and AR	Dhane Saud	Mellekh GP-8	0.58	0.24	0.15	0.09	1.06	0.06	0.03	0.02	0.01	0.12	10.6	12.8	11.7	15.0	11.6
19	Power House and AR	Dharma Singh Nayak	Mellekh GP-8	1.21	0.49	0.30	0.19	2.19	0.18	0.09	0.05	0.04	0.36	15.0	18.2	16.7	21.4	16.5
20	Power House and AR	Gagan Singh Saud	Mellekh GP-8	0.88	0.35	0.22	0.14	1.59	0.51	0.25	0.14	0.12	1.02	58.4	70.7	64.8	83.0	64.2
21	Power House and AR	Gagane Saud	Mellekh GP-8	0.88	0.35	0.22	0.14	1.59	0.25	0.12	0.07	0.06	0.51	28.9	35.1	32.2	41.1	31.8
22	Power House and AR	Jaharsingh Saud	Mellekh GP-8	1.23	0.50	0.31	0.20	2.24	0.16	0.08	0.05	0.04	0.32	13.2	15.9	14.6	18.7	14.5
23	Power House and AR	Jayanath Yogi	Sanfebagar NP-4	3.21	1.30	0.81	0.51	5.84	0.32	0.15	0.09	0.07	0.63	9.8	11.9	10.9	13.9	10.8

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24	Power House and AR	Jhapatsingh Nayak	Mellekh GP-8	1.71	0.69	0.43	0.27	3.10	0.21	0.10	0.06	0.05	0.43	12.5	15.1	13.9	17.8	13.7
25	Power House and AR	Kallane Saud	Mellekh GP-8	0.37	0.15	0.09	0.06	0.66	0.05	0.03	0.01	0.01	0.11	14.6	17.7	16.2	20.8	16.1
26	Power House and AR	Karbire Saud	Mellekh GP-8	3.65	1.48	0.92	0.59	6.63	0.10	0.05	0.03	0.02	0.20	2.8	3.4	3.1	4.0	3.1
27	Power House and AR	Mannaje Saud	Mellekh GP-8	1.53	0.62	0.39	0.25	2.79	0.36	0.18	0.10	0.08	0.72	23.5	28.4	26.1	33.3	25.8
28	Power House and AR	Nain Singh Lohar	Mellekh GP-8	0.37	0.15	0.09	0.06	0.66	0.24	0.12	0.07	0.05	0.48	65.7	79.6	73.0	93.4	72.3
29	Power House and AR	Padma Devi Kunwar	Sanfebagar NP-4	0.80	0.32	0.20	0.13	1.46	0.09	0.04	0.02	0.02	0.17	10.8	13.1	12.0	15.4	11.9
30	Power House and AR	Preme Lohar	Mellekh GP-8	0.37	0.15	0.09	0.06	0.66	0.25	0.12	0.07	0.06	0.49	67.4	81.6	74.8	95.8	74.1
31	Power House and AR	Ram Singh Kunwar	Sanfebagar NP-4	0.51	0.21	0.13	0.08	0.93	0.09	0.05	0.03	0.02	0.19	18.5	22.5	20.6	26.4	20.4
32	Power House and AR	Ranjite Lohar	Mellekh GP-8	0.39	0.16	0.10	0.06	0.71	0.21	0.10	0.06	0.05	0.41	52.7	63.8	58.5	74.9	57.9
33	Power House and AR	Sansare Saud	Mellekh GP-8	0.31	0.13	0.08	0.05	0.57	0.05	0.02	0.01	0.01	0.10	16.0	19.4	17.8	22.8	17.6
34	Power House and AR	Sarjane Saud	Mellekh GP-8	1.10	0.44	0.28	0.18	1.99	0.51	0.25	0.14	0.12	1.02	46.4	56.2	51.6	66.0	51.0
35	Power House and AR	Sete Lohar	Mellekh GP-8	0.63	0.26	0.16	0.10	1.15	0.22	0.11	0.06	0.05	0.44	34.8	42.1	38.6	49.4	38.2
36	Power House and AR	Tule Singh Kunwar	Sanfebagar NP-4	1.90	0.77	0.48	0.30	3.45	0.09	0.05	0.03	0.02	0.19	5.0	6.0	5.5	7.1	5.5
37	Power House and AR	Ujjale Saud	Mellekh GP-8	0.34	0.14	0.09	0.05	0.62	0.18	0.09	0.05	0.04	0.35	51.6	62.5	57.4	73.4	56.8
38	Adit and AR	Dal Bdr. Saud	Mellekh GP-8	2.19	0.89	0.55	0.35	3.98	0.04	0.02	0.01	0.01	0.08	1.9	2.3	2.1	2.7	2.1
39	Adit and AR	Jhuma Devi Saud	Mellekh GP-8	1.17	0.47	0.30	0.19	2.12	0.23	0.11	0.07	0.05	0.47	19.9	24.1	22.1	28.3	21.9
40	Adit and AR	Mane Thakulla	Mellekh GP-8	1.83	0.74	0.46	0.29	3.32	0.43	0.21	0.12	0.10	0.87	23.8	28.9	26.5	33.9	26.2
41	Adit and AR	Kallane Thakulla	Mellekh GP-8	1.02	0.41	0.26	0.16	1.86	0.84	0.41	0.24	0.19	1.68	82.0	99.3	91.1	116.6	90.2
42	Adit and AR	Narapati Saud	Mellekh GP-8	0.95	0.38	0.24	0.15	1.72	0.11	0.05	0.03	0.02	0.21	11.1	13.5	12.4	15.8	12.2
43	Adit and AR	Dhikira Devi Saud	Mellekh GP-8	0.29	0.12	0.07	0.05	0.53	0.09	0.05	0.03	0.02	0.19	32.0	38.8	35.6	45.5	35.2
44	Adit and AR	Ramba Devi Thakulla	Mellekh GP-8	3.65	1.48	0.92	0.59	6.63	0.11	0.05	0.03	0.02	0.21	2.9	3.5	3.2	4.1	3.2
45	Adit and AR	Khamba Saud	Mellekh GP-8	2.56	1.03	0.65	0.41	4.64	0.42	0.21	0.12	0.10	0.84	16.5	20.0	18.4	23.5	18.2
46	Adit and AR	Gopi Saud	Mellekh GP-8	0.44	0.18	0.11	0.07	0.80	0.29	0.14	0.08	0.07	0.59	67.0	81.1	74.4	95.2	73.6
47	Adit and AR	Khakindra Saud	Mellekh GP-8	2.08	0.84	0.53	0.33	3.78	0.53	0.26	0.15	0.12	1.05	25.3	30.6	28.1	35.9	27.8
48	Adit and AR	Kalusing Saud	Mellekh GP-8	0.58	0.24	0.15	0.09	1.06	0.27	0.13	0.08	0.06	0.55	47.0	56.9	52.2	66.7	51.6
49	Adit and AR	Gokul Saud	Mellekh GP-8	0.73	0.30	0.18	0.12	1.33	0.11	0.05	0.03	0.02	0.21	14.6	17.7	16.2	20.8	16.1
50	Adit and AR	Binira Saud	Mellekh GP-8	0.88	0.35	0.22	0.14	1.59	0.21	0.10	0.06	0.05	0.42	23.9	28.9	26.5	33.9	26.2
51	Adit and AR	Prasade Saud	Mellekh GP-8	0.51	0.21	0.13	0.08	0.93	0.17	0.09	0.05	0.04	0.35	34.1	41.3	37.9	48.5	37.5

महानगरपालिका
सिद्धिचरण मन्त्रालय
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52	Adit and AR	Bane Saud	Mellekh GP-8	1.10	0.44	0.28	0.18	1.99	0.23	0.11	0.06	0.05	0.46	20.9	25.3	23.2	29.7	23.0
53	Adit and AR	Kanje Saud	Mellekh GP-8	0.37	0.15	0.09	0.06	0.66	0.13	0.06	0.04	0.03	0.27	36.3	44.0	40.4	51.7	40.0
54	Adit and AR	Ram Bahadur Thakulla	Mellekh GP-8	0.58	0.24	0.15	0.09	1.06	0.13	0.06	0.04	0.03	0.25	21.7	26.3	24.1	30.9	23.9
55	CampSite and AR	Dhana Bdr. Bogati	Sanfebagar NP-10	0.32	0.13	0.08	0.05	0.58	0.14	0.07	0.04	0.03	0.28	43.6	52.8	48.4	61.9	47.9
56	CampSite and AR	Dhana Bdr. Mahata	Sanfebagar NP-10	0.44	0.18	0.11	0.07	0.80	0.10	0.05	0.03	0.02	0.21	23.9	29.0	26.6	34.0	26.3
57	CampSite and AR	Duse Mahata	Sanfebagar NP-10	0.75	0.30	0.19	0.12	1.36	0.05	0.02	0.01	0.01	0.09	6.4	7.7	7.1	9.0	7.0
58	CampSite and AR	Gor Bdr. Mahata	Sanfebagar NP-10	0.73	0.30	0.18	0.12	1.33	0.47	0.23	0.13	0.11	0.94	64.3	77.8	71.4	91.4	70.7
59	CampSite and AR	Jagat Bdr. Mahata	Sanfebagar NP-10	0.44	0.18	0.11	0.07	0.80	0.07	0.04	0.02	0.02	0.15	16.9	20.5	18.8	24.0	18.6
60	CampSite and AR	Jahar Singh Mahata	Sanfebagar NP-10	0.88	0.35	0.22	0.14	1.59	0.02	0.01	0.01	0.01	0.04	2.6	3.1	2.9	3.7	2.8
61	CampSite and AR	Laxman Mahata	Sanfebagar NP-10	0.29	0.12	0.07	0.05	0.53	0.06	0.03	0.02	0.01	0.13	21.5	26.0	23.9	30.6	23.6
62	CampSite and AR	Nanda Singh Mahata	Sanfebagar NP-10	0.99	0.40	0.25	0.16	1.80	0.12	0.06	0.03	0.03	0.24	12.2	14.8	13.6	17.4	13.4
63	CampSite and AR	Nara Bdr. Mahata	Sanfebagar NP-10	0.69	0.28	0.18	0.11	1.26	0.11	0.06	0.03	0.03	0.23	16.4	19.9	18.2	23.3	18.0
64	CampSite and AR	Nath Bogati	Sanfebagar NP-10	1.25	0.51	0.32	0.20	2.27	0.67	0.33	0.19	0.15	1.34	53.4	64.7	59.4	75.9	58.7
65	CampSite and AR	Prem Bdr. Mahata	Sanfebagar NP-10	0.79	0.32	0.20	0.13	1.43	0.09	0.04	0.02	0.02	0.18	11.1	13.5	12.3	15.8	12.2
66	CampSite and AR	Ramnath Bogati	Sanfebagar NP-10	1.32	0.53	0.33	0.21	2.40	0.19	0.09	0.05	0.04	0.38	14.3	17.3	15.9	20.4	15.7
67	CampSite and AR	Ramnath Mahata	Sanfebagar NP-10	0.15	0.06	0.04	0.02	0.27	0.04	0.02	0.01	0.01	0.08	26.8	32.4	29.8	38.1	29.4
68	CampSite and AR	Sagare Bogati	Sanfebagar NP-10	0.95	0.38	0.24	0.15	1.72	0.78	0.38	0.22	0.18	1.55	81.9	99.2	91.0	116.4	90.1
69	CampSite and AR	Tile Bogati	Sanfebagar NP-10	0.29	0.12	0.07	0.05	0.53	0.22	0.11	0.06	0.05	0.44	76.1	92.1	84.5	108.2	83.7
70	Office Camp	Dhangiri Bogati	Sanfebagar NP-10	1.26	0.51	0.32	0.20	2.30	0.81	0.40	0.23	0.18	1.61	63.9	77.4	71.0	90.9	70.3
71	Dam Site and AR	Bhakte Batala	Sanfebagar NP-13	0.79	0.32	0.20	0.13	1.44	0.49	0.24	0.14	0.11	0.99	62.3	75.5	69.2	88.6	68.5
72	Dam Site and AR	Dan Singh Batala	Sanfebagar NP-13	1.25	0.50	0.32	0.20	2.27	0.43	0.21	0.12	0.10	0.86	34.6	41.9	38.4	49.2	38.0
73	Dam Site and AR	Dilli Singh Saud	Sanfebagar NP-13	0.44	0.18	0.11	0.07	0.80	0.11	0.06	0.03	0.03	0.22	25.7	31.1	28.5	36.5	28.3
74	Dam Site and AR	Jogi Batala	Sanfebagar NP-13	2.59	1.05	0.66	0.42	4.71	0.18	0.09	0.05	0.04	0.37	7.1	8.6	7.9	10.1	7.8
75	Dam Site and AR	Maha Batala	Sanfebagar NP-13	1.02	0.41	0.26	0.16	1.86	0.46	0.23	0.13	0.11	0.93	45.4	55.0	50.5	64.6	50.0
76	Dam Site and AR	Maha Singh Batala	Sanfebagar NP-13	2.19	0.89	0.55	0.35	3.98	0.01	0.00	0.00	0.00	0.02	0.4	0.5	0.5	0.6	0.4
77	Dam Site and AR	Maipati Batala	Sanfebagar NP-13	0.66	0.27	0.17	0.11	1.19	0.03	0.01	0.01	0.01	0.05	4.1	5.0	4.6	5.9	4.6
78	Dam Site and AR	Mannaje Batala	Sanfebagar NP-13	0.66	0.27	0.17	0.11	1.19	0.20	0.10	0.06	0.05	0.40	30.7	37.2	34.2	43.7	33.8
79	Dam Site and AR	Nanda Batala	Sanfebagar NP-13	2.12	0.86	0.54	0.34	3.85	0.23	0.11	0.06	0.05	0.45	10.7	13.0	11.9	15.3	11.8
80	Dam Site and AR	Piram Batala	Sanfebagar NP-13	0.48	0.19	0.12	0.08	0.87	0.27	0.13	0.08	0.06	0.54	56.2	68.1	62.5	79.9	61.8
				88.71	35.86	22.44	14.22	161.23	20.55	10.06	5.77	4.68	41.06	23.2	28.0	25.7	32.9	25.5



2 (B) - Loss of Cash Crops Production of Project Affected Families and Households

S.No.	Project Component	Name_HH_Head	GP_NP	Total Cash Crops Production (MT)			Loss of Cash Crops Production (MT)			% of Total Loss of Cash Crops	
				Potato	Pulses	Total	Potato	Pulses	Total	Potato	Pulses
1	Inundation Area	Gore Saud	Budhiganga NP-10	0.34	0.07	0.41	0.03	0.01	0.043	9.8	13.3
2	Inundation Area	Jaumati Buda	Budhiganga NP-10	0.32	0.07	0.39	0.12	0.03	0.150	36.3	49.3
3	Inundation Area	Lal Bdr. Buda	Budhiganga NP-10	0.21	0.04	0.25	0.05	0.01	0.064	23.9	32.5
4	Inundation Area	Buddhi Singh Saud	Budhiganga NP-10	0.65	0.13	0.78	0.04	0.01	0.055	6.6	9.0
5	Inundation Area	Sher Bdr. Buda	Budhiganga NP-10	0.31	0.06	0.37	0.04	0.01	0.053	13.6	18.4
6	Inundation Area	Bile Saud	Mellekh GP-4	0.02	0.00	0.02	0.01	0.00	0.017	83.4	98.3
7	Inundation Area	Manjite Saud	Mellekh GP-4	0.27	0.06	0.33	0.05	0.02	0.069	19.9	27.1
8	Inundation Area	Rinari Saud	Mellekh GP-4	0.34	0.07	0.41	0.07	0.02	0.092	21.1	28.7
9	Power House and AR	Dale Saud	Mellekh GP-4	0.32	0.07	0.39	0.14	0.04	0.181	44.2	60.0
10	Power House and AR	Jogi Saud	Mellekh GP-4	0.24	0.05	0.28	0.16	0.04	0.204	67.8	92.2
11	Power House and AR	Nalyatya Saud	Mellekh GP-4	0.22	0.04	0.26	0.04	0.01	0.053	19.3	26.2
12	Power House and AR	Narajite Saud	Mellekh GP-4	0.40	0.08	0.48	0.15	0.04	0.190	37.1	50.4
13	Power House and AR	Rana Singh Saud	Mellekh GP-4	0.29	0.06	0.35	0.05	0.01	0.060	16.1	21.9
14	Power House and AR	Ammare Saud	Mellekh GP-8	0.21	0.04	0.26	0.01	0.00	0.011	3.9	5.3
15	Power House and AR	Bai Bdr. Saud	Mellekh GP-8	0.19	0.04	0.23	0.07	0.02	0.086	34.8	47.2
16	Power House and AR	Bude Saud	Mellekh GP-8	0.17	0.03	0.20	0.06	0.02	0.075	34.6	47.1
17	Power House and AR	Dhananam Saud	Mellekh GP-8	0.40	0.08	0.49	0.20	0.06	0.256	49.6	67.4
18	Power House and AR	Dhane Saud	Mellekh GP-8	0.13	0.03	0.16	0.01	0.00	0.018	10.8	14.7
19	Power House and AR	Dharma Singh Nayak	Mellekh GP-8	0.27	0.05	0.32	0.04	0.01	0.053	15.5	21.0
20	Power House and AR	Gagan Singh Saud	Mellekh GP-8	0.19	0.04	0.23	0.12	0.03	0.149	60.0	81.6
21	Power House and AR	Gagane Saud	Mellekh GP-8	0.19	0.04	0.23	0.06	0.02	0.074	29.8	40.4
22	Power House and AR	Jaharsingh Saud	Mellekh GP-8	0.27	0.06	0.33	0.04	0.01	0.047	13.5	18.4
23	Power House and AR	Jayanath Yogi	Sanfebagar NP-4	0.71	0.15	0.86	0.07	0.02	0.092	10.1	13.7
24	Power House and AR	Jhapatsingh Nayak	Mellekh GP-8	0.38	0.08	0.46	0.05	0.01	0.062	12.8	17.5
25	Power House and AR	Kallane Saud	Mellekh GP-8	0.08	0.02	0.10	0.01	0.00	0.016	15.0	20.4
26	Power House and AR	Karbire Saud	Mellekh GP-8	0.81	0.17	0.97	0.02	0.01	0.030	2.9	3.9
27	Power House and AR	Mannaje Saud	Mellekh GP-8	0.34	0.07	0.41	0.08	0.02	0.105	24.1	32.8
28	Power House and AR	Nain Singh Lohar	Mellekh GP-8	0.08	0.02	0.10	0.05	0.02	0.070	67.6	91.9



29	Power House and AR	Padma Devi Kunwar	Sanfebagar NP-4	0.18	0.04	0.21	0.02	0.01	0.025	11.2	15.2
30	Power House and AR	Preme Lohar	Mellekh GP-8	0.08	0.02	0.10	0.06	0.02	0.072	69.3	94.1
31	Power House and AR	Ram Singh Kunwar	Sanfebagar NP-4	0.11	0.02	0.14	0.02	0.01	0.028	19.1	25.9
32	Power House and AR	Ranjite Lohar	Mellekh GP-8	0.09	0.02	0.10	0.05	0.01	0.060	54.2	73.6
33	Power House and AR	Sansare Saud	Mellekh GP-8	0.07	0.01	0.08	0.01	0.00	0.015	16.5	22.4
34	Power House and AR	Sarjane Saud	Mellekh GP-8	0.24	0.05	0.29	0.12	0.03	0.148	47.7	64.9
35	Power House and AR	Sete Lohar	Mellekh GP-8	0.14	0.03	0.17	0.05	0.01	0.064	35.7	48.6
36	Power House and AR	Tule Singh Kunwar	Sanfebagar NP-4	0.42	0.09	0.51	0.02	0.01	0.027	5.1	6.9
37	Power House and AR	Ujjale Saud	Mellekh GP-8	0.08	0.02	0.09	0.04	0.01	0.052	53.1	72.1
38	Adit and AR	Dal Bdr. Saud	Mellekh GP-8	0.49	0.10	0.58	0.01	0.00	0.012	1.9	2.6
39	Adit and AR	Jhuma Devi Saud	Mellekh GP-8	0.26	0.05	0.31	0.05	0.01	0.068	20.5	27.9
40	Adit and AR	Mane Thakulla	Mellekh GP-8	0.40	0.08	0.49	0.10	0.03	0.127	24.5	33.3
41	Adit and AR	Kallane Thakulla	Mellekh GP-8	0.23	0.05	0.27	0.19	0.05	0.237	84.3	99.3
42	Adit and AR	Narapati Saud	Mellekh GP-8	0.21	0.04	0.25	0.02	0.01	0.031	11.4	15.6
43	Adit and AR	Dhikira Devi Saud	Mellekh GP-8	0.06	0.01	0.08	0.02	0.01	0.027	32.9	44.7
44	Adit and AR	Ramba Devi Thakulla	Mellekh GP-8	0.81	0.17	0.97	0.02	0.01	0.031	3.0	4.0
45	Adit and AR	Khamba Saud	Mellekh GP-8	0.57	0.12	0.68	0.10	0.03	0.123	17.0	23.1
46	Adit and AR	Gopi Saud	Mellekh GP-8	0.10	0.02	0.12	0.07	0.02	0.085	68.9	93.6
47	Adit and AR	Khakindra Saud	Mellekh GP-8	0.46	0.09	0.56	0.12	0.03	0.153	26.0	35.3
48	Adit and AR	Kalusing Saud	Mellekh GP-8	0.13	0.03	0.16	0.06	0.02	0.080	48.3	65.6
49	Adit and AR	Gokul Saud	Mellekh GP-8	0.16	0.03	0.19	0.02	0.01	0.031	15.0	20.4
50	Adit and AR	Binira Saud	Mellekh GP-8	0.19	0.04	0.23	0.05	0.01	0.061	24.5	33.4
51	Adit and AR	Prasade Saud	Mellekh GP-8	0.11	0.02	0.14	0.04	0.01	0.051	35.0	47.6
52	Adit and AR	Bane Saud	Mellekh GP-8	0.24	0.05	0.29	0.05	0.01	0.067	21.5	29.2
53	Adit and AR	Kanje Saud	Mellekh GP-8	0.08	0.02	0.10	0.03	0.01	0.039	37.4	50.8
54	Adit and AR	Ram Bahadur Thakulla	Mellekh GP-8	0.13	0.03	0.16	0.03	0.01	0.037	22.3	30.3
55	CampSite and AR	Dhana Bdr. Bogati	Sanfebagar NP-10	0.07	0.01	0.08	0.03	0.01	0.040	44.8	60.9
56	CampSite and AR	Dhana Bdr. Mahata	Sanfebagar NP-10	0.10	0.02	0.12	0.02	0.01	0.031	24.6	33.5
57	CampSite and AR	Duse Mahata	Sanfebagar NP-10	0.17	0.03	0.20	0.01	0.00	0.014	6.5	8.9
58	CampSite and AR	Gor Bdr. Mahata	Sanfebagar NP-10	0.16	0.03	0.19	0.11	0.03	0.137	66.1	89.8
59	CampSite and AR	Jagat Bdr. Mahata	Sanfebagar NP-10	0.10	0.02	0.12	0.02	0.00	0.022	17.4	23.6
60	CampSite and AR	Jahar Singh Mahata	Sanfebagar NP-10	0.19	0.04	0.23	0.01	0.00	0.007	2.6	3.6
61	CampSite and AR	Laxman Mahata	Sanfebagar NP-10	0.06	0.01	0.08	0.01	0.00	0.018	22.1	30.1



62	CampSite and AR	Nanda Singh Mahata	Sanfebagar NP-10	0.22	0.04	0.26	0.03	0.01	0.035	12.6	17.1
63	CampSite and AR	Nara Bdr. Mahata	Sanfebagar NP-10	0.15	0.03	0.19	0.03	0.01	0.033	16.9	22.9
64	CampSite and AR	Nath Bogati	Sanfebagar NP-10	0.28	0.06	0.33	0.15	0.04	0.195	54.9	74.7
65	CampSite and AR	Prem Bdr. Mahata	Sanfebagar NP-10	0.17	0.04	0.21	0.02	0.01	0.026	11.4	15.5
66	CampSite and AR	Ramnath Bogati	Sanfebagar NP-10	0.29	0.06	0.35	0.04	0.01	0.055	14.7	20.0
67	CampSite and AR	Ramnath Mahata	Sanfebagar NP-10	0.03	0.01	0.04	0.01	0.00	0.011	27.5	37.4
68	CampSite and AR	Sagare Bogati	Sanfebagar NP-10	0.21	0.04	0.25	0.18	0.04	0.220	84.2	99.2
69	CampSite and AR	Tile Bogati	Sanfebagar NP-10	0.06	0.01	0.08	0.05	0.01	0.063	78.2	92.1
70	Office Camp	Dhangiri Bogati	Sanfebagar NP-10	0.28	0.06	0.34	0.18	0.05	0.235	65.7	89.3
71	Dam Site and AR	Bhakte Batala	Sanfebagar NP-13	0.18	0.04	0.21	0.11	0.03	0.144	64.1	87.1
72	Dam Site and AR	Dan Singh Batala	Sanfebagar NP-13	0.28	0.06	0.33	0.10	0.03	0.126	35.6	48.3
73	Dam Site and AR	Dilli Singh Saud	Sanfebagar NP-13	0.10	0.02	0.12	0.03	0.01	0.033	26.4	35.9
74	Dam Site and AR	Jogi Batala	Sanfebagar NP-13	0.57	0.12	0.69	0.04	0.01	0.053	7.3	9.9
75	Dam Site and AR	Maha Batala	Sanfebagar NP-13	0.23	0.05	0.27	0.11	0.03	0.135	46.7	63.5
76	Dam Site and AR	Maha Singh Batala	Sanfebagar NP-13	0.49	0.10	0.58	0.00	0.00	0.003	0.4	0.6
77	Dam Site and AR	Maipati Batala	Sanfebagar NP-13	0.15	0.03	0.18	0.01	0.00	0.008	4.3	5.8
78	Dam Site and AR	Mannaje Batala	Sanfebagar NP-13	0.15	0.03	0.18	0.05	0.01	0.059	31.6	43.0
79	Dam Site and AR	Nanda Batala	Sanfebagar NP-13	0.47	0.10	0.57	0.05	0.01	0.066	11.0	15.0
80	Dam Site and AR	Piram Batala	Sanfebagar NP-13	0.11	0.02	0.13	0.06	0.02	0.078	57.8	78.6
		Total		19.66	4.02	23.68	4.68	1.28	5.97	23.8	32.0



Table D-1a Forest loss at different project components

SN	Project Component	Types of Forest (as per Forest Act)	Forest Area(ha)	Loss of vegetation			Crown Cover (%)	Basal Area (%)	Vegetation Type
				Seedling / ha.	Saplings / ha.	No. of trees >10cm DBH /ha			
1	Reservoir	Juke and Rakse CF of Achham and Jukeban Lamkana CF of Bajura district	6.51	930	583	591.3	5-45	0.023 - 0.3988	Sal, Malato, Mauwa. Sindure Khirro, Kokkade, Badkaulo, Bhalayo, Daar, Amala, saaj
2	Headworks								
a	Dam	Rakse CF and Juke CF	0.07	280	150	25	20	0.015	Malato, Khirro,
b	Settling Basin	Juke CF	1.25	117	16	216.66	20	0.0265	Khirro, Pahadi Mauwa, Faledo, Malato, Rohini, Ghangharu
c	Road to headworks	Rakse CF	0.35	467	117	150	25	0.0676	kalo Siris, Khirro, Kokkade, Sindure
3	Adit	Imiltukra CF	2.47	303	469	1089.66	5-40	0.14-0.25	Saal, Malato, Mayal, Khirro, Uttis
4	Road to adit	Imiltukra CF and Sukethana	1.5	544	352	240	5	0.1073	Malato, Mayal, Uttis, Saal
	Total		12.15						



Table D-1c: Total Forest Loss

Types of Forest (as per Forest Act)	Forest Arae(ha)	Loss of vegetation**				Crown Cover (%)	Standing Wood Volume		Biomass for Standing Tree Kg (Wet & Dry)	Biomass Uses*
		LOSS OF REGENERATION		LOSS OF TREE(Number)			Timber(Cft)	Fuel wood (Chatta)		
		Seedling /ha	Sapling/ha	Pole Class	Tree Class					
Community	12.15	1297.63	453.3	4481	328	5-45%	29310.425	58.61	648203.02	Timber, fuelwood, agricultural implements, fodder, etc
Total	12.15	7948	5553	4481	328	5-45%	29310.425	58.61	648203.02	

Note:

** Seedling 0-4cm DBH; Sapling 4-10cmDBH; Pole class 10-30cm DBH; Tree class > 30cm DBH

*** Possible usage are -fire, wood, fodder, etc

Other type of forest will not be affected by the project



Table D-1 b: Total Loss in terms of plant species

Botanical Name	Local Name	Avg DBH/Rang e* (FOR>10c m DBH)	Loss of Vegetation **				Wood volume m3	Standing Wood Volume		Biomass for Standing Tree (KG.) (Wet) (Dry)	Biomass Uses***
			Loss of Regeneration		Loss of Tree(Number)			Timber(Cft)	Fuel wood (Chatta)		
			Seedling	Sapling	Pole Class	Tree Class					
			10.78	4.61	213	92	67.79	2390.95	4.78	52876	Low quality timber
Macaranga pustulata	Malato	18.76	10.78	3.06	237	0	27.47	968.867	1.9377338	21426.6	Low quality timber
Englehardtia spicata	Pahadi Mauwa	15.07	12.33	3.01	59	0	4.57	161.184	0.3223678	3564.6	Low quality timber
Toona ciliata	Tooni	13.18	22.53	30.8	533	0	47.11	1661.57	3.3231394	36745.8	Low quality timber, medicinal
Mallotus philippinensis	Sindure	14.13	10.78	20.01	296	0	24.83	875.754	1.7515082	19367.4	Low quality fire wood, fish poisoning
Sapium insigne	Khirro	15.4	9.23	161.69	2342	118	295.89	10436	20.8720806	230794.2	one of the best Timber
Shorea robusta	Saal	17.01	286.41	9.23	148	0	6.18	217.969	0.4359372	4820.4	Low quality implement and fuelwood
Homalium nepalense	Kokkade	12.35	40.03								

सिंहदरबार काठमाडौं
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<i>Rhus sp.</i>	Bhalayo	11.15	0	0	30	0	0.29	10.2283	0.0204566	226.2	Low quality fuelwood
<i>Bombax cdeiba</i>	Simal	18.15	0	0	60	0	108.23	3817.27	7.6345442	84419.4	
<i>Casearia sp.</i>	Amala		0	59	0	0					
<i>Boehmeria rugulossa</i>	Daar	10.19	0	0	59	0	1.09	38.4443	0.0768886	850.02	Wooden vessels
<i>Phyllanthus emblica</i>	Amala	0	30	0	0						
<i>Saruga pinnata</i>	Dabdabe	11.94	1.55	1.55	59	0	2.8	98.756	0.197512	2184	Fodder, fuelwood
<i>Terminalia alata</i>	Saaj		59	0	0	0					Timber
<i>Erythrina sp.</i>	Phaledo	14.33	0	0	30	0	1.42	50.0834	0.1001668	1107.6	Low quality timber
<i>Pyracantha crenulata</i>	Ghangharu	10.19	0	0	30	0	0.59	20.8093	0.0416186	460.2	Stick, wild edible fruit
<i>Albizia lebbeck</i>	Siris	40.34	0	0	30	59	128.68	4538.54	9.0770872	100370.4	Low quality timber
<i>Pyrus pashia</i>	Mayal	23.88	0	0	118	0	21.84	770.297	1.5405936	17035.2	Low quality timber, wild edible fruit
<i>Alnus nepalensis</i>	Uttis	25.47	6.16	30.8	237	59	92.25	3253.66	6.507315	71955	Timber
Total					4481	328	831.03	29310.4	58.6208496	648203	



Table D-1 d: Loss of Non-timber forest products

S.N.	Non timber Forest Species	Community Forest	
		Seedling /ha	Sapling/ha
1	Dhaiyaro	12	2
2	Asuro	5	0
3	Sisno	10	0
4	Amala	3	1
5	Jamun	3	1
6	Aiselu	4	0

Note:

Other type of forest will not be affected by the project

Table D-1e: Valuation of Forest Product Loss

S.No.	Botanical Name	Local Name	Value of Timber (Pole and Tree)
1	<i>Macaranga pustulata</i>	Malato	4,57,500
2	<i>Englehardtia spicata</i>	Pahadi Mauwa	3,55,555
3	<i>Toona ciliata</i>	Tooni	2,65,500
4	<i>Mallotus philippinensis</i>	Sindure	7,99,500
5	<i>Sapium insigne</i>	Khirro	59,200
6	<i>Shorea robusta</i>	Saal	14,753,000
7	<i>Homalium nepalense</i>	Kokkade	2,22,000
8	<i>Rhus sp.</i>	Bhalayo	6,000
9	<i>Bombax ceiba</i>	Simal	3,30,000
10	<i>Boehmeria rugulosa</i>	Daar	88,500
11	<i>Garuga pinnata</i>	Dabdabe	88,500
12	<i>Erythrina sp.</i>	Phaledo	4,500
13	<i>Pyracantha crenulata</i>	Ghangharu	4,500
14	<i>Albizzia lebbeck</i>	Siris	1,33,500
15	<i>Pyrus pashia</i>	Mayal	1,77,000
16	<i>Alnus nepalensis</i>	Uttis	4,44,000
	Total		15,334,200

Note :-Valuation is based on the local value per trees as fixed by the administrative authority for some of the tees and average is taken for non-specified ones



Appendix-E: Stakeholder Consultation



Table-1: Name List/Attendance of Ward Level PRA Participants

**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2018**

Checklist for Ward Level PRA

1. General Information

1. Ward : 10 2. Ward no. : 10
 3. Village/Settlement : Samchebagarob 4. Venue : Famsi, Mahabharat
 5. Facilitator : Ramna X. Pokharel 6. Date : 2075.01.10.....
 7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	मानमल मिए	42	5		90	गृह	साम्चे	
2	मानमल मिए	38	5		90	गृह	11-6	
3	मानमल मिए	46	5		8	"	11-6	
4	मानमल मिए	20	5		SLC	"	11-6	
5	मानमल मिए	29	5		6	गृह	11-6	
6	मानमल मिए	67	5		7	गृह	11-6	
7	मानमल मिए	60	5		6	गृह	11-6	
8	मानमल मिए	42	5		3	गृह	11-6	
9	मानमल मिए	68	5		SLC	गृह	11-6	
10	मानमल मिए	47	5		90	गृह	11-6	
11	मानमल मिए	35	5		SLC	गृह	11-6	
12	मानमल मिए	40	5		SLC	गृह	11-6	
13	मानमल मिए	64	5		11	गृह	11-6	
14	मानमल मिए	44	5		"	गृह	11-6	
15								
16								
17								
18								
19								
20								



**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2016**

Checklist for Ward Level PRA

1. General Information

1. Ward : 13 Babela 2. Ward no. 13
3. Village/Settlement : Batalgaun 4. Venue : Batalgaun
5. Facilitator : Chhatra Tomraker 6. Date : 07.5.11
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ Main ation Occupation	Address	Signature
1	उमकान्त जोशी	37	M	ब्राह्मण	B.ed शिक्षण	बाबला-१	
2	चन्द्र बटाला	34	"	बोधी	M.ed शिक्षण	" 2	
3	कालु सिंह बिष्ट	28	"	"	I.Ed शिक्षण	" 3	
4	पुरुषोत्तम सिंह (शाह)	25	F	"	I.ed "	बाबला-१	
5	बल ब. शाक	46	M	बोधी	S.L.C कृषि	बाबला-४	
6	प्रकाश बिष्ट	20	"	"	M.ed शिक्षण	बाबला-३	
7	हेरा बटाला	46	"	"	मध्य कृषि	बाबला-३	
8	मनु बटाला	93	"	"	S.L.C विद्यार्थी	बाबला-३	
9	मनु ब. बिष्ट	83	"	"	S.L.C शिक्षण	" 3	
10	अनक बटाला	32	"	"	मध्य कृषि	" 3	
11	सिरा सिंह बिष्ट	48	M	"	मध्य कृषि	" 3	
12	अम बहादुर बटाला	20	M	"	B.ed Student	बाबला-१	
13	गोर्खा बटाला	29	M	"	S.L.C "		
14							
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**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2018**

Checklist for Ward Level PRA

1. General Information

1. Ward : 4 (Mellekh) 2. Ward no. : 4
3. Village/Settlement : Sandhole, Ghat 4. Venue : Sandhole
5. Facilitator : Ranva Roshni 6. Date : 07.11.18
7. Details of Participants: 13

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	गोबुल साह	26	5		D.E2	कृषि	गुहाले-2	
2	विष्णु साह	34	"		7	"	"	
3	रिनाली साह	60	"		साह	"	"	
4	पुन्य साह	43	"		11	"	"	
5	सालिना साह	36	"		10	" /	"	
6	दत्त साह	42	"		साह	"	"	
7	सुद साह	36	"		7	"	"	
8	मन्सा साह	36	"		साह	"	"	
9	रत साह	20	"		"	मोल्ती	"	
10	जोती साह	20	"		"	"	"	
11	मन्सा साह	46	"		"	मोल्ती	"	
12	पुन्य साह	25	"		"	"	"	
13	प्रोबो साह	40	5		"	"	"	
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Checklist for Ward Level PRA

1. Ward : 3

3. Village/Settlement

3. Village/Settlement

5. Facilitator

7. Details of Participants: Q

2. Ward no. : 8 Mel/ekh.

4. Venue

6. Date : 02.10.11

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वम

**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2018**

Checklist for Ward Level PRA

1. General Information

1. Ward : 10 2. Ward no. : 10
3. Village/Settlement : Budhiganga 4. Venue : Maikabazar
5. Facilitator : Ramraj K. Pokharel 6. Date : 20.7.2018
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	गोबिन्द ब. साउंड	42	M	क्षेत्री	4	कृषि		
2	मिन व. जैसी	40	"	ब्रह्मण	10	कृषि		
3	कुट्टि सिं बहोरा	35	"	क्षेत्री	सम्भार	कृषि		
4	उदय सिं साउंड	42	"	"	5	कृषि		
5	चन्द्र साउंड	65	"	"	5	ग्राह्यार		
6	विष्णु ब. साउंड	33	"	"	7	कृषि		
7	लाल ब. पुठा	55	"	"	सम्भार	कृषि		
8	नन्द पुठा	41	"	"	7	कृषि		
9	चन्द्र स्व जैसी	51	"	ब्राह्मण	7	"		
10	मति देवी साउंड	42	F	क्षेत्री	सम्भार	कृषि		
11	उमर ब. साउंड	41	M	"	10	"		
12	कुशी व. साउंड	38	M	क्षेत्री	5	कृषि		
13	देव ब. साउंड	33	"	"	8	कृषि		
14	जानक साउंड	34	"	"	8	"		
15	चन बि. क.	53	"	दलित	सम्भार	"		
16	विष्णु राज जैसी	33	"	ब्रह्मण	10	"		
17	गोबिन्द पुठा	57	"	क्षेत्री	2	"		
18	बैर ब. पुठा	65	"	"	3	"		
19	तिलक साउंड	17	"	"	8	विद्यार्थी		
20	चर ब. साउंड	32	"	"	सम्भार	कृषि		



**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA**

1. General Information

1. Municipality/RM : Sankabagar 2. Ward no. : 13
3. Village/Settlement : Babla 4. Venue : Budhabagar
6. Date : 07.5.11 5. Facilitator : Pamraj

7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Maipati Bataia	55	M		Literate	Labour	Sank-13	
2	Divek Kunwar	25	M		Overseas	Student	11-13	
3	Sobha Babli	41	F		5	Business	11-13	
4	Lokeshwar Kunwar	35	F		3	"	11-13	
5	Sharmila Kunwar	24	F		10	"	11-13	
6	Ishwar Bataia	21	M		JTA	"	11-13	
7	Maneshwar Kunwar	25	F		8	"	11-13	
8	Khanti K. Rawal	28	F		Becham	"	11-13	
9	Sabha Babli	37	F		8	"	11-13	
10	Trishna Kunwar	21	F		SLC	"	11-13	
11	Maniraj Kunwar	29	M		"	"	11-13	
12	Kalasha Kunwar	19	F		SLC	"	11-13	
13	Setman Babli	43	M		1A	"	11-13	
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Budhiganga Hydropower Project
Environmental and Social Impact Assessment (EIA - 20 MW)
Checklist for Ward Level PRA

1. General Information

1. Municipality/RM : ..Budhiganga
 2. Ward no. : ..10
 3. Village/Settlement : ..Palikabazar
 4. Venue : ..Palikabazar Chowk
 6. Date : ..07.11.16
 5. Facilitator : ..Panwar, K. P. Chauri

7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Padam Saud	47	M		8	Business	Budhiga- ga-10	पदम
2	Chandra Dev Jaisi	52	M		8	Agri-	"	चन्द्र
3	Rana Saud	53	M		Literate	"	"	राना
4	Keke Saud	57	M		"	"	"	केके
5	Dhararaj Jaisi	24	M		9	"	"	धरारज
6	Tekke Saud	55	M		Literate	"	"	तेके
7	Man Ddr. Saud	33	M		8	"	"	मान
8	Kamal Ddr. Saud	37	M		8	Business	"	कमल
9	Chandra Ddr. Thapa	39	M		5	"	"	चन्द्र
10	Surva Saud	34	M		4	Agri	"	सुर्वा
11	Narash Duda	22	M		SLC	Business	"	नरेश
12	Chandra Saud	68	M		Literate	"	"	चन्द्र
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Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA

1. General Information

1. Municipality/RM : Mellanchow 2. Ward no. : 14
3. Village/Settlement : Kamkhata 4. Venue : Kamkhata
6. Date : 2075.11.16 5. Facilitator : Pankaj K. Pokharel
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Shankar Bdr. Saud	48	M	98656243 30	SLC	Agriculture	mellanchow	
2	Dile Saud	70	M	9849036405	Literate	"	"-4	
3	Dile Saud	49	M		"	"	"-4	
4	Dogi Saud	65	M		"	"	"-4	
5	Rinari Saud	71	M		"	"	"-4	
6	Dal Bdr Saud	56	M		8	"	"-4	
7	Suna Saud	32	F		SLC	Business	"-4	
8	Ram Bdr. Saud	32	M		SLC	"	"-4	
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Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA

1. General Information

1. Municipality/RM : ..m.ellenh..... 2. Ward no. : ..8.....
3. Village/Settlement : ..Pratnocot..... 4. Venue : ..Chaukara (Near Health post)
5. Date : ..07.05.15..... 5. Facilitator : ..Ramesh K. Paudyal

7. Details of Participants:

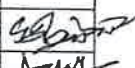
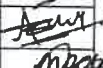
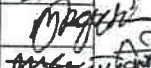
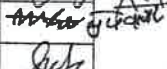
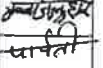
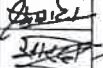
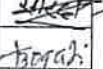
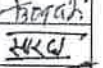
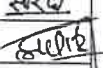
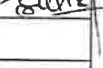
S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Ujjale Saud	55	M		5	Agriculture	Sanfe-8	
2	Khimta Devi Saud	45	F		Literate	"	"-8	
3	Prem Saud	45	M		4	Business	"-8	
4	Bajirsingh Lohar	60	M		Literate	Agrar	"-8	
5	Kirte Saud	40	M		"	Mason	"-8	
6	Raxindra Saud	44	M		"	Business	"-8	
7	Tes Bdr. Saud	45	M		SLC	Teaching	"-8	
8	Narendra Saud	25	M		10	Job	"-8	
9	Pabi Saud	60	F		Literate	-	"-8	
10	Jaishara Saud	43	F		"	Hotel	"-8	
11	Dir Bdr. Saud	31	M		Bachelor	Job	"-8	
12	Ujjale Saud	43	M		Literate	Agriculture	"-8	
13	Kalusingh Saud	98	M		6	Business	"-8	
14	Kalusingh Saud	47	M		5	Mason	"-8	
15	Saryane Saud	62	M		Literate	Agri.	"-8	
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**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA**

1. General Information

1. Municipality/RM : Sanfebagar 2. Ward no. : 10
3. Village/Settlement : Thantoli 4. Venue : Hotel
6. Date : 07-5-14 5. Facilitator : Ramraj Kharel
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Dadhisingh Dogati	59	M		Literate	Agriculture	Sanfe-10	
2	Amrit Mahata	21	M		Inter	Teaching	11-10	
3	Mahendra Dogati	30	M		SLC	Unemploy	11-10	
4	Sarpsingh Dogati	68	M		Literate	Agriculture	11-10	
5	Suraj Dogati	36	M		SLC	Army	11-10	
6	Sarda Dogati	49	F		Literate	Agriculture	11-10	
7	Manasisingh Lohar	50	M		Literate	Arson -work	11-10	
8	Parbati Dogati	25	F		5	Business	11-10	
9	Santa Santa Dogati	30	F		5	Teaching	11-10	
10	Sarita Bista	28	F		Inter	Ngo worker	11-10	
11	Lok Bala/Bugati	47	M		Bachelor	Teacher	11-10	
12	Sarada Dogati	30	F		Gen	Business	11-10	
13	Dilep Dogati	35	M		SLC	Hotel	11-10	
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22								

**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2010**

Checklist for Ward Level PRA

1. General Information

1. Ward : 7, New-4 2. Ward no. : 7, Sanfebagar
3. Village/Settlement : Matmanan, Sanfe 4. Venue : Sanfada
5. Facilitator : Ramraj 6. Date : 07-5-10
7. Details of Participants: 10

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ Main ation Occupation	Address	Signature
1	Ratna Tamata	45	M		Liter- Agri	Hathkot	रत्न
2	Hainsingh "	55	M		" "	" - 4	हैनसिंह
3	Shersingh "	53	M		" "	" - 4	शेर
4	Prem Singh "	61	M		5 Job	Sanfe-M	प्रेम
5	Dayendra od	47	M		7 Agri	"	देवेंद्र
6	Sarsane Lohar	49	M		5 Agri/occup	"	सर्सने
7	Bhuwane "	42	M		Liter- "	"	भुवने
8	Luge tamata	49	M		" Agri	"	लुगे
9	Lapmi Lohar	52	F		" "	"	लपमी
10	Khanti od	48	M		" "	"	खन्ती
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Table -2: Issues and Concerns Raised by Stakeholders during Ward Level PRA

S.N	Name of Rural Municipality/ Municipality	Issues and Concerns Raised by Stakeholders
1	Budhi Ganga Municipality, Ward Number - 10	• Support to local schools for drinking water, toilet and educational materials • Support for Chadapani Ghat Irrigation Project • Support for Ikrigard- Kuskot foot trail • Support for tourism development of Bhagwati Rock (big rock under which more than 500 people could take shelter) • Employment opportunity for local people • Provide share of BHP to local people • Support for income generation activities • Protection of traditional water mills (<i>Ghatta</i>)
2	Mellekh Rural Municipality, Ward Number -4	• Conservation of community forest (Juka, Ikrigad) • Supports for renovation of school buildings of the ward • Support for drinking water, toilet and educational materials to local schools • Support to manage Odalkota spring for drinking water and irrigation • Protection of traditional water mills (<i>Ghatta</i>) • Support Barhabishe- Kuskot (Lamakhadi-Dab Market) road • Conservation of Lingkot Temple (2 K.M from dam site) • Protection of cremation sites (pingaghat, Lingkot ghat, Sherabagar) • Give priority for employment to local people • Compensation for land owners living within 3 km of the reserve wire • Quick implementation of the project • Coordination/information to the community before starting construction activities • Transparency regarding project activities and expenditure (corruption case filled in CIA during construction of road from project office to powerhouse) • Transparent regarding compensation of land • Support poor and women for income generating activities • Project should implement study report of Budhiganga HEP prepared in 2052 B.S. • Protection of water mills
3	Sanfebagar Municipality, Ward Number -13	• Conservation of Rakshe Community Forest • Protection of water resources of the area • Support for Ardali Micro Hydro power project • Protection of Cremation sites(Ardalighat, Budhabagar) • Protection of Water mills • Implement awareness raising program against Chhaupadi • Conservation of Virkhamba (archeological importance) • Provide employment • Support poor and women for income generating activities • Provide skill development training

4	Mellekh Rural Municipality, Ward Number -8	• Conservation of Imil Tukra Community forest • Support to renovate health post building of the ward • Protection of water mills • Support for Hatikot - Thanti and Hatikot- Mastmandu foot trail • Support for conservation of historic Vimkot Palace • Support for operation and maintenance of drinking water schemes • Priority in employment • School support
5	Sanfebagar Municipality, Ward Number -10	• Support local schools for drinking water, toilet and boundary wall • Support to manage water resources • Protection of water mills • Protection of cremation site (Aamkuna Ghat) • Employment to local people in the project • Support for local development of the ward • Timely completion of the project • Support to manage irrigation schemes • Employment for project affected households due to land acquisition
6	Sanfebagar Municipality , Ward Number -4	• Employment to local people in the project • Support on local development • Support on management of water resources • Support to manage irrigation schemes • Timely completion of project



Table -3: Name List of Participants of Public Consultation

A. Municipality: Budhiganga Ward No: 10 Settlement: Devalsain, Barhbish Date: 2075-1-9

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Manoj Kumal	41	M	B BS	Salaried Job	Budhiganga -10
2	Khadak Rawal	51	M	7	Agriculture	Budhiganga -10
3	Sar Kumal	57	M	7	Mason Work	Budhiganga -10
4	Subash Rawal	16	M	9	Study	Budhiganga -10
5	Bal Bdr. Lohar	62	M	5	Agriculture	Budhiganga -10
6	Dipak Rawal	16	M	9	Study	Budhiganga -10
7	Jang Bdr. Nepali	63	M	10	Agriculture	Budhiganga -10
8	Dipak Rawal	30	M	SLC	Agriculture	Budhiganga -10
9	Dipendra Rawal	24	M	I Com	Business	Budhiganga -10
10	Dan Bdr. Kumal	48	M	Literate	Agriculture	Budhiganga -10
11	Dilip Rawal	33	M	7	Agriculture	Budhiganga -10
12	Prasad Kumal	40	M	7	Business	Budhiganga -10
13	Krishna Rawal	32	M	8	Agriculture	Budhiganga -10
14	Bal Bdr. Rawal	27	M	Illiterate	Agriculture	Budhiganga -10
15	Dinesh Kumal	22	M	Literate	Agriculture	Budhiganga -10
16	Sher Bdr. Rawal	19	M	10	Agriculture	Budhiganga -10
17	Rup rawal	24	M	12	Salaried Job	Budhiganga -10
18	Bajire Bad	50	M	2	Agriculture	Budhiganga -10
19	Rabindra Kumal	36	M	2	Agriculture	Budhiganga -10
20	Sete Rawal	90	M	Literate	Old (Retired)	Budhiganga -10

2: Rural Municipality: Mellekh Ward No: 4 Settlement: Kalamuda, Kuskot Date: 2075-1-7

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Jogi Saud	61	M	Literate	Agriculture	Mellekh-4
2	Dal Bdr Saud	52	M	Literate	Agriculture	Mellekh-4
3	Haite Saud	50	M	Literate	Agriculture	Mellekh-4
4	Jagat Saud	24	M	7	Agriculture	Mellekh-4
5	Bikram Saud	35	M	7	Agriculture	Mellekh-4
6	Lal Chandra Rawal	41	M	Literate	Agriculture	Mellekh-4
7	Jhanka Bdr. Saud	45	M	SLC	Agriculture	Mellekh-4
8	Nata Saud	52	M	Literate	Agriculture	Mellekh-4
9	Gokul Saud	26	M	B Ed	Unemployed	Mellekh-4
10	Kailash Saud	23	M	7	Agriculture	Mellekh-4
11	Kalu Singh Saud	40	M	Literate	Agriculture	Mellekh-4
12	Kamal Tamrakar	48	M	Literate	Agriculture	Mellekh-4
13	Billai Saud	70	M	Literate	Agriculture	Mellekh-4
14	Amar Bdr. Rawal	39	M	Literate	Agriculture	Mellekh-4
15	Sukra Saud	53	M	Literate	Agriculture	Mellekh-4
16	Prem Saud	47	M	5	Business	Mellekh-4
17	Nayan Singh Saud	43	M	7	Business	Mellekh-4

3. Rural Municipality: Mellekh Ward No: 8 Settlement: Pipalchaur, Hatikot Date: 2075-1-5

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Khinta Saud	47	F	Literate	Agriculture	Mellekh -8
2	Bishna Saud	20	F	10	HH Work	Mellekh -8
3	Hira Saud	62	M	Literate	HH Work	Mellekh -8
4	Sushila Saud	23	F	12	Salaried Job	Mellekh -8



5	Hira Mijhar	66	M	Literate	Agriculture	Mellekh -8
6	Bir Bdr. Saud	32	M	B Ed	Salaried Job	Mellekh -8
7	Rajendra Saud	23	M	I Ed	Study	Mellekh -8
8	Mansara Saud	40	F	Literate	HH Work	Mellekh -8
9	Gokul Saud	28	M	9	Agriculture	Mellekh -8
10	Devshara Saud	18	F	9	Business	Mellekh -8
11	Pashupati Saud	23	F	I Ed	Study	Mellekh -8
12	Gopi Saud	55	M	5	Agriculture	Mellekh -8
13	Arjun Raj Dhungana	23	M	I Ed	Study	Mellekh -8
14	Arjun Bhul	18	M	SLC	Study	Mellekh -8
15	Bishal Dhungana	17	M	SLC	Study	Mellekh -8
16	Karna Bahadur Saud	42	M	8	Salaried Job	Mellekh -8
17	Chhabi Lal Dhungana	32	M	9	Agriculture	Mellekh -8

4. Municipality: Sanfebagar Ward No: 10 Settlement: Thanti, Ghungurkot Date: 2075-1-8

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Chandra Singh Bogati	76	M	Literate	Agriculture	Sanfebagar-10
2	Khadak Singh Mahata	37	M	Literate	Agriculture	Sanfebagar-10
3	Nav Raj Bhatta	54	M	SLC	Teaching	Sanfebagar-10
4	Girendra Bogati	32	M	B Ed	Teaching	Sanfebagar-10
5	Bhoj Raj Bhandari	28	M	+2	Agriculture	Sanfebagar-10
6	Lalit Bogati	42	M	MA	Salaried Job	Sanfebagar-10
7	Lok Bdr Bogati	46	M	BA	Salaried Job	Sanfebagar-10
8	Remant Bogati	47	M	IA	Agriculture/SW	Sanfebagar-10
9	Mani Raj Bogati	65	M	SLC	Agriculture	Sanfebagar-10
10	Dabal Bogati	33	M	Literate	Business	Sanfebagar-10
11	Nirmala Bogati	28	F	Literate	Business	Sanfebagar-10
12	Sarda Bogati	30	F	8	Agriculture	Sanfebagar-10
13	Madan Bogati	19	F	+2	Study	Sanfebagar-10
14	Mohan Singh Bogati	74	M	4	HH Work	Sanfebagar-10
15	Sarpaya Bogati	67	M	3	HH Work	Sanfebagar-10
16	Suraj Thakulla	31	M	B Ed	Salaried Job	Sanfebagar-10

5. Municipality: Sanfebagar Ward No: 13 Settlement: Budhabagar Date: 2075-1-3

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Purna Bdr Sunar	48	M	SLC	Business	Sanfebagar-13
2	Hira Singh Kunwar	28	M	M Ed	Business	Sanfebagar-13
3	Kiran devi Kunwar	21	F	SLC	Business	Sanfebagar-13
4	Gopal Bahadur Batala	37	M	SLC	Business	Sanfebagar-13
5	Dinesh Nepali	40	M	7	Tailoring	Sanfebagar-13
6	Chet Bahadur Kunwar	37	M	B Ed	Business	Sanfebagar-13
7	Laxmi Devi Kunwar	23	F	I Ed	Student	Sanfebagar-13
8	Dev Raj Kunwar	18	M	8	Driving	Sanfebagar-13
9	Bir Bahadur Batala	38	M	SLC	Agriculture	Sanfebagar-13
10	Bhim Nepali	20	M	SLC	Tailoring	Sanfebagar-13
11	Khiru Damai	38	F	Literate	Tailoring	Sanfebagar-13
12	Puspa Nepali	17	M	10	Study	Sanfebagar-13
13	Dipak Kunwar	17	M	9	Study	Sanfebagar-13
14	Mahan Nepali	18	M	7	Agriculture	Sanfebagar-13
15	Dambar Kumari Kunwar	19	F	10	Study	Sanfebagar-13



16	Radhika Kunwar	25	F	I Ed	Business	Sanfebagar-13
17	Narma Kunwar	48	F	Literate	Agriculture	Sanfebagar-13
18	Chandra Bdr. Kunwar	45	M	8	Business	Sanfebagar-13
19	Surat Sunar	40	M	SLC	Business	Sanfebagar-13
20	Jank Bahadur Kunwar	32	M	IA	Business	Sanfebagar-13



Annex-:....

Issues and Concerns Raised by Stakeholders in Public Consultation

S. N.	Municipality/Ward/ Settlement	Issues and Concerns
1	Budhiganga Municipality, Ward No.10, Devalsain, Barhbish	• Support Shree Singada and Masteshwari schools for drinking water, toilet, boundary wall and class room construction • Support for protection/management of Khokela Spring located in Mastmandu Community Forest • Protection of affected water mills • Funding support for construction of Ikrigad Micro Hydro Project • Support for maintenance of Lingbagar- Kuskot foot trail • Support for Mastmandu Temple • Protection of Ikrigad (Vora) cremation Site • Employment Opportunity • Good compensation for acquired land • Electricity facility
2	Mellekh Rural Municipality, Ward No. 4, Kalamuda, Kuskot	• Conservation of Jukaban Community Forest • Support for Pratibha Child Development Center • Support to manage existing irrigation schemes • Protection of watermills • Support to Lamakhadi- Dab Bazar Road • Protection of Lingkot Temple • Protection of Cremation sites • Support to recovery loss of income from fishery • Employment Opportunity • Support for income generation activities
3	Sanfebagar Municipality, Ward No. 13, Budhabagar	• Support to Jalpadevi Primary School (drinking water, toilet & CDC) • Support for drinking water in community • Protection of water mills • Employment opportunity • Compensation of acquired land at prevailing market price • Protection of community forest • Support for income generation activities • Support to control landslides
4	Mellekh Rural Municipality, Ward No. 8, Pipalchaur, Hatikot	• Support to Pipalchaur Primary School for building construction • Protection of water mills • Protection of Santada Cremation Site • Employment opportunity • Support for management of drinking water sources • Support for income generation activities
5	Sanfebagar Municipality, Ward No. 10, Thantibazar	• Support to Ganga Primary School for building construction, drinking water, toilet and educational materials • Support for drinking water facility in Tansibazar • Support to operate Tansi Irrigation System • Funding support for regular operation to Dubkabagar Micro Hydro • Protection of water mills • Protection of Ardali Cremation Site • Employment opportunity • Minimize environmental loss • Provide detail project information to community



Table -5: Name List of Respondents of Key Informant Interview

S.N.	Name	Age	Sex	Caste/Ethnicity	Education	Occupation	Address	Position	Contact No.
1	Mr. Sher Bdr. Budha	67	M	Chhetri	8 Class	Agriculture	Budhiganga Mun. ward-10	Chairperson, Juka CFUG	9865944445
2	Mr. Tapendra Bikram Shah	30	M	Chhetri	JTA	Salaried job	Budhiganga Mun. ward-10	Ag. Technician	9868814630
3	Mr. Bhuwan Raj Jaisi	35	M	Brahmin	B Ed	Salaried job	Budhiganga Mun. ward-10	Account/Admin Assistant	9848693572
4	Mrs. Kamala Devi Tamrakar	37	F	Dalit	8 Class	Tailoring	Mellekh Rural Mun. ward -4, Kuskot	Nominated Member Mellekh Rural Municipality	9848690678
5	Mr. Hira Bdr. Shah	38	M	Chhetri	10 Class	Business	Mellekh Rural Mun. ward -4, Kuskot	Memembr, Jukaban CFUG	097690599
6	Mr. Bhoj Bdr. Saud	30	M	Chhetri	MA	Salaried Job	Mellekh Rural Mun. Ward-8,	NA	9749699376
7	Mr. Jit Bdr. Saud	45	M	Chhetri	Intermediate	Teaching	Mellekh Rural Mun. Ward-8,	Kalika Sec. School	9848558059
8	Mr. Khagendra Saud	43	M	Chhetri	Intermediate	Agriculture	Mellekh R. Mun. Ward-8, Hatikot	Chairperson, Ward -8, Mellekh Rural Municipality	9868567447
9	Mrs. Jayanti Bogati	40	F	Chhetri	10 Class	Business	Sanfebagar Mun. Ward-10, Thanti	Ward Mem/ Mun. EC Member, Ward-10, Sanfebagar Mu.	9868800182
10	Mr. Remant Bdr. Bogati	47	M	Chhetri	SLC	Business	Sanfebagar Mun. Ward-10	Former Chairperson, Ghugurkot VDC	9860654706
11	Mr. Lok Bdr. Bogati	45	M	Chhetri	Bachelor	Teaching	Sanfebagar Mun. Ward-10	Teacher, Thanti Primary School	9848586169
12	Mr. Sagar Singh Babli	45	M	Dalit	I Sc./ CMA	Business (Medical Shop)	Sanfebagar Mun. Ward-13	Chairperson, Sanfebagar Mun. Ward-13	9848684811
13	Mr. Purna Bdr. Kunwar	57	M	Chhetri	8 Class	Business	Sanfebagar Mun. Ward-13	Chairperson, Budhabagar Samaj Samiti	NA
14	Mr. Dipak Batala	24	M	Chhetri	Intermediate	Business	Sanfebagar Mun. Ward-13	Vice Sec., Rakshe CFUG	NA



Appendix-F: Public Hearing



Notice for Public Hearing in Arthik National Daily

२०७५ साउन २२ गते मंगलबार (August 7, 2018) पाना नं.: ५ www.aarthikdainik.com

सार्वजनिक सुनुवाइ कार्यक्रमको सूचना

नेपाल सरकार, ऊर्जा, जलस्रोत तथा सिंचाइ मन्त्रालय, विद्युत् विकास विभाग, बुढीगंगा जलविद्युत् आयोजनाबाट प्रस्तावित बुढीगंगा जलविद्युत् आयोजना (२०४ मेघा) को वातावरण संरक्षण नियमावली २०५४ को नियम ७ (२) अनुसार वातावरणीय प्रभाव मूल्याङ्कन (EIA) मस्यौदा प्रतिवेदन उपर राय-सुझाव लिनको लागि सार्वजनिक सुनुवाइ कार्यक्रम मिति २०७५ साल भदौ ५ गते मङ्गलबार अछाम जिल्ला साँफेबगर नगरपालिका वडा नं. १० ठाँटीस्थित श्री ठाँटी आधारभूत विद्यालय प्राङ्गणमा बिहान ११:०० बजेदेखि सुरु हुने भएकोले आयोजना प्रभावित (साँफेबगर नगरपालिका, मेलेख गाउँपालिका र बुढीगंगा नगरपालिका) व्यक्ति तथा सरोकारवालाहरूलाई उक्त कार्यक्रममा उपस्थित भई आफ्नो अमूल्य राय-सुझाव दिनुहुनको लागि हार्दिक आमन्त्रण गर्दछौ ।

आयोजक
बुढीगंगा जलविद्युत् आयोजना
कालिकास्थान, काठमाडौं
फोन नं. : ०१-४४२३२०६
ईमेल : info@bhp.gov.np



Program Schedule

बुढीगंगा जलविद्युतआयोजनाको वातावरणीय प्रभावमुल्याङ्कन सार्वजनिक सुनुवाई कार्यक्रमतालिका, भाद्र ५, २०७५, ठाँटी बजार अछाम

कार्यक्रम संचालन: पंकजकुमार पाखरेल

१. सहभागिहरुको नामदर्ता:

२. आसन ग्रहण

- सभापति : श्री लोक बहादुर बोगटी, प्रधानाध्यापक, ठाँटी आधारभूतविद्यालय, ठाँटी
- प्रमुखअतिथि : श्री नर बहादुर बोगटी, संयोजक, जिल्ला समन्वय समिति, अछाम
- विशिष्ट अतिथि : श्री कुलबहादुर कुँवर, नगर प्रमुख, साँफेबगर नगरपालीका
- अतिथि : श्री सागर सिंह बावली, वडा अध्यक्ष, साँफेबगर न.पा. वडा नं. १३
- अतिथि : श्री कृष्ण व. बुढा, वडा अध्यक्ष, साँफेबगर न.पा. वडा नं. ३
- अतिथि : श्री विर बहादुर साउद, वडा अध्यक्ष, मेल्लेख गा.पा. वडा नं. ४
- अतिथि : श्री खगेन्द्र साउद, वडा अध्यक्ष, मेल्लेख गा.पा. वडा नं. ८
- अतिथि : श्री धर्मराज जैशी, वडा अध्यक्ष, बुढीगंगा न.पा. वडा नं. १०
- अतिथि : श्री भरत खडका, का.वा. वडा अध्यक्ष, साँफेबगर न.पा. १०
- अतिथि : श्री पुष्पराज भट्ट, सदस्य, नेपालपत्रकार माहसंघ, प्रदेश नं ७
- अतिथि : श्री जयन्तीबोगटी, नगर सदस्य, साँफेबगर नगर कार्यपालीका
- अतिथि : श्री कमल देवीताम्राकार, सदस्य, मेल्लेख गाउँकार्यपालीका
- अतिथि : श्री शिवकुवर, जिल्ला कमिटी सदस्य, नेकपा
- अतिथि : श्री भंकर बहादुर साउद, जिल्लाकोषाध्यक्ष, नेपालीकाँग्रेस
- अतिथि : श्री धुवराजउपाध्याय, प्रमुख, ईलाकावनकार्यालय, कुलदेवमाण्डौ, वाजुरा
- अतिथि : श्री दिलबहादुर महत्त, प्रहरी नायबनिरीक्षक, ई. प्र. कार्यालय, घुघुरकोट, अछाम
- अतिथि : श्री कमल साउद, अध्यक्ष, बुढीगंगा सरोकार समिति, ठाँटी
- अतिथि : श्री दिला देवी साउद, वडा सदस्य, मेल्लेख गा.पा. ४
- अतिथि : श्री मोहनसिंह ठकुल्ला, वडा सदस्य, मेल्लेख गा.पा. ८
- अतिथि : श्री नवलसिंह राउत, वडा सदस्य, साँफेबगर न. पा. १३
- अतिथि : श्री शेर व. विक, वडा सदस्य, साँफेबगर न.पा, १०
- अतिथि : श्री भक्त भण्डारी, अध्यक्ष, शिक्षकअभिभावक संघ, ठाँटी आधारभूतविद्यालय ठाँटी

३. सार्वजनिक सुनुवाई उदघाटन: श्री नर बहादुर बोगटी, प्रमुखअतिथिसंयोजक, जिल्ला समन्वय समिति, अछाम ।



४. व्याचवितरण र खादाओढाई सभापति र सवै अतिथिहरुलाई सम्मान :श्री विर वहादुर बोहरा, सि.डि.ई., बुढीगंगा जलविद्युतआयोजना, साईट कार्यालय, ठाँटी, अछाम ।

५. स्वागतमन्तव्य :श्रीमतीपुनम पाण्डे, बुढीगंगा जलविद्युतआयोजना, प्रोजेक्ट अफिस ।

६. बुढीगंगा जलविद्युतआयोजनाको वातावरणीय प्रभावमुल्याङ्कनप्रतिवेदनकोसारांशपुस्तिकावितरण र वातावरणीय प्रभावमुल्याङ्कनप्रतिवेदनको सारांश प्रस्तुती :

- प्राविधिकपक्ष : डा. नारायण भक्तश्रेष्ठ
- वातावरणीय पक्ष : श्री भरत मणी शर्मा

७. मन्तव्य:

- अतिथि : श्री पुष्पराज भट्ट, सदस्य, नेपालपत्रकार माहसंघ, प्रदेश नं ७
- अतिथि : श्री भुकर वहादुर साउद, जिल्लाकोषाध्यक्ष, नेपालीकाँग्रेस
- अतिथि : श्री शिवकुवर, जिल्ला कमिटी सदस्य, ने.क.पा.
- अतिथि : श्री जयन्तीवोगटी, नगर सदस्य, साँफेवगर नगर कार्यपालीका
- अतिथि : श्री धर्मराज जैशी, वडा अध्यक्ष, बुढीगंगा न.पा.वडा नं. १०
- अतिथि : श्री खगेन्द्र साउद, वडा अध्यक्ष, मेल्लेख गा.पा. वडा नं. ८
- अतिथि : श्री विर वहादुर साउद, वडा अध्यक्ष, मेल्लेख गा.पा. वडा नं. ४
- अतिथि : कृष्ण व. बुढा, वडा अध्यक्ष, साँफेवगर न.पा. वडा नं. ३
- अतिथि: श्री सागर सिंह वावली, वडा अध्यक्ष, साँफेवगर न.पा. वडा नं. १३
- विशिष्ट अतिथि : श्री कुलवहादुर कुँवर, नगर प्रमुख, साँफेवगर नगरपालीका
- प्रमुखअतिथि : श्री नर वहादुर वोगटी, संयोजक, जिल्ला समन्वय समिति, अछाम

८. प्रश्नोत्तरतथा छलफल शत्र

- लिखितप्रश्नतथा सुभावहरु माग ।
- सहभागिहरुबाट प्रश्न सोध्ने/सुभावदिने ।
- आयोजनाको तर्फबाट सहभागिहरुकाप्रश्नको जवाफदिने/उनीहरुका जिज्ञासा समाधानगर्ने ।

९. सार्वजनिक सुनुवाई कार्यक्रमको समापन:

- सभापतिश्री लोक वहादुर वोगटी बाट मन्तव्य सहीतकार्यक्रमको समापन।



Summary of Major Issues/Concerns Raised by Participants During Public Hearing

A. Compensation

1. Compensation for unregistered land
2. Compensation for private land excluded in Land Survey of 2045
3. Compensation for loss of private trees and house
4. No discrimination in compensation rate for land of Bajura and Achham.
5. Solve the issue of compensation of private land of Bajura.

B. Accessibility

1. Access road from dam site to connect Budhabagar and Kuskot.
2. Access road from powerhouse site to Hatikot.
3. Access of bridge and road to powerhouse site for local people.
4. Support for Kuskot-Babla-Khaptad access road.
5. Access road linking powerhouse site, Hatikot and Mellekh.

C. Community Support

1. Implement community support programs through user groups.
2. Provide to date information regarding community support program.
3. Develop tourism activities in the poundage area.
4. Support for local development in the project affected area.
5. Support for drinking water in Thanti Bazar.
6. Support to Mellekh-Chaukhutte Campus.
7. Reason for no community support program in Hatikot in the current FY.
8. Coordinate with local elected representatives while implementing community support.

D. Livelihood

1. Support for cage fishing in the poundage area for affected families rely on fishing for livelihood.
2. Provide employment to local people as per their skill and capacity in the project work.
3. Classify marginally affected, affected and seriously affected families/HHs and support accordingly.
4. Water of Budhiganga River for operation of traditional water mills (Ghatta).
5. Operation of Serabagar Irrigation System.
6. Address the livelihood issue of fishing families due to dewater and poundage area.

E. Forestry

1. Provide details on species of trees to be removed from community forest and its cost.
2. Specify plantation area and process of plantation for the loss of trees of community forest.

F. Others

1. Quick implementation of the project to reduce cost.
2. Fencing of dam area to protect human and livestock from accidents.
3. Reason for frequent change of Project Manager of BHP.
4. Reason for not including ward no. 3 of Sanfebagar Municipality as project affected ward.
5. No coordination with elected representatives regarding project activities.
6. Implement awareness program regarding project activities in the project area.
7. Reason for high increase in project cost than the original estimate.
8. Protection of Lingkot Temple located near dam site.
9. Tunneling affect on drinking water, irrigation and private house.
10. Proportion of royalty distribution in the affected areas.
11. Maintain transparency in community support programs/project activities.



Written Comments/Suggestion Received in the Public Hearing

S.N.	Name	Address	Occupation	Questions, Comments/Suggestion
1.	Dammar Bdr. Saud	Budhiganga Municipality, ward no.10	Agriculture	1. Why our compensation rate of land not increased? 2. Why discrimination in compensation rate for our land? 3. Why we have not received compensation on time? 4. Why there is no community development program in our area?
2.	Padam Bdr. Saud	Budhiganga Municipality, ward no.10	Business	1. Why delay in implementation of DW project of Rs. 2 million in Budhiganga Municipality -10? 2. Why delay in hiring of local staff from the project affected area? 3. What is measure to protect Tithana of 450 HHs from submergence?
3	Nirpa Bdr. Saud	Mellekh Rural Municipality, ward no. 4	Agriculture	1. What should be done for operation of water turbines (Ghatta) and income of local people from fishing? 2. What should be done to raise income of local community? 3. What strategy should be adopted for seriously affected and affected community? 4. Compensation of excluded land, house and trees. 5. Access road to local people from dam site and powerhouse area.
4	Rinari Saud	Mellekh Rural Municipality, ward no. 4	-	1. Compensation for unregistered land. 2. When compensation of house and trees will be distributed?
5	Kamal Saud	Mellekh Rural Municipality, ward no. 4	Agriculture	1. Mitigation measures for tunneling impact on water sources. 2. Access road and bridge to connect Sanfebagar ward no 13 and Mellekh ward no. 4. 3. Fencing of dam area for protection of users 4. Fish hatchery.
6	Nain Bdr. Saud	Mellekh Rural Municipality, ward no. 8	Agriculture	1. Alternative for people like me dependent on fishing. 2. Provide net and skill training
7	Puspa Raj Bhatta	Sanfebagar -9	Journalist	1. Increase coordination. 2. Accelerate construction work. 3. Rehabilitation of affected people.
8	Bhpendra Mahata	Sanfebagar Municipality, ward no. 10	Agriculture	1. Why tender/quotation for community support programs such as drinking water, irrigation, school and health? How to end the system?
9	Sagar Sing Babali	Municipality, ward no. 13	Politics	1. As the dam site is located in Babala it should be given main role in project activities.
10	Rudra Aryal	Bhalbari-1, Morang	Researcher, TU, Anthropology Dept.	1. Total number of directly and indirectly project affected HHs/families is not provided. 2. Is there any plan to provide certain unit free or low cost electricity to locals? 3. What role/responsibility will be given to local people for long term management of the project?



Participants of Public Hearing

बूढीगंगा जलविद्युतआयोजना
वातावरणीय प्रभाव मूल्याङ्कन(EIA) प्रतिवेदन सम्बन्धी
सार्वजनिक सुनुवाई कार्यक्रम
उपस्थिति

मिति: २०७५ माघ ५ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाइल नं.	दस्तावेज नं.
1	श्री. व. नो. 10	हॉस्पिटल, काठमाडौं	डॉक्टर	9848588169	डॉक्टर
2	श्री. व. नो. 11	गि.न.स. प्रमुख	प्रमुख	9865603300	गि.न.स.
3	कुल व. नो. 12	लोकेशन, काठमाडौं	प्रमुख	9840066995	लोकेशन
4	सागर सिंह ब्राह्मण	सा.नं.पा. 42 काठमाडौं	वडा प्रमुख	9858426524	वडा प्रमुख
5	ज.प.नं. 10 काठमाडौं	सा.नं.पा. 40	वडा प्रमुख	9868800182	वडा प्रमुख
6	कमल देवता ब्राह्मण	मेलेख-7 काठमाडौं	वडा प्रमुख	9848690678	वडा प्रमुख
7	स्व. वि. व. नो. 13	" " "	वडा प्रमुख	986837447	वडा प्रमुख
8	धनराज सेन	वडा प्रमुख, काठमाडौं	वडा प्रमुख	9848648921	वडा प्रमुख
9	श्री. व. नो. 14	गि.न.स. प्रमुख, काठमाडौं	प्रमुख	9841362639	गि.न.स.
10	भरत व. नो. 15	वडा प्रमुख, काठमाडौं	वडा प्रमुख	9841851021	वडा प्रमुख
11	श्री. व. नो. 16	गि.न.स. प्रमुख, काठमाडौं	प्रमुख	9865834282	गि.न.स.
12	महाजान सिंह ब्राह्मण	मेलेख-7 काठमाडौं	वडा प्रमुख	9848526994	वडा प्रमुख
13	पुर्ण व. नो. 17	मेलेख-7 काठमाडौं	वडा प्रमुख		वडा प्रमुख
14	त्रिा देवि ब्राह्मण	सा.नं.पा. 40 काठमाडौं	वडा प्रमुख		वडा प्रमुख
15	पिता राम	" " "			वडा प्रमुख
16	वडा ब्राह्मण	" " "			वडा प्रमुख
17	शुभिला "	" " "			वडा प्रमुख
18	भागा देवि "	सा.नं.पा. 40 काठमाडौं	वडा प्रमुख		वडा प्रमुख
19	नाते देवि "	" " "			वडा प्रमुख
20	नाते ब्राह्मण	सा.नं.पा. 40 काठमाडौं	वडा प्रमुख		वडा प्रमुख
21	शिवराम ब्राह्मण	सा.नं.पा. 40 काठमाडौं	वडा प्रमुख		वडा प्रमुख
22	विक्रम ब्राह्मण	सा.नं.पा. 40 काठमाडौं	वडा प्रमुख		वडा प्रमुख
23	हरिमान भुल	मेलेख-7 काठमाडौं	वडा प्रमुख		वडा प्रमुख
24	भगत राम	" " "			वडा प्रमुख
25	श्री. व. नो. 18	सा.नं.पा. 40	वडा प्रमुख	9848648921	वडा प्रमुख
26	Nabin Karki	K.T.M		9840335041	वडा प्रमुख
27	भक्त ब्राह्मण	गि.न.स. प्रमुख		9841362639	गि.न.स.

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मिति: २०७५ भाद्र ५ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाईल नं.	दस्तावेज
१८७	पुनम जाधे	वृद्धीगंगा ज. वि. म. काठमाडौं	बन्निनिष्ठ	९८४५२४७७	P. Pandey
१९७	अम एम प्रजापति	मिथुन विद्यालय विभाग	सि. डि. ई.	९८४५५२२८६	अम
२०७	वीर बहादुर बोहरा	बुद्धिगंगा ज. वि. म.	सि. डि. ई.	९८४५४४२५३	वीर
२१७	मंकर बहादुर	वृद्धीगंगा ज. वि. म.	क. प्र. वि. म.	९८४५३३३५९	मंकर
२२७	गोविन्द ब. भुन	" "	स. डि. ई.	९८६६५२५०२८	गोविन्द
२३७	सुब्रमण्य उपाध्याय	जिन्ना नगर कार्यालय	उपेक्षक	९८५५५५७२५५	सुब्रमण्य
२४७	र. गोपाल राई	र. मे. क. ३५५२५	PTL/EIA	९८५१०६६२९०	र. गोपाल
२५७	डॉ. नारायण मंडल	र. मे. क. - उद्योग ज. म.	प्रा. वि. म.	९८५१-५४-५०-२६	डॉ. मंडल
२६७	देवराज शर्मा	" " "	डि. ज. वि. म.	९८५१९३३९१४	देवराज
२७७	अमरा शर्मा	अमरा शर्मा कमी	नि. वि. म.	९८५१३७७६१७	अमरा
२८७	लोकेश शर्मा	क. र. प. वि.		९८६८८८१५७८	लोकेश
२९७	ब. क. शर्मा	क. र. प. वि. म.		९८५४१७६५५१	ब. क. शर्मा
३०७	त्रिनिता शर्मा	नेरुप		९८५११२२८३९	त्रिनिता
३१७	टिकाराम शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	टिकाराम
३२७	बबल शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	बबल
३३७	जयल शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	जयल
३४७	पिपसा शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	पिपसा
३५७	राशना	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	राशना
३६७	रामा शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	रामा
३७७	रवि शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	रवि
३८७	सुषमा शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	सुषमा
३९७	निरंजन शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	निरंजन
४०७	नैन शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	नैन
४१७	मंकर शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	मंकर
४२७	विजय शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	विजय
४३७	कृष्ण शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	कृष्ण
४४७	सुमन शर्मा	श. वि. म. ५४९०५५५५५		९८५४५१५५५५	सुमन

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बूढीगंगा जलविद्युत आयोजना
वातावरणीय प्रभाव मूल्याङ्कन(EIA) प्रतिवेदन सम्बन्धी
सार्वजनिक सुनुवाई कार्यक्रम
उपस्थिति

मिति: २०७१ भाद्र १ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाइल नं.	दस्तखत
५२	प्र. गिरि दिव्य व. त्रिहा	इ. प्र. ला. धुवुवाले	गोडरी	९८४८५५१७६	दि. ५
५६	गो. गि. व. व. व. व. व.	र. ल.	~	९८६२०२८०९६	दि. ५
५६	गंगा साठे	मैल्लेव गंगा व. व. व. व.			गो. गि. व. व. व.
५८	रती साठे	मैल्लेव गंगा व. व. व. व.			गो. गि. व. व. व.
५९	कालु साठे	मैल्लेव गंगा व. व. व. व.			कालु साठे
६०	कालु साठे				कालु साठे
६१	पद्मा साठे	कालु साठे		९८५९५५९८०००	पद्मा साठे
६२	मन्ना व. व. व.	कालु साठे			मन्ना व. व. व.
६३	सुरेश साठे	कालु साठे		९८५९५९९९९९	सुरेश साठे
६४	उत्तम साठे	कालु साठे			उत्तम साठे
६५	समिन्ना कुँवर	कालु साठे		९८५९६६६६	समिन्ना कुँवर
६६	दादि साठे	कालु साठे			दादि साठे
६६	देवेन्द्र साठे	कालु साठे		९८५९६६६६	देवेन्द्र साठे
६८	समा व. व. व.	कालु साठे		९८५९६६६६	समा व. व. व.
६९	प्रदिप साठे	कालु साठे		९८६५६२८९९	प्रदिप साठे
६०	प्रदीप साठे	कालु साठे			प्रदीप साठे
६१	शेर साठे	कालु साठे			शेर साठे
६२	शेर साठे	कालु साठे		९८५९६६६६	शेर साठे
६३	सन्तोष साठे	कालु साठे		९८५९६६६६	सन्तोष साठे
६४	सन्तोष साठे	कालु साठे			सन्तोष साठे
६५	सन्तोष साठे	कालु साठे		९८५९६६६६	सन्तोष साठे
६६	सन्तोष साठे	कालु साठे		९८५९६६६६	सन्तोष साठे
६८	सन्तोष साठे	कालु साठे		९८५९६६६६	सन्तोष साठे
६९	सन्तोष साठे	कालु साठे		९८५९६६६६	सन्तोष साठे
७०	सन्तोष साठे	कालु साठे		९८५९६६६६	सन्तोष साठे
७१	सन्तोष साठे	कालु साठे		९८५९६६६६	सन्तोष साठे

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बूढीगंगा जलविद्युत आयोजना
वातावरणीय प्रभाव मूल्यांकन(EIA) प्रतिवेदन सम्बन्धी
सार्वजनिक सुनुवाई कार्यक्रम
उपस्थिति

मिति: २०७५ माघ १३ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाइल नं.	दस्तखत
८२	सुर्ज राउट	मेल्नेव गाउँपालिका			सुर्ज राउट
८३	Ram Kharel	Thanti	Engineer	९८४०५९९५	Ram
८४	राम राउट	मेल्नेव गाउँपालिका			राम राउट
८५	जोति राउट				जोति राउट
८६	जेन सिंह गार्गी	इ.प. गाउँपालिका		९८४९५०२३५	जेन सिंह गार्गी
८७	मौनी हकाला	मेल्नेव गाउँपालिका		९८१२६५९६३५	मौनी हकाला
८८	जोति राउट	मेल्नेव गाउँपालिका		९८४६५९६९५	जोति राउट
८९	भूपेन्द्र नम्वेल	खान्सा-१०	समन्वयक	९८४८६९१९५	भूपेन्द्र नम्वेल
९०	Serox Sukupyo	Budhi Ganga Hydropower	Engineer	९८४९५५३०४	Serox
९१	राधा देवि शाह	साँबो गाउँपालिका			राधा देवि शाह
९२	मन्ना देवि बोगटी	साँबो गाउँपालिका			मन्ना देवि बोगटी
९३	मैत्रा देवि	" "			मैत्रा देवि
९४	जिम्मा रायल	" "			जिम्मा रायल
९५	रिमा शास्त्री	साँबो गाउँपालिका	शिप्ट	९८४८०५४०५९	रिमा शास्त्री
९६	तन्विता बोगटी	साँबो गाउँपालिका			तन्विता बोगटी
९७	नङ्गा देवि शाह	साँबो गाउँपालिका		९८५५६९९५०२	नङ्गा देवि शाह
९८	दिना देवि राउट	मेल्नेव गाउँपालिका		९८६८५५५५५	दिना देवि राउट
९९	मि. रा. रा. रा.	सा. नं. १०८	सा. नं. १०८	९८४५५५५५५	मि. रा. रा. रा.
१००	मैत्रा देवि राउट	मेल्नेव गाउँपालिका			मैत्रा देवि राउट
१०१	सुर्ज राउट	" "			सुर्ज राउट
१०२	मैत्रा देवि बोगटी	साँबो गाउँपालिका			मैत्रा देवि बोगटी
१०३	राधा देवि बोगटी	साँबो गाउँपालिका			राधा देवि बोगटी
१०४	मन्ना देवि	साँबो गाउँपालिका			मन्ना देवि
१०५	पार्वती बोगटी	साँबो गाउँपालिका			पार्वती बोगटी
१०६	सुर्ज राउट	" "			सुर्ज राउट
१०७	मैत्रा देवि राउट	मेल्नेव गाउँपालिका			मैत्रा देवि राउट
१०८	दिना देवि राउट	" "			दिना देवि राउट

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मिति: २०७५ भाद्र १ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाइल नं.	दस्तखत
१०९	अगत साउँद	मेल्नेख ट हातीहाटे			Joshi
११०	तिलक साउँद	" "			तिलक
१११	धरमसाई साउँद	" "			धरमसाई
११२	नथ साउँद	मेल्नेख ट हातीहाटे			नाथ
११३	प्रेम साउँद	" "			प्रेम
११४	Xhem Raj Budha	Nantegunda, Mellekh		९८४८६९०५४५	Xhem
११५	Kriti Singh	Martamandu, Sange		९८४८६५७२८८	Kriti
११६	जोगी साउँद	मेल्नेख ट हातीहाटे			जोगी
११६	महन्ता साउँद	मेल्नेख ट हातीहाटे			महन्ता
११८	प्रिय बोगटे	सा.नं.पा.१० कुपुलगाँव		९८२४६९३८०७	प्रिय
११९	प्रसाद सिंह बोगटी	सा.नं.पा.१० कुपुलगाँव			प्रसाद
१२०	कर्ण क बोगटे	" " "			कर्ण
१२१	रघु सिंह बोगटे	सा.नं.पा.१० कुपुलगाँव			रघु
१२२	गंगा क खत	सा.नं.पा.१० कुपुलगाँव	कृषि	९८६५६५०४६७	गंगा
१२३	नरेश सिंह खत	सा.नं.पा. १३	कृषि	९८६९५५३३३३	नरेश
१२४	Severdev Boggari	सा.नं.पा-१०			Severdev
१२५	सुरज बोगटे	सा.नं.पा.१०	कृषि	९८९८५५५५०९	सुरज
१२६	प्रेम महता	सा.नं.पा.१० कुपुलगाँव			प्रेम महता
१२६	सुरत बोगटे	" " "			सुरत
१२८	कालु सिंह	सा.नं.पा.१० कुपुलगाँव	कृषि		कालु सिंह
१२९	शाह देवि	सा.नं.पा.१० कुपुलगाँव			शाह देवि
१३०	साधना	" " "			साधना
१३१	प्रिमिता थापा	मेल्नेख ट हातीहाटे			प्रिमिता
१३२	दान क साउँद	मेल्नेख ट हातीहाटे			दान
१३३	मोती साउँद	" " "			मोती
१३४	हर्ष साउँद	मेल्नेख ट हातीहाटे			हर्ष
१३५	मनिराज बरका	सा.नं.पा.१०			मनिराज

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सार्वजनिक सुनुवाई कार्यक्रम
उपस्थिति

मिति: २०७५ भाद्र ५ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाइल नं.	दस्तखत
१३६	मृणाल क. थापा	सुदूर पश्चिम प्रदेश	हजुरा	९८५५३३४४	
१३६	महेश रा. शर्मा	मेल्लेखु गा.पा. १०		९८६८७५६१०५	
१३८	कु. शर्मा	सुदूर पश्चिम प्रदेश			
१३९	म. शर्मा	"			
१४०	वि. शर्मा	"			
१४१	गोपाल शर्मा	"			
१४२	महेश क. शर्मा	सुदूर पश्चिम प्रदेश	गोर्खा	९८६८७५६१०५	
१४३	म. शर्मा	मेल्लेखु गा.पा. १०	"	९८६८७५६१०५	
१४४	सिमा कुमारी कटवाल	सा.न.पा. १०	"	९८६८७५६१०५	
१४५	सु. शर्मा	सा.न.पा. १०	सिमा	९८५१६६२६८६	
१४६	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१४७	सु. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१४८	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१४९	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५०	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५१	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५२	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५३	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५४	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५५	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५६	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५७	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५८	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१५९	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१६०	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१६१	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	
१६२	म. शर्मा	सा.न.पा. १०	सा.न.पा.	९८५१६६२६८६	

१६३. सु. शर्मा सा.न.पा. १०
 १६४. म. शर्मा सा.न.पा. १०



नेपाल सरकार
उर्जा, जलस्रोत तथा सिचाई मन्त्रालय
विद्युत बिकास विभाग
बुढीगंगा जलविद्युत आयोजनाको
वातावरणीय प्रभाव मूल्याङ्कन (EIA) सम्बन्धि सार्वजनिक सुनुवाई कार्यक्रम



बाँध स्थल



विद्युत गृह क्षेत्र

आयोजक

बुढीगंगा जल विद्युत आयोजना
कालिकास्थान, काठमाडौं
फोन नं. : ०१-४४२३२०६

ईमेल: info@bhp.gov.np



आयोजना सम्बन्धि जानकारी (आयोजनाका प्रमुख संरचना तथा विषेताहरु)

- आयोजनाको नाम : बुढीगंगा जलविद्युत आयोजना
- आयोजना प्रभावित क्षेत्र : बुढीगंगा नगरपालिका (वडा नं: १०),
साफेबगर नगरपालिका (वडा नं: ४, १०, १३) र
मेल्लेख गाँउपालिका (वडा नं: ४, ८)
- आयोजनाको किसिम : पोण्डेज रन अफ रिभर
- बाँध स्थल : बुढीगंगा तथा इकरीगाड खोलाको दोभान भन्दा
२०० मि. तल २५ मि. उचाई तथा ८३ मि.
लम्बाई
- जलाशय : २.०६ कि.मि. लम्बाई १२ हे. क्षेत्रफल तथा १०
लाख
- घनमिटर क्षमता
- वालुवा थिग्रयाउने पोखरी : २ वटा (१२ मि. चौडाई तथा ९२ मि. लम्बाई)
- मुख्य सुरुङ : ५.६ कि.मि. लम्बाई तथा ४ मि. व्यास भएको
- सर्ज साफ्ट भुमिगत : ५३.३५ मि. अग्लो तथा ७.५ मि व्यास भएको
- पेन स्टक : १६५.१५ मि. तथा २.८ मि. व्यास भएको भुमिगत
- टर्वाइनको किसिम र संख्या : फान्सिस, २ वटा (१०.२० मेगावाट)
- विद्युत गृह : सतह (३९.७ मि. लम्बाई $\times$ १४.८ मि. चौडाई
तथा २६.२५ मि. उचाई)
- जडित क्षमता : २०.४० मेगावाट
- ग्रस हेड : ९४.८३ मि
- डिजाइन वहाव : २६ घनमिटर/से.
- न्युनतम औसत वातावरणीय वहाव : ०.९६ घन मि./से.
- आयोजना सडक : ३.३ कि.मि.
- प्रशारण लाइन : ८०.२९ कि.मि. १३२ के.भी. डबल सर्किट (
- साफेबगर - कैलाली पहलमानपुर)
- आयोजनाको अनुमानित लागत : ९७०८.५७ मिलियन नेपाली रु.
- आयोजनामा लगानी : कुवेत कोष, साउदी कोष तथा नेपाल सरकारको
लगानी
- आयोजनाको आर्थिक विश्लेषण : $B/C = ०.३९$, $IRR = १६.०९\%$

१. परिचय

बुढीगंगा जलविद्युत आयोजना उर्जा, जलश्रोत तथा सिचाई मन्त्रालय, विद्युत विकास विभागद्वारा बुढीगंगा नदीमा प्रस्तावित गरिएको छ । विद्युत विकास विभागको मुख्य कार्य जल विद्युत आयोजनाहरूको अनुमति पत्र, विद्युत उत्पादन, प्रसारण तथा वितरणको अनुगमन, बहुउद्देशिय तथा अन्तरदेशिय जलविद्युत आयोजनाहरूको विकास तथा आयोजना निर्माण, उत्पादन र प्रसारण सम्बन्धि आवश्यक निर्देशिकाहरू तयार गर्ने रहेको छ ।

आयोजनाको वातावरणीय प्रभाव मुल्यांकन वातावरण संरक्षण नियमावली, २०५४ अनुसार गरिएको छ । यस अध्ययनमा जलविद्युत आयोजना तथा यस भित्र निर्माण गरिने बाटो लाई समावेश गरिएको छ । विद्युत प्रसारण लाईन यस अध्ययनको कार्यक्षेत्र भित्र पर्दैन ।

आयोजनाको वातावरणीय प्रभाव मुल्यांकन कार्य स्मोक ईण्टरनेशनल प्रा.लि. अष्ट्रेलिया तथा उदय कन्सलटेन्सी प्रा.लि.को संयुक्त उपक्रमद्वारा गरिएको छ ।

वातावरण संरक्षण नियमावलीले निर्दिष्ट गरे बमोजिम यस आयोजनाको वातावरणीय प्रभाव मुल्यांकनको निम्न उद्देश्य रहेको छ:

- आयोजना स्थलको भौतिक, जैविक तथा सामाजिक आर्थिक क्षेत्रको स्थलगत तथ्याङ्कहरू संकलन गरी आयोजनाको निर्माणबाट पर्न सक्ने सकारात्मक, नकारात्मक तथा समग्र प्रभावहरूको पहिचान गर्ने;
- वातावरणीय प्रभाव मुल्यांकनबाट प्रस्तावित वातावरणीय प्रभाव न्यूनीकरण, अनुगमन तथा वातावरणीय परीक्षण कार्यक्रमहरू कार्यान्वयन गर्नको लागि वातावरणीय व्यवस्थापन योजना बनाउने;
- वातावरण सम्बन्धी योजना तर्जुमा तथा निर्णयहरूमा स्थानीय व्यक्तिहरूलाई सहभागी गराउने ।

२. सान्दर्भिक नीति, ऐन, नियम, निर्देशिका तथा सन्धिहरूको पुनरावलोकन

आयोजना संग सम्बन्धीत नीति, ऐन, नियम, निर्देशिका तथा सन्धिहरूको पालना गर्ने दायित्व प्रस्तावकको हुनेछ । अध्ययनको क्रममा वातावरण संरक्षण ऐन २०५३ र नियमावली २०५४, जलविद्युत विकास नीति २०५६, विद्युत ऐन २०४९ र नियमावली २०५०, वन ऐन २०४९, र जग्गा अधिग्रहण ऐन २०३४ तथा श्रम ऐन २०४९ लाई पुनरावलोकन गरिएको छ ।

३. आयोजनाको विवरण



प्रस्तावित आयोजना प्रदेश नं. ७ को वाजुरा तथा अछाम जिल्लामा पर्दछ। यस आयोजना क्षेत्र भित्र अछाम जिल्लाको साँफेवगर नगरपालीकाको वडा नं. ४, १३ र १०, मेल्लेख गाउँपालिकाको वडा नं. ४ र ८ तथा वाजुरा जिल्लाको बुढीगंगा नगरपालीकाको वडा नं. १० पर्दछन्। आयोजना क्षेत्र राष्ट्रिय निकुञ्ज, संरक्षित क्षेत्र, वन्य जन्तु आरक्ष, मध्यवर्ती क्षेत्र तथा वातावरणीय दृष्टिकोणले शंवेदनशील क्षेत्र भित्र पर्दैन।

आयोजना स्थल साँफे -मर्तडी सडकबाट पुग्न सकिन्छ। बाँध स्थल विद्यमान साँफे मर्तडी सडकको बुढावगरवाट करीव ७०० मि. वाटो बनाएर जान सकिन्छ भने विद्युतगृहका लागि करीव १.३ कि.मी. वाटो आवश्यक पर्दछ। आयोजनाको धेरैजसो संरचनाहरु नदीको बायाँ तर्फ प्रस्ताव गरिएको छ। आयोजनाको बाँध निर्माण स्थल बुढीगंगा -ईकरीगाडको दोभान भन्दा करीव २०० मी.तल प्रस्ताव गरिएको छ।

प्रस्तावित बाँधको उचाई खोलाको सतहवाट २४ मी.तथा लम्वाई ८३ मी. को हुनेछ। यस आयोजनाको बाँध निर्माण पश्चात बुढीगंगा नदीमा २.०६ कि.मी. लामो तथा १३.४ हे. क्षेत्रफल बराबरको जलाशय निर्माण हुनेछ। आयोजना अन्तर्गत ५.६ कि. मी. शुरुङ्ग, भूमिगत सर्ज सफ्ट, १६५.१५ मी. पेनस्टक तथा सतहमा विद्युत गृह निर्माण गरि विद्युत उत्पादन पश्चात सो पानीलाई टेलरेस मार्फत पुनः बुढीगंगा नदीमा खसालिनेछ।

प्रस्तावित आयोजना पोन्डेज रन-अफ-रिभर किसिमको आयोजना हो र यसबाट २०.४० मेगावाट विद्युत शक्ति उत्पादन गरिनेछ। आयोजनाको डिजाइन डिस्चार्ज २६ घनमीटर प्रति सेकेण्ड रहेको छ तथा आयोजना निर्माणको कूल अनुमानित लागत रु ९७०८.५७ मिलियन रहेको छ। आयोजनाबाट उत्पादित विद्युत शक्तिलाई ८०.२९ कि.मी. लामो १३२ के.भी. प्रसारण लाइनबाट कैलाली जिल्लाको पहलमानपुर सब-स्टेशनमा जोडिनेछ।

आयोजना निर्माण अवधिको लागि आवश्यक विद्युत शक्तिको आपूर्तिको लागि ठाँटी बजारवाट ११ के. भी. लाइन विस्तार गरिनेछ। आयोजना निर्माणको क्रममा दक्ष, अर्धदक्ष, अदक्ष गरी जम्मा ८०० व्यक्तिहरुले रोजगारी पाउनेछन्।

४. आवश्यक तथ्याङ्क तथा संकलन विधि

यस आयोजनाको वातावरणीय प्रभाव मुल्यांकन कार्य वातावरणविद्, वातावरण इन्जिनियर, वनस्पति विज्ञ, वन्यजन्तु विद्, माछा विशेषज्ञ, सामाजिक आर्थिक विशेषज्ञ तथा समाजशास्त्रीहरुको संयुक्त टोलीद्वारा गरिएको छ। आयोजनाको वातावरणीय प्रभाव अध्ययनको लागि स्थलगत सर्भेक्षण कार्य सन् २०१६ र २०१८ मा गरिएको थियो। अध्ययनको क्रममा सन्दर्भ सामाग्रीहरुको पुनरावलोकन, नमुना परीक्षण, आयोजनाबाट प्रभावित परिवारहरुको घरधुरी सर्भेक्षण, समुहगत छलफल, सरोकारवालाहरूसँग छलफलहरु गरि गरिएका छन। सन्दर्भ सामाग्रीहरुको पुनरावलोकनको क्रममा आयोजनाको सम्भाव्यता अध्ययन प्रतिवेदन, विस्तृत ईन्जिनियरिङ्ग प्रतिवेदन, केन्द्रिय तथ्याङ्क विभागबाट प्रकाशित तथ्याङ्क, जिल्ला पार्श्वचित्र, जिल्ला वन कार्यालयबाट प्रकाशित प्रतिवेदनहरु तथा समान प्रकारका अन्य जलविद्युत आयोजनाहरुको वातावरणीय प्रभाव मुल्यांकन प्रतिवेदनहरु समेत पुनरावलोकन गरिएको छ।

वातावरणीय अध्ययन कार्यको लागि आयोजना क्षेत्रलाई मुख्य तथा नजीक गरी दुइ भागमा बर्गीकरण गरिएको छ। आयोजनाबाट अस्थायी तथा स्थायी रुपमा अधिग्रहण भई विभिन्न संरचनाहरु रहने ठाउँ तथा त्यस्को ५०० मी. क्षेत्रभित्रको भू-भागलाई मुख्य क्षेत्रमा



वर्गीकरण गरिएको छ भने प्रभावित गाउँपालिका तथा नगरपालिकाको सम्बन्धित वडालाई नजिकको क्षेत्रमा वर्गीकरण गरिएको छ ।

आयोजनाद्वारा प्रस्ताव गरिएका विभिन्न संरचनाहरूको निर्माण क्षेत्रको भौतिक वातावरण सम्बन्धि विभिन्न तथ्याङ्कहरू जस्तै भू-उपयोग, पहिरो, भिरालोपन आदि स्थलगत अवलोकन गरि गरिएको छ । तथ्याङ्क संकलनको लागि स्थलगत अध्ययन, प्रयोगशाला परीक्षण तथा विभिन्न किसिमका नक्साहरू प्रयोग गरिएका छन् । वातावरणीय अध्ययनको लागि आवश्यक हाइड्रोलोजि तथा जियोलोजि सम्बन्धी तथ्याङ्कहरू आयोजनाको विस्तृत ईन्जिनियरिङ्ग प्रतिवेदनमा उल्लेख भए अनुसार राखिएको छ भने ध्वनी तथा वायु सम्बन्धी तथ्याङ्क आयोजनाको निश्चित ठाउँमा आवश्यक उपकरण प्रयोग गरि लिइएको छ ।

वन सम्बन्धी तथ्याङ्क आयोजनाद्वारा प्रस्तावित विभिन्न संरचनाहरू रहने स्थानमा Quadrat बाट लिइएको छ । प्रत्येक Quadrat मा घनत्व, विरुवाको प्रकार, उचाइ, गोलाइ आदि तथ्याङ्क हरूको संकलन गरीएको छ । प्रत्येक प्लटमा १० से.मी. भन्दा माथी गोलाइ भएका रुखहरूको गणना गरीएको छ । आयोजना स्थलमा पाइने संरक्षित प्रजातीका विरुवाहरूको पहिचान उपलब्ध सन्दर्भ सामग्रीहरूको सहयोगले गरिएको छ ।

स्तनधारी जनावरहरू, चरा, सरीसृप तथा उभयचरहरूको अध्ययन स्थलगत अवलोकन तथा स्थानीय व्यक्तिहरू संग छलफल गरी गरिएको छ । बुढीगंगा नदीमा माछा सम्बन्धी अध्ययनको लागि नदीको विभिन्न ५ वटा ठाउँबाट नमुना संकलन, Plankton हरूको नमुना संकलन तथा माछाको वासस्थान सम्बन्धी अध्ययनहरू गरीएको छ ।

आयोजनाबाट स्थायी रूपमा घर जग्गा अधिग्रहण हुने अथवा आयआर्जन तथा अन्य जिविकोपार्जनका स्रोतहरू प्रभावीत हुने परिवारहरूलाई आयोजना प्रभावित परिवार तथा त्यस्ता व्यक्तिहरूलाई प्रभावित व्यक्तिमा वर्गीकरण गरिएको छ । आयोजनाबाट प्रभावित व्यक्तिहरूको पहिचान जग्गा अधिग्रहणकालागि प्रकाशित सूचना, कित्ता नापी नक्सा तथा स्थलगत निरीक्षण गरी गरिएको छ । यस आयोजनाबाट प्रभावित ८० घरधुरीहरूको सर्भेक्षण गरीएको छ । घरधुरी सर्भेक्षण अन्तर्गत जनसंख्या, शिक्षा, शीप, जातजाती, आय व्यय तथा कृषी उत्पादन सम्बन्धी तथ्याङ्कहरू संकलन गरिएको छ । अध्ययनको क्रममा ११ ठाउँमा वडास्तरीय छलफल, ६ ठाउँमा समूहगत छलफल, बजार सर्भेक्षण तथा विभिन्न व्यक्तिहरूसंग अन्तर्वार्ता गरिएको छ ।

५. आयोजना क्षेत्रको विद्यमान वातावरणीय अवस्था

५.१ भौतिक वातावरण

आयोजना क्षेत्र लेसर हिमालय क्षेत्रमा पर्दछ र प्रभावीत क्षेत्र समुद्र शतहबाट करीव ६०० मी. तथा ८०० मी. उचाइमा रहेको छ । आयोजना क्षेत्रको भौगोलिक अवस्थाको अध्ययन गर्दा भिरालो जग्गा, पहरा, वन तथा खोलानाला आदि रहेको छ । आयोजना स्थलको मुख्य भू-उपयोग मध्ये खेतीयोग्य जमीन, वन, वस्ती, खोला, बगर तथा पर्ति जग्गा रहेको छ । बुढीगंगा नदीको औषत बहाव ६५.६ धन मी./प्रति सेकेण्ड रहेको छ भने औषत अधिकतम तथा न्यूनतम बहाव क्रमशः २५५.६ धन मी./प्रति सेकेण्ड तथा १३.१ धन मी./प्रति सेकेण्ड रहेको छ । आयोजनाका मुख्य संरचनाहरू बुढीगंगा Gneiss मा रहेका छन् । आयोजनाको प्रस्तावित बाँध स्थलमा ध्वनीको स्तर L१० ६१ डेसिबल तथा L९० ५७ डेसिबल तथा विद्युत गृहमा क्रमशः ५२ डेसिबल र ४२ डेसिबल रहेको छ । त्यसैगरी

TSP, Pm₁₀ तथा Sulphurdioxide को मात्रा १५६,४८ तथा २२ µgm/m³ रहेको छ । विद्युत गृह क्षेत्रको अधिकतम तापक्रम ३८.१८ डिग्री से. तथा न्यूनतम तापक्रम ३.०५ डिग्री से. रेकर्ड गरिएको छ । त्यसैगरी पानीको परीक्षणबाट प्राप्त तथ्याङ्क अनुसार परीक्षण गरीएका Parameters हरू मध्ये pH, total dissolved solid तथा suspected solid को मात्रा क्रमशः ८, १२४-१४२ मिग्रा/ली. र ६-१६ मि. ग्रा. प्रति लि. रहेको छ ।

५.२ स्थलीय वातावरण

आयोजना क्षेत्रमा पाईने मुख्य वनहरुमा mixed hardwood forest, साल तथा सल्लाको वन रहेको छ । जलाशय क्षेत्रमा पाईने मुख्य रुख विरुवाहरुमा साल, मलातो, सिन्दुरे, खिर्रो, वडकाउले, टुनी र पहाडी महुवा रहेका छन् । आयोजना क्षेत्रमा पाईने विरुवाहरुको मुख्य प्रजातीमा साल, खयर, हल्दु, सेतो सिरिस, कालो सिरिस, वोट घाइरो, भोर्ला, वडकाउलो, गुहेलो, खनियो आदी रहेका छन् । वन ऐन २०४९ अनुसार साल व्यापारिक प्रयोजनका लागि बन्देज गरिएको प्रजातीहरु मध्ये हो ।

आयोजना स्थलमा कूल ५ वटा सामुदायिक वन रहेका छन् । यसको कूल क्षेत्रफल २५६.८ हे. छ । सामुदायिक वनबाट स्थानीय व्यक्तिहरुले काठ, दाउरा, फल तथा जडिबुटी संकलन गर्दछन् । आयोजना स्थल मानव वस्ती तथा मानवीय क्रियाकलापले प्रभावित क्षेत्र भएकोले जनावरको लागि सुहाउँदो वासस्थान भएको पाइदैन । आयोजना क्षेत्रमा पाइएका १२ प्रजातीका जनावरहरु मध्ये ९ प्रजातीका जनावरहरु जस्तै बाँदर, लङ्गुर बाँदर, स्याल, आदि प्राय देखिन्छन् भने ३ प्रजातीका जनावरहरु कहिले काहिँ मात्र देखिन्छन् ।

आयोजना क्षेत्रमा कूल ४७ प्रजातीका चराहरु पाइएका छन् । जसमध्ये ३१ वटा अधिक मात्रामा, ४ प्रचुर मात्रामा तथा १२ प्रजातीका चराहरु कहिलेकाहिँ मात्र देखिन्छन् । आयोजना क्षेत्रमा पाईने चराहरुमा १६ प्रजाती वन क्षेत्रमा, ८ वटा खोलानालामा १४ वटा खुला क्षेत्र तथा वस्ती र ९ प्रजाती सवैखाले वासस्थानमा पाईन्छन् । काग मैना, लामपुच्छे, सुगा यस भेगमा पाइने मुख्य चराहरु हुन । आयोजना क्षेत्रमा ६ प्रजातीका सरीसृपहरु पाईन्छन् । छेपारो, ग्रिन पिट भाइपर तथा माउन्टेन पिट भाइपर आयोजना क्षेत्रमा पाईने मुख्य सरीसृपहरु हुन ।

आयोजना क्षेत्रमा पाइने स्तनधारी जनावरहरुमध्ये ६ प्रजातीका जनावरहरु विभिन्न संरक्षित समुहमा पर्दछन् । बाँदर, लङ्गुर बाँदर, घोरल, स्याल, मलछाप्रा तथा चितुवा CITES सूचीमा पर्दछन् । त्यसै गरी परेवालाइ CITES III मा सूचिकृत गरिएको छ ।

५.३ जलीय वातावरण

बुढीगंगा नदीमा ३३ प्रजातीका Phytoplankton हरू पाइन्छन् । त्यसै गरी यस नदीमा १७ प्रजातीका Zooplankton तथा २३ प्रजातीका पानीमा पाइने कीराहरु पाइन्छन् । बाँध स्थल देखि प्रस्तावित बिद्युत गृह स्थल सम्मको बुढीगंगा नदीको विभिन्न खण्डमा Run, Riffle तथा Pools किसिमका Habitat हरू पाइन्छन् । सर्भेक्षण गरिए अनुसार बुढीगंगा नदिमा २५ प्रजातीका माछाहरु पाइन्छन् । यस मध्ये १७ प्रजातिका माछाहरु सर्भेक्षणको क्रममा पाईएका छन् भने ८ प्रजातिका माछाहरु स्थानिय व्यक्तिहरुले दिएको जानकारीका आधारमा उल्लेख गरिएको छ । कूल २५ प्रजाति मध्ये ५ वटा लामोदुरी सम्म ओहोर दोहोर गर्ने, ८ मध्यम दुरी तथा बाँकी १२ प्रजातिका रेसिडेन्ट माछाहरु हुन । रेकर्ड गरिएका माछाहरु मध्ये गोच, कल्ले, करड., वुचे असला, कालो सहर र पहेलो सहर IUCN रेड

लिष्टमा पर्दछन् । असला (चुचे, वुचे) सबै भन्दा बढी (५४.५७%) पाईन्छ । बुढीगंगा नदीमा औसतरूपमा माछाको क्याच पर युनिट ईफोर्ट ०.१६ रहेको छ ।

५.४ सामाजिक आर्थिक तथा सांस्कृतिक वातावरण

आयोजना क्षेत्रको कूल जनसँख्या १६,९३१ रहेको छ । जसमध्ये ४५.९% पुरुष तथा ५१.४% महिला छन् । आयोजना क्षेत्रको जम्मा घरधुरी ३,१९९ तथा औषत परिवार सँख्या ५.२ छ । आयोजना क्षेत्रमा बसोवास गर्ने जातहरुमा क्षेत्री (६०.४%) तथा दलीत (३०.०%), रहेका छन् । आयोजना क्षेत्रमा कूल ७१ वटा वस्तीहरु छन् । आयोजना क्षेत्रको साक्षरता दर ६० % रहेको छ । जसमध्ये पुरुष साक्षरता ७६.१ तथा महिला साक्षरता ४७ % रहेको छ । आयोजना क्षेत्रमा २१ वटा प्राथमिक, ५ वटा निम्न माध्यमिक, ६ माध्यमिक र ४ उ.मा.वि गरी जम्मा ३६ वटा विद्यालयहरु रहेका छन् । आयोजना क्षेत्रमा खानेपानीको मुख्य श्रोत धाराको पानी (६९.१%) रहेको छ भने Spout (२१.९%), ईनार (७.६ %) तथा बाँकी नदी तथा खोलाबाट रहेको छ । कृषि तथा पशुपालन आयोजना क्षेत्रका मानिसहरुको जीविकोपार्जनको मुख्य श्रोत रहेको छ ।

आयोजनाबाट प्रभावित सर्भेक्षण गरिएका परिवारहरुको कूल घरधुरी ६६९ रहेको छ, यसमध्ये ४९.७८% पुरुष तथा ५०.२२ महिला छन् । सर्भे गरिएका घरधुरीहरुको औसत परिवार संख्या ८.१४ रहेको छ, यसमध्ये ७२.४% साक्षर छन् भने जातजातीहरुमा ९४.२% क्षेत्री छन् भने ५.८% दलित रहेका छन् ।

आर्थिक रुपमा सकृय १५-५९ बर्ष उमेर समुहका करीब ७५.६ प्रतिशत जनसँख्या जिविकोपार्जनको लागि कुनै न कुनै पेशामा संलग्न छन् । प्रभावित परिवारहरुको बार्षिक औषत आम्दानी रु. १,४३,२१६ छ । जसमध्ये गैह्र कृषि आम्दानी मुख्य स्रोतको रुपमा रहेको छ । औषत बार्षिक खर्च रु. १,३५,९२८ छ जसमध्ये ४३.३% खर्च खाद्यान्न तर्फ रहेको अध्ययनले देखाएको छ । सर्भेक्षण गरिएका प्रभावित परिवारहरुको स्वामीत्वमा औषत ०.७७ हे. जग्गा रहेको देखिन्छ । यसमध्ये ९३.७५% पुरुष तथा ६.२५% महिला प्रधान परिवारहरु छन् । कूल प्रभावित परिवार मध्ये ३३.८% सिमान्तकृत तथा ६१.३% साना किसानहरु छन् । प्रभावित परिवारहरु मध्ये मात्र ३१.७५% परिवारहरुको आफुले लगाएको बालीको उब्जनीबाट खाद्यान्नको आपूर्ति हुने गरेको देखिएको छ ।

६. वातावरणीय प्रभाव

आयोजनाको वातावरणीय प्रभावहरुको पहिचान विभिन्न संरचनाहरुको निर्माण तथा अन्य कार्यहरुबाट वातावरणमा पर्न सक्ने प्रभावहरुको अध्ययन गरि गरिएको छ । आयोजनाको निर्माणबाट भौतिक, स्थलीय, जलीय तथा सामाजिक आर्थिक वातावरणमा पर्न सक्ने सकारात्मक, नकारात्मक तथा समग्र प्रभावहरुको पहिचान यस अध्ययनमा गरिएको छ ।

६.१ सकारात्मक प्रभावहरु

निर्माण चरण

- आयोजनाको निर्माण चरणमा १५० दक्ष, ३०० अर्धदक्ष तथा ३५० अदक्ष गरी कूल ८०० व्यक्तिहरुले रोजगारी पाउनेछन् ।
- आयोजनाको निर्माणबाट आयोजना क्षेत्रमा व्यापार व्यवसायको बृद्धि हुन जानेछ ।



- स्थानीय व्यक्तिहरुको शीप तथा दक्षतामा बृद्धि हुने ।
- आयोजनाको निर्माणले स्थानीय स्तरमा आर्थिक क्रियाकलाप बृद्धि भई विद्यमान सेवा सुविधाहरुमा बढोत्तरी हुने ।

संचालन चरण

- बिद्युत गृह संचालनको लागि करीव १०० जनाले रोजगारी पाउनुका साथै आवधिक मर्मत सम्भार कार्यहरुमा थप रोजगारीका अवसरहरु स्थानीय स्तरमा सृजना हुने ।
- आयोजनाबाट १२० गेगावाट घण्टा बिद्युत उत्पादन भई राजश्व तथा देश विकासमा सघाउ पुग्ने ।
- आयोजना क्षेत्रमा राम्रो सेवा सुविधा उपलब्ध भइ जग्गाको मुल्यांकनमा बृद्धि भई पर्यटन लगायत अन्य क्षेत्रमा सकारात्मक असर पर्ने ।

६.२ नकारात्मक प्रभावहरु

यस आयोजनाबाट पहिचान गरिएका कूल ७९ नकारात्मक प्रभावहरु मध्ये ५३ कमस्तरका, २० मध्यमस्तरका तथा ६ वटा उच्चस्तरका रहेका छन् । बाँध विग्रिने भत्किने, माछाको ओहोर दोहोरमा असर, नदीको केही भागमा सुख्खा समयमा पानी कम हुने/सुक्ने, घरजग्गा अधिग्रहण तथा पेशागत सुरक्षामा पर्न सक्ने असरहरु उच्च प्रभावमा वर्गिकरण गरिएका छन् ।

६.२.१ भौतिक वातावरण

निर्माण चरण

- आयोजनाको कार्यान्वयनले २०.८४ हे. खेतीयोग्य जमीन, १२.१५ हे. वन, ५ हे. पर्ती जग्गा तथा १३.७५ हे. खोला वगर आदि गरी कूल ५१.७४ हे. भू-उपयोग प्रभावित हुने ।
- अधिग्रहण गरीने जग्गाको भू-वनोटमा असर पर्ने ।
- विभिन्न मेसिनहरुको संचालन सवारी साधनको ओहोर दोहोर तथा विष्फोटक पदार्थको कारणले आयोजना क्षेत्रमा SPM, NO_x So₂ को मात्रा बढ्न सक्ने ।
- विष्फोटक पदार्थ, ठुला गाडी तथा ढुंगा गिट्टी फुटाउने यन्त्रहरुको प्रयोगले वायु प्रदुशण ८०-९५ डेसिमल सम्म हुन सक्ने ।
- करीब ३,१८,१५० घनमीटर माटोको व्यवस्थापन, सिमेन्ट तथा अन्य रसायनिक पदार्थबाट पानी प्रदुषण हुन सक्ने ।
- आयोजनाबाट निस्किएको फोहोर मैलाको उचित व्यवस्थापन नहुँदा जल, वायु तथा माटो प्रदुषित हुने ।

संचालन चरण:

- पानीको बहावमा परिवर्तन भई भू-क्षय तथा पहिरोको समस्या उत्पन्न हुन सक्ने ।



- वाटो नजिक वस्तीको विस्तार, पुर्वाधार निर्माण आदीले गर्दा भू उपयोगमा परिवर्तन हुन सक्ने ।

६.२.२ स्थलीय वातावरण

निर्माण चरण:

- आयोजना निर्माणको लागि ५ वटा सामुदायिक वनको १२.१५ हे. वनक्षेत्र प्रभावित हुने, यो कुल सामुदायिक वनको क्षेत्रफलको ४.७३% हुन आउँछ ।
- आयोजनाको निर्माण गर्दा विभिन्न १६ प्रजातीका ४८०९ वटा रुखहरु हटाउनु पर्ने जस मध्ये ४४८१ वटा पोल साइज तथा ३२८ वटा रुख साइजका छन् । आयोजना निर्माणले ८३१.०३ घनमीटर काठ तथा ६,४८,२०३ के.जी वायोमास नोक्सानी हुने ।
- आयोजनाको लागि आवश्यक कामदारहरुले गर्दा स्थानीय स्तरमा दाउराको मागमा बृद्धि भई स्थानीय वनमा चाप पर्न सक्ने । आयोजनाको कामदारहरुलाई अरु वैकल्पिक श्रोत उपलब्ध नभएमा करीव २५४.८ मे. टन दाउरा आवश्यक पर्ने ।
- वन क्षेत्रको जग्गा प्रभावित भई वन्य जन्तुको वासस्थानमा असर पर्न सक्ने ।
- निर्माण कार्यले वन्य जन्तुको दैनिक क्रियाकलापमा असर पर्न सक्ने ।
- गैरकाष्ठ वन पैदावार प्रजातिका विरुवाहरु जस्तै असुरो, अमला, जामुन ऐसेलुको Seedling तथा सिस्नोको Sampling नोक्सानी हुने ।
- साल तथा अन्य महत्वपूर्ण प्रजातिका रुखहरुमा अवैधानिकरूपमा चाप पर्न सक्ने ।

६.२.३ जलीय वातावरण

निर्माण चरण :

- निर्माणको गतिविधि तथा माटो फाल्नाले माछाको वासस्थानमा असर पर्न सक्ने ।

संचालन चरण

- लामो दुरी तथा मध्यम दुरीसम्म ओहोर दोहोर गर्ने माछाको आवत जावतमा असर पर्न सक्ने ।
- नदीको ६.८ कि.मी.खण्डमा पानीको मात्रा कम भई माछामा असर पर्न सक्ने ।
- बालुवा थिग्राउने पोखरीवाट बालुवा सफा गर्दा नदीको तल्लो भागमा माछाको वासस्थानमा असर पर्न सक्ने ।

६.२.४ सामाजिक आर्थिक तथा सांस्कृतिक वातावरण

पुर्व निर्माण चरण:

- आयोजना निर्माणको लागि ८० परिवारको १७.३४ हे. जग्गा अधिग्रहण हुने । यस बाहेक ८ हे. निजी जग्गा अस्थायी रूपमा भाडामा लिइनेछ ।
- प्रभावित परिवारहरु मध्ये १३.७५% को १०% भन्दा कम जग्गा, ३१.२५% परिवारको १० देखि २५% सम्म जग्गा, २७.५% परिवारको २५ देखि ५०% सम्म जग्गा तथा १२.५% परिवारको ७५ देखि १००% सम्म जग्गा अधिग्रहण हुनेछ ।
- आयोजना निर्माणले १० परिवारहरुको ६ वटा घर तथा ५ वटा गोठ अधिग्रहण हुनेछ ।



निर्माण चरण:

- निर्माणको समयमा हुने विभिन्न गतिविधिले दुर्घटना बढ्न सक्ने ।
- स्थानीय खानेपानीको स्रोतमा चाप बढ्नुका साथै गोरेटो बाटोमा असर पर्न सक्ने ।
- विभिन्न बर्ग तथा समुहका व्यक्तिहरु एकै ठाउँमा जम्मा हुने भएकोले कामदार-कामदार, कामदार-स्थानीय व्यक्ति र स्थानीय व्यक्ति तथा आयोजना व्यवस्थापन बिच विभिन्न विवादहरु श्रृजना हुन सक्ने ।
- स्थानियस्तरमा प्रयोग हुने वस्तु तथा खाद्यान्नको मूल्य वृद्धि हुने तथा उपलब्धतामा कमी आई आदिवासी तथा गरीब परिवारहरुलाई अप्रत्यक्ष असर पर्न सक्ने ।
- आयोजना निर्माणको क्रममा स्थानिय व्यक्तिहरुको आयमा वृद्धि भई अनुत्पादक कार्यमा खर्च हुन सक्ने ।

संचालन चरण:

- निर्माण कार्य सम्पन्न भए पछि आयोजना क्षेत्रमा आर्थिक क्रयाकलाप घट्न जानेछ ।
- बाँधबाट पूर्व सूचना विना पानी छार्डिँदा खोलाको नजिक भएका गाइ वस्तु तथा मानिसहरुलाई असर पर्न सक्ने ।
- आयोजना निर्माणको लागि स्थायी रुपमा जग्गा अधिग्रहण हुन गई ४१.०६ मे.टन खाद्यान्नको उत्पादन तथा ५.९६ मे.टन नगदे बालीको उत्पादनमा कमी आउनु ।

६.३ समय प्रभावहरु:

विद्युत विकास विभागद्वारा प्रस्तावित बुढीगंगा खोला साना जलविद्युत आयोजना तथा बुढीगंगा जलविद्युत आयोजनाहरुबाट वातावरणमा पर्न सक्ने प्रभावहरुको अध्ययन संयुक्त रुपमा गरिएको छ ।

- बुढीगंगा साना जलविद्युत आयोजना (३.५ कि.मी) तथा बुढीगंगा जलविद्युत आयोजना (६.८ कि.मी) को कार्यान्वयनले बुढीगंगा नदीको १०.३७ कि.मी. खण्डमा पानीको बहाव कम हुन गई पानीको शुद्धता गुणस्तर तथा जलचरमा पर्ने प्रभाव ।
- बाँध तथा जलाशयको निर्माणले पानीको बहावमा परिवर्तन भई यसबाट उत्पन्न हुन सक्ने असरहरु ।
- दुवै आयोजनाहरुको कार्यान्वयनको लागि १४.१६ हे. वन क्षेत्र (बुढीगंगा साना २.०१ र बुढीगंगा आयोजनाको १२.१५ हे.) प्रभावित हुने ।
- दुवै आयोजनाहरुको कार्यान्वयनले २५.९५ हे. जग्गा अधिग्रहण हुने ।
- आयोजनाहरुको कार्यान्वयनले खाद्यान्न अपुग भएका परिवारहरुलाई चाप बढ्न सक्ने ।

७. वैकल्पिक अध्ययन

प्रस्तावित आयोजनाको वैकल्पिक अध्ययन आयोजनाको सम्भाव्यता अध्ययनको एउटा अंगको रुपमा गरिएको थियो । यस अन्तर्गत बुढीगंगा नदीमा १८ मेगावाट देखि २२ मेगावाट सम्मको विभिन्न ४ वटा विकल्पहरुको अध्ययन मेटकन कन्सल्टेन्टद्वारा सन १९९८ मा गरिएको थियो । यी विकल्पहरु मध्ये सम्भाव्यता अध्ययनको क्रममा देखिएको उत्तम



विकल्पको विस्तृत ईन्जिनियरिङ्ग गरिएको छ । यसै गरी निजी जग्गा तथा वनमा पर्ने प्रभावलाई न्यून गर्न भूमीगत बालुवा थिगाउने पोखरीको प्रस्ताव गरिएको छ । जलाशयको Full Supply Level (FSL) वस्ती, वन जङ्गल तथा निजी जग्गामा पर्न सक्ने प्रभावहरूको अध्ययन गरी तय गरिएको छ । यसै गरी विकल्पहरूको अध्ययन गर्ने क्रममा आयोजना निर्माण विधि, निर्माण तालिका, वन क्षेत्रको प्रयोग तथा आयोजना विनाको विकल्पको समेत अध्ययन गरिएको छ ।

८. वातावरणीय प्रभाव न्यूनीकरण तथा अभिवृद्धि कार्यक्रम

प्रस्तावित अभिवृद्धि तथा न्यूनिकरणका कार्यक्रमहरू लगु गर्न मुख्य दायित्व प्रस्तावकको हुनेछ ।

८.१ सकारात्मक प्रभाव अभिवृद्धि कार्यक्रम

- स्थानीय व्यक्तिहरूलाई रोजगारीमा प्राथमिकता दिने । प्राथमिकता तय गर्दा आयोजनाबाट व्यक्तिहरूमा पर्न गएको प्रभावको आधारमा गर्ने ।
- आयोजना निर्माणको लागि आवश्यक पर्ने स्थानीय तहमा उपलब्ध सेवा सुविधाहरूको प्रयोग गरी स्थानीय विकासमा सहयोग गर्ने ।

८.२ नकारात्मक प्रभाव न्यूनिकरण तथा अभिवृद्धि कार्यक्रम

८.२.१ वातावरणीय प्रभाव पर्न नदिन चालिने उपायहरू

अस्थायी रूपमा प्रयोग हुने संरचनाहरू कम उब्जनी हुने किसिमका जग्गा भएको ठाउँमा प्रस्ताव गरिएको छ भने खन्ने काम सुख्खा समयमा गर्ने, प्लाष्टिङ्ग न्यून गर्ने तथा कृषिड प्लाण्ट वस्तीबाट टाढा राखिएको छ । त्यसै गरी बालुवा थिगाउने पोखरीमा जम्मा भएको बालुवा नदीमा पानीको बहाव बढी भएको वेलामात्र नदीमा पठाइनेछ । आयोजनामा कार्यरत कर्मचारीहरूको लागि चमेना घर को व्यवस्था, सूचनामुलक तथा निर्देशनात्मक होर्डिङ बोर्डको व्यवस्था, कामदारहरू परिचालन गरी रुख विरुवा हटाइने र चोरी, शिकारी हुन नदिन आवश्यक शुरुक्षात्मक प्रकृया अपनाईने छ ।

स्वास्थ्य तथा शुरुक्षा कार्यायोजना, आयोजना अन्तर्गत संचालीत सवारी साधनहरूको संचालन निर्देशिका, प्लाष्टिङ्ग गर्नु अगाडी तथा पछि साइरन बजाउने, सुपथ मुल्य पसल स्थापना, स्थानीय व्यक्तिहरूको पानीको आवश्यकतामा असर नपर्ने गरी पानीको प्रयोग तथा विना भेदभाव रोजगारीको अवसर आदि वातावरणीय प्रभाव पर्न नदिन चालिने अन्य उपायहरू हुन ।

८.२.२ न्यूनीकरणका उपायहरू

प्रस्तावित आयोजनाको कार्यान्वयनले भौतिक, स्थलीय, जलीय तथा सामाजिक आर्थिक र साँस्कृतिक वातावरणमा पर्न सक्ने प्रभावहरूलाई न्यूनीकरण गर्न निम्न कार्यक्रमहरू प्रस्ताव गरिएका छन् ।



८.२.२.१ भौतिक वातावरण

- वायो-इन्जिनियरिङ्ग प्रविधि प्रयोग गरी भिरालो जग्गाको उचित व्यवस्थापन गर्ने ।
- अस्थायी रूपमा प्रयोग भएको जग्गालाई पुरानो अवस्थामा व्यवस्थित गरिने ।
- सुख्खा समयमा बाटो तथा अन्य निर्माण स्थलमा दिनको दुई पटक पानी छर्किइने छ ।
शुरुङ्गमा Ventilator को उचित व्यवस्था गरिनेछ ।
- आयोजना अन्तर्गत संचालित सवारी साधनहरूलाई मापदण्ड अनुसार व्यवस्थापन गरिनुका साथै ध्वनी प्रदुषण कम गर्ने उपायहरू अवलम्बन गरिनेछ ।
- प्रत्येक क्याम्पहरूमा शौचालयको निर्माण गरिनेछ ।
- शुरुङ्ग तथा अन्य क्षेत्रबाट निस्कने माटो तथा ढुङ्गाहरू लाई प्रस्ताव गरिएका क्षेत्रहरूमा उचित व्यवस्थापन गरिनेछ ।

माथि उल्लेखित कार्यहरू ठेक्का सम्झौताको शर्त अनुसार ठेकेदार मार्फत गरिनेछ । यसका अतिरिक्त आयोजनाकोलागि निर्माण गरिने सडकमा वायोईन्जिनियरिङ्ग कार्यकोलागि ३ मिलियन प्रस्तावित गरिएको छ ।

८.२.२.२ स्थलीय वातावरण

- आयोजना लाई आवश्यक वन क्षेत्रको जग्गा नेपाल सरकारको प्रचलित नियमानुसार प्रयोग गरिनेछ । विद्यमान प्रावधान अनुरूप आयोजनाले स्थायीरूपमा प्रयोग गरिने जग्गाको सट्टा भर्नावापत सम्बन्धित वन कार्यालयलाई जग्गा अथवा एक मुष्ठ रकम उपलब्ध गराइनेछ ।
- प्राथमिकता प्राप्त आयोजनालाई वन क्षेत्रको जग्गा उपलब्ध गराउने कार्य विधि २०७४ वमोजिम १:२५ अनुपातमा कूल १,२०,२२५ तथा स्थायीरूपमा अधिग्रहण गरिने १२.१५ हे. जग्गाको १६००/हे. का दरले १९,९४० गरि जम्मा १,४०,१६५ विरुवाहरू लगाउनुका साथै ५ वर्ष सम्म संरक्षण गरिनेछ ।
- आयोजना क्षेत्रका सामुदायिक वनको आय बृद्धि गर्ने उद्देश्यले ३०,००० गैह्र काष्ठ वन पैदावारका विरुवाहरू वितरण गरिनेछ ।
- सामुदायिक वनका पदाधिकारीहरूलाई वन संरक्षण सम्बन्धी सचेतनामुलक कार्यक्रम संचालन गर्नुका साथै आवश्यक सचेतना तथा जानकारीमुलक होर्डिड बोर्डहरू राखिनेछ ।
- सामुदायिक वनका प्रतिनिधिहरूलाई वन व्यवस्थापन, आयआर्जन सम्बन्धि तालिमहरू दिइनेछ ।
- आयोजनामा कार्यरत लेबर, सुपरभाइजर तथा स्थानीय व्यक्तिहरूलाई वन्यजन्तु सम्बन्धी सचेतना तालिम दिइनेछ ।

स्थलीय वातावरण अन्तर्गत प्रस्ताव गरिएको वातावरणीय प्रभाव न्यूनिकरण तथा अभिवृद्धि कार्यक्रमकोलागि रु ४१.७४ मिलियन लाग्ने अनुमान गरिएको छ, यसमध्ये निर्माण चरणमा रु ३५.३३ मिलियन तथा संचालन चरणमा रु ६.४१ मिलियन प्रस्ताव गरिएको छ ।

८.२.२.३ जलीय वातावरण



- माछामा पर्ने प्रभावलाई कम गर्न पानी कम हुने ६.८७ कि.मी. नदी खण्डमा थप Pool Type Habitat निर्माण गरिनेछ ।
 - माछाको ओहोर दोहोर निर्वाध रुपमा गर्नको लागि फिस लेडर प्रस्ताव गरिएको छ ।
 - पानी कम हुने (बर्षको ५ महिना) समयमा न्यूनतम ०.९९ घन मीटर प्रति सेकेण्ड पानी बाँधबाट छोडिनेछ ।
 - आयोजना स्थलमा थलचर संरक्षणकालागि सूचनामूलक तथा निर्देशनात्मक होर्डिङ बोर्डहरु राखिनेछ ।
 - स्थानियस्तरमा माटापालन प्रबर्द्धन गर्नकालागि विभिन्न प्रकारका अध्ययन, प्राविधिक सहयोग तथा माछाका भुराहरु वितरण गर्ने जस्ता कार्यहरु गरिनेछ ।
- जलीय वातावरणमा पर्ने सक्ने प्रभाव कम गर्न तथा अभिवृद्धि कार्यक्रम संचालन गर्नकालागि रु ३.५३ मिलियन लाग्ने अनुमान गरिएको छ ।

८.२.२.४ सामाजिक आर्थिक तथा साँस्कृतिक वातावरण

- आयोजना निर्माणको लागि स्थायी रुपमा आवश्यक पर्ने जग्गा नियमानुसार अधिग्रहण प्रकृया शुरु भईसकेको छ ।
- अस्थायी रुपमा आवश्यक पर्ने जग्गालाई सम्बन्धीत जग्गा धनी सँग सम्झौता गरी भाडामा लिइनेछ ।
- आयोजनाबाट हुने वालीनालीको क्षतिपुर्तिवापत उचित रकम उपलब्ध गराइनेछ ।
- आयोजनाबाट हानी नोक्सानी हुने निजी विरुवाहरुको उचित छतिपुर्ती दिइनेछ ।
- आयोजनाबाट १०% देखि २५% सम्म जग्गा प्रभावित हुने २५ परिवारहरुलाई कृषि सहयोग कार्यक्रम उपलब्ध गराइनेछ ।
- आयोजनाबाट २५% देखि १००% जग्गा प्रभावित हुने ४५ परिवारहरुलाई हाउस वायरिङ, प्लम्बिङ, ड्राइभिङ, कुकिङ आदि क्षेत्रमा सीपमुलक तालिम प्रदान गरिनेछ ।
- आयोजनाबाट प्रभावित ८ उत्पिडित घरधुरीहरुलाई सिलाइ वुनाइ तथा पेशागत शीप सम्बन्धी थप तालिम तथा सहयोगका कार्यक्रमहरु संचालन गरिनेछ ।
- आयोजनाबाट प्रभावित हुने घर तथा गोठहरुलाई उचित मुआब्जा दिएर अधिग्रहण गरिनेछ । यस अन्तर्गत घरले ओगटेको जग्गा तथा सँरचना वापतको रकम उपलब्ध गराइनेछ ।
- प्रभावित हुने ६ घरधुरीलाई स्थानान्तरण भत्ता तथा यातायात खर्च वापत रु २५,००० उपलब्ध गराइनेछ । यस बाहेक प्रभावित घरधुरीहरुलाई सीपमुलक तालिमहरु प्रदान गरिनेछ ।
- आयोजना क्षेत्रमा एक मेडिकल डाक्टर सहितको क्लिनिकको स्थापना गरिनेछ । यसका साथै हेलिप्याड तथा एम्बुलेन्सको पनि व्यवस्था गरिनेछ । निर्माण कार्यमा सँलग्न व्यक्तिहरुलाई प्रत्येक ६ महिनामा स्वास्थ्य तथा सुरक्षा सम्बन्धी तालिमको प्रस्ताव गरिएको छ साथै आयोजनामा कार्यरत कर्मचारीहरुलाई कामको प्रकृति अनुसार सुरक्षाका सामाग्रीहरु उपलब्ध गराइनेछ ।
- आयोजनामा कार्यरत कर्मचारी तथा निर्माण सामाग्रीहरुको सुरक्षार्थ सुरक्षा गार्डको व्यवस्था गरिनेछ ।

- स्थानिय गैरसरकारी संस्था, क्लब तथा साँस्कृतिक र महिला समूहहरूलाई साँस्कृतिक कार्यक्रमको संचालन गर्नकालागि आवश्यक सहयोग गर्ने ।
- आयोजनाबाट प्रभावित ५ महिला परिवारहरूलाई ३ महिने सिलाई वुनाई तालिम तथा ४ वटा दलित परिवारलाई ३९० घण्टाको शीपमूलक तालिमहरु दिईनेछ ।
- स्थानियस्तरमा मुआब्जाको सदुपयोग, रोजगारी, आयोजनाबाट पर्न सक्ने सामाजिक तथा साँस्कृतिक प्रभाव आदि विषयमा सचेतना कार्यक्रम संचालन गरिनेछ ।
- आयोजनाबाट ७५% देखि १००% सम्म जग्गा पर्ने १० घर परिवारलाई एकपटकलाई आयआर्जनको नयाँ/थप कार्य शुरु गर्न प्रतिघर धुरी रु २,००,००० सहयोग उपलब्ध गराउने ।
- आयोजनाबाट प्रभावित परिवारहरूलाई वाली ह्यास वापत रु ३५४७३१- का दरले २ बर्षको रकम उपलब्ध गराईनेछ ।
- सामाजिक, आर्थिक तथा साँस्कृतिक वातावरणमा पर्न सक्ने असरहरु न्यून गर्न तथा अभिवृद्धि कार्यक्रम संचालन गर्नकालागि रु १९.९० मिलियन लाग्ने अनुमान गरिएको छ । यसमध्ये निर्माण चरणकालागि रु १८ मिलियन तथा संचालन चरणमा रु १.९० मिलियन प्रस्ताव गरिएको छ ।

८.२.३ सामुदायिक सहयोग कार्यक्रम

- आयोजनाबाट प्रभावित नगरपालिका तथा गाउँपालिकाको सम्बन्धित वडाबाट ५ जना प्रतिनिधित्व हुनेगरि कुल ३० जनालाई सिपमूलक तालिम प्रदान गर्ने ।
 - आयोजनाले सामाजिक सहयोग कार्यक्रम अन्तर्गत खानेपानी, विद्यालय, स्वास्थ्य तथा सरसफाई जस्ता आधारभूत क्षेत्रमा सहयोगका कार्यक्रमहरु संचालन गर्नेछ ।
 - आयोजना क्षेत्रमा विद्युतीकरणकालागि आवश्यक सहयोग गर्ने ।
- सामुदायिक सहयोग कार्यक्रम अन्तर्गत रु ३० मिलियन प्रस्ताव गरिएको छ । यसमध्ये निर्माण चरणमा २३.८० मिलियन तथा संचालन चरणमा रु ६.५० मिलियन लाग्ने अनुमान गरिएको छ ।

९. वातावरणीय व्यवस्थापन योजना

आयोजनाको वातावरणीय व्यवस्थापनको सम्पूर्ण दायित्व आयोजना प्रस्तावकको हुनेछ ।

९.१ वातावरणीय व्यवस्थापन कार्य

आयोजनाको वातावरणीय व्यवस्थापन योजना अन्तर्गत रुख कटानीको स्वीकृति लिने, पुर्नवास तथा पुर्नस्थापना योजना, क्याम्प तथा ट्राफिक व्यवस्थापन योजना तथा प्रदुषण नियन्त्रण योजनाहरु तयार गरीएका छन् । यसैगरी थलचर तथा जलचर व्यवस्थापन योजना, पहिरो तथा माटो व्यवस्थापन योजना, स्वास्थ्य तथा सुरक्षा योजना, आकस्मिक व्यवस्थापन योजना र गुनासो व्यवस्थापन योजनाहरु तयार गरिएका छन् ।

९.२ सँगठनात्मक व्यवस्था तथा उत्तरदायित्व

प्रस्तावित आयोजनाको वातावरणीय व्यवस्थापन कार्यको लागि आयोजना प्रमुखको कार्यालय, बुढीगंगा वातावरणीय अनुगमन इकाई, बुढीगंगा वातावरणीय तथा सामाजिक

व्यवस्थापन इकाई, ठेकेदार, परामर्शदाता/ईन्जिनियर, स्थानीय समन्वय समिति, संयुक्त अनुगमन समिति गठनको प्रस्ताव गरिएको छ । प्रस्तावित वातावरणीय व्यवस्थापन योजना लागु गर्ने प्रमुख दायित्व आयोजना प्रमुखको हुनेछ ।

९.३ वातावरणीय अनुगमन:

आधारभुत, पालनात्मक तथा प्रभाव मुल्यांकन सम्बन्धी अनुगमन कार्यहरु प्रस्ताव गरिएका छन्। अनुगमन कार्य भौतिक, स्थलीय, जलीय तथा सामाजिक आर्थिक पक्षको निर्माण पूर्व, निर्माण अवधि तथा संचालन चरणमा गरिनेछ ।

आधारभुत अनुगमन:

आयोजनाको निर्माण कार्य शुरु हुनु अगावै आधारभुत तथ्याङ्कहरु सँकलन गरी विद्यमान तथ्याङ्कहरुलाई अद्यावधिक गरिनेछ । यस अन्तर्गत मुख्य सुचकांक जस्तै भू-उपयोग, भिरालोपन, वनस्पति, वस्ती, स्वास्थ्य तथा सरसफाई आदि सम्बन्धी तथ्याङ्कहरु सँकलन गरी अद्यावधिक गरिनेछ ।

पालनात्मक अनुगमन:

पालनात्मक अनुगमन अन्तर्गत प्रस्ताव गरिएका वातावरणीय प्रभाव न्यूनीकरणका कार्यक्रमहरुको उचित कार्यान्वयन, ठेक्का शर्त मा उल्लेख भएका वातावरण सम्बन्धी कार्यहरुको अनुगमन आदि पर्दछन् ।

प्रभाव मुल्यांकन:

यस अन्तर्गत आयोजना कार्यान्वयनले भौतिक, स्थलीय, जलीय तथा सामाजिक आर्थिक वातावरणमा पर्न सक्ने प्रभावहरुको अनुगमन गरिन्छ । अनुगमन कार्य दैनिक, मासिक, त्रैमासिक तथा बार्षिक रुपमा गरिन्छ ।

९.४ वातावरणीय परीक्षण:

वातावरण संरक्षण नियमावली २०५४ अनुसार प्रस्तावित आयोजनाको वातावरणीय परीक्षण कार्य वन तथा वातावरण मन्त्रालयले आयोजना सम्पन्न भएको २ बर्ष पछि गर्नेछ । भू-उपयोग, वायो ईन्जिनियरिङ्ग प्रविधिको प्रयोग, वन फँडानी, जग्गा तथा घर प्रभावित तथा स्थानीय रोजगारी जस्ता पक्षहरु वातावरणीय परीक्षणमा समावेश गरिन्छन् । यस अन्तर्गत भौतिक, स्थलीय, जलीय तथा सामाजिक, आर्थिक र साँस्कृतिक वातावरणका विभिन्न पक्षहरु समावेश गरिनेछन् ।



९.४ वातावरणीय व्यवस्थापन लागत:

यस आयोजनाको वातावरणीय व्यवस्थापन कार्यको लागत रु. १३२.०४ मिलियन अनुमान गरिएको छ । यस बाहेक वातावरणीय परीक्षण कार्यको लागि रु. १.१७ मिलियन लाग्ने अनुमान गरिएको छ । प्रस्तावित लागत अनुमान आयोजनाको कूल लागत अनुमानको १.३६% हुन आउँछ ।

१०. जनसम्पर्क

यस आयोजनाको जनसम्पर्क कार्य आयोजनाको क्षेत्र निर्धारण गर्ने समय देखि शुरु गरिएको छ । समुहगत छलफल, चेकलिष्ट सर्भेक्षण, वडा स्तरीय बैठक, बजार सर्भेक्षण तथा लक्षित समुह संग छलफल जनसम्पर्कको लागि अपनाइएका विधिहरु हुन् । वातावरणीय प्रभाव मुल्यांकन मस्यौदा प्रतिवेदनमा स्थानीय व्यक्तिहरुको राय सुभाब लिने उद्देश्यले आयोजना प्रभावित ठाँटीवजारमा सार्वजनिक सुनुवाई कार्यक्रम गरिएको थियो । उक्त कार्यक्रम मा विभिन्न जातजाती, पेशा, व्यवसायका कूल १६४ जना सहभागि भएका थिए । स्थानियस्तरका प्रतिनिधिहरुले उत्साहपूर्वक कार्यक्रममा सहभागिता जनाएका थिए । यस कार्यक्रममा आयोजनाको प्राविधिक तथा वातावरणीय पक्षको प्रस्तुतीका साथै सरोकारवालाहरुको रायसुभाब संकलन गरि प्रतिवेदनमा समावेश गरिएको छ । यसले सम्बन्धीत सरोकारवालाहरुलाई आयोजनाको विविध पक्षवारे जानकारी लिन सहयोग पुगेको छ ।

११. उपसंहार

वातावरणीय प्रभाव मुल्यांकन प्रतिवेदनले देखाए बमोजिम आयोजनाबाट वातावरणमा पर्न सक्ने प्रभावहरु न्यून देखि मध्यम समुहका छन् र यसलाई उचित व्यवस्थापन गर्न सकिन्छ ।



Appendix-G: Consent Letter of Affected CFUGs



श्री जुगाबन कामाखुवा सामुदायिक वन उपनोका
समीती १०

मिति २०७४/०१/०६

पस ०७४/०७२

प न २

श्री बुढीगंगा जलविद्युत आयोजना

सर्टिफिकेट

सामुदायिक वन न.पा १० हटी अदाम

विषय :- सहमति प्रदान गरिएको सम्बन्धमा

उपरोक्त विषयको सम्बन्धमा विद्युत विभाग विभाग
बुढीगंगा जलविद्युत आयोजनाको प्रस्तावित बुढीगंगा जलविद्युत
आयोजनाको बाताबराणीय पुर्वाब मुल्यांकन (EIA) प्रति
वेदन दिइएको गरी कम्पनी यस सामुदायिक वनको सहमति
आवश्यक भएकोले वन क्षेत्रको जग्गा अन्य कार्यको लागि
प्रयोग गर्ने कुराबिधी २०७२ अनुसार गर्ने गरी यो सहमति
पत्र प्रदान गरिएको छ।

भवदीय

राम बहादुर बुढा

अध्यक्ष, वडा



नेपाल सरकार
तथा बाताबराणीय विभाग
सिंहदरबार काठमाडौं

श्री मुका वन सागुदायिक वन उपभोक्ता
संघ कल्कोट ४०४५ अक्षांश

पं. ली ०६४१०६८
च. नं. १



मिति २०७८/११/५

श्री बुढीगंगा जलविद्युत आपोजना
राष्ट्रिय आयोग
सम्मेलन नं. ५८-१० अक्षांश

विषय :- सहमति प्रदान गरिएको सम्बन्धमा।

उपरोक्त विषय सम्बन्धमा विद्युत विकास विभागद्वारा
गंगा जलविद्युत आयोजनाद्वारा प्रस्तावित बुढीगंगा जल
विद्युत आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन
प्रतिवेदन स्वीकृत गर्ने क्रममा यो सानुदायिक वनको
सहमति आवश्यक भएकोले वन क्षेत्रको जग्गा अन्य
कार्यको लागि प्रयोग गर्ने कार्यविधि २०७९ अनुसार
गर्ने गरी श्री सहमति पत्र प्रदान गरिएको हो।

 अवधि
अध्यक्ष शालिमान साइद
मुका वन सां. व. उ. सं.
कल्कोट अक्षांश



श्री इमलटुका बेतालमाण्डौ सामुदायिक वन उपभोक्ता समुह
८ हाल मेल्लेख गा.पा. ८ हात्तिकोट, अछाम

मिति : २०७५/०९/०५

प.सं. ०७४/०७५

च.नं. ०२

श्री बुढीगंगा जलविद्युत आयोजना

साइट कार्यालय सा.न.पा. १० ठाटीवजार, अछाम

विषय : सहमति प्रदान गरिएको सम्बन्धमा ।

उपरोक्त विषय सम्बन्धमा विद्युत विकास विभाग बुढीगंगा जलविद्युत आयोजनाद्वारा प्रस्तावित बुढीगंगा जलविद्युत आयोजनाको वातावरणीय प्रभाव मूल्यांकन प्रतिवेदन स्विकृत गर्ने क्रममा यस सामुदायिक वनको सहमति आवश्यक भएकोले वन क्षेत्रको जग्गा अन्य कार्यको लागि प्रयोग गर्ने कार्यविधि २०७३ अनुसार गर्ने गरि यो सहमति पत्र प्रदान गरिएको छ ।

भवदिय

अध्यक्ष श्री रत्नसिंह ठकुरा

इमलटुका बेतालमाण्डौ

सा.व.उ.स.

मेल्लेख गा.पा. ८, अछाम



श्री सुनेछाना व. उ. ३-६ हाहा
मेलेवेचन को हाकिमी ३१६५५

प. सं. ०७४१०७८

मिति २०७८/०९/०८

व. नं. ०३

श्री कुढीगंगा मलावेद्युत आपोजना
संग्रह आलेख
साफे काग तगल पालिका १० अछाम

विषय. सहमति प्रदान गरिएको सम्बन्धमा।

उपर्युक्त विषय सम्बन्धमा विद्युत विकास विभाग -
कुढीगंगा मलावेद्युत आपोजना द्वारा प्रस्तावित कुढीगंगा मलावेद्युत
आपोजनाको वातावरणीय प्रभाव मूल्याङ्कन (EIA) प्रतिवेदन
स्वीकृत गर्ने क्रममा तस्मै थप सामुदायिक पत्रको सहमति प्राप्त
-शयक भएकोले वन क्षेत्रको मग्ग। अन्य कार्यको लागि
प्रयोग गर्ने कार्य विधि २०७३ अनुसार गर्ने जति योसमति
पत्र प्रदान गरिएको छ।

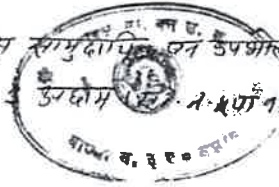
भण्डार

अध्यक्ष श्री कलु सिंह राई

सुनेछाना व. उ. ३-६ मेलेवेचन गा.पा.
८ अछाम

नेपाल सरकार
वातावरण मन्त्रालय
सिंहदरबार काठमाडौं

श्री सासु सामुदायिक वन उपजीविका समुह
पाठला उपक्रम (सं. १.१.पाँ १३)



फस. ०६४१०६५
च. १. ४

मिति २०७५/०१/०५

श्री बुढीगंगा अलावेधुत आयोजना
सहज आफिस
साके बगर नगरपालिका - १० छापी
अध्याम

विषय :- सहमति प्रदान गरिएको सम्बन्धमा

उपरोक्त विषय सम्बन्धमा विद्युत विकास विभाग बुढीगंगा
अलावेधुत आयोजनाको प्रस्तावित अल बुढीगंगा अलावेधुत-
आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन (EIA) प्रतिवेदन
स्वीकृत गर्ने क्रममा भन्दा सामुदायिक वनको सहमति आवश्यक
प्राप्तको लागि वन इकाईको जसमा अन्य कार्यको लागि प्रयोग गर्ने
कार्यविधि २०६३ अनुसूचि गर्ने गरि यो सहमति फलप्रदान
गरिएको छ।

प्रबन्धि

(Signature)

दिपक वसुन्धर बराला
सा. व. समेत राख्न छुट्या

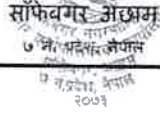


Appendix-H: Recommendation Letter





साँफेबगर नगरपालिका
नगर कार्यपालिकाको कार्यालय



प.सं.: २०७४/०७५

च.नं.: ५१९

मिति : २०७४/०९/०६

विषय : सिफारिस सम्बन्धमा ।

श्री बुढीगंगा जलबियुत आयोजना
साईड कार्यालय घुघुरकोट, अछाम ।

प्रस्तुत विषयमा बुढीगंगा जलबियुत आयोजनाको च.नं. ३१९ मिति २०७५/०९/०५ को पत्रानुसार वातावरणीय प्रभाव मुल्यांकन (EIA) प्रतिवेदन सम्बन्धित मन्त्रालयबाट स्वीकृत गर्न क्रममा वातावरण संरक्षण नियमावली २०५४ को नियम १० बमोजिम सौ आयोजना कार्यन्वयनको लागि नियमानुसार सिफारिस गरिन्छ ।


(कुलबहादुर कुँवर)

नगर प्रमुख
कुल बहादुर कुँवर
नगर प्रमुख





मेल्लेख गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय
विन्धेवासिनी, अछाम ।
७ नं. प्रवेश, नेपाल ।

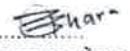
प.सं. २०७४/०७५
च.नं. ४१९

मिति :- २०७५/०९/०६

विषय :- सिफारिस सम्बन्धमा ।

श्री बुढीगंगा जलविद्युत आयोजना,
साईड कार्यालय, घघुरकोट अछाम ।

उपरोक्त सम्बन्धमा बुढीगंगा जलविद्युत आयोजनाको च.नं. ३२ को प्राप्त पत्रानुसार वातावरणीय प्रभाव
मुल्याङ्कन (EIA) प्रतिवेदन सम्बन्धित मन्त्रालयबाट स्वीकृत गर्ने क्रममा वातावरण संरक्षण नियमावली २०५४ को
नियम १० बमोजिम सो आयोजना कार्यान्वयनको लागि नियमानुसार सिफारिस गरिन्छ ।


(लोक बहादुर बोहरा)
अध्यक्ष
लोक बहादुर बोहरा
अध्यक्ष





बुढीगंगा नगरपालिका
नगर कार्यपालिकाको कार्यालय
कुल्देवमाण्डौ, बाजुरा
७ नं. प्रदेश नेपाल

प.सं. :- २०७४/०७५

च.नं. :- ३११

मिति : २०७५/११/५

बिषय : सिफारीस सम्बन्धमा ।

श्री बुढीगंगा जलविद्युत आयोजना
साईड कार्यालय घुघुरकोट अछाम

उपर्युक्त सम्बन्धमा बुढीगंगा जलविद्युत आयोजनाको च.नं. ३३ को प्राप्त पत्रानुसार वातावरणीय प्रभाव
मूल्यांकन (EIA) प्रतिवेदन सम्बन्धित मन्त्रालयबाट स्वीकृत गर्ने क्रममा वातावरण संरक्षण नियमावली २०५४ को
नियम १० को आयोजना कार्यान्वयनको लागि नियमानुसार सिफारीस गरिन्छ ।

दीपक विक्रम शाह

नगर प्रमुख
दीपक विक्रम शाह
प्रमुख

फोन नं. :- ०९६६९०९३९

Email:- municipalitybudhiganga@gmail.com



Appendix-I



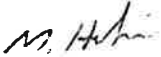
DECLARATION FROM EIA STUDY TEAM LEADER

Title of the Scoping/EIA Report: **Environmental Impact Assessment including Social Impact Assessment**

Name/Address of the Project Proponent: **Department of Electricity Development
Budhi Ganga Hydropower Project
Kalikasthan, Kathmandu, Nepal**

I declare the following:

- (i) I have read and checked the content of this Scoping/EIA report;
- (ii) My study team members have conducted the study professionally using acceptable methodologies;
- (iii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- *(iv) The mitigating measures proposed are, to the best of my knowledge, reliable, practical and adequate to comply with the relevant legal requirements; and
- (v) Myself and my team shall be accountable for any misleading information in any part of this report

Signature: 

Name: Mr. Michael Holics

Date: 10-08-2017

Official stamp:



**Applicable only for EIA report*



DECLARATION FROM EIA STUDY TEAM MEMBERS

Title of the Scoping/EIA Report: **Environmental Impact Assessment including Social Impact Assessment**

Name/Address of the Project Proponent: **Department of Electricity Development
Budhi Ganga Hydropower Project
Kalikasthan, Kathmandu, Nepal**

I declare the following:

- (i) I have conducted the study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- * (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study

Signature:

Name:

Date:

[Handwritten Signature]
Nar Nepal
15/01/07

Official stamp



**Applicable only for EIA report*



DECLARATION FROM EIA STUDY TEAM MEMBERS

Title of the Scoping/EIA Report: **Environmental Impact Assessment including Social Impact Assessment**

Name/Address of the Project Proponent: **Department of Electricity Development
Budhi Ganga Hydropower Project
Kalikasthan, Kathmandu, Nepal**

I declare the following:

- (i) I have conducted the study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- *(iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature: Dr. Mahendra Raj Subedi
Name: Dr. Mahendra Raj Subedi
Date: 10/8/2017

Official stamp:



**Applicable only for EIA report*



DECLARATION FROM EIA STUDY TEAM MEMBERS

Title of the Scoping/EIA Report: **Environmental Impact Assessment including Social Impact Assessment**

Name/Address of the Project Proponent: **Department of Electricity Development
Budhi Ganga Hydropower Project
Kalikasthan, Kathmandu, Nepal**

I declare the following:

- (i) I have conducted the study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- *(iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature: *Bharat*
Name: *Bharat M. Sharma*
Date: *10-8-2017*

Official stamp:



**Applicable only for EIA report*



DECLARATION FROM EIA STUDY TEAM MEMBERS

Title of the Scoping/EIA Report: **Environmental Impact Assessment including Social Impact Assessment**

Name/Address of the Project Proponent: **Department of Electricity Development
Budhi Ganga Hydropower Project
Kalikasthan, Kathmandu, Nepal**

I declare the following:

- (i) I have conducted the study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- *(iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature: *U S Patel*

Name: *Uma Shankar Patel*

Date: *16-8-2017*

Official stamp:



**Applicable only for EIA report*



DECLARATION FROM EIA STUDY TEAM MEMBERS

Title of the Scoping/EIA Report: **Environmental Impact Assessment including Social Impact Assessment**

Name/Address of the Project Proponent: **Department of Electricity Development
Budhi Ganga Hydropower Project
Kalikasthan, Kathmandu, Nepal**

I declare the following:

- (i) I have conducted the study professionally using acceptable and standard methodologies;
- (ii) The study findings are correct to the best of my knowledge; and have not been altered in any manner;
- * (iii) The mitigating measures proposed, to the best of my knowledge, are reliable, practical and adequate to comply with the relevant legal requirements; and
- (iv) I shall be accountable for any misleading information in the part of this report related to my area(s) of study.

Signature: P. K. J.
Name: Pankaj Kumar Pokhrel
Date: 10-08-2017

Official stamp:



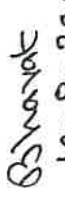
**Applicable only for EIA report*



LIST OF EIA STUDY TEAM MEMBERS

Title of the Scoping/EIA Report: Environmental Impact Assessment including Social Impact Assessment

Name/Address of the Proponent: Department of Electricity Development
Budhi Ganga Hydropower Project
Kalikasthan, Kathmandu, Nepal

SN	Name/Position in EIA Study Team	Qualification	Area(s) of study in EIA	Signature and Date
1	Mr. Michael Holics - Team Leader	P. Grad. Dip. EIA B. Nat. Res.	Environmental Management Specialist	 10/8/2017
2	Mr. Nar Gopal Rai - Deputy Team Leader	M.Sc (Environmental Engineering), M. Sc. (Natural Resource Management)	Physical Environment	 10/8/2017
3	Mr. Bharat Mani Sharma-Socioeconomic	MA Economics	Socioeconomic and Cultural Environment	 10-8-2017
4	Dr. Mahendra Nath Subedi - Botanist/Forest Expert	PhD (Environment Science)	Biological Environment (Forest and plants)	 10/8/2017

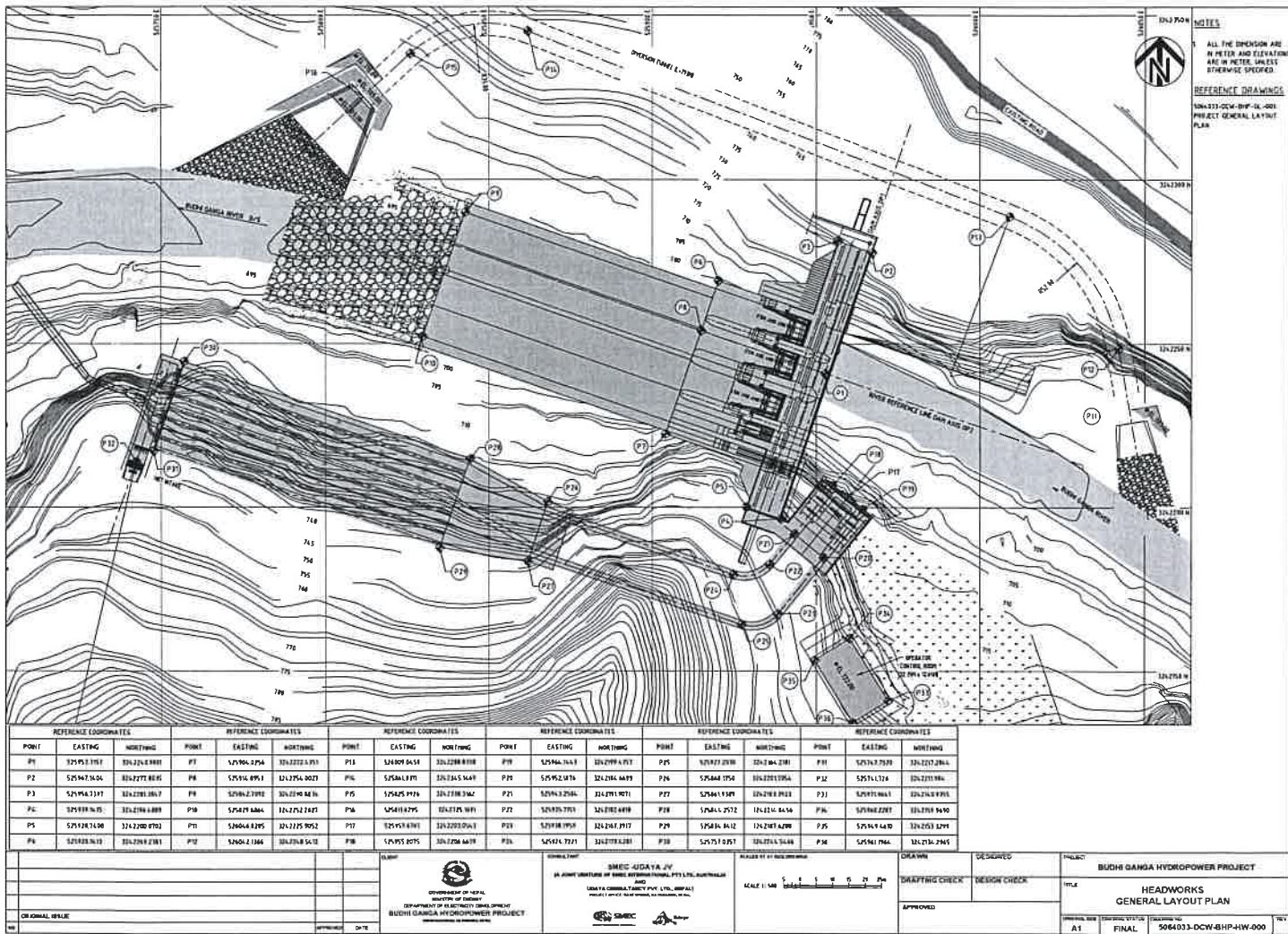


5	Mr. Uma Shankar Patel - Wild Life Expert/Fish Expert	M. Sc. (Zoology)	Aquatic life and wildlife	vs Patel 10-8-2017
6	Mr. Pankaj Kumar Pokhrel-Sociologist	MA Sociology	Socioeconomic and Cultural Environment	Pay. 10/08/2017

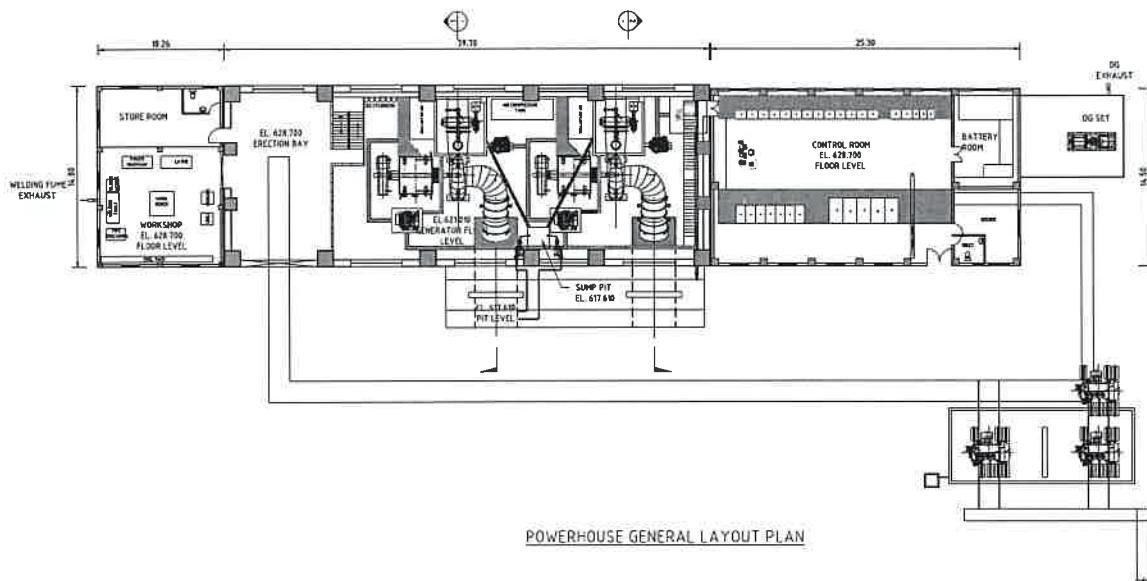


Appendix-J





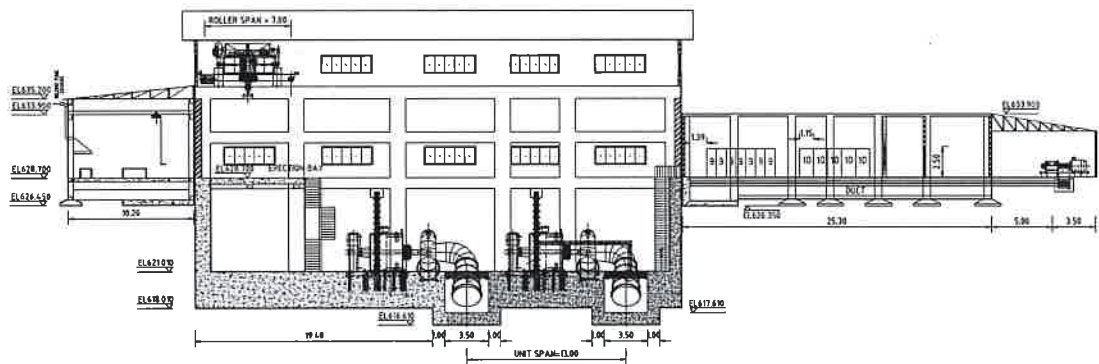
भारत सरकार
विद्युत विभाग
सिद्धार्थ नगर, काठमाडौं



NO. _____ REVISION _____ APPROVED _____ DATE _____	 MINISTRY OF ENERGY GOVERNMENT OF NEPAL BUDHI GANGA HYDROPOWER PROJECT (Implementation by Donor's Agency)	CONSULTANT SMEC MOKYTA JV (A JOINT VENTURE OF SMC INTERNATIONAL PVT. LTD., AUSTRALIA AND MOKYTA CONSULTANTS PVT. LTD., NEPAL)  	DRAWN BY: SDC ENGINEER 	DESIGNED DESIGNED CHECK APPROVED	PROJECT BUDHI GANGA HYDROPOWER PROJECT TITLE POWERHOUSE GENERAL LAYOUT PLAN SHEET NO. A1 DRAWING NO. FINAL 5064033-DCW-BHP-PH-003

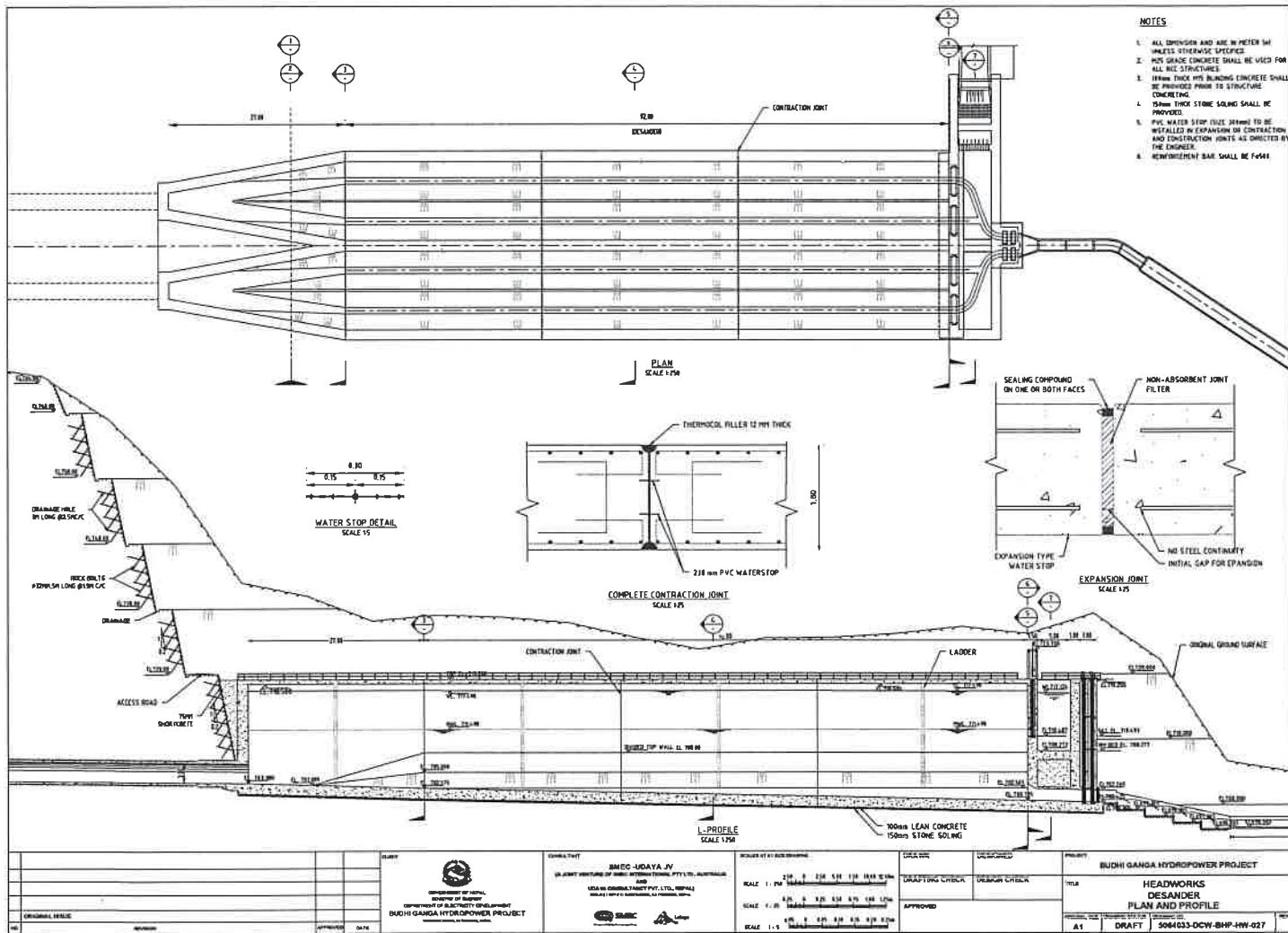
नेपाल सरकार
 तथा वातावरण मन्त्रालय
 सिंहदरवार काठमाडौं





		 MINISTRY OF ENERGY GOVERNMENT OF NEPAL BUDHI GANGA HYDROPOWER PROJECT (KATHMANDU, NEPAL)	CONTRACTOR SMED LADAYA JV JOINT VENTURE OF SMED INTERNATIONAL PVT. LTD. (NEPAL) AND LADAYA CONSULTANCY PVT. LTD. (NEPAL) (KATHMANDU, NEPAL)	SCALE 1:100 SCALE 1:100	DRAWN DRAFTING CHECK APPROVED	DESIGNED DESIGN CHECK	PROJECT BUDHI GANGA HYDROPOWER PROJECT TITLE POWERHOUSE LONGITUDINAL SECTION	ORIGINAL NO. AT	DRAWING TITLE FINAL	DRAWING NO. 3064033-OCW-BHP-PH-004	SHEET NO. 01
ORIGINAL ISSUE	DATE										

नेपाल सरकार
 तथा वातावरण मन्त्रालय
 सिंहदरबार काठमाडौं

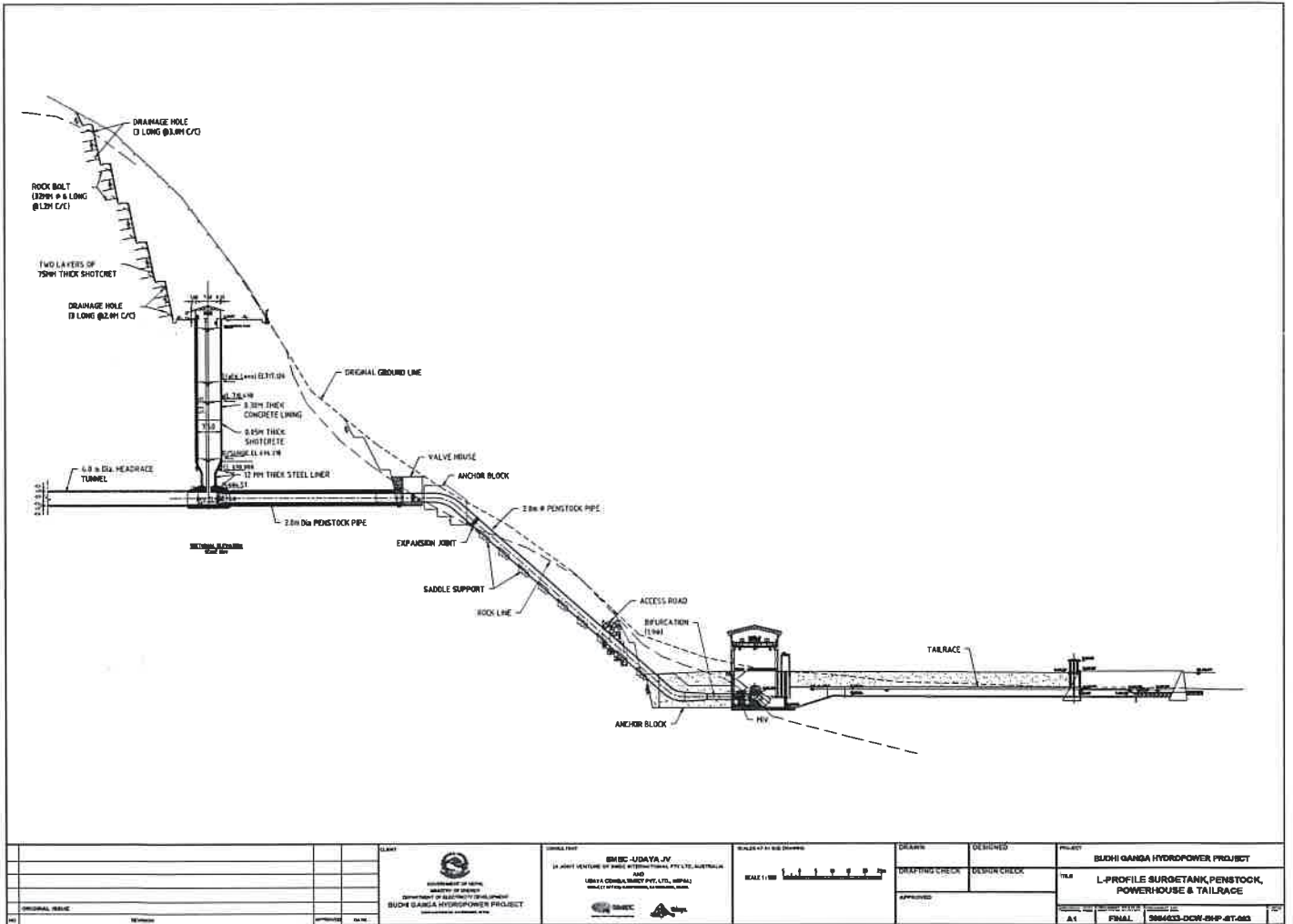


म नेपाल सरकार
सिंहदरवार काठमाडौं



		 GOVERNMENT OF NEW SOUTH WALES DEPARTMENT OF ELECTRICITY AND WATER BUCHI GANGA HYDROPOWER PROJECT Implementation of a Feasibility Study		SMEC-UDATA JV JOINT VENTURES OF SUNG INTERNATIONAL PTY LTD, AUSTRALIA AND UDA TO, SONGTIAN PTY LTD, (HONG KONG) AND SGT (HONG KONG) INVESTMENT, A HONG KONG, COMPANY		 SCALE 1:10000		<table><tr><td>DRAWN</td><td>DRAFTER</td></tr><tr><td>CHECKED</td><td>DESIGNER</td></tr><tr><td>APPROVED</td><td></td></tr></table>		DRAWN	DRAFTER	CHECKED	DESIGNER	APPROVED		PROJECT: BUCHI GANGA HYDROPOWER PROJECT TITLE: POWERHOUSE CROSS SECTION	
DRAWN	DRAFTER																
CHECKED	DESIGNER																
APPROVED																	
ORIGINAL ISSUE	REVISION	APPROVED	DATE	 				DRAWING NO: 3064033-DCW-BHP-FH-005 FINAL									





नेपाल सरकार
 वन तथा वातावरण मन्त्रालय
 सिंहदरबार काठमाडौं

Table -1: List of the Key Contacted Person

S.N.	Name	Position	Address
1	Mr. Kul Bahadur Kunwar	Mayor	Sanfebagar Municipality, Achham
2	Mr Deepak Bikram Shah	Mayor	Budhiganga Municipality, Bajura
3	Mr. Lok Bahadur Boharo	Chairperson	Mellekh Rural Municipality, Achham
4	Mr. Sagar Singh Babali	Ward Chairperson	Sanfebagar Municipality - 13, Achham
5	Mr. Khagendra Saud	Ward Chairperson	Mellekh Rural Municipality - 8, Achham
6	Mrs. Jayanti Bogati	Municipal Member	Sanfebagar Municipality, Thanti Bazar, Achham
7	Mrs. Kamala Devi Tamrakar	Nominated Member	Mellekh Rural Municipality -4, Kuskot
8	Mr. Lok Bahadur Bogati	Head Teacher	Shree Thanti Basic School, Sanfebagar Municipality, Tahnti Bazar
9	Ran Singh Thakula	Chairman ,	Shree Imiltukra Betalmandu, Community Forest User Group, Mellekh Rural Municipality - 8, Achham
10	Mahesh Thakula	Member	Shree Imiltukra Betalmandu, Community Forest User Group, Mellekh Rural Municipality - 8, Achham
11	Mr. Sher Bahadur Budha	Chairman	Shree Jukaban Lamkana Group, Budhiganga Municipality - 10, Bajura
12	Mr. Saliman Saud	Chairman	Shree Jukaban Community Forest User Group, Mellekh Rural Municipality -4, Achham
13	Mr. Hira Bahadur	Member	Shree Jukaban Community Forest User Group, Mellekh Rural Municipality -4, Achham
14	Hansa Batala	Chairman	Rakse - Sanfebagar Municipality - 13
15	Mr. Deeak Bahadur Batala	Secretary	Shree Rakse Community Forest User Group, Sanfebagar Municipality - 13
16	Chandra Bahadur Batala	Member	Shree Rakse Community Forest User Group, Sanfebagar Municipality - 13
17	Mr. Kalu Sing Saud	Chairman	Shree Sukethana Community Forest User Group, Mellekh Rural Municipality -8, Achham
18	Mr. Remant Bahadur Bogati	Former Chairperson, Ghugurkot VDC	Sanfebagar Municipality- Ward-10, Achham
19	Mr. Purna Bahadur Kunwar	Chairman,	Budhabagar Samaj Samiti, Sanfebagar Municipality -13, Achham
20	Mr. Chakra Sunar	Member	Federation of Nepalese Chambers of Commerce and Industry, Sanfebager Municipality, Accham
21	Mr. Mean Bahadur	Secretary	Working for Access and Creation Nepal (NGO), Sanfebager Municipality, Accham
22	Mr. Hikmat Kuwar	Member	Working for Access and Creation Nepal (NGO), Sanfebager Municipality, Accham
23	Mr. Lal Bahadur	Businessman	Sanfebagar Municipality - 13, Babala, Achham
24	Mr. Prakash Bista	Teacher	National Higher Secondary School, Achham
25	Mr. Sanjay Thakula	Local Fisherman	Sanfebager Municipality, Thanti Bazar, Accham
26	Mr. Prem KC	Local fisherman	Sanfebager Municipality, Thanti Bazar, Accham



Appendix-K



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Appendix-B: Study Tools



Budhi Ganga Hydropower Project

Environment Impact Assessment

Biological Environment Checklist

1. General Forest/vegetation type of the Project area

a) Project Area

i) Forest Management (Gov/ private/ community/ leasehold/religious etc)

ii) Forest type

iii) Dominant species

iv) Associated species

v) Herbs, shrubs and orchids

vi) Current forest management practice according to forest type

vii) Future plan for each management categories

b) Contiguous Forest outside the project influence area

i) Forest Management (Gov/ private/ community/ leasehold/religious etc)

ii) Forest type

iii) Dominant species

iv) Associated species

v) Herbs, shrubs and orchids



vi) Current forest management practice according to forest type

vii) Future plan for each management categories

c) Project Component and facilities

i) Forest Management (Gov/ private/ community/ leasehold/religious etc)

ii) Forest type

i)Species of trees, herbs, shrubs and orchids.

Headworks

Audit Tunnel

Surge tank

Penstock

Powerhouse

Tailrace

Quarry site

Disposal site

Project component Road



c) Potential of NTFPs for both Project component sites and surrounding area

i) Agro Biodiversity

-Plants used for horticulture and their significance in terms of biodiversity

List the various plants used for cereals, pulses, oils, vegetable, fodders, ornamentals within the project area status of local varieties and its use trend in future

ii) Ethnobotany- List of the plant species traditionally used by local communities for fruit, medicine, fodder, timber, ornamental and other purposes.

d) Dependency on forest resources

i) Communities and users group that are dependent on these forests,

ii) Number of households depends in each forest management category

iii) Use of resources in terms of timber, fodder, fuel wood, NTFP etc for livelihood

iv) Annual income accrued through usages

e) List the species of conservation significance (GON, IUCN red book, CITES)

Give their status in project area and project component sites.

2. Wildlife

a) Project Area

i) Wildlife habitat

ii) Type of habitat



iii) Vegetation type

iv) Migration corridor

v) Distance from the project component sites

b) Habitat of wild fauna in project components sites/affected by the project,

Site description- water body/holes/vegetation cover/ground and soil/rock features

Important habitat Type- Tree/ herbs/shrubs/epiphytes/others

Habitat Use- Active/temporary/migratory corridor/ breeding/feeding/resting etc

Habitat Connectivity and Continuity

Habitat Condition

3. Fish

a) Name of fish species found in the river and their abundance and distribution

b) Location of aquatic habitat including run, riffle and pool from headworks to powerhouse stretch

(prepare a sketch map showing habitats)

c) River mapping showing spawning and rearing sites at dam and powerhouse area and in the stretch between the dam to powerhouse site (not in scale)



Budhi Ganga Hydropower Project

Environment Impact Assessment

Physical Environment Checklist

1. Land Slides

a) Existing situation of land slide at different project components

Headworks

Tunnel

Surge tank

Penstock

Powerhouse

Tailrace canal

Quarry site and disposal site

Camp site

b) Condition of slope stability and soil erosion in and around the project components



c) Likelihood of triggering existing slide, formation of new landslides, slope instabilities and further aggravating soil erosion, proximity of such sites to existing settlements and possible hazards to the settlements

2. Topographical features of the project components site and facilities (Flat, moderate sloppy areas, steep slope etc)

3. Land use of the project component site

Forest land (government, community, private, religious etc)

Barren land (government, private)

Cultivated land (Khet, Bari, Kharbari)

4. Name of the tributaries joining in Budhi Ganga River between dam to powerhouse. Mark tributaries using topographical map.



Budhi Ganga Hydropower Project **FISH DATA COLLECTION SHEET**

Sampling Station

Site

Location

Date

Time

S.No.	Local Name	Scientific Name	No. of Fish Caught	Length Range (Cm)	Weight Range (Gms)	Total Wt. (Gms)	Remarks



Budhi Ganga Hydropower Project

FISH DATA COLLECTION SHEET

Site**Date**

Time

[illegible]

Table-1: Forest loss at different Project Components

SN	PROJECT COMPONENT	TYPE OF FOREST (as per Forest Act)	FOREST AREA (ha)	LOSS OF VEGETATION			CROWN COVER (%)	BASAL AREA (%)	VEGETATION TYPE (Sal, Pine, shrubs, barren etc.)
				Seedling per ha.	Saplings per ha.	No. of trees >10cm DBH			
1	Reservoir								
2	Headworks								
a	Dam								
b	Settling Basin								
c	Road to headworks								
3	Adit								
4	Road to adit								
	Total					Sum			

Note: Other Components can be added as appropriate/required as per the project layout



Table-2. Total loss in terms of plant species

BOTANICAL NAME	LOCAL NAME	AVG.DBH / RANGE* (FOR>=10 cm DBH)	LOSS OF VEGETATION**				STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE (KG.)		BIOMASS USAGES***
			LOSS OF REGENERATION		LOSS OF TREE (number)				(Wet)	(Dry)	
			Seedlings per ha.	Saplings per ha.	Pole class	Tree class	Timber (cft.)	Fuel wood (chatta)			
1.											
2.											
3.											
4.											
5.											
6.											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
17											
Total			300	600	8		9.92				

Note: * Avg. DBH and Range of DBH to be given for Pole and Tree Class
 ** Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree Class>30 cm DBH
 *** Possible usages are- fire wood, fodder, etc.



*** Possible usages are- fire wood, fodder, etc.

Table-3: Total forest loss

Table-3: Total forest loss											
TYPE OF FOREST	AREA (ha.)	LOSS OF VEGETATION				CROWN COVER (%)	STANDING WOOD VOLUME		BIOMASS FOR STANDING TREE AND GROUND VEGETATION (KG.)		BIOMASS USAGES*
		LOSS OF REGENERATION		LOSS OF TREE (number)			Timber (cft.)	Fuel wood (chatta)	(Wet)	(Dry)	
		Seedlings per ha.	Saplings per ha.	Pole class	Tree class						
1.Govt.											
2.Community											
3.Religious											
4.Leasehold											
5.Private											
Total											

Note: -Seedling 0-4 cm DBH; Sapling 4-10 cm DBH; Pole Class 10-30 cm DBH; Tree class>30 cm DBH
 -* Possible usages are- fire wood, fodder, etc.



Table-4: Loss of Non-Timber Forest Product (NTFP)

COMMERCIALY IMPORTANT SPECIES (NTFP)	GOVERNMENT MANAGED		COMMUNITY MANAGED		RELIGIOUS		PRIVATE		MAJOR SPECIES
	Seedlings per ha. (no./ha.)	Saplings per ha. (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha. (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha. (no./ha.)	Seedlings per ha. (no./ha.)	Saplings per ha. (no./ha.)	
1.									
2.									
3.									
4.									
5.									
6.									

Note: - Seedling 0-4 cm DBH; Sapling 4-10 cm DBH;

- Use Govt. approved methodologies, if available. If not, other methodologies can be used.

Table-5: Land Requirement

LAND TYPE	LAND REQUIREMENT (ha.)			PROJECT COMPONENT
	Temporary	Permanent	Total	
1. Agricultural land				[Spill way tunnel, access to different adits and access to Surge Shaft etc.]
2. National forest				
3. Community forest				
4. Leasehold forest				
5. Religious forest				
6. Private forest				
7. River and flood plain				
8. Barren Land				
Total				

Note: -Despite this table is developed for accounting loss of forest area, please do fill up the land requirement for "Agriculture Land" and "Private Forest"



6.1: Valuation in terms of plant species

Note: Values shall be calculated at prevailing market rate.



Table-6.2 Total annual income foregone from the loss of Non-Timber Forest Product (NTFP)

COMMERCIALY IMPORTANT SPECIES (other than trees) NTFP	GOVERNMENT MANAGED	COMMUNITY MANAGED	RELIGIOUS	LEASEHOLD	TOTAL OF ALL TYPES OF FORESTS	NPV* OF INCOME FOREGONE
1.						
2.						
3.						
4.						
5.						
6.						
Total	Sum	Sum	Sum	Sum	Sum	SUM

* NPV should be based on 35 years of economic life at prevailing Nepal Rastra Bank's discount rate.
Analysis should be based on the existing annual income from the products.

Table-6.3: Value of Total Forest Loss

TYPES OF FOREST	NPV OF INCOME FOREGONE FROM NTFP*	VALUE OF TIMBER LOSS**		VALUE OF FUEL WOOD LOSS**	VALUE OF FODDER LOSS**	TOTAL
		POLE CLASS Nrs.	TREE CLASS Nrs.	Nrs.	Nrs.	
1.						Sum
2.						Sum
3.						Sum
4.						Sum
5.						Sum
6.						Sum
7.						Sum
8.						Sum
Total	Sum	Sum	Sum	Sum	Sum	SUM

Note: -Value from table-6.2

-Value from table-6.1



Flora of the Project Area

S.No.	Scientific Name	Local Name	Type (Tree/Shrub/Herb/ Fern)	Distribution Status	Protection Status	Economic Importance
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						



Budhiganga Hydropower Project

Mammals of the Project Area

[illegible]

Budhiganga Hydropower Project

Avi Fauna of the Project Area

[illegible]

Fish data collection sheet

Sampling Station

Site

Location

Date _____

Time

[illegible]

Appendix -B

Budhiganga Hydropower Project Environmental and Social Impact Assessment Key Informant Interview Guidelines

A. Background Information

1. District:..... 2. Municipality:..... 3. Ward No:..... 4. Village/Tole:.....
5. Name of Respondent:..... 6. Age:..... 7. Sex:.....
8. Education:..... 9. Main Occupation:..... 10. Position (if any):.....
11. Interviewer:..... 12. Date: 13. Checked by:.....

B. Education

1. What is the literacy status of local people of this municipality? Over all literacy:..... %
2. What is the literacy status of *Dalits* of this municipality? Literacy:..... %
3. What is the literacy status of *Janjati* of this municipality? Literacy:..... %
4. What is the overall status of physical facilities of educational institutions of your municipality?
5. What are the major problems of educational institutions of your municipality?
1..... 2..... 3.....
6. What could be done to strengthen the educational facilities of your municipality?
1..... 2..... 3.....
7. Are there NGOs/INGOs working in education sector in your municipality? 1. Yes 2. No.
6.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1..... 1.....
2.....	1.....	1..... 1.....
3.....	1.....	1..... 1.....

C. Health

1. Are the health facilities of your municipality located in accessible location?
1.1 If no, what is the average walking distance to the health facilities..... hrs.
2. What are the prevalent diseases and their common treatment practice in the area?

<u>Disease</u>	<u>Treatment Practices</u>
1.....	1..... 2..... 3.....
2.....	1..... 2..... 3.....
3.....	1..... 2..... 3.....

3. How do you assess service quality provided by the government health facilities in your municipality?
1. Good 2. Average 3. Poor
3.1. If poor, why? 1..... 2..... 3.....
4. How the government health facilities of your municipality could be strengthened?
1..... 2..... 3.....
5. How do you assess the awareness level of local people regarding STD/HIV AIDS?
1. High 2. Average 3. Low



6. What is the prevalence rate of STD/HIV AIDS in the municipality? STD:.....%. HIV AIDS:.....%.

7. Are there NGOs/INGOs working in the health sector in your municipality? 1. Yes 2. No.

7.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1.....1.....
2.....	1.....	1.....1.....
3.....	1.....	1.....1.....

D. Drinking Water

1. What are the sources of drinking water for the households of the municipality? (Priority order)

1. Public piped water 2. Private Piped water 3. Spring/well 5. Others.....

2. How do you assess the quality of the drinking water? 1. Good 2. Average 3. Poor

3. Percentage of population covered by piped water in the municipality.....%

4. Are the drinking water sources sufficient to fulfill the demand of the households? 1. Yes 2. No

4.1 If no, for how many months are local people face scarcity of water..... months

4.2 What could be done to fulfill the water demand of the households?

1.....2.....3.....

5. What percentage of HHs has constructed toilets in this the municipality?%

6. How do you assess condition of env. sanitation in the municipality? 1. Good 2. Average 3. Poor

7. What could be done to improve drinking water and sanitation condition of your municipality?

Drinking water : 1..... 2..... 3.....

Env. Sanitation : 1..... 2..... 3.....

8. Are there NGOs/INGOs working in the drinking water and sanitation sectors in your municipality?

8.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1.....1.....
2.....	1.....	1.....1.....
3.....	1.....	1.....1.....

E. Gender

1. What are the major activities of women of your municipality?

1.....2.....3.....

2. Are there cultural/social/religious barriers/areas for women to work in certain areas of certain caste/ethnic groups? 1. Yes 2. No

2.1 If yes, what barriers/area and how break the barriers?

Caste/ethnic group Barriers Suggestions for improvement

1.....1.....1.....2.....3.....

2.....1.....1.....2.....3.....

3. Are there potential income generating activities for women in your municipality? 1. Yes 2. No

3.1 If yes, what are they?

1.....2.....3.....

4. Do women of your municipality have special interests/capacity for certain enterprise? 1. Yes 2. No



- Areas of interest: 1..... 2..... 3.....
 Existing capacity: 1..... 2..... 3.....
5. What are the potential income generating activities (agriculture/ off farm/ forest, local skill based activities etc.) for women in this municipality?
 1.....2..... 3.....
6. What are the major issues of women? (Probe for abuse, discrimination, domestic violence, *Chaupadi* and polygyny).
 1.....2..... 3.....
7. Are there NGOs/INGOs mainly working for women empowerment in municipality ? 1. Yes 2. No.
 7.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1.....1.....
2.....	1.....	1.....1.....
3.....	1.....	1.....1.....

F. Livelihood

1. What are the major economic activities local people of your municipality for their livelihood?
 Male : 1..... 2..... 3.....
 Female : 1..... 2..... 3.....
2. What % of HHs of your municipality is able to produce enough food to meet their requirement?
%
 2.1. How the food deficit households of your municipality fulfill their food requirements?
 1.....2..... 3.....
3. What percentage of households in your municipality is landless?%
 3.1 What are the main activities of the landless households for their livelihood?
 1..... 2..... 3.....
 3.2 What could be done to increase the livelihood of poor and landless households?
 1..... 2..... 3.....
4. What are the main agriculture products of your municipality?
 1.....2..... 3.....
5. What important commodities are exported from this municipality?
 Commodities: 1.....2..... 3.....
6. Please provide following inform regarding cropping pattern of your area?
Khet Irrigated: 1..... 2..... 3..... 4.....
 1..... 2..... 3..... 4.....
Khet un-irrigated: 1..... 2..... 3.....
 1..... 2..... 3.....
 1..... 2..... 3.....
Bari: 1..... 2..... 3.....
 1..... 2..... 3.....
 1..... 2..... 3.....
7. Are there NGOs/INGOs working to improve livelihood of people in your municipality? 1. Yes 2. No



7.1. If yes, pls provide the following details.

<u>Name of NGOs/INGOs</u>	<u>Program/Activities</u>	<u>Target Group and Area</u>
1.....	1.....	1.....1.....
2.....	1.....	1.....1.....
3.....	1.....	1.....1.....

G. Migration

- What is the status of migration (family member away from home for more than two months for work reason) in your municipality? 1. High 2. Medium 3. Low
- Which are the popular destinations of the migrants? 1..... 2..... 3.....
- What is the seasonal migration pattern to India: Migration Months:..... Stay Period:.....
- What is the status of remittance flow in your municipality? 1. High 2. Medium 3. Low
 - Where the households normally use the remittance?
 - Food/clothing
 - Education
 - Health
 - Purchase land/plot
 - HH assets
 - House/construction/repair
 - Repay/loan/interest
 - Others (specify).....
- What are the positive and negative impacts of migration in your municipality? (*Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.*)

Positive: 1.....2..... 3.....

Negative: 1.....2..... 3.....
- How the negative impacts of migration could be minimized? (*Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.*)

1.....2..... 3.....

H. Natural Resources

- What are the main natural resources of your municipality?

1.....2..... 3.....
- Who are the main users of the resources?

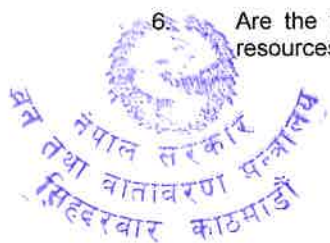
1.....2..... 3.....
- Is there right (de facto/de jure) to use the resources by the people of your municipality?

1. Yes 2. No
- Pls provide the following details of natural resources of your municipality ?

Resource	Distance from Municipality	Accessibility		Availability		
		Accessible	Inaccessible.	High	Average	Low
Forest						
Water						
Grazing land						
Public land						
Mine						
Others.....						

- Are the households of your municipality satisfied regarding the accessibility of the natural resources? 1. Yes 2. No.

5.1 If no, why? 1.....2..... 3.....
- Are the households of your municipality satisfied regarding the availability of the natural resources? 1. Yes 2. No.



6.1 If no, why? 1.....2.....3.....

7. Do the people of your municipality have conflict with people of other municipality regarding use of natural resources? 1. Yes 2. No.

8. If yes, for which resource and why? Probe for use of forest resources, grazing, public land, mine and water resources and the cause of conflict?

Natural Resource Municipality Cause of Conflict
1.....1.....1.....2.....
2.....1.....1.....2.....

9. Do you have problems from wildlife in your municipality? 1. Yes 2.No 9.1
If yes pls provide following information?

Name of Wildlife	Type of Problem	Estimated Annual Loss Rs.)	Remarks

I. Cultural Features

1. What are the major festivals of your area municipality?

1.....2.....3.....

2. Is any festival is unique in your municipality? 1. Yes 2. No

2.1 If yes, which festival and why?

Festival Reason
1.....1.....2.....3.....

3. How do you assess the relationship of various ethnic minorities and high caste groups in the your municipality? 1. Good 2. Average 3. Poor

4. Are there important historical, religious, archeological and cultural sites in your municipality?

1. Yes 2. No.

4.1.If yes, what are the historical/religious/archeological and cultural sites? Why they are important?

Name Location Importance
1.....1.....1.....
2.....1.....1.....
3.....1.....1.....

5. Do you think the Budhiganga HPP will affect religious, archeological/cultural sites of your municipality? 1. Yes 2. No.

5.1. If yes, what are the historical, religious, archeological and cultural sites and how to protect them?

Name Location Measures to Protect
.....
.....
.....

J. Development Activities/Programs in the Municipality

1. Has any major development activities/programs implemented in your municipality during the last 12 months? 1. Yes 2. No.

1.1. If yes, please provide the following information?

Implementing agency Activity/program/working area Beneficiary (target group & HHs)
1.....
2.....
3.....

2. How do you assess the implementation process of development activities/programs?

1. Good 2. Average 3. Poor

3. What should be the right process to implement development activity/program in your municipality?

1.....2.....3.....



4. What are the source of information for development activities/other happenings in your municipality?
1.....2.....3.....

K. Governmental Institutions and NGOs/CBOs

1. Are there government institutions, important NGOs/CBOs working in your municipality? If, yes pls provide the following information.

.N.	Name	Type	Focus Area	Major activity/prog.	Target Group	Beneficiaries (%)				
						All	Women	Janjati	Dalit	Others

L. Key Stakeholders of the Municipality

1. Pls provide the names and address of important stakeholders related to development activities/transmission line project of your municipality.

S N.	Name	Position	Address	Contact No.	Remarks
1					
2					
3					
4					
5					

M. Issues and Concerns

- Do you know about the Budhiganga HPP? 1. Yes 2. No.
1.1. If yes, what do you know about the project?
1.....2.....3.....
1.2. Who had provided you the information?
1.....2.....3.....
- Are there issues related to social, economic and culture regarding the BudhigangaHPP?
1. Yes 2. No.
2.1. If yes, what are they?

<u>Social</u>	<u>Economic</u>	<u>Cultural</u>
1.....	1.....	1.....
2.....	2.....	2.....
3.....	3.....	3.....
- What do you expect from the BudhigangaHPP?
1.....2.....3.....
- What is your opinion regarding implementation of the BudhigangaHPP?
1.....2.....3.....
- How this BudhigangaHPP could be successfully implemented?
1.....2.....3.....
- What are the important felt needs of the local people of your municipality?
1.....2.....3.....
- What could be done to address the needs of the local people?
1.....2.....3.....
- Do you have other Issues/concerns regarding the project?
1.....2.....3.....



Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA

1. General Information

1. Municipality : 2. Ward no. :
3. Village/Settlement : 4. Venue :
6. Date : 5. Facilitator :
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								



2. Settlement and Caste/Ethnicity

1. Major settlements and caste/ethnicity in the ward

S.N.	Name of Major Settlement	Major Caste/Ethnic Group	Estimated Number of HHs	Distance from Main Project Structure	
				Pr. Struct.	Distance (m)
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

2.1. Settlement Pattern

Pattern	Name of Settlement
Dense	
Scattered	

3. Land Use Pattern

1. Please provide following information on land use of the ward

Land Category		% of Ward Area	Area (ha)
Forest/Bush			
Pasture (grazing land)			
Waste land (rock, boulders, erosion etc.)			
Cultivation	Khet un-irrigated		
	Khet irrigated		
	Bari		
Thach land (Kharbari)			
Barren Land			
Other Specify			
Total			

4. Natural Resources

1. What are the main natural resources of your ward?

1..... 2..... 3.....

2. Who are the main users of the resources? 1..... 2..... 3.....

1..... 2..... 3.....

3. Is there right (defect/dejure) to use the resources by the people of your ward?

1. Yes 2. No.

4. Please provide the following details of natural resources of your ward?

Resource	Distance from Ward	Accessibility		Availability		
		Accessible	Inaccessible	High	Average	Low

5. Are the households of your ward satisfied regarding the accessibility of natural resources?

1. Yes 2. No.

5.1 If no, why?

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सिंहदरबार काठमाडौं

- 1..... 2..... 3.....
6. Are the households of your ward satisfied regarding availability of natural resources?
1. Yes 2. No.
6.1 If no, why?
1..... 2..... 3.....
7. Do the people of your ward have conflict with people of other ward regarding use of natural resources?
1. Yes 2. No.

8. If yes, for which resource and why? (probe for the natural resources and the cause of conflict)

Natural Resource	Ward	Cause of Conflict		
1.....	1.....	1.....	2.....	3.....
2.....	2.....	1.....	2.....	3.....
3.....	3.....	1.....	2.....	3.....

9. Please provide the following details regarding existing community forests of your ward?

Name and Address of Community Forest	Area (ha)	Main Species		Status		Users		*Physical Condition		
		Plant	Wildlife	Handover	Not	Settlement	HHs	G	A	P

*Physical Condition: G= Good, A= Average, P= Poor.

- 9.1 Are the community forests of this area will be affected by construction of the Budhiganga Hydropower Project?
1. Yes 2. No
9.1.1 If yes how and which forest? : 1..... 2..... 3.....
10. Do you have problems from wildlife in your ward? 1. Yes 2.No

- 10.1 If yes, please provide following information?

Name of Wildlife	Type of Problem	Estimated Annual Loss (Rs.)	Remarks

5. Education

1. Existing educational institutions in the ward?

S.N	Name and Address of School Under Operation	Type	Year Established.	Distance from Major Project Structures		No. of Students			No. of Teachers			Status of Physical Facilities		
				Name	Meter	T	M	F	T	M	F	Building	DW	Toilet



* Probe for physical facilities (water supply, toilet, furniture, building, rooms, etc.), equipments and other support

6. How do you assess the service quality provided by the health facilities?
 1. Good 2. Average 3. Poor
- 6.1. If poor, why? 1..... 2..... 3.....
7. How do you assess the awareness level of local people regarding STD/HIV AIDS?
 1. High 2. Average 3. Low
8. What is the prevalence rate of STD/HIV AIDS in your ward?
 1. STD:.....%. 2. HIV AIDS:.....%.
9. What support is required to improve the service quality of the health institutions of your ward?
 - 1..... 2..... 3.....

7. Drinking Water and Sanitation

1. Existing drinking water schemes, schemes under construction and planned in the ward?

S.N.	Name and Address of Existing DW Schemes	Type	Distance from Major Proj. Struct. (m)	Physical Condition			Coverage		Source	Year Constructed	Physical condition	Remarks
				G	A	P	HHs	Pop.				
2.	Under construction											
3.	Planned											

Type: 1= Government, 2= Community 3= Others

2. Are the DW schemes will be affected by construction of the Budhiganga HPP t?

1. Yes 2. No

2.1 If yes how and which schemes?

.....

.....

.....

3. Main source of drinking water for the households of the ward and percentage of population covered by the type of sources in the ward.

Source	% of HH Coverage	Water Sufficiency Months	Remarks
Piped water			
well			
Spring			
River			
Others.....			

4. Percentage of HHs use toilet in this the ward?%

5. Location of defecation by the HHs who don't have toilet

- 1..... 2..... 3.....

6. Existing practices of waste management in the ward?

Type	Practice			Remarks
Solid waste	1.	2.	3.	
Liquid waste	1.	2.	3.	

7. Required support to improve drinking water and sanitation condition of your ward?

Drinking water : 1..... 2..... 3.....

Sanitation : 1..... 2..... 3.....



8. Irrigation

1. Existing irrigation schemes, schemes under construction and planned schemes in the ward?

S.N.	Name and Address of Existing Irrigation Schemes	Type	Distance from Major Project Struct. (m)	Physical Condition			Command area	Water Source	Year Constructed	Required Support	Remarks
				Good	Average	Poor					
2.	Under construction										
3.	Planned										

Type: 1= Government, 2= Community 3= Others

2. Are the existing irrigation schemes will be affected by construction of the Budhiganga HPP?

1. Yes 2. No

2.1 If yes how and which irrigation schemes?.....

9. Watermills/Ghatta/Micro hydro

1. Please provide following details regarding watermills/Ghatta/micro hydro of your ward.

S.N.	Name and Address of Existing/ Under Construction/Planned Water Mills/Micro-hydro Schemes	Type	Dist. from Major Proj Struct. (m)	Physical Condition			Service Coverage		Water Requirement/Source	Year Const.	Required Support
				G	A	P	Pop	Settlement			
2.	Under Construction										
3.	Planned										

2. Are the existing water mills/Ghatta/micro-hydro will be affected by construction of the Budhiganga HPP? 1. Yes 2. No

2.1 If yes how and which mills/Ghatta/micro-hydro?.....

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काठमाडौं

10. Existing Foot Trails/Roads in the Project Area

1. Are the existing foot trails/roads that will be affected by construction of the Budhiganga HPP?

1. Yes 2. No

2.1 If yes how and which?.....

11. Institution, Project/Program of Government and NGOs in the Ward

1. Information on existing institution, projects/program and NGO/CBO in the ward.

SN.	Name of Institution/Project	Location	Service Area	Major Activity/Prog.	Number of Beneficiaries	Average Time to Reach	Distance to Major Project Component
1							
2							
3							
4							

12. Gender

1. What are the major activities of women of your ward?

1.....2.....3.....

2. Are there cultural/social/religious barriers/areas for women to work in certain areas of certain caste/ethnic groups? 1. Yes 2. No

2.1 If yes, what barriers/area and how break the barriers?

Caste/ethnic group	Barriers	Suggestions for improvement
1.....	1.....	1.....2.....3.....
2.....	1.....	1.....2.....3.....
3.....	1.....	1.....2.....3.....

3. Are there potential income generating activities for women in your ward?

1. Yes 2. No

3.1 If yes, what are they?

1.....2.....3.....

4. Do women of your ward have special interests/capacity to undertake certain enterprise?

1. Yes 2. No

Areas of interest: 1.....2.....3.....

Existing capacity: 1.....2.....3.....

5. What are the potential income generating activities (agriculture/off-farm/ forest, local skill based activities etc.) for women in this ward?

1.....2.....3.....

6. What are the major issues of women? (Probe for abuse, discrimination, domestic violence, Chaupadi and polygyny).

1.....2.....3.....

13. Livelihood

1. Occupational structure of local people of the ward?

Occupation	% of HHs	Remarks
Agriculture		
Employment		
Wages Labor		
Foreign Employment		



Others		
--------	--	--

2. What are the major economic activities of local people of your ward for their livelihood?

Male : 1..... 2..... 3.....

Female : 1..... 2..... 3.....

3. What % of HHs of your ward is able to produce enough food to meet their requirement?.....%

2.1. How the food deficit households of your ward fulfill their food requirements?

1..... 2..... 3.....

4. What percentage of households in your ward is landless?%

3.1 What are the main activities of the landless households for their livelihood?

1..... 2..... 3.....

3.2 What could be done to increase the livelihood of poor and landless HHs?

1..... 2..... 3.....

5. What are the main agriculture products of your ward?

6

6. What important commodities are exported from this ward?

1..... 2..... 3.....

7. Are there market centers in your ward?

1. Yes 2. No

7.1 If yes, please provide following information regarding market centers of the ward.

Name of Market Center	Location	No and types of Shops	Major Transaction

7.2. If no pleases provide following information regarding accessible market centers of the ward.

Name of Accessible Market Center	Location	Walking Distance	No and types of Shops	Major Transaction

8. Is there weekly market in your ward? 1. Yes 2. No

7.1 If yes, please provide following details.

Name of Weekly Market	Location	Walking Distance	Week day	Gathering of People	Major Transaction

9. Are there skilled persons in your ward? 1. Yes 2. No

9.1 If yes pls provide following details.

Type of Skill	No.		Sex		Availability	Remarks
	M	F	M	F		
Driving						
House wiring						
Plumbing						
Carpenter						
Mason						
Tailoring						
Others.....						



14. Migration

- What is the status of migration (family member away from home for more than two months for work reason) in your ward? 1. High 2. Medium 3. Low
- Which are the popular destinations of the migrants?
1..... 2..... 3.....
- What is the seasonal migration pattern to India: Migration Months:..... Stay Period:.....
- What is the status of remittance flow in your ward? 1. High 2. Medium 3. Low
- What are the positive and negative impacts of migration in your ward?
Positive: 1..... 2..... 3.....
Negative: 1..... 2..... 3.....
- 4.1 How the negative impacts of migration could be minimized? (Probe for negative impacts such as work load to women, problem of STD/HIV AIDS, family dispute etc.)
1..... 2..... 3.....
- No. of HHs permanently in-migrated or out-migrated during the last 5 years from your ward.

Migration	Place	Reason for Migration
In-migration		
Out-migration		

- Please provide following details regarding use of remittance by family members of the migrant HHs?

Use of Remittance	No. of HHs	% of Remittance
Food/clothing		
Education		
Treatment		
Purchase HH Goods		
Purchase Land/Plot		
House Repair/Construction		
Other (specify):		

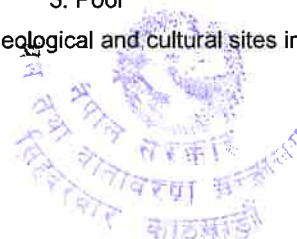
15. Religion/Language/Cultural Features

- Please provide following details regarding religion and language of people of your ward?

Religion	% of HHs	Spoken Language	% of HHs
Hindu		Nepali	
Buddhism		Achami	
Christianity		Bajurali	
Muslim		Newari	
Others		Others (specify).....	

- What are the major festivals of your ward?
1..... 2..... 3.....
- Is any festival is unique in your ward? 1. Yes 2. No
2.1 If yes, which festival and why?

Festival	Reason
1.....	1..... 2..... 3.....
2.....	1..... 2..... 3.....
3.....	1..... 2..... 3.....
- How do you assess the relationship of various ethnic minorities and high caste groups in the your ward? 1. Good 2. Average 3. Poor
- Are there important historical, religious, archeological and cultural sites in your ward?
1. Yes 2. No.



5.1. If yes, what are the historical, religious, archeological and cultural sites and why they are important?

Name	Location	Importance
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

6. Do you think the proposed project will affect religious, archeological/cultural sites of your ward?

1. Yes 2. No.

6.1. If yes, what are the historical, religious, archeological/cultural sites & how to protect them?

Name	Distance from P. Struct.	Location	Measures to Protect
1.....			
2.....			
3.....			

7. Are there cremation sites along the Budhiganga River stretch in the dewater zone? 1. Yes 2. No

7.1 If yes, Please provide following details?

Name	Distance from Settlement	Used by Ethnic Groups
1.....	1.....	1.....
2.....	1.....	1.....
3.....	1.....	1.....

16. Development Activities/Programs in the Ward

1. Has any major development activities/programs implemented in your ward during the last 12 months?

1. Yes 2. No.

1.1. If yes, please provide the following information?

Implementing agency	Activity/program/working area	Beneficiary (group & HHs)
.....		
.....		
.....		

2. How do you assess its implementation process of the development activities/programs?

1. Good 2. Average 3. Poor

3. What should be the appropriate process to implement dev. activity/program in your ward?

1..... 2..... 3.....

4. What are the source of information on new dev. activities/other recent happenings in your ward?

1..... 2.....

17. Major Issues, Expectations and Attitude

1. Do you know about the Budhiganga HPP? 1. Yes 2. No.

1.1. If yes, what do you know about the project?

1..... 2..... 3.....

2. Who had provided you the information?

1..... 2..... 3.....

3. Are there issues related to social, economic and culture regarding the Budhiganga HPP?

1. Yes 2. No.

2.1. If yes, what are they?

Social	Economic	Cultural
1.....	1.....	1.....
2.....	2.....	2.....
3.....	3.....	3.....

4. What do you expect from the Budhiganga HPP?

1..... 2..... 3.....

5. What is your opinion regarding implementation of the Budhiganga HPP?

1..... 2..... 3.....

6. How this Budhiganga HPP project could be successfully implemented?



- 1..... 2..... 3.....
7. What are the important felt needs of the local people of your ward?
1..... 2..... 3.....
8. What could be done to address the needs of the local people?
1..... 2..... 3.....
9. Do you have other issues/concerns regarding the Budhiganga HPP?
1..... 2..... 3.....

18. Key Stakeholders of the Ward

1. Pls provide names & address of key stakeholders related to development activities/HPP of your ward

S.N.	Name	Position	Address	Contact No.	Remarks
1					
2					
3					
4					
5					
6.					
7.					
8.					



**बुढीगंगा जलविद्युत आयोजना
वातावरणीय तथा सामाजिक प्रभाव मूल्यांकन
घरधुरी सर्वेक्षण प्रश्नावली**

यस प्रश्नावलीमा सोधिएका सबै व्यक्तिगत सूचना तथ्याङ्क ऐन २०१५ अनुसार गोप्य राखिने छन् र तथ्याङ्किय प्रयोजनका लागि मात्र प्रयोग गरिनेछन् ।

१. आयोजना क्षेत्र सम्बन्धि सामान्य जानकारी:

१. जिल्ला..... २. गाँऊ पालिका/नगर पालिका ३. वडा नं.....
४. गाँऊ/टोल ५. छनौट घर नं :.....
६. आयोजना स्थल: ६.१. हेडवर्क ६.२. विद्युतगृह ६.३ अन्य(खुलाउने).....

२. परिवार सम्बन्धी जानकारी :

१. घरमूलीको नाम:.....
२. उत्तरदाताको नाम: सम्पर्क: मोबाईल न.
३. लिंग: १. पुरुष २. महिला
४. धर्म:.....
५. जात/जाति:
६. परिवारमा बोलिने भाषा:.....
७. परिवार संख्या:.....
८. तपाईं यस गाउँमा कहिलेदेखि बसिरहनु भएको छ ?
१. जन्मदेखि नै बसोबास गर्दै आएको — ~~१~~ नं मा जाने २. बसाई सरी आएको
८.१. यदि बसाईसरी आएको भए तपाईं यस गाँऊमा कहाँबाट आउनु भएको ?
जिल्ला..... गा.पा./न.पा..... अन्य(खुलाउने).....
८.२. आएको कति वर्ष भयो ? वर्ष.....
८.२.३ तपाईं यस गाउँमा बसाईसरी आउनुको कारण के हो ?
१. परिवारसंगै आएको ६. गरिवी ११. दैवीप्रकोप
२. जागिर ७. ब्यापार १२. शिक्षा
३. ज्याला मजदूरी ८. पारिवारीक कलह १३. विवाह
४. उद्योगधन्दा ९. असुरक्षा १४. नातेदार/आफन्त
५. यातायात सुविधा १०. भौतिक सुविधा १५. अन्य(खुलाउने).....
९. परिवारको प्रकार:
१. एकल परिवार (छुट्टिएर बसेका)
२. संयुक्त परिवार:



१०. पारिवारिक विवरण:

कृपया तपाईंको परिवारका सदस्यहरु (मानो नछुट्टिई बसेका) बारे विस्तृत विवरण दिनुहोस् (घरमुलीबाट शुरु गर्ने)

क्र. सं	नाम	घरमुली संगको नाता (१)	लिंग (२)	उमेर (वर्ष)	शिक्षा (३)	वैवाहिक स्थिति (३.१)	पेशा (४)		सिप/ तालिम (५)	२ महिना भन्दा बढी समय कामका लागि बाहिर बसेको भए		
							मु.	स.		समय (महिना)	कारण (६)	ठाउँ
१.												
२.												
३.												
४.												
५.												
६.												
७.												
८.												
९.												
१०.												

नोट : ५ वर्ष भन्दा मुनीकालाई ३ देखी ६ सम्मका प्रश्नहरु नसोज्ने ।

संकेत

१. घरमुलीसंग नाता

१. घरमुली २. जहान ३. छोरा/छोरी ४. नाती/नातिना ५. बुवा/आमा
 ६. दाजु/भाई/दिदी, बहिनी ७. भतिजा/भतिजी ८. छोरीज्वाई/बईनीज्वाई/भेनाजु ९. भाईबुहारी/छोराबुहारी/भाउजु
 १०. सासु/ससुरा ११. बाजे/बज्यै १२. अन्य नातापर्ने १३. घरेलु कामदार १४. अन्य नाता नपर्ने

२. लिंग

१. पुरुष २. महिला

३. शिक्षा:

१. निरक्षर २. स्कूल नगएको तर साक्षर ३. १ देखी ५ कक्षा पढेको ४. ६ देखी ८ कक्षा पढेको
 ५. ९ देखी १० कक्षा पढेको ६. एस.एल.सी. उत्तीर्ण ७. प्रमाण पत्र/+ १२ ८. स्नातक ९. स्नातक भन्दा माथी

३.१ वैवाहिक स्थिति

१. अविवाहित २. विवाहित ३. विधुवा/विधुर ४. छुट्टाछुट्टै बसेको ५. पारपाचुके ६. अन्य

४. पेशा

१. कृषी ११. ब्यापार, वाणिज्य र बर्कसप
 २. पशुपालन १२. चिया पसल/रेष्टुरेन्ट/लज/होटेल्
 ३. घरायसी काम १३. यातायात
 ४. भारि बोक्ने १४. घरायसी कार्य
 ५. नेपालमा ज्याला मजदुरी १५. विद्याधी
 ६. नेपाल बाहिर ज्याला मजदुरी १६. राजनीति
 ७. वन पैदावार जम्मा गर्ने र बेच विखन गर्ने १७. सामाजिक सेवा
 ८. नेपालमा नोकरी गर्ने १८. खनिज उत्खनन (ढुंगा)
 ९. नेपाल बाहिर नोकरी गर्ने १९. निर्माण
 १०. घरेलु तथा साना उद्योग गर्ने २०. बालक/वृद्ध/अशक्त २१. अन्य

५. सीप तालिम

१. ढुङ्गाको काम गर्ने ७. डाइभर
 २. सिलाई सम्बन्धी काम गर्ने ८. निर्माण सम्बन्धी काम गर्ने १३. अन्य
 ३. काठको काम गर्ने ९. सुनको काम गर्ने
 ४. फलामको काम गर्ने १०. माटोको भाँडा बनाउने
 ५. जुता बनाउने ११. बाँसका सामानहरु बनाउने
 ६. उनका कपडाहरु बुन्ने काम गर्ने १२. कुनै सिप तालिम नभएको

६. बाहिर बस्नुको कारण

१. नोकरी (नेपाल भित्र) २. नोकरी (नेपाल बाहिर)..... ३. अध्ययन ४. ज्यालामजदुरी ५. अन्य



३. कृषि, पशुपालन तथा व्यापार व्यवसाय

३.१ कृषि

के तपाईंको आफ्नो वा परिवारको स्वमित्व वा अधिनमा जग्गा जमीन छ ? १ छ २ छैन
यदी छ भने निम्न विवरणहरु दिनुहोस् ।

२ छैन

जग्गाको स्वामित्व	जग्गा धनी		कुल जग्गा	सिंचित खेत		असिंचित खेत		बारी		पाखो		अन्य (बुलाउने).....	
	म	पु		ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल
आफ्नै													
अरुको कमाई आएको													
अरुलाई कमाउन दिएको													
ऐलानी/सार्वजनिक													
कुल जम्मा													

३.१.१ तपाईंले आफ्नो खेत सिंचाई गर्न मुख्य कुन कुनो प्रयोग गर्नु हुन्छ ? (सिंचित खेत भये मात्र)

१..... २..... ३.....

३.१.२ तपाईंलाई हाल भईरहेको पानीको स्रोतले तपाईंको खेत सिंचाई गर्न पानी पुग्छ ? १. पुग्छ २. पुग्दैन

१. यदि पुग्दैन भने कुन कुन महिना पानी पुग्दैन ? १. २. ३.

३.१.३ के तपाईंले गत वर्षमा आफ्नो कुनै जग्गा बेच्नुभएको छ ? १. छ २. छैन ३. १ मा जाने

१.१ यदि बेचेको भए खेत बारी पाखो अन्य

१.२ प्राप्त रकम (रु.) खेत बारी पाखो अन्य

३.१.४ गत वर्षमा तपाईंले खेती गर्नुभएको जग्गामा कुन कुन खाद्यान्न बाली/नगदे वाली/फलफुलहरु लगाउनु भयो, तिनीहरुको उत्पादन, उत्पादन खर्च एवं आम्दानी बारे बताउनुहोस् ।

	बालीहरु १	खेती गरेको जमिन				उत्पादन -४		मुख्य (रु/ इकाई) ५	जम्मा आम्दानी (रु.) ६	लागत (रु) ७	आफै उपभोग गरेको ८	जम्मा खुद आम्दानी (रु) (५+८-६) ९
		खेत २		बारी ३		ईकाइ	परिमाण					
		ईकाइ	क्षेत्रफल	ईकाइ	क्षेत्रफल							
खाद्यान्न बालिहरु	धान											
	गहुँ											
	मकै											
	कोदो											
	दाल, गेडागुडी											
	अन्य....											
	जम्मा											
नगरेबालीहरु	आलु											
	तोरी											
	ऊखु											
	तरकारी											
	अन्य											
	अन्य											
	जम्मा											
फलफूल	आँप											
	अम्र्बा											



	आरु												
	नासपाती												
	सुन्तला												
	कागती/अमीलो												
	केरा												
	अन्य												
	जम्मा												
गृह	ढाले घाँस												
	पराल												
	खर												
	अन्य												
	जम्मा												

३.१.५ के तपाईको जग्गामा भएको गत वर्षको खाद्यान्न उत्पादनले तपाईको परिवारलाई पर्याप्त भयो ?

१. भयो २. भएन

३.१.६ यदि पर्याप्त भएन भने कति महिनाको लागि पर्याप्त भएन ?.....महिना

३.१.७ तपाईको आफ्नो उत्पादित खाद्यान्न अपर्याप्त भएको बेला परिवारलाई तपाई कसरी खुवाउनु हुन्छ ?

१. ऋण गरेर २. दैनिक ज्यालादारी काम
३. घरको जिन्सी सामान बेचेर ४. जंगली खाद्य पदार्थ खाने
५. भारी बोक्ने काम गरेर ६. नोकरी (तलव) गरेर ७. अन्य.....

३.१.८ के तपाईको परिवारको ऋण छ ?

१. छ २. छैन → ३.१.१० मा जाने

३.१.९ यदि ऋण छ भने, ऋण लिनुको कारण के हुन् ? (३ भन्दा बढीमा चिन्ह नलगाउने)

१. घर निर्माण/सुधार गर्न २. खेतीको लागि जग्गा किन्न
३. घडेरी किन्न ४. आप्रवाशनको लागि
५. शिक्षाको लागि ६. औषधोपचारको लागि
७. विहे/ब्रतबन्ध आदि काम ८. खाद्यान्न/लताकपडा खरिद गर्न

३.१.१० तपाईलाई परिवारको न्यूनतम आधारभूत आवश्यकताहरू पूरा गर्न मासिक आम्दानी कति जति रु. हुनुपर्छ जस्तो लाग्छ ?
(खान, बस्न र अन्य न्यूनतम आवश्यकताको पूर्तिको लागि) मासिक आम्दानी रु.

३.२ पशुपालन :

३.२.१ तपाईले गाईवस्तु पाल्नु भएको छ ?

१. छ २. छैन → ३.२ मा जाने

३.२.२ यदि पाल्नुभएको छ भने निम्न विवरण दिनुहोस् ।

क्र.स.	पशु/पंशुपंक्षी को प्रकार	संख्या	दुध/अण्डा उत्पादन			पशु/पंक्षी बिक्री			पशु/पंक्षी पालनबाट वार्षिक आम्दानी रु. (१+२)=३	जम्मा उत्पादन लागत (रु) ४	आफै ले उपभोग गरेको (रु) ५	खुद आम्दानी (रु) (४+५-३)=६
			परिमाण माना/गोटा/वर्ष	मूल्य रु./इकाई	जम्मा मूल्यरु. (१)	परिमाण गोटा/वर्ष	मूल्य रु./इकाई	जम्मा मूल्य रु. (२)				
१	१.१.गाई (दुध दिने)											
	१.२.गाई (दुध नदिने)											
	१.३.गोरु											



५.२. यदि होईन भने तपाईंले भाडामा लिनु भएको हो ?

१. हो २. अरुको घरमा सितै बसेको

५.३. घरको किसिम: १. कच्ची २. पक्की

५.४. घरको सामग्रीहरु

गारोको किसिम

भुईँको किसिम

छानाको किसिम

१. सिमेन्ट र ईट्टा / ढुंगा

१. माटो

१. खर/पराल

२. माटो र ईट्टा / ढुंगा

२. काठ

२. जस्ता पाता

३. काठ / दाउरा

३. ढुंगा/ईट्टा

३. खर/पराल

४. होलोब्लक (सिमेन्ट)

४. सिमेन्ट/टायल/मार्बल

४. ढुंगा

५. काँचो ईट्टा

५. अन्य (खुलाउने).....

५. सिमेन्ट ढलान

६. गारोनभएको

६. टायल/सिमेन्ट टायल

७. अन्य (खुलाउने)

७. अन्य

५.५. घरको तला

१. भुईँ/एक तला २. दुई तला ३. तिन तला ४. तिन तला भन्दा माथि

५.६. यस घरको हालको अनुमानित मूल्य कति होला ? (घरको मूल्य र कम्पाउण्डको क्षेत्र पनि)

१. घर र कम्पाउण्डको मूल्य (रु.) :

२. घर तथा कम्पाउण्डको क्षेत्रफल: इकाई:....., क्षेत्रफल:

३. घरधनीको लिंग: १. महिला २. पुरुष

५.७. कृपया तपाईंको घरमा भएका मुख्य मुख्य घरायसी सामग्री/सम्पत्तिको विवरण दिनुहोस् ।

सम्पत्ति	के तपाईंको घरमा छ ?		हालको मूल्य कति हो ? (रु.)
	१. छ	२. छैन	
१ फोन			
२ मोबाईल फोन			
३ सि.डी./डि.भि.डी/क्यासेटप्लेयर			
४ टेलिभिजन			
५ कम्प्युटर/प्रिन्टर			
६ मोटर साईकल/ स्कूटर			
७ फ्रिज, फ्रिजर			
८ दराज			
९ रेडियो			
१० क्यामेरा, भिडियो क्यामेरा			
११ अन्य.....			
१२ अन्य.....			

६. आम्दानी तथा खर्चको विवरण :

६.१ खर्च :

गत वर्ष तपाईंको घरमा निम्न शिर्षक/बस्तुहरुमा भएको जम्मा खर्चको विवरण दिनु होस् ।

शिर्षक	मासिक रु.	बार्षिक रु.	जम्मा रु.
१. खाना खर्च			
२. लत्ता कपडा			
३. घरभाडा			
४. शिक्षा			
५. यातायात			
६. इन्धन	महिना/ ग्याँस		

महिना/ ग्याँस
नेपाल सरकार
सिंहदरबार काठमाडौं

	दाउरा			
	बिजुली			
	अन्य (खुलाउने).....			
७. टेलिफोन, मोबाईल/पत्रपत्रिका				
८. पानी				
९. बत्ति	मट्टितेल/ग्याँस			
	बिजुली			
	अन्य (खुलाउने).....			
१०. औषधि/उपचार				
११. अन्य (खुलाउने)				
जम्मा				

६.२ आम्दानी

विगत १२ महिना यता तपाईंको परिवारले निम्न श्रोतबाट कति आम्दानी गर्‍यो ?

आम्दानीकाश्रोतहरू	रु.	
१. कृषिजन्य उत्पादनबाट		(३.१.४ बाट लिने)
२. पशुपालनबाट		(३.२.२ बाट लिने)
३. उद्योग व्यवसाय		(४.१.२ बाट लिने)
४. ठेक्कापट्टा		
५. व्यापार		
६. होटेल व्यवसाय (रेष्टुरेण्ट, लज)		
७. यातायात व्यवसाय		
८. नोकरी (तलब)		
९. दैनिक ज्याला मजदुरी, भारी बोकेर		
१०. वैदेशिक रोजगारीको कमाई (भारतबाट विप्रेषण)		
११. वैदेशिक रोजगारीको कमाई (अन्य देशबाट विप्रेषण)		
१२. बहाल/ब्याज/लाभांश		
१३. पेन्सन		
१४. सामाजिक सुरक्षा भत्ता (वृद्ध, एकल महिला, अपांग आदि)		
१५. अन्य आम्दानी (खुलाउने)		
जम्मा		

७. ऊर्जा तथा खानेपानीको आपूर्ति

७.१ तपाईंको खानेपानीको मुख्य श्रोत के हो ?

१. सार्वजनिक घारा २. पाइपबाट घरमा आपूर्ति ३. कूवा/मूल ४. खोला/नदी ५. अन्य.....

७.२ तपाईंको खानेपानीको श्रोतको गुणअस्तर कस्तो छ ?

१. राम्रो २. ठिकै ३. नराम्रो

७.३ हाल भईरहेको पानीको स्रोतले तपाईंको खानेपानी आवश्यकता पुरा गर्छ ?

१. गर्छ २. गर्दैन

७.३.१ यदि पुरा गर्दैन भने कति महिनाको लागि पुग्दैन ? महिना

७.३.२ ति अपुग महिनामा खानेपानीको आवश्यकता कसरि पुरा गर्नुहुन्छ ?

१..... २..... ३.....

७.४ तपाईंको गाउँघरमा बिजुली बत्ती छ ? १. छ २. छैन

७.५ तपाईं प्रायजसो घरमा उज्यालोका लागि के प्रयोग गर्नुहुन्छ ?

१. टुकी (मट्टितेल) २. दियो (तेल) ३. बिजुली बत्ती

४. सौर्य ऊर्जा ५. ब्याट्री ६. अन्य.....

७.६ तपाईं तापनको लागि प्रायजसो निम्न मध्ये के प्रयोग गर्नु हुन्छ ?

१. दाउरा २. ग्याँस ३. मट्टितेल



- ७.७ ४. पराल, ढोड आदि ५. विजुली ६. अन्य :
तपाईं खाना पकाउनको लागि प्रायजसो निम्न मध्ये के प्रयोग गर्नु हुन्छ ?
१. दाउरा २. ग्याँस ३. मट्टितेल
४. पराल, ढोड आदि ५. विजुली ६. अन्य :
- ७.७.१ यदि तपाईं दाउरा बाल्नुहुन्छ भने एक महिनामा कति भारी दाउरा बाल्नुहुन्छ ?
१. परिणाम भारीमा २. अन्दाजी (तौल: १ भारी बराबर २५ के.जी) ३. (मूल्य: १ भारी रु.)
- ७.७.२ तपाईं घरमा बाल्नको लागि प्रायजसो दाउरा कहाँबाट ल्याउनुहुन्छ ?
१. वन २. निजी जग्गा ३. किनेर ४. अन्य
- ७.७.२.१ यदी वनबाट हो भने निम्न मध्ये कुन वन वाट ल्याउनुहुन्छ?
१. सरकारी वन २. निजी वन ३. सामूदायिक वन
- ७.७.३ तपाईं घाँसपात, स्याउला, काठ प्रायजसो कहाँबाट ल्याउनुहुन्छ ?
१. वन २. निजी जग्गा ३. किनेर ४. अन्य
- ७.७.३.१ यदी वनबाट हो भने निम्न मध्ये कुन वन वाट ल्याउनुहुन्छ?
१. सरकारी वन २. निजी वन ३. सामूदायिक वन
- ७.७.४ तपाईंलाई घाँसपात, स्याउला, दाउरा, काठ आदिको लागि पायक पर्ने वन कुन हो ?
१. वनको नाम : गा.पा./न.पा./वडा नं :
२. ठाँउ : दुरि (घन्टा/मा)
३ वनको प्रकार: १. सामुदायिक २. राष्ट्रिय ३. कुवुलियती ४. निजी ५. धर्मिक ६. अन्य

८. स्वास्थ्य र सरसफाई

- ८.१ तपाईं वा तपाईंका परिवारका सदस्यहरु दिशापिसा कहाँ गर्नुहुन्छ ?
१. आफ्नै चर्पीमा २. खोल्सा/खोल्सी ३. वनजङ्गलमा ४. खेत/बारी ५. अन्य
- ८.१.१ यदि तपाईं चर्पी प्रयोग हुन्छ गर्नुहुन्छ भने कस्तो किसिमको चर्पी प्रयोग गर्नुहुन्छ ?
- ८.१.२ तपाईं लाई चर्पी वनाउन कले सहयोग गरेको ?
१. आफै २. गैसस ३. सरकार ४. अन्य
- ८.१.२.१ यदि चर्पी वनाउनु भएकैछैन भने किन न वनाउनु भएको ?
१. आवश्यक छैन २. पैसा छैन ३. अन्य
- ८.२ तपाईं सडेगलेको वा ठोसपदार्थ/फोहोरमैला कहाँ फाल्ने गर्नु भएको छ ?
१. सुरक्षित ठाउँमा थुपारेर २. जलाएर ३. गाडेर ४. अन्य
- ८.३ तपाईं फोहोर तरलपदार्थ कहाँ बगाउने गर्नु भएको छ ?
१. ढलबाट २. आफ्नै खेत बारीमा ३. त्यसै बगाउने ४. अन्य
- ८.४ के तपाईंको परिवारको कुनै सदस्य गत वर्ष सिकिस्त विरामी भएका थिए ?
१. थिए २. थिएनन्
- ८.५ यदि थिए भने को थिए ?
परिवारका सदस्य विरामी भएको अवधि
१. बच्चा
२. युवा
३. बृद्ध
८.६ कस्तो किसिमको रोग लागेको र कुन उपचार विधि अपनाउनु भएको थियो ?
रोग उपचार विधि उपचार गराएको स्थान
१. १. २. १. २.
२. १. २. १. २.
३. १. २. १. २.



१. बुढीगंगा जलविद्युत आयोजनाबाट पर्नेप्रभावहरु :

१.१ जग्गा/जमिन वारे

१.१.१ यस आयोजनाबाट तपाईंको प्रभावित हुने जग्गा जमिनको निम्नलिखित विवरण दिनुहोस् ?

गा.पा./ न.पा./वार्ड नं	ठाउँको नाम	कित्ता नं.	कुल क्षेत्रफल	हाल जग्गाको प्रयोग	जग्गाको स्वामित्व	प्रभावित क्षेत्रफल र मूल्य रु.हजारमा					
						खेत	मूल्य	बारी	मूल्य	अन्य	मूल्य

(नोट : जग्गाको मूल्य चलन चल्तीको भाऊ बमोजिम राख्ने)

१.१.२ के तपाईं अथवा तपाईंको परिवारका कुनै सदस्यको नाममा यस आयोजना क्षेत्र भित्र फलफुल र ढालेघाँसका
वोटविरुवाहरु छन् ? १. छन् २. छैनन्

१.१.२.१ यदि छन् भने ति रुख, वोटविरुवा सम्बन्धी विवरण दिनुहोस् ।

किसिम	वोटविरुवाको जात	जम्मा संख्या		प्रभावित हुन सक्ने संख्या		जम्मा उत्पादन (इकाई)	मूल्य	आम्दानी
		५ वर्ष भन्दा कम उमेरका	५ वर्ष भन्दा माथी उमेरका	५ वर्ष भन्दा कम उमेर का	५ वर्ष भन्दा माथी उमेरका			
फलफूल								
ढालेघाँस								
काठ								

१.२ घर/गोठ वारे

१.२.१ के यस बुढीगंगा जलविद्युत आयोजनाबाट तपाईंको घर प्रभावित हुन्छ ?

१. हुन्छ २. हुँदैन

१.२.२ यदि हुन्छ भने कति वटा प्रभावित हुन्छन् ? संख्या

१.२.३ आयोजनाबाट प्रभावितहुने तपाईंको घरको निम्न विवरणहरु दिनुहोस् ?

१. प्रभावित हुने घरको : ल (मिटर) चौ.....

घरको किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

घरको तला : (प्रश्न नं. ५.५ अनुसार भर्ने)

२. प्रभावित हुने घरको : ल (मिटर) चौ.....

किसिम : (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम : (प्रश्न नं. ५.४ अनुसार भर्ने)



घरको तला :.....

(प्रश्न नं. ५.५ अनुसार भर्ने)

९.२.४ के यस आयोजनाबाट तपाईंको गोठ प्रभावित हुन्छ ?

१. हुन्छ २. हुँदैन

९.२.५ यदी हुन्छ भने कति वटा प्रभावित हुन्छन् ? संख्या

९.२.५.१ आयोजनाबाट प्रभावितहुने तपाईंका प्रभावित हुने गोठको बारेमा निम्न विवरण दिनुहोसः

१. प्रभावित हुने गोठको : ल (मिटर) चौ.....

किसिम :..... (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम :..... (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम :..... (प्रश्न नं. ५.४ अनुसार भर्ने)

गोठको तला :..... (प्रश्न नं. ५.५ अनुसार भर्ने)

२. प्रभावित हुने गोठको : ल (मिटर) चौ.....

किसिम :..... (प्रश्न नं. ५.३ अनुसार भर्ने)

गारोको किसिम :..... (प्रश्न नं. ५.४ अनुसार भर्ने)

छानोको किसिम :..... (प्रश्न नं. ५.४ अनुसार भर्ने)

गोठको तला :..... (प्रश्न नं. ५.५ अनुसार भर्ने)

१०. घर जग्गाको मुआब्जा/पुनर्वास सम्बन्धि

१०.१ तपाईं घर/जग्गाको मुआब्जा निम्न मध्ये कुन चाहनु हुन्छ ?

१. नगद २. जग्गाको सट्टा जग्गा ३. घरको सट्टा घर ४. अन्य

१०.२ यदि तपाईंले मुआब्जा नगदमा पाउनु भयो भने उक्त मुआब्जा रकम के मा प्रयोग गर्नु हुन्छ ?

१. जग्गा किन्ने २. घर बनाउने ३. ऋण तिर्ने

४. ब्यापार गर्ने ५. घरेलु उद्योग ६. अन्य

१०.३ यहाँ बाहेक तपाईंको अन्यत्र कतै घर वा जग्गा छ ?

१. छ २. छैन → भने प्रश्न १०.५ मा जाने

१०.४ यदि छ भने के छ र कहाँ छ?

किसिम ठाँउ

घर

जग्गा

घडेरी

१०.५ यदि तपाईंले उचित मुआब्जा पाएमा अन्यत्र बसाई सर्नु हुन्छ ?

१. सधु २. सदीन

१०.६ बसाई सर्न चाहनु हुन्छ भने किन ?

१..... २..... ३.....

१०.७ तपाईं वा तपाईंको परिवारका मुख्य समस्याहरु के के हुन?

१..... २..... ३.....

१०.८ तपाईं वा तपाईंको परिवारका मुख्य आवश्यकताहरु के के हुन?

१..... २..... ३.....

११. बुढीगंगा जलविद्युतआयोजनाप्रतिको अवधारणा

११.१ तपाईंलाई यस प्रस्तावित बुढीगंगा जलविद्युत आयोजनाबारेमा केही जानकारी छ ?



१. छ २. छैन

११.१.१ यदि छ भने कुन श्रोतबाट यस आयोजनाको बारेमा जानकारी प्राप्त गर्नुभयो?

१. साथीभाई/नातेदार २. आयोजनाका कर्मचारी ३. रेडियो/टिभि ४. पत्रपत्रिका ५. अन्य

११.२ तपाईंको यस प्रस्तावित बुढीगंगा जलविद्युत आयोजनाप्रति कस्तो अवधारण छ ?

१. सकारात्मक २. नकारात्मक ३. तटस्थ ४. केही पनि थाहा छैन ५. कुनै अवधारणा बनाएको छैन

११.२.१ यदि नकारात्मक धारणा भएमा किन होला ? कारण बताईदिनु हुन्छ कि ?

१..... २..... ३.....

११.३ यस प्रस्तावित बुढीगंगा जलविद्युत आयोजनाबाट तपाईंले कुनै कुराको आशा राख्नु भएको छ?

१. छ १. छैन

११.३.१ यदि छ भने के कुराको आशा राख्नु भएको छ ?

१. राम्रो मुआब्जा २. रोजगारी ३. विद्युत सुविधा ४. स्थानीय क्षेत्रको विकास ५. अन्य

१२. स्थानिय सहभागिता :

१२.१ तपाईं वा तपाईंको परिवारको कुनै सदस्य यस क्षेत्रमा संचालित सरकारी, गैह्रसरकारी वा अन्य संस्थाहरु/ कार्यक्रमहरुमा सहभागीता छ ? १. छ १. छैन

१२.२ यदि सहभागी छ भने निम्न विवरण दिनु होस् ।

संस्था/कार्यक्रमको नाम	सहभागीता को किसिम	संचालन भएको साल	मूख्य काम/उद्देश्य	परिवार सदस्य		लाभान्वीत परिवार	सहयोग गर्ने संस्था/निकाय
				महिला	पुरुष		

प्रश्नावली भर्नेको नाम:..... सही: मिति:.....

रजु गर्नेको नाम:..... सही: मिति:.....



बुढीगंगा जलविद्युत आयोजना
वातावरणीय तथा सामाजिक प्रभाव मूल्यांकन
कृषिजन्य र अन्य वस्तुहरूको मूल्य सम्बन्धी बजार सर्वेक्षण फारम

क. गा.पां / न.पा. ख. वडा नं. ग. ठाउँ घ. मिति

१. जग्गा मूल्य रु. (रोपनी)

सिंचित खेत
असिंचित खेत
वारी
खरवारी
घडेरी

२. खाद्यान्न मूल्य (रु. /किलो)

धान
गहुँ
मकै
कोदो
जौ
आलु
मास
गहत
तोरी
अन्य

३. फलफुल मूल्य (रु./किलो/दर्जन)

लिच्ची
कागती र निवुवा
आरु
नासपाती
अम्बा
कटहर
केरा
मेवा
आप
अन्य

४. अन्य उत्पादन मूल्य रु. (लिटर/माना)
रु.

दूध
दहि
घिउ
तेल

५. मासु मूल्य रु. (किलो) ६.

कुखुरा
खसी
राँगा
वंगुर/सुंगुर
माछा

पाल्नु जनावर मूल्य प्रति गोटा

राँगा
भैसी
हलगोरु
गाई
खसी/बाखा
वंगुर/सुंगुर

७. निर्माण सामग्री इकाई

काठ
ईट्टा
सिमेन्ट
फलामे डण्डी
दुइ
बालुवा
गिट्टी
बाँस

मूल्य रु.

८. ज्याला मजदुरी (प्रतिदिन)

कृषि मजदुर (पुरुष)
कृषि मजदुर (महिला)
सिकर्मी
डकर्मी
ज्यामी(पुरुष)
ज्यामी(महिला)
अन्य.....

ज्याला

खाना

जम्मा रु.

९. बजार/ठाउँ बारे छोटो जानकारी:.....



Appendix-C: Baseline Data



Table -C1: Rainfall in the nearest station of the project area (Achham- Sanfebagar -232)

Year	Jan	Feb	Mar	Apr	May	Jun	JUL	AUG	SEP	OCT	NOV	DEC
2013	28	38	7	11	93	187	178	DNA	DNA	DNA	DNA	0
2014	63	82	29	10	35	114	336	236	49	42	0	8
2015	73	51	122	76	45	151	193	209	0	77	0	DNA
2016	6.5	29.2	42.6	0	157.7	246.2	DNA	38	21	0	0	16
2017	20	9.5	6	66.5	87.6	140.4	338.1	272	96.9	0	0	0
Sum	190.5	209.7	206.6	163.5	418.3	838.6	1045.1	755	166.9	119	0	24
Average	38.1	41.94	41.32	32.7	83.66	167.72	261.275	188.75	41.725	29.75	0	6

Source: DHM, 2018



Table C-2a : Power and Energy Production

S. No.	Month	Avg. Monthly	Total d/s Release	Diversion	Production	
		discharge in the river	including env. Flow	for power	Power	Energy
		at intake (m3/s)	and others(m3/s) #	(m3/s)	MW	GWh
1	January	9.90	0.99	26	19.64	4.83
2	February	10.75	0.99	26	19.66	4.72
3	March	11.89	0.99	26	19.64	5.85
4	April	10.80	0.99	26	19.64	5.26
5	May	14.83	0.99	26	19.64	7.16
6	June	38.00	12.00	26	19.65	13.00
7	July	137.54	111.54	26	20.01	14.77
8	August	197.02	171.02	26	20.01	14.78
9	September	124.78	98.78	26	19.98	13.11
10	October	46.06	20.06	26	19.70	14.64
11	November	21.09	0.99	26	19.67	10.55
12	December	13.77	0.99	26	19.64	6.73
13	Ann. Avg.	53.04	0.99			

Note: Total release includes-Environmental release, and requirement for irrigation, water mills and others.

Table C-2b : Environmental Release and Water Balance

S. No.	Month	Avg. Monthly discharge	Downstream	Additional d/s Release (m3/s)			Diversion	Total	Production
		in the river	Environmental	Irrigation	Water	Others	for power	Discharge	Power
		at intake (m3/s)	release (m3/s)		Mills			(m3/s)	MW
1	January	9.90	0.99				26		19.64
2	February	10.75	0.99				26		19.66
3	March	11.89	0.99				26		19.64
4	April	10.80	0.99				26		19.64
5	May	14.83	0.99				26		19.64
6	June	38.00	12.00				26		19.65
7	July	137.54	111.54				26		20.01
8	August	197.02	171.02				26		20.01
9	September	124.78	98.78				26		19.98
10	October	46.06	20.06				26		19.70
11	November	21.09	0.99				26		19.67
12	December	13.77	0.99				26		19.64
13	Ann. Avg.	53.04							



Table C-2c Power and Energy Production on a day (in a driest month- January)

<u>S.N</u>	<u>Hour</u>	<u>Avg. daily</u>	<u>Total d/s Release</u>	<u>Diversion</u>	<u>Production</u>	
		<u>discharge in the</u>	<u>including env.</u>	<u>for</u>	<u>Power</u>	<u>Energy</u>
		<u>river</u>	<u>Flow</u>	<u>power</u>		
		<u>at intake</u>	<u>and others(m3/s)</u>	<u>(m3/s)</u>	MW	GWh
		<u>(m3/s)</u>	<u>#</u>			
1	0-3	9.90	0.99	26	19.62	0.63
2	3-6	9.90	0.99	26	19.64	0.56
3	6-9	9.90	0.99	26	19.60	0.42
4	9-12	9.90	0.99	26	19.63	0.42
5	12-15	9.90	0.99	26	19.63	0.41
6	15-18	9.90	0.99	26	19.63	0.42
7	18-21	9.90	0.99	26	19.63	0.44
8	21-24	9.90	0.99	26	19.63	0.44
9	24-27	9.90	0.99	26	19.63	0.41
9	24-27	9.90	0.99	26	19.63	0.69
	Daily Avg.	9.90	0.99			

Note: # - Total release includes - Environmental release, and requirement for Irrigation, Water mills, and others.



Table for replenished discharge in theriver/khola from side streams

S. N.	Name of stream and Distance of the stream from Headworks (km)	Incoming Streams (perennial)				Cumulative Discharge at Confluence of each side stream (m³/s)	Remarks *
Downstream environmental release from headworks							
		Left Bank		Right Bank			
		Min. monthly avg. flow (m³/s)	Catchment area (km²)	Min. monthly avg. flow (m³/s)	Catchment area (km²)		
	Agali Gad (2.5 km)	0.44	8.85				
	Simarawa Khola (2.5 km)			2.32	47.20		
							
Cumulative discharge from side stream							
Side off take for other water usages [#]							purpose of off take
Tailrace discharge + Cumulative discharge from side streams - side off take							

Note:

- * – i) Catchment and hydrological characteristics of side streams.
- ii) State methodology of discharge estimation.
- # – If there are more than one off takes, give them in separate rows

EXHIBIT SIDE STREAMS, WITH NAME, IN A COLOURED TOPOGRAPHICAL MAP.



Table C-6: Mammals of the project area

S N	Name of mammals		Habitat use	Distribution status	Protected status	Distributional status				Method of confirmation
	Scientific	Common				Project Area	Project Sites			
							Dam & Reservoir	Adit	Powerhouse	
1	<i>Canis aureus</i>	Jackal	F and A	Common	CITES III	+	+	+	-	Observation
2	<i>Felis chaus</i>	Jungle cat	F, A and G	Common	-	+	-	-	-	Local information and literature review
4	<i>Hystrix indica</i>	Porcupine	F, G and A	Common	-	+	+	+	-	Local information and literature review
3	<i>Macaca mulatta</i>	Rhesus macaque	F, G, C and A	Common	CITES II	+	+	+	+	Observation
4	<i>Martes flavigula</i>	Yellow throated marten	F and A	Common	CITES III	+	+	+	-	Local information and literature review
5	<i>Panthera pardus</i>	Leopard	F	Uncommon	CITES I	+	-	-	-	Local information and literature review
6	<i>Semnopithecus hector</i>	Common langur	F, G, C and A	Common	CITES I	+	+	+	+	Observation
7	<i>Bandicota bengalensis</i>	Lesser Bendicoot Rat	A	Common	-	+	-	-	+	Local information and literature review
8	<i>Herpestes auropunctatus</i>	Small Indian Mongoose	F, G and A	Common	-	+	-	-	-	Local information and literature review
9	<i>Naemorhedus goral</i>	Ghoral	F and C	Uncommon	CITES-I	+	-	-	-	Local information and literature review
10	<i>Sus scrofa</i>	Eurasian Wild Boar	F	Common	-	+	+	-	-	Local information and literature review
11	<i>Miniopterus schreibersii</i>	Common Bent -Winged Bat	F and C	Common	-	+	-	-	-	Local information and literature review
12	<i>Munticus muntjack</i>	Barking deer	F	Uncommon	-	+	+	-	-	Local information and literature review

Note:

Habitat

F : Forest
 G : Grass and Shrubs
 A : Agriculture area
 C : Rocky area and cliffs
 + : Present
 - : Not present

Protected status

CITES I : Species threatened with extinction
 CITES II : Species not necessary threatened but could become so.
 CITES III : Species required international cooperation to control trade
 IUCN (K) : Insufficiently known
 GON/P : Protected by GON



Remarks:

Although listed by CITES and other organization these species are common and widely distributed in Nepal
LILR: Local information and Literature Review

S N	Name of species		Conservation status		
	Scientific	Common	NPWCA	CITES	IUCN
Mammals					
1	<i>Canis aureus</i>	Jackal	-	III	-
2	<i>Macaca mulatta</i>	Rhesus macaque	-	II	-
3	<i>Semnopithecus hector</i>	Common langur	-	I	-
4	<i>Martes flavigula</i>	Yellow throated marten	-	III	-
5	<i>Panthera pardus</i>	Leopard	-	I	-
6	<i>Naemorhedus goral</i>	Ghoral	-	I	-
Birds					
7	<i>Columba livia</i>	Blue Rock Pigeon		III	
Reptiles and Amphibians					
8	<i>Ptyas mucosus</i>	Rat snake		II	
9	<i>Rana tigrina</i>	Frog		I	

Source: IUCN, 1997.



Table C-7: Birds of the project area

S N	Name of birds		Habitat	Relative occurrence	Distribution status			Protected status	Method of confirmation
	Scientific	Common			Project Area	Project Sites			
						Dam and Reservoir area	Powerhouse		
1	<i>Ardea cinera</i>	Grey Heron	R	Occasional	+	-	-	-	Local information and literature review
2	<i>Halistur indus</i>	Brahminy kite	R	Occasional	+	-	-	-	"
3	<i>Spilornis cheela</i>	Crested Serpent Eagle	R	Occasional	+	+	-	-	"
4	<i>Ictinaetus malayensis</i>	Black Eagle	O,R	Occasional	+	-	-	-	"
5	<i>Spizaetus nipalensis</i>	Mountain Hawk Eagle	F,R	Occasional	+	-	-	-	"
6	<i>Neophron percnopterus</i>	Egyptian Vulture	F,R	Common	+	-	-	-	"
7	<i>Falco tinnunculus</i>	Eurasian Kestrel	R, F	Common	+	-	-	-	"
8	<i>Lophura leucomelana</i>	Kalij Pheasant	F	Common	+	+	+	-	"
9	<i>Vannellus cinereus</i>	Grey Headed Lapwing	R	Occasional	+	-	-	-	"
10	<i>Vannellus indicus</i>	Red Wattled Lapwing	R	Occasional	+	-	-	-	"
11	<i>Columba rupestris</i>	Hill Pigeon	F	Occasional	+	-	-	-	"
12	<i>Streptopelia chinensis</i>	Spotted Dove	O , F	Common	+	+	+	-	"
13	<i>Streptopelia decaocta</i>	Indian Ring Dove	O , F	Common	+	+	+	-	"
14	<i>Psittacula cyanocephala</i>	Blossom Headed Parakeet	F	Common	+	+	+	-	Observation
15	<i>Psittacula krameri</i>	Rose Ringed Parakeet	F	Common	+	+	+	-	Observation
16	<i>Hieracouyx varius</i>	Common hawk Cuckoo	F	Common	Occasional	+	+	-	Local information and literature review
17	<i>Cuculus canorus</i>	Eurasian Cuckoo	F	Abundant	+	+	+	-	Observation
18	<i>Cuculus micropterus</i>	Indian Cuckoo	F	Common	+	+	+	-	Observation



19	<i>Bubi bubo</i>	Great Horned Owl	Gorges of River	Common	+	-	-	-	Local information and literature review
20	<i>Milvus migrans</i>	Dark kite	O	Common	+	+	+	-	Observation
21	<i>Columba livia</i>	Rock Pigeon	O and Villages	Common	+	+	+	CITES III	Observation
22	<i>Streptopelia orientalis</i>	Rufous Turtle Dove	O, F	Common	+	-	-	-	Observation
23	<i>Streptopelia chinensis</i>	Spotted Dove	O, F	Common	+	+	+	-	Local information and literature review
24	<i>Coracias benghalensis</i>	Indian Roller	F, O	Common	+	+	-	-	"
25	<i>Alcedo atthis</i>	Eurasian King Fisher	R	Common	+	-	-	-	"
26	<i>Pycnonotus cafer</i>	Red Vented Bulbul	O and Villages	Common	+	+	+	-	Observation
27	<i>Urocissa erythrorhyncha</i>	Red Billed Blue Magpie	F	Common	+	+	+	-	Observation
28	<i>Appus affinis</i>	House Swift	O and Villages	Common	+	+	+	-	Observation
29	<i>Lanius schach</i>	Black Headed Shrike	Houses, Huts	Common	+	-	-	-	Local information and literature review
30	<i>Dicrurus leucophaeus</i>	Ashy Drongo	F	Common	+	+	-	-	"
31	<i>Acridotheres tristis</i>	Common Myna	O and Villages	Abundant	+	+	+	-	Observation
32	<i>Corvus macrorhynchos</i>	Jungle Crow	O and Villages	Common	+	+	+	-	Observation
33	<i>Corvus splendens</i>	House Crow	O and Villages	Common	+	+	+	-	Observation
34	<i>Pycnonotus cafer</i>	Red Vented Bulbul	O and Villages	Common	+	+	+	-	Observation
35	<i>Pycnonotus striatus</i>	Striated Bulbul	O	Occasional	+	-	-	-	Observation
36	<i>Phylloscopus cantator</i>	Yellow Throated Warbler	F	Occasional	+	+	+	-	Local information and literature review
37	<i>Copsychus saularis</i>	Magpie Robin	F	Common	+	+	+	-	Observation



38	<i>Motacilla alba</i>	White Wagtail	R	Common	+	-	-	-	Local information and literature review
39	<i>Motacilla flava</i>	Yellow Wagtail	R	Common	+	-	-	-	"
40	<i>Passer mountanus</i>	Tree Sparrow	O and Villages	Abundant	+	+	+	-	Observation
41	<i>Passer domesticus</i>	House Sparrow	House and huts	Abundant	+	+	+	-	Observation
42	<i>Gypus barbatus</i>	Lammergier	Open areas	Occasional	+	+	+	-	Local information and literature review
43	<i>Acrocephalus aedon</i>	Thick Billed Warbler	F	Common	+	-	-	-	"
44	<i>Turdoides striatus</i>	Jungle Babbler	F	Common	+	-	-	-	"
45	<i>Abrusopus superciliaris</i>	Yellow Billed Warbler	F	Common	+	-	-	-	"
46	<i>Merops orientali</i>	Green Beat Eater	O, Grass land	Occasional	+	-	-	-	"
47	<i>Hirunda rustica</i>	Ban Shallow Martin	F	Common	+	-	-	-	"

Note:

Habitat

F : Forest
O : Open grass and shrub land
R : River
+ : Present
- : Not present

LILR: Local information and Literature Review

Remarks:

Although listed by CITES and other organization these species are common and widely distributed in Nepal

Protected status

CITIES I : Species threatened with extinction
CITIES II : Species not necessary threatened but could became so.
CITES III : Species required international cooperation to control trade

26

23

18

18



Table C-8: Population density of Phytoplankton in Budhi Ganga River

S N	Species	April 2018 Number/Liter	
		Headworks site	Powerhouse tailrace area
A	Class-Bacillariophyceae		
1	<i>Amphora ovalis</i>	100	75
2	<i>Diatom sp</i>	50	0
3	<i>Synedra alna</i>	200	100
4	<i>Synedra acus</i>	70	100
5	<i>Cocconeis sp</i>	150	50
6	<i>Melosira granulate</i>	200	150
7	<i>Melosira islandica</i>	150	100
8	<i>Fragilaria capucina</i>	250	200
9	<i>Navicula gracilis</i>	50	90
10	<i>Cymbella cistula</i>	60	0
11	<i>Cymbella tumida</i>	125	0
12	<i>Nitzschia palia</i>	40	50
13	<i>Pinnularia gibba</i>	75	60
14	<i>Surirella elegans</i>	90	75
	Sub-total	1,510	1050
B	Class-Cynophyceae		
15	<i>Microchate sp.</i>	200	150
16	<i>Oscillatoria princeps</i>	125	150
17	<i>Anabaena sp</i>	100	70
18	<i>Aphanizomenon</i>	110	50
19	<i>Lyngbay limnetica</i>	70	50
20	<i>Nostochopsis labatus</i>	90	100
21	<i>Oscillatoria lemosa</i>	75	60
	Sub-total	770	630
C	Class-Chlorophyceae		
22	<i>Scenedemus sp</i>		
23	<i>Microspora floccose</i>	250	200
24	<i>Ulethrix zonata</i>	150	125
25	<i>Ulethrix variabilis</i>	50	0
26	<i>Spirogyra sp.</i>	60	50
27	<i>Characium limneticum</i>	75	75
28	<i>Chaetophora incerssata</i>	100	25
29	<i>Stigeoclonium tenue</i>	50	0
30	<i>Spirogyra webari</i>	100	75
31	<i>Pediastrum sp</i>	90	50
	Sub-total	925	600
D	Class- Xanthophyceae		
32	<i>Tribonema minus</i>	250	0
33	<i>Characiopsis sp.</i>	50	100
	Sub-total	300	100
		3,505	2380



Table C-9: Population density of zooplanktons in Budhi Ganga River

Table 3.37 Population density of zooplanktons in Baidi Sanga river.			
S N	Scientific name	April 2018 Number/Liter	
		Headworks site	Powerhouse tailrace area
Order : Rotifera			
1	<i>Colurella uncinata</i>	30	40
2	<i>Keratella cochlearis</i>	50	20
3	<i>Fillinia sp</i>	0	20
4	<i>Asplanchna sp.</i>	30	20
5	<i>Trichocerca capucina</i>	20	20
6	<i>Ascomorpha sp.</i>	70	50
7	<i>Brachionus angularis</i>	40	0
8	<i>Asplanchna priodonta</i>	40	20
9	<i>Monostyla cornuta</i>	50	30
	sub-total A	330	220
Order : Copipeda			
10	<i>Paracyclops sp.</i>	20	20
11	<i>Diplopus sp</i>	15	0
12	<i>Mesocyclops cp</i>	50	30
13	<i>Cyclops sp</i>	50	60
	Sub-total	135	110
Order: Cladosera			
14	<i>Ceriodaphina sp.</i>	30	0
15	<i>Bosmina longirostris</i>	0	20
16	<i>Diaphanosoma sp</i>	40	25
17	<i>Daphnia sp</i>	50	60
	sub-total B	120	105
	Total (A+B)	585	435



Table C-10: Aquatic Insects found in Budhi Ganga River

S N	Species	Dry season, April 2018	
		Headworks site	Powerhouse tailrace area
Order : Plecoptera			
1	<i>Leuctra sp</i>	+	+
2	<i>Nemoura venosa</i>	+	+
3	<i>Isogenus modusta</i>	+	+
4	<i>Neoperia sp.</i>	+	-
Order : Ephemeroptera			
5	<i>Epeoeus sp</i>	+	-
6	<i>Ephemerella sp.</i>	+	+
7	<i>Heplagemis sp</i>	+	+
8	<i>Baetis sp.</i>	+	-
9	<i>Rhithrogena sp.</i>	+	+
10	<i>Stenonema sp.</i>	+	+
Order : Trichoptera			
11	<i>Phryganea sp</i>	-	+
12	<i>Lantocarus sp</i>	+	+
Order : Coleoptera			
13	<i>Enochrus nebulosus</i>	+	-
14	<i>Donacia sp.</i>	+	+
15	<i>Amphizoa sp</i>	+	+
16	<i>Promoresia sp.</i>	+	+
Order : Hemiptera			
17	<i>Gerris montcoia</i>	+	+
18	<i>Belstoma sp</i>	+	+
Order : Diptera			
19	<i>Antocha sp</i>	+	+
20	<i>Elliplera sp</i>	+	+
21	<i>Pedicia sp</i>	+	+
22	<i>Holorusia sp</i>	-	+
23	<i>Cybister convexus</i>	+	-
	Total	21	18



Table -C-11: Fish diversity in Budhi Ganga River and its feeder Streams

S.No	Scientific Name of Fish	Local Name of Fish	Migratory species	Fish sampling		Local Information	Economic Importance	Protected Status
				August 2016	April 2018			
				Collected	Collected	Reported		
1	<i>Anguilla bengalensis</i>	Rajbam	LDM	+			1,M	
2	<i>Barilius bendelisis</i>	Fageta	R	+			1,L	
3	<i>Barilius barila</i>	Fageta	R	+			1,L	
4	<i>Barilius shacra</i>	Fageta	R	+			1,L	
5	<i>Bagarius bagarius</i>	Gonch	LDM			√	1,M	NT
6	<i>Botia almorhae</i>	Baghi	R			√	2, 1, L	
7	<i>Clupisoma garua</i>	Jalkapur	LDM			√	1,L	
8	<i>Garra gotyla</i>	Buduna	R	+	+		1,M	
9	<i>Garra annandalei</i>	Nakatuwa	R			√	1, M	
10	<i>Glyptothorax cavia</i>	Kapre	R	+			1, M	
11	<i>Glyptothorax pectinopterus</i>	Singhe	R			√	1, M	
12	<i>Labeo dero</i>	Gardi	MRM	+	+		1, H	
13	<i>Labeo angra</i>	Thed	MRM		+		1, H	
14	<i>Labeo dyocheilus</i>	Kalach	MRM		+		1, H	
15	<i>Neolissocheilus hexagonolepis</i>	Katle	MRM	+	+		1, H	NT
16	<i>Noemacheilus beavani</i>	Gadela	R			√	1, H, 2	
17	<i>Noemacheilus rupicola</i>	Gadela	R			√	1,L	
18	<i>Puntius chilinooides</i>	Karange	MRM	+	+		1,L	VU
19	<i>Pseudechenies sulcatus</i>	Kabre	R	+	+		1, M	
20	<i>Psilorhynchus pseudecheneis</i>	Tite	R			√	1, L, 3	
21	<i>Schizothoracichthys progastus</i>	Chuche Asala	MRM	+	+		1, H	
22	<i>Schizothorax plagiostomus</i>	Buche Asala	MRM	+	+		1, H	
23	<i>Schizothorax richardsonii</i>	Buche Asala	MRM	+	+		1, H	VU
24	<i>Tor putitora</i>	Mahseer	LDM	+	+		1, H	EN
25	<i>Tor tor</i>	Mahseer	LDM	+	+		1, H, 2,3	EN

Note

LDM Long distance migratory

MRM- Mid range migratory

R- Resident species

Economic Importance

1= Food value

H= High food value

M=Medium Food value

L=Low food value

2= Sport value

3= Medicine

Conservation Status

EN- Endangered

VU- Vulnerable

NT- Near Threatened



Table -C-12: Relative Abundance and Species Composition in Project Area (April 2018)

Sampling Station	Location	Scientific Name	Common Name	No. of Fish Caught	Size Range (Cm)	Wt. Range (Gm)	Average wt. of the Total Catch (Gm)	Species Composition %
1	Budhi Ganga with Sarane Gad Confluence area	<i>Schizothoracichthys progastus</i>	Chuche Asala	6	18-22	60-90	450	27.27
		<i>Schizothorax plagiostomus</i>	Buche Asala	9	16-23	40-100	630	40.90
		<i>Schizothorax richardsonii</i>	Buche Asala	2	13-19	25-70	95	9.09
		<i>Pseudochenius sulcatus</i>	Kabre	1	9.5	15	15	4.55
		<i>Labeo angra</i>	Thed	1	14	30	30	4.55
		<i>Neolissocheilus hexagonolepis</i>	Katle	1	14	25	25	4.55
		<i>Tor putitora</i>	Mahseer	2	13-14	25-28	53	9.09
		Sub - Total		22			1298.00	100.00
2	Budhi Ganga with Ikri Gad Confluence area	<i>Schizothoracichthys progastus</i>	Chuche Asala	5	15-19	20-33	132.5	18.52
		<i>Schizothorax plagiostomus</i>	Buche Asala	12	18-24	60-120	1080	44.44
		<i>Schizothorax richardsonii</i>	Buche Asala	4	17-19	50-70	240	14.81
		<i>Garra gotyla</i>	Buduna	1	13	30	30	3.70
		<i>Neolissocheilus hexagonolepis</i>	Katle	3	16-18	40-60	150	11.12
		<i>Tor putitora</i>	Mahseer	1	9	10	12.5	3.70
		<i>Tor tor</i>	Mahseer	1	11	15	15	3.70
		Sub - Total		27			1660.00	100.00
	Budhi Ganga with Ardole Gad	<i>Schizothoracichthys progastus</i>	Chuche Asala	4	19-21	60-70	260	12.50
		<i>Schizothorax plagiostomus</i>	Buche Asala	13	20-22.5	65-90	1007.5	40.63
		<i>Puntius chilinoides</i>	Karange	2	12-14	20-30	50	6.25
		<i>Labeo dero</i>	Gardi	4	18-20	60-70	260	12.50



3	Gau Confluence area	<i>Neolissocheilus hexagonolepis</i>	Katle	2	11-15	20-34	54	6.25
		<i>Tor putitora</i>	Mahseer	2	8-10	12-15	27	6.25
		<i>Pseudochenius sulcatus</i>	Kabre	1	14	30	30	3.13
		<i>Garra gotyla</i>	Buduna	4	13-17	25-50	150	12.50
		Sub - Total		32			1838.50	100.00
4	Budhi Ganga with Bhimkoti Gad Confluence area	<i>Schizothorachthys progastus</i>	Chuche Asala	4	11-23	20-100	250	10.26
		<i>Schizothorax plagiostomus</i>	Buche Asala	15	17-21.5	50-70	900	38.46
		<i>Schizothorax richardsonii</i>	Buche Asala	6	19-28	60-200	780	15.38
		<i>Neolissocheilus hexagonolepis</i>	Katle	3	10-16	15-45	90	7.69
		<i>Labeo dero</i>	Gardi	5	29-32	220-350	1425	12.82
		<i>Tor putitora</i>	Mahseer	2	13-16	25-45	72	5.13
		<i>Tor tor</i>	Mahseer	2	10-12	15-20	35	5.13
		<i>Puntius chilinoides</i>	Karange	1	13	25	37.5	2.56
		<i>Garra gotyla</i>	Buduna	1	14	28	28	2.56
		Sub - Total		39			3617.50	100.00
5	Budhi Ganga with Jigadi Gad Confluence area	<i>Schizothorachthys progastus</i>	Chuche Asala	6	17-20	50-70	360	11.54
		<i>Schizothorax plagiostomus</i>	Buche Asala	22	18-20	60-70	1430	42.31
		<i>Schizothorax richardsonii</i>	Buche Asala	7	29-33	250-350	2100	13.46
		<i>Neolissocheilus hexagonolepis</i>	Katle	1	13	25	25	1.92
		<i>Labeo dero</i>	Gardi	3	14-32	60-350	615	5.77
		<i>Tor putitora</i>	Mahseer	4	11-14	25-70	190	7.69

		<i>Labeo dyocheilus</i>	Kalach	2	16-17	47-50	97	3.85
		<i>Garra gotyla</i>	Buduna	3	13-16	25-30	82.5	5.77
		<i>Labeo angra</i>	Thed	2	15-18	35-40	75	3.85
		<i>Pseudochenius sulcatus</i>	Kabre	2	15-18	35-60	95	3.85
		Sub - Total		52			5069.50	100.00
		Total		172			13483.50	



Table C-13: Relative Abundance and Species Composition in Project Area (August 2016)

Sampling Station	Location	Scientific Name	Common Name	No. of Fish Caught	Size Range (Cm)	Wt. Range (Gm)	Average wt. of the Total Catch (Gm)	Species Composition %
1	Budhi Ganga with Sarane Gad Confluence area	<i>Schizothoracichthys progastus</i>	Chuche Asala	3	10.5-13	20-30	75	23.08
		<i>Schizothorax plagiosomus</i>	Buche Asala	4	11-14	20-30	100	30.77
		<i>Pseudochenius sulcatus</i>	Kabre	2	9.5-12	15-20	35	15.38
		<i>Neolissocheilus hexagonolepis</i>	Katle	2	13-13.5	25	50	15.39
		<i>Tor tor</i>	Mahseer	1	8	12	12	7.69
		<i>Tor putitora</i>	Mahseer	1	14	30	30	7.69
		Sub - Total		13			302.00	100.00
2	Budhi Ganga with Ikri Gad Confluence area	<i>Schizothoracichthys progastus</i>	Chuche Asala	2	11-15	20-33	53	10.53
		<i>Schizothorax plagiosomus</i>	Buche Asala	7	11-17	20-50	245	36.84
		<i>Garra gotyla</i>	Buduna	1	13	30	30	5.26
		<i>Barilius shacra</i>	Fageta	1	9.5	15	15	5.26
		<i>Barilius bendelisis</i>	Fageta	2	7-9	10-15	25	10.53
		<i>Neolissocheilus hexagonolepis</i>	Katle	2	16-18	40-60	100	10.53
		<i>Tor putitora</i>	Mahseer	3	6-9	10-15	37.5	15.79
		<i>Tor tor</i>	Mahseer	1	9	13	13	5.26
		Sub - Total		19			518.50	100.00
		<i>Schizothoracichthys progastus</i>	Chuche Asala	3	19-21	60-70	195	9.68
		<i>Schizothorax plagiosomus</i>	Buche Asala	6	20-22.5	65-90	465	19.35
		<i>Puntius chilinoides</i>	Karange	4	12-14	20-30	100	12.90



3	Budhi Ganga with Ardole Gad Confluence area	<i>Labeo dero</i>	Gardi	5	18-20	60-70	325	16.13
		<i>Neolissocheilus hexagonolepis</i>	Katle	3	11-15	20-34	81	9.68
		<i>Tor putitora</i>	Mahseer	2	8-10	12-15	27	6.45
		<i>Barilius bendelisis</i>	Fageta	3	9-11	15-20	52.5	9.68
		<i>Glyptothorax cavia</i>	Kapre	1	14	30	30	3.23
		<i>Garra gotyla</i>	Buduna	4	13-17	25-50	150	12.90
		Sub - Total		31			1425.50	100.00
4	Budhi Ganga with Bhimkoti Gad Confluence area	<i>Schizothoracichthys progastus</i>	Chuche Asala	4	11-16	20-40	120	11.43
		<i>Schizothorax plagiosomus</i>	Buche Asala	9	17-21.5	50-70	540	25.71
		<i>Neolissocheilus hexagonolepis</i>	Katle	4	12-17	20-50	140	11.43
		<i>Labeo dero</i>	Gardi	6	14-22	30-90	360	17.14
		<i>Tor putitora</i>	Mahseer	3	10-13	15-25	60	8.57
		<i>Puntius chilinooides</i>	Karange	5	13-17	25-50	187.5	14.29
		<i>Barilius bendelisis</i>	Fageta	2	8-10	13-16	29	5.71
		<i>Barilius barila</i>	Fageta	1	11	12	12	2.86
		<i>Garra gotyla</i>	Buduna	1	14	28	28	2.86
		Sub - Total		35			1476.50	100.00
		<i>Schizothoracichthys progastus</i>	Chuche Asala	7	14-18	30-55	297.5	14.89
		<i>Schizothorax plagiosomus</i>	Buche Asala	10	12-22	20-70	450	21.28
		<i>Schizothorax richardsonii</i>	Buche Asala	3	8-16	13-40	79.5	6.38
		<i>Neolissocheilus hexagonolepis</i>	Katle	3	13-21	25-70	142.5	6.38

5	Budhi Ganga with JijadiGad Confluence area	<i>Labeo dero</i>	Gardi	2	15-21	33-70	103	4.26
		<i>Labeo angra</i>	Thed	2	16-19	40-60	100	4.26
		<i>Tor putitora</i>	Mahseer	2	13-22	25-70	95	4.26
		<i>Puntius chinoides</i>	Karange	4	15-18	33-55	176	8.51
		<i>Barilius bendelisis</i>	Fageta	2	9-11	10-12	22	4.26
		<i>Barilius barila</i>	Fageta	1	12	12	12	2.13
		<i>Barilius shacra</i>	Fageta	3	7-13	10-20	45	6.38
		<i>Garra gotyla</i>	Buduna	3	15-16	28-30	87	6.38
		<i>Tor tor</i>	Mahseer	2	13-15	25-32	57	4.26
		<i>Anguilla bengalensis</i>	Raj bam	1	71	860	860	2.12
		<i>Pseudochenius sulcatus</i>	Kabre	2	30	300	300	4.26
		Sub - Total		47			2826.50	100.00
		Total		145			6549.00	



Table -C-14: Ecology and Life history of Long Distance Migratory Fishes of Budhi Ganga River

Species	Migration pattern												Spawning Season	Spawning Substrate	Food Source	Growth Rate	Age at Spawning	Incubation for eggs	Size at Maturity	Behaviour
	J	F	M	A	M	J	J	A	S	O	N	D								
<i>Tor putitora</i> (Golden Mahseer)					↑	↑	↑	↑	↑	↓	↓	↓	Sept-Oct	Gravel bed	Fruits algae, aquatic insect, fish fry, adult fish	16cm at first year	2.5 years	12-48 hours at temp.30 C	45cm	Fishes are seen in group circling and jumping
<i>Tor tor</i> (Deep bodied Mahseer)					↑	↑	↑	↑	↑	↓	↓	↓	Sept-Oct	Gravel bed	Adult fish, aquatic insect, algae, fish fry	15cm at 1st year	2.5 years	12-48 hrs at tem.30C	55cm	Schooling circling and jumping behaviour
<i>Anguilla bengalensis</i> (Fresh Water Eel)	↑	↑	↑	↑	↓	↓	↓	↓					June- July	Mud, sand	Fish fry, aquatic insect, mollusc and shrimp	26cm at first year				Crevice dweller avoid direct light piling snapping wriggling over movement
<i>Bagarius bagarius</i> (Catfish/Gonch)				↑	↑	↑	↑	↑	↑	↓	↓	↓	July -August	Mud, sand and decaying vegetables	Fish, crabs, mollusc, shrimp, tadpole and frog	28cm at first year	3 years		80cm	Rest in deep pool singly or in group produce monotonous gruntry noise
<i>Clupiosoma garua</i> (Jalkapoor)				↑	↑	↑	↑	↑	↓	↓	↓		June- July	Fine sand pebble	Fish fry, shrimp, crustaceans, fingerlings, tadpole frog etc	18 cm at first year	2 years		25 cm	Schooling and jumping behaviour

Upstream ↑ ↓ Downstream



Table -C-15 : Biological data of Resident Species found in Budhi Ganga River

Species	Spawning season	Spawning substrate	Food source	Age at spawning	Growth Rate	Incubation time	Size by spawning	Behavior
<i>Pseudeuchneis sulcatus</i> (Torrent catfish)	May-June	Gravel, sand and pebbles	Aquatic insects, earthworm	2 years	6.5 cm in a year	10 days at 19 C	8 cm	Live in cohesive schools, exhibit mass migration to falling springs and creeks
<i>Glyptothorax cavia</i> (River Catfish)	May-June	Gravel and sand	Aquatic insects	2 years	3.5 cm in a year	8-12 days at 18 C	9 cm	Live in cohesive schools, exhibit mass migration to creeks for spawning
<i>Glyptothorax pectinopterus</i> (River Cat fish)	June	Gravel, sandy bed& rooted vegetation	Aquatic insects, Mayfly larva	2 years	3.5 cm in a year	8-12 days depending on temperature	13 cm	Live in school of 15 to 50. They come out to migrate in huge mass during monsoon flood
<i>Garra gotyla</i> (Rock Carp)	May-June	Gravel, sand and pebbles, algae bed	Algae, slime moss	2 years	4.5cm in a year	7-10 days depending on temperature	7.5 cm	Live in school. Mass migration to spawning tributaries, rice fields and springs
<i>Garra annandalei</i> (Stone Roller)	Sept.-Oct.	Gravel, sand, Hydrilla blooms	Algae	2 year	5 cm in a year	10 days at 24C	12 cm	Exhibit local migration in monsoon for spawning season in rice fields, irrigation canal and water mill facility areas.



Table -C-16 : Ecology and Life History of Medium Distance Migratory Fishes of Budhi Ganga River

Species	Migratory pattern												Spawning season	Spawning substrate	Food Source	Growth rate	Age at Spawning	Incubation for eggs	School size	Behaviour
	J	F	M	A	M	J	J	A	S	O	N	D								
<i>Schizothoracichthys progastus</i> (Point nosed snow trout)		↑	↑	↑						↓	↓	↓	Sept-Oct and March-April	Gravel beds	Mud, Aquatic insect, fish fry, algae, drift food	6 to 12 cm at first year	1 year (Size 25-35cm)	15days at temperature 19 C	20-40	Seen in school of 20-40 fishes during spawning females are cricled by male
<i>Schizothorax plagiostomus</i> (Snow trout)		↑	↑	↑						↓	↓	↓	Sept-Oct and March-April	Gravel beds	Mud aquatic insects, fish fry algae, drift food	6 to 12 cm at first year	2 years(Size 20-35 cm)	15days at temperature 19 C	25-60	Seen in group during spawning, grazing and creeping
<i>Schizothorax richardsonii</i> (Snow trout)		↑	↑	↑						↓	↓	↓	Sept-Oct and March-April	Gravel beds	Mud aquatic insects, fish fry algae, drift food	7-12cm at 1st year	2 years(Size 20-28 cm)	15 days at temperature 19	25-60	Seen in group of 40-50 fishes creeping grazing in Seti river
<i>Neolisichtheilus hexagonolepis</i> (Copper Mahseer)					↑	↑	↑	↑	↑	↓	↓	↓	Sept-Oct	Gravel beds	Aquatic Insects, algae, fish fry	8-12 cm at 1st year	2years(Size 20-28cm)	12 days at temperature 19 C	22-55	Seen in group of 10-15 fishes swim, dart and jump to cross obstacles.
<i>Labeo angara</i> (Minor carps/Theed)				↑	↑	↑	↑	↑	↓	↓			June -July	Gravel beds	Filamentous algae, portion of higher plants, decaying organic matter	—	2years	—	10-12	Resting in deep pools
<i>Labeo dero</i> and <i>L. dyocheilus</i> (River Rohu)			↑	↑	↑	↑	↑	↑	↓	↓			June -July	Gravel beds	Filamentous algae, microscopic plants, vegetables detritus & mud	—	2 years	—		Took rest in deep pools , live together with gonch
<i>Puntius chinoides</i> (Karang)		↑	↑	↑	↑	↑	↑	↑	↓	↓			May-June	Gravel & pebble beds	Microscopic plants, vegetable matter, detritus	—	2 years	—	6-8	Resting in pools

Upstream ↑
↓ Downstream



Sample Plot No.: 1
District : Achham
Name of Forest : None
Crown Cover : Less than 5%
a. Tree Species

Table C-3 : Measurement of Forest's Sample Plot Within the Project Site and vicinity
Project Structure : Surroundings of Construction yard
VDC and Ward No.: Babla-3
Forest Type : Rakse CF
Aspect : S/W

Plot Size : 900 Sqm (30 m x 30 m)
Name of Place : None
Basal Area (%) : .01111
Slope :15°

S.N	Sapling, Pole and Tree							Sapling (Nos.)	Seedling (Nos.)	Remarks
	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [πd²/4 (m²)]	Volume = Basal Area x Tree Height x Form Factor (0.50) [m³]			
	Local	Scientific								
1	Simal	Bombax ceiba	90	0.2866	15	0.064	0.484			very less regenerating saplings due to heavy
2	Khirro	Sapium insigne	32	0.1019	3.5	0.008	0.014			much of forest vegetation
3	Khirro	Sapium insigne	34	0.1083	4	0.009	0.018			
4	Kharseto	Ficus sp.	32	0.1019	3.5	0.008	0.014	1		
5	Dabdabe	Garuga pinnata	35	0.1115	5	0.010	0.024	1	1	
						0.100	0.555			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kande Banmara	<i>Lantana camara</i>		More than 70% area covered by this sp.
2	Taapre	<i>Cassia tora</i>	20	
3	.....	<i>Sida sp.</i>	3	
4	Jangali Kera	<i>Musa sp.</i>	1	
		Total	24	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Titepati	<i>Artemisia vulgaris</i>	5	More than 10% area of the forest plot covered by this sp.
2	Chari amilo	<i>Oxalis sp.</i>	10	Significant cover on the ground with almost attached
3		<i>Euphorbia hirta</i>	5	
4	Githa	<i>Dioscorea bulbifera</i>	1	
5	Kharighans	<i>Pogonanthum sp</i>	15	Significant cover on the ground
		Total	36	



Sample Plot No.: 2
District : Achham
Name of Forest : None

Project Structure : Surroundings of Construction yard
VDC and Ward No.: Babla-3
Forest Type : Raksha CF

Plot Size : 20 x 20m
Name of Place : None
Basal Area (%) : 0.0342

Crown Cover : Less than 5%

Aspect : S/W

Slope : 12°

S.N	Sapling, Pole and Tree							Sapling (Nos.)	Seedling (Nos.)	Remarks
	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area { $\pi d^2/4$ (m ²)}	Volume = Basal Area x Tree Height x Form Factor (0.50) [m ³]			
	Local	Scientific								
1	Peepal (Main trunk)	<i>Ficus religiosa</i>	90	0.2866	20	0.064	0.645			Very less regenerating saplings. Due to heavy
2	Peepal (Side trunk)	<i>Ficus religiosa</i>	60	0.1911	18	0.029	0.258			
3	Bhimal	<i>Grewia optiva</i>	42	0.1338	6	0.014	0.042			
4	Khirro	<i>Sapium insigne</i>	34	0.1083	5	0.009	0.023	1		
3	Bhimal	<i>Grewia optiva</i>	40	0.1274	5	0.013	0.032			
4	Khirro	<i>Sapium insigne</i>	32	0.1019	4	0.008	0.016	1		
						0.137	1.016			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kande Banmara	<i>Lantana camara</i>	1	More than 80% area covered by this sp.
2	Taapre	<i>Cassia tora</i>	15	
3	.....	<i>Sida sp.</i>	3	
4	Jangali Kera	<i>Musa sp.</i>	1	
		Total	20	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Titepati	<i>Artemisia vulgaris</i>	5	More than 5% area of the forest plot covered by this sp.
2	Chari amilo	<i>Oxalis sp.</i>	14	Significant cover on the ground with almost attached
3		<i>Euphorbia hirta</i>	4	
4		<i>Dioscorea sp.</i>	1	
5	Kharighans	<i>Pogonanthum sp.</i>	15	Significant cover on the ground
		Total	39	



Sample Plot No. : 3
District :A
Name of Forest : None
Crown Cover : 5%

Project Structure : Surroundings of Construction yard
VDC and Ward No.: Babla-3
Forest Type : Raksha CF
Aspect : S

Plot Size : 30 x 20m
Name of Place : None
Basal Area (%) : 0.116
Slope : 40 °

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Area x Tree Height x Form Factor (0.50) [m ³]			
1	Saal	<i>Shorea robusta</i>	110	0.3503	20	0.096	0.963	5	12	Due to heavy growth of ground vegetation difficult
2	Saal	<i>Shorea robusta</i>	105	0.3344	18	0.088	0.790			
3	Saal	<i>Shorea robusta</i>	130	0.4140	20	0.135	1.346			
3	Saal	<i>Shorea robusta</i>	140	0.4459	21	0.156	1.639			
4	Saal	<i>Shorea robusta</i>	160	0.5096	22	0.204	2.242			
5	Amala	<i>Phyllanthus emblica</i>	32	0.1019	6	0.008	0.024			
5	Amala	<i>Phyllanthus emblica</i>	35	0.1115	6	0.010	0.029			
						0.696	7.033			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhaiyaro	<i>Woodfordia fruticosa</i>	3	Ground coverage 30% by shrubs
2	Dhursul	<i>Colebrokia oppositifolia</i>	4	
3	Kande Banmara	<i>Lantana camara</i>	5	
		Total	12	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Unknown	<i>Heteropogon contortus</i>	2	50% coverage of ground by herbs. Habitat : rocky boulders
2	Siru	<i>Imperata cylindrica</i>	7	
3	Unknown	<i>Eriophorum</i> sp.	2	
4	Ban tarul	<i>Dioscorea bulbifera</i>	1	
		Total	12	



Sample Plot No.:4

District : .

Name of Forest :

Crown Co 20%

Project Structure : Dam site (left bank)

VDC and Ward No.: Kushkot-5

Forest Type : Jukana CF (Deciduous riverine)

Aspect : N/W

Plot Size : 20 x 20m

Name of Place : Kalamudha

Basal Area (%) : .015

Slope : 25°

a. Tree species

S.N	Sapling, Pole and Tree Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area	Volume = Basal Area x Tree Height x Form Factor (0.50) (1-3)	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
1	Malato	<i>Macaranga ?denticulata</i>	32	0.1019	4.5	0.008	0.018	3	5	
2	Khirro	<i>Sapium insigne</i>	60	0.1911	12	0.029	0.172	3	4	
3	Khirro	<i>Sapium insigne</i>	40	0.1274	7	0.013	0.045		2	
4	Khirro	<i>Sapium insigne</i>	36	0.1146	7	0.010	0.036			
						0.060	0.271	6	11	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Asuro	<i>Justicia adhatoda</i>	1	
2	Karipatta	<i>Muraya coenigi</i>	3	
3	Dudhe?	<i>Ficus sp.</i>	1	
4	Unknown	<i>Sida sp.</i>	3	
5	Telchamre	<i>Sarcococca sp.</i>	1	
6	Sisno	<i>Urtica dioca</i>	1	
Total			10	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Babio	<i>Eulaliopsis binata</i>	10	
2	Titepati	<i>Artemisia sp.</i>	2	
3	Banmara	<i>Eupatorium odoratum</i>	4	
4	Kaans	<i>Saccharum spontaneum</i>	2	
5	kharighans	<i>Pogonanthum sp.</i>	4	
6	Umknown	<i>Dioscorea sp.</i>	1	
Total			23	



Sample Plot No.:5

District : /

Name of Forest : /

Crown Cover : 20%

Project Structure : headworks,Dam site(Left bank), Settling basin

VDC and Ward No.: Kushkot-5

Forest Type : Jukana CF (Deciduous riverine)

Aspect : N/W

Plot Size : 30 x 20m

Name of Place : None

Basal Area (%) : .0265

Slope : 10-15°

a. Tree species

S.N	Tree species							Sapling (Nos.)	Seedling (Nos.)	Remarks
	Sapling, Pole and Tree		CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height x Form Factor (0.50) [m ³]			
	Local	Scientific								
1	Pahadi Mauwa	<i>Englehardtia spicata</i>	55	0.1752	8	0.024	0.096	1	4	
2	Pahadi Mauwa	<i>Englehardtia spicata</i>	50	0.1592	8	0.020	0.080			
3	Phaledo?	<i>Erythrina sp.</i>	45	0.1433	6	0.016	0.048			
4	Malao	<i>Macaranga denticulata?</i>	40	0.1274	6.5	0.013	0.041			
5	Malao	<i>Macaranga denticulata?</i>	45	0.1433	7	0.016	0.056			
6	Rohini	<i>Mallotus philippinensis?</i>	35	0.1115	5	0.010	0.024		2	
7	Rohini	<i>Mallotus philippinensis?</i>	32	0.1019	4.5	0.008	0.018			
8	Rohini	<i>Mallotus philippinensis?</i>	32	0.1019	4.5	0.008	0.018			
9	Khirro	<i>Sapium insigne</i>	35	0.1115	6.5	0.010	0.024			Shrub of tree size
10	Khirro	<i>Sapium insigne</i>	35	0.1115	6.5	0.010	0.024		1	
11	Khirro	<i>Sapium insigne</i>	32	0.1019	6	0.008	0.024			
12	Pahadi Mauwa	<i>Englehardtia spicata</i>	32	0.1019	5	0.008	0.020			
13	Ghangaru	<i>Pyracantha crenulata</i>	32	0.1019	5	0.008	0.020			
						0.159	0.496			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kande Banmara	<i>Lantana camara</i>	2	
2	Dhursul	<i>Colebrokia oppositifolia</i>	1	
3	Dhaiyaro	<i>Woodfordia fruticosa</i>	1	
4	Ghangaru	<i>Pyracantha cremulata</i>	1	
5	Asuro	<i>Justicia adhatodsa</i>	1	
6	Unknown	<i>Sida sp.</i>	2	
		Total	9	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Titepati	<i>Artemisia sp.</i>	3	Total ground coverage by Sb and Hb is 80%
2	Unknown	<i>Sonchus sp.</i>	5	
3	Unknown	<i>Oplismenus sp.</i>	7	
		Total	15	



Sample Plot No.:6
District : Achham
Name of Forest : None
Crown Co 25%

Project Structure : Road to Headworks
VDC and Ward No.: Kushkot-5
Forest Type : Juka CF (Deciduous riverine)
Aspect : N/W

Plot Size : 30 x 20m
Name of Place : None
Basal Area (%) : .07400
Slope :15°

a. Tree species

S.N	Sapling, Pole and Tree Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height x Form Factor	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
1	Kalo Siris	<i>Albizzia lebbek</i>	150	0.4777	22	0.179	1.971			
2	Kalo Siris	<i>Albizzia lebbek</i>	85	0.2707	17	0.058	0.489			
3	Kalo Siris	<i>Albizzia lebbek</i>	80	0.2548	16	0.051	0.408			
4	Khirro	<i>Sapium insigne</i>	48	0.1529	8	0.018	0.073			
5	Simal	<i>Bombax ceiba</i>	72	0.2293	12	0.041	0.248			
6	Khirro	<i>Sapium insigne</i>	45	0.1433	8	0.016	0.064			
7	Khirro	<i>Sapium insigne</i>	80	0.2548	12	0.051	0.306			
8	Kakkade (Local name)	<i>Homalium nepalense</i>	34	0.1083	5	0.009	0.023	4	20	
9	Kakkade (Local name)	<i>Homalium nepalense</i>	32	0.1019	4	0.008	0.016			
10	Sindure	<i>Mallotus philippinensis</i>	40	0.1274	5.5	0.013	0.035	3	8	
						0.444	3.633	7	28	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhure	<i>Colebrokia oppositifolia</i>	3	
2	Asuro	<i>Justicia adhatoda</i>	1	
3	Karipatta	<i>Muraya coenigii</i>	2	
4	Dhaiyaro	<i>Woodfordia fruticosa</i>	1	
	Unknown	<i>Sida sp.</i>	2	
		Total	9	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Titepati	<i>Artemisia sp.</i>	10	
2	Ban Tarul	<i>Dioscorea sp.</i>	2	
		Total	12	



Sample Plot No.:7
 District : Bajura
 Name of Forest : None
 Crown Cover : 30%

Project Structure : Upper side of inundation area
 VDC and Ward No.: Bahrabise VDC - ward
 Forest Type : Juka Lamkana CF
 Aspect : E

Plot Size : 30 x 25m
 Name of Place : None
 Basal Area (%) : 0.0382
 Slope : 25°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Saal	<i>Shorea robusta</i>	80	0.2548	20	0.051	0.510	5	14	
2	Saal	<i>Shorea robusta</i>	140	0.4459	22	0.156	1.717			
3	Saal	<i>Shorea robusta</i>	40	0.1274	8	0.013	0.051			
4	Pahadi Mauwa	<i>Englehardtia spicata</i>	80	0.2548	14	0.051	0.357			
11	Sindure	<i>Mallotus philippinensis</i>	45	0.1433	6	0.016	0.048			
						0.287	2.682			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhursul	<i>Colebrokia oppositifolia</i>	2	Shrub cover of 30% in the whole plot
2	Asuro	<i>Justicia adhatoda</i>	2	
3	Kande Banmara	<i>Lantana camara</i>	5	
4	Unknown	<i>Sida sp.</i>	3	
		Total	12	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	unknown	<i>Opismenos sp.</i>	10	
2	Bhede Kuro ?	<i>Xanthium sp.</i>	2	
3	Ban Tarul	<i>Dioscorea bulbifera</i>	1	
4	Gandhe	<i>Ageratum conyzoides</i>	4	
		Total	17	



Sample Plot No.:8

District : E

Name of Forest : None

Crown Cover : 35%

Project Structure : Upper side of inundation area

VDC and Ward No.: Bahrabise VDC

Forest Type : Juka Lamkana CF

Aspect : E

Plot Size : 30 m x 25 m

Name of Place : None

Basal Area (%) : 0.0670

Slope : 20°

a. Tree species

1. Tree species			Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
S.N	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area (πd²/4 (m²))	Volume = Basal Area x Tree Height			
	Local	Scientific								
1	Sindure	Mallotus philippinensis	140	0.4459	23	0.156	1.795	1	5	
2	Sindure	Mallotus philippinensis	40	0.1274	8	0.013	0.051			
3	Sindure	Mallotus philippinensis	80	0.2548	14	0.051	0.357			
4	Pahadi Mauwa	Englehardtia spicata	150	0.4777	22	0.179	1.971			
5	Saal	Shorea robusta	90	0.2866	21	0.064	0.677	2	8	
6	Saal	Shorea robusta	70	0.2229	14	0.039	0.273			
7	Badkaulo	Casearia graveolens							8	
						0.502	5.123			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kande Banmara	<i>Lantana camara</i>	2	
2	Asuro	<i>Justicia adhatoda</i>	2	
3	Taapre	<i>Cassia tora</i>	4	
5	Dhusure	<i>Colebrokia oppositifolia</i>	1	
6	Unknown	<i>Sida sp.</i>	2	
7	Currypatta	<i>Muraya coenigii</i>	1	
		Total	12	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Siru	<i>Imperata cylindrica</i>	5	Sb and Hb coverage around 80%
2	Ban tarui	<i>Dioscorea bulbifera</i>	1	
3	Unknown	<i>Euphorbia hirta</i>	7	
4	Babiyo	<i>Eulaliopsis binata</i>	10	
		Total	23	



Sample Plot No. : 9
District : Achham
Name of Forest : None
Crown Cover : 5%

Project Structure : Adit road
VDC and Ward No.: Hattikot 8
Forest Type : Imaluokra CF
Aspect : SW

Plot Size : 625 Sqm (25 m x 25 m)
Name of Place : None
Basal Area (%) : 0.1073
Slope : 30

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area (nd ² /4 (m ²))	Volume = Basal Area x Tree Height			
1	Malato	<i>Macaranga pustulata</i>	110	0.3503	12	0.096	0.578			
2	Malato	<i>Macaranga pustulata</i>	112	0.3567	14	0.100	0.699			
3	Mayal	<i>Pyrus pashia</i>	60	0.1911	8	0.029	0.115			
4	Mayal	<i>Pyrus pashia</i>	56	0.1783	8	0.025	0.100			
5	Uttis	<i>Alnus nepalensis</i>	70	0.2229	10	0.039	0.195			
6	Uttis	<i>Alnus nepalensis</i>	86	0.2739	11	0.059	0.324			
7	Uttis	<i>Alnus nepalensis</i>	80	0.2548	10	0.051	0.255			
6	Sal	<i>Shorea robusta</i>	50	0.1592	11	0.020	0.109	22	34	
7	Sal	<i>Shorea robusta</i>	36	0.1146	7	0.010	0.036			
8	Sal	<i>Shorea robusta</i>	60	0.1911	12	0.029	0.172			
11	Sal	<i>Shorea robusta</i>	32	0.1019	6	0.008	0.024			
12	Sal	<i>Shorea robusta</i>	42	0.1338	8	0.014	0.056			
13	Sal	<i>Shorea robusta</i>	48	0.1529	9	0.018	0.083			
14	Malato	<i>Macaranga pustulata</i>	115	0.3662	16	0.105	0.842			
15	Uttis	<i>Alnus nepalensis</i>	92	0.2930	12	0.067	0.404			
						0.671	3.993			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kande Banmara	<i>Lantana camara</i>	2	
2	Bhattamase	<i>Desmodium sp.</i>	3	
3	Karipatta	<i>Murraya koenigii</i>	2	
		Total	7	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Titepati	<i>Artemisia sp.</i>	4	
2	Unyu	<i>Adiantum sp.</i>	5	
3	Babiyo	<i>Eulalipsis binata</i>	14	
		Total	23	



Sample Plot No.: 10		Project Structure : Adit					Plot Size : 25 x 25m
District : Achham		VDC and Ward No.: Hattikot-8					Name of Place : Unknown
Name of Forest : Not known		Forest Type : Emildukra CF					Basal Area (%) : 0.1436
Crown Cover : Less than 5%		Aspect : S/W					Slope : 50°

a. Tree species

S.N	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
S.N	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
1	Malato	<i>Macaranga pustulata</i>	105	0.3344	10	0.088	0.439			
2	Malato	<i>Macaranga pustulata</i>	120	0.3822	15	0.115	0.860			
3	Malato	<i>Macaranga pustulata</i>	115	0.3662	14	0.105	0.737			
4	Mayal	<i>Pyrus pashia</i>	60	0.1911	8	0.029	0.115			
5	Mayal	<i>Pyrus pashia</i>	65	0.2070	9	0.034	0.151			
6	Mayal	<i>Pyrus pashia</i>	55	0.1752	7	0.024	0.084			
7	Khirro	<i>Sapium insigne</i>	50	0.1592	7	0.020	0.070			
8	Mayal	<i>Pyrus pashia</i>	90	0.2866	12	0.064	0.387			
9	Uttis	<i>Alnus nepalensis</i>	70	0.2229	11	0.039	0.215			
10	Malato	<i>Macaranga pustulata</i>	110	0.3503	15	0.096	0.723			
11	Uttis	<i>Alnus nepalensis</i>	80	0.2548	12	0.051	0.306			
12	Uttis	<i>Alnus nepalensis</i>	90	0.2866	12	0.064	0.387			
13	Uttis	<i>Alnus nepalensis</i>	80	0.2548	12	0.051	0.306			
14	Uttis	<i>Alnus nepalensis</i>	90	0.2866	12	0.064	0.387			
15	Uttis	<i>Alnus nepalensis</i>	80	0.2548	10	0.051	0.255			
						0.896	5.420			

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Eiselu	<i>Rubus ellipticus</i>	1	
2	Sisno	<i>Urtica dioica</i>	3	
		Total	4	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
	Kalo Banmara	<i>Eupatorium adenophorum</i>	5	Wild banana (<i>Musa</i> sp) recorded at the vicinity of this plot
1				
2	Ban Tarul	<i>Dioscorea bulbifera</i>	1	
3	.....	<i>Oplismenus sp</i>	4	
4	.....	<i>Urtica macrophylla</i>	2	
		Total	12	



Sample Plot No.: 11		Project Structure : Adit					Plot Size : 10 x 10m			
District :	Achham	VDC and Ward No.: Hattikot-8					Name of Place : None			
Name of Forest :	Not known	Forest Type : Emildukra CF					Basal Area (%) : 0.25			
Crown Cover :	Less than 40%	Aspect : S/W					Slope : 30°			
a. Tree species										
S.N	Name of Plant Species		Sapling, Pole and Tree				Sapling (Nos.)	Seedling (Nos.)	Remarks	
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]				Volume = Basal Area x Tree Height
1	Sal	Shorea robusta	32	0.1019	6	0.008	0.024	22	34	
2	Sal	Shorea robusta	42	0.1338	8	0.014	0.056			
3	Sal	Shorea robusta	45	0.1433	8	0.016	0.064			
4	Sal	Shorea robusta	52	0.1656	10	0.022	0.108			
5	Sal	Shorea robusta	38	0.1210	7	0.011	0.040			
6	Sal	Shorea robusta	60	0.1911	18	0.029	0.258			
7	Sal	Shorea robusta	40	0.1274	8	0.013	0.051			
6	Sal	Shorea robusta	58	0.1847	18	0.027	0.241			
7	Sal	Shorea robusta	36	0.1146	7	0.010	0.036			
8	Sal	Shorea robusta	60	0.1911	18	0.029	0.258			
11	Sal	Shorea robusta	56	0.1783	16	0.025	0.200			
12	Sal	Shorea robusta	36	0.1146	7	0.010	0.036			
9	Sal	Shorea robusta	54	0.1720	16	0.023	0.186			
10	Sal	Shorea robusta	36	0.1146	7	0.010	0.036			
						0.247	1.595			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1		<i>Sida sp.</i>	2	
2	Badkaulo	<i>Casuarina sp.</i>	1	
		Total	3	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kharuki	<i>Pogonanthum crinitum</i>	5	
2	Sinka	<i>Cheilanthes sp.</i>	2	
3	Jangali Badam		2	
4	Titepaati	<i>Artemisia sp.</i>	2	
5	Kalo Banmara	<i>Eupatorium adenophorum</i>	4	
		Total	15	



Sample Plot No.: 12
District: Achham
Name of F Not known
Crown Co Less than 40%

Project Structure : Surroundings of Power House
VDC and Ward No.: Hattikot 3,7
Forest Type : Sukethana CF
Aspect : N/W

Plot Size : 30 x 30m
Name of Place : Salala
Basal Area (%) : 0.0273
Slope : 30°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [πd ² /4 (m ²)]	Volume = Basal Area x Tree Height			
1	Mauwa	<i>Englehardtia spicata</i>	95	0.3025	22	0.0719	0.7904	3	7	ungle area is about 300m lor
2	Mauwa	<i>Englehardtia spicata</i>	75	0.2389	20	0.0448	0.4479			
3	Mauwa	<i>Englehardtia spicata</i>	78	0.2484	20	0.0484	0.4844			
4	Sisau	<i>Dalbergia sissoo</i>	40	0.1274	8	0.0127	0.0510			Dying tree
5	Mauwa	<i>Englehardtia spicata</i>	40	0.1274	12	0.0127	0.0764			
6	Mauwa	<i>Englehardtia spicata</i>	55	0.1752	14	0.0241	0.1686			
7	Sindure	<i>Mallotus philippinensis</i>	35	0.1115	5	0.0098	0.0244			
8	Guhelo	<i>Callicarpa arborea</i>	32	0.1019	6	0.0082	0.0245			
9	Khirro	<i>Sapium insigne</i>	40	0.1274	5	0.0127	0.0318			
						0.245	2.099			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	....	<i>Sida</i>	2	
2	....	<i>Desmodium</i>	1	
3	Dhursul	<i>Colebrokia oppositifolia</i>	2	
4	Dhaiyaro	<i>Woodfordia fruticosa</i>	1	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Sinka	<i>Cheilanthes</i> sp.	4	Gr. Coverage ca 80%
2	.....	<i>Aeginetia indica</i>	5	
3	Ban tarul	<i>Dioscorea bulbifera</i>	1	
4	Kharuki	<i>Pogonanthum crinitum</i>	6	
5	Titepati	<i>Artemisia</i> sp.	2	
6	Gandhe	<i>Ageratum conyzoides</i>	4	
7	Datiwan	<i>Achyranthes aspera</i>	1	
		Total	23	



Sample Plot No.: 13
 District : Achham
 Name of F Lata Betal ko Jhad (Jungle)
 Crown Co 20%

Project Structure : Surroundings of Power House
 VDC and Ward No.: Hatikot 3,7
 Forest Type : Sukethana CF
 Aspect : Unknown

Plot Size : 30 x 30m
 Name of Place : Unknown
 Basal Area (%) : 0.0752
 Slope : 15°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area ($\pi d^2/4$ (m ²))	Volume = Basal Area x Tree Height			
1	Sal	<i>Shorea robusta</i>	82	0.2611	16	0.0535	0.4283	14	42	
2	Sal	<i>Shorea robusta</i>	86	0.2739	20	0.0589	0.5889			
3	Sal	<i>Shorea robusta</i>	90	0.2866	20	0.0645	0.6449			
4	Sal	<i>Shorea robusta</i>	78	0.2484	18	0.0484	0.4360			
5	Sal	<i>Shorea robusta</i>	74	0.2357	16	0.0436	0.3488			
6	Sal	<i>Shorea robusta</i>	72	0.2293	15	0.0413	0.3096			
7	Sal	<i>Shorea robusta</i>	88	0.2803	18	0.0617	0.5549			
8	Sal	<i>Shorea robusta</i>	87	0.2771	20	0.0603	0.6026			
9	Sal	<i>Shorea robusta</i>	74	0.2357	17	0.0436	0.3706			
10	Sal	<i>Shorea robusta</i>	72	0.2293	16	0.0413	0.3302			
11	Sal	<i>Shorea robusta</i>	70	0.2229	16	0.0390	0.3121			
12	Sal	<i>Shorea robusta</i>	71	0.2261	18	0.0401	0.3612			
13	Salla	<i>Pinus roxburghii</i>	70	0.2229	14	0.0390	0.2731	4	6	
14	Salla	<i>Pinus roxburghii</i>	72	0.2293	16	0.0413	0.3302			
						0.676	5.891			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	-----	<i>Sida sp.</i>	2	
2	Badkaulo	<i>Casearia sp.</i>	1	
		Total	3	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kharuki	<i>Pogonanthum crinitum</i>	5	
2	Sinka	<i>Cheilanthes sp.</i>	2	
3	Jangali Badam	-----	2	
4	Titepaati	<i>Artemisia sp.</i>	2	
5	Kalo Banmara	<i>Eupatorium adenophorum</i>	4	
		Total	15	



Sample Plot No.: 14
 District : Achham
 Name of Forest Betal ko Jhad (Jungle)
 Crown Cover : 10%

Project Structure : Surroundings of Power House
 VDC and Ward No.: Hattikot 3,7
 Forest Type : Sukethana CF
 Aspect : Unknown

Plot Size : 30 x 20 m
 Name of Place : Unknown
 Basal Area (%) : 0.0541
 Slope : 20°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [nd ² /4 (m ²)]	Volume = Basal Area x Tree Height			
1	Sal	<i>Shorea robusta</i>	62	0.1975	12	0.0306	0.1836	2	6	
2	Sal	<i>Shorea robusta</i>	70	0.2229	14	0.0390	0.2731			
3	Siris	<i>Albizia chinensis</i>	67	0.2134	12	0.0357	0.2144			
4	Siris	<i>Albizia chinensis</i>	55	0.1752	10	0.0241	0.1204			
5	Siris	<i>Albizia chinensis</i>	68	0.2166	12	0.0368	0.2209			
6	Salla	<i>Pinus roxburghii</i>	72	0.2293	14	0.0413	0.2889			
7	Salla	<i>Pinus roxburghii</i>	70	0.2229	15	0.0390	0.2926	5	12	
8	Salla	<i>Pinus roxburghii</i>	66	0.2102	12	0.0347	0.2081			
9	Salla	<i>Pinus roxburghii</i>	74	0.2357	16	0.0436	0.3488			
						0.325	2.151			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhaiyaro	<i>Woodfordia fruticosa</i>	1	
2	Badkaulo	<i>Casuarina sp</i>	1	
3	Karipatta	<i>Muraya coenigii</i>	2	
4	....	<i>Sida sp.</i>	2	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kalo Banmara	<i>Eupatorium adenophorum</i>	4	
2	Sinka	<i>Cheilanthes sp.</i>	2	
3	Ban Tarul	<i>Dioscorea bulbifera</i>	1	
4	Titepaati	<i>Artemisia sp.</i>	2	
5	Kharuki	<i>Pogonanthum crinitum</i>	5	
		Total	14	



Sample Plot No.: 15
District : Achham
Name of F Lata Betal ko Jhad(Jungle)
Crown Co 5%

Project Structure : Surroundings of Power House
VDC and Ward No.: Hattikot-8
Forest Type : Unknown
Aspect : unknown

Plot Size : 30 x 20m
Name of Place : Unknown
Basal Area (%) : 0.0369
Slope : 15°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area ($\pi d^2/4$ (m ²))	Volume = Basal Area x Tree Height			
1	Siris	<i>Albizia chinensis</i>	68	0.2166	12	0.0368	0.2209			
2	Siris	<i>Albizia chinensis</i>	66	0.2102	12	0.0347	0.2081			
3	Siris	<i>Albizia lebbeck</i>	56	0.1783	10	0.0250	0.1248			
4	Mauwa	<i>Englehardtia spicata</i>	75	0.2389	14	0.0448	0.3135	1	3	
5	Sal	<i>Shorea robusta</i>	72	0.2293	12	0.0413	0.2476	2	6	
6	Siris	<i>Albizia chinensis</i>	70	0.2229	14	0.0390	0.2731			
				1.2962		0.222	1.388			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhursul	<i>Colebrokia oppositifolia</i>	1	
2	Karipatta	<i>Muraya coenigii</i>	2	
3	.....	<i>Sida</i> sp.	2	
4		<i>Woodfordia fruticosa</i>	1	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kalo Banmara	<i>Eupatorium adenophorum</i>	4	
2	Gandhe	<i>Ageratum conyzoides</i>	5	
3	Ban Tarul	<i>Dioscorea bulbifera</i>	1	
4	Titepaati	<i>Artemisia</i> sp.	2	
5	Kharuki	<i>Pogonanthum crinitum</i>	5	
		Total	17	



Sample Plot No.: 16
 District : Achham
 Name of F Lata Betal ko Jhad(Jungle)
 Crown Co 5%

Project Structure : Surroundings of Power House
 VDC and Ward No.: Hatukot-8
 Forest Type : unknown
 Aspect : unknown

Plot Size : 30 x 30m
 Name of Place : Unknown
 Basal Area (%) : 0.0254
 Slope : 20°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Siris	<i>Albizia procera</i>	84	0.2675	17	0.0562	0.4775			
2	Siris	<i>Albizia lebbeck</i>	55	0.1752	10	0.0241	0.1204			
3	Siris	<i>Albizia lebbeck</i>	60	0.1911	11	0.0287	0.1576			
4	Malato	<i>Macaranga pustulata</i>	40	0.1274	7	0.0127	0.0446			
5	Sal	<i>Shorea robusta</i>	42	0.1338	8	0.0140	0.0562			
6	Sal	<i>Shorea robusta</i>	41	0.1306	8	0.0134	0.0535			
7	Khirro	<i>Sapium insigne</i>	34	0.1083	7	0.0092	0.0322			
8	Mauwa	<i>Englehardtia spicata</i>	40	0.1274	7	0.0127	0.0446	1	4	
9	Mauwa	<i>Englehardtia spicata</i>	42	0.1338	8	0.0140	0.0562			
10	Sal	<i>Shorea robusta</i>	36	0.1146	8	0.0103	0.0413	4	20	
11	Sal	<i>Shorea robusta</i>	38	0.1210	9	0.0115	0.0517			
12	Sal	<i>Shorea robusta</i>	39	0.1242	8	0.0121	0.0484			
13	Sal	<i>Shorea robusta</i>	34	0.1083	7	0.0092	0.0322			
						0.228	1.217			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	----	<i>Sida sp.</i>	2	
2	----	<i>Desmodium sp.</i>	1	
3	Dhursul	<i>Colebrokia oppositifolia</i>	2	
4	Dhaiyaro	<i>Woodfordia fruticosa</i>	1	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	unknown	<i>Optismenos sp.</i>	10	
2	Sinka	<i>Cheilanthes sp.</i>	2	
3	Ban Tanul	<i>Dioscorea bulbifera</i>	1	
4	Gandhe	<i>Ageratum conyzoides</i>	4	
5	Kharuki	<i>Pogonanthum crinitum</i>	5	
		Total	22	



Sample Plot No.:17
District : Achham
Name of F Not known
Crown Co Less than 5%

Project Structure : Surge tank area
VDC and Ward No.: Hatikot-4
Forest Type :Sukethana CF
Aspect : S/W
CPA

Plot Size : 20 x 15m
Name of Place : Sukethana ?
Basal Area (%) :0.0111
Slope : 30°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree				Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height		
1	Khirro	<i>Sapum insigne</i>	40	0.1274	3	0.0127	0.0191		
2	Sal	<i>Shorea robusta</i>	34	0.1083	4	0.0092	0.0184	4	8
3	Sal	<i>Shorea robusta</i>	38	0.1210	7	0.0115	0.0402		
4	Badkaulo	<i>Casuarina sp.</i>						1	
5	Mauwa	<i>Engelhardtia spicata</i>						1	
						0.0334	0.0778		

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	...	<i>Sida sp.</i>	3	
2	...	<i>Desmodium sp.</i>	3	
3	Dhaiyaro	<i>Woodfordia fruticosa</i>	2	
		Total	8	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Gittha	<i>Dioscorea bulbifera</i>	1	
2	Kharuki	<i>Pogonanthum crinitum</i>	8	
3	...	<i>Setaria sp.</i>	2	
4	Siru	<i>Imperata cylindrica</i>	8	
5	...	<i>Blumea fistulosa</i>	1	
		Total	20	



Sample Plot No.: 18
District : Achham
Name of F Not known
Crown Co Less than 25%

Project Structure : Surge tank area
VDC and Ward No.: Hattikot-4
Forest Type : Sukethana CF ?
Aspect : S/W

Plot Size : 10 x 10m
Name of Place : Unknown
Basal Area (%) : 0.338
Slope : 25°

a. Tree species

1	Sal	<i>Shorea robusta</i>	60	0.1911	15	0.0287	0.2150	11	48	
2	Sal	<i>Shorea robusta</i>	56	0.1783	14	0.0250	0.1748			
3	Sal	<i>Shorea robusta</i>	51	0.1624	9	0.0207	0.0932			
4	Sal	<i>Shorea robusta</i>	48	0.1529	14	0.0183	0.1284			
5	Sal	<i>Shorea robusta</i>	44	0.1401	14	0.0154	0.1079			
6	Bhalayo	<i>Rhus sp.</i>	46	0.1465	7	0.0168	0.0590			
7	Sal	<i>Shorea robusta</i>	64	0.2038	15	0.0326	0.2446			
8	Sal	<i>Shorea robusta</i>	60	0.1911	14	0.0287	0.2006			
9	Sal	<i>Shorea robusta</i>	54	0.1720	9	0.0232	0.1045			
10	Sal	<i>Shorea robusta</i>	52	0.1656	14	0.0215	0.1507			
11	Sal	<i>Shorea robusta</i>	60	0.1911	18	0.0287	0.2580			
12	Sal	<i>Shorea robusta</i>	33	0.1051	5	0.0087	0.0217			
13	Sal	<i>Shorea robusta</i>	50	0.1592	18	0.0199	0.1791			
14	Sal	<i>Shorea robusta</i>	43	0.1369	10	0.0147	0.0736			
15	Sal	<i>Shorea robusta</i>	32	0.1019	5	0.0082	0.0204			
16	Sal	<i>Shorea robusta</i>	33	0.1051	6	0.0087	0.0260			
17	Sal	<i>Shorea robusta</i>	48	0.1529	12	0.0183	0.1101			
18	Bhalayo								2	
						0.338	2.167		50	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	.....	<i>Desmodium sp.</i>	2	
2	Karipatta	<i>Murraya coenigii</i>	1	
3	Kande Banmara	<i>Lantana camara</i>	1	
4	...	<i>Sida sp.</i>	2	
Total			6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kharuki	<i>Ageratum conyzoides</i>	10	
2	Sinka	<i>Cheilanthes sp.</i>	4	
3	Siru	<i>Imperata cylindrica</i>	6	
4	Gittha	<i>Dioscorea bulbifera</i>	1	
Total			17	



Sample Plot No.: 19
District : Achham
Name of F Not known
Crown Co Less than 20%

Project Structure : Surge tank area
VDC and Ward No.: Hatikot-4
Forest Type : Sukethana CF ?
Aspect : S/W
CPA

Plot Size : 10 x 10m
Name of Place : Unknown
Basal Area (%) : 0.1332
Slope : 30°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area ($\pi d^2/4$ (m ²))	Volume = Basal Area x Tree Height			
1	Sal	<i>Shorea robusta</i>	33	0.1051	5	0.0087	0.0217	9	32	Seedling Sapling ratio v. ideal
2	Sal	<i>Shorea robusta</i>	41	0.1306	10	0.0134	0.0669			
3	Sal	<i>Shorea robusta</i>	32	0.1019	4.5	0.0082	0.0183			
4	Sal	<i>Shorea robusta</i>	38	0.1210	10	0.0115	0.0575			
7	Sal	<i>Shorea robusta</i>	39	0.1242	7	0.0121	0.0424			
8	Sal	<i>Shorea robusta</i>	41	0.1306	9	0.0134	0.0602			
9	Sal	<i>Shorea robusta</i>	53	0.1688	13	0.0224	0.1454			
10	Sal	<i>Shorea robusta</i>	32	0.1019	4.5	0.0082	0.0183			
11	Sal	<i>Shorea robusta</i>	58	0.1847	15	0.0268	0.2009			
12	Sal	<i>Shorea robusta</i>	33	0.1051	5	0.0087	0.0217			
						0.133	0.653			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1		<i>Desmodium sp.</i>	2	
2	Karipatta	<i>Murraya coenigii</i>	1	
3	Kande Banmara	<i>Lantana camara</i>	2	
4	Dhursul	<i>Colebrokia oppositifolia</i>	1	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kharuki	<i>Pogonanthum crinitum</i>	12	
2	Sinka	<i>Cheilanthes</i>	2	
3	Siru	<i>Imperata cylindrica</i>	12	
4	Githa	<i>Dioscorea bulbifera</i>	1	
		Total	27	



Sample Plot No.: 20
District : Achham
Name of Forest Not known
Crown Co 15%

Project Structure : Surge tank area
VDC and Ward No.: Hattikot-4
Forest Type : Sukethana CF ?
Aspect : S/W

Plot Size : 10 x 10m
Name of Place : Unknown
Basal Area (%) : 0.2364
Slope : 25°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Sal	<i>Shorea robusta</i>	60	0.1911	15	0.0287	0.2150	7	31	
2	Sal	<i>Shorea robusta</i>	56	0.1783	14	0.0250	0.1748			
3	Sal	<i>Shorea robusta</i>	51	0.1624	9	0.0207	0.0932			
5	Sal	<i>Shorea robusta</i>	44	0.1401	14	0.0154	0.1079			
6	Sal	<i>Shorea robusta</i>	60	0.1911	18	0.0287	0.2580			
7	Sal	<i>Shorea robusta</i>	33	0.1051	5	0.0087	0.0217			
8	Sal	<i>Shorea robusta</i>	50	0.1592	18	0.0199	0.1791			
9	Sal	<i>Shorea robusta</i>	43	0.1369	10	0.0147	0.0736			
10	Sal	<i>Shorea robusta</i>	57	0.1815	15	0.0259	0.1940			
11	Sal	<i>Shorea robusta</i>	53	0.1688	14	0.0224	0.1566			
12	Sal	<i>Shorea robusta</i>	32	0.1019	4	0.0082	0.0163			
13	Sal	<i>Shorea robusta</i>	48	0.1529	12	0.0183	0.1101			
14	Badkaulo					0.236	1.600		2	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhure	<i>Colebrokia oppositifolia</i>	1	
2	karipatta	<i>Murraya coenigii</i>	2	
3	kande Banmara	<i>Lantana camara</i>	1	
		Total	4	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kharuki	<i>Pogonanthum crinitum</i>	10	
2	Sinka	<i>Cheilanthes sp.</i>	4	
3	Siru	<i>Imperata cylindrica</i>	6	
4	Titepati	<i>Artemisia sp.</i>	2	
		Total	22	



Sample Plot No.: 21
District : Achham
Name of Forest : Not known
Crown Co 20%

Project Structure : Surge tank area
VDC and Ward No.: Hatikot-4
Forest Type : Sukethana CF ?
Aspect : S/W
CPA

Plot Size : 10 x 10m
Name of Place : Unknown
Basal Area (%) : 0.225
Slope : 25°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Sal	<i>Shorea robusta</i>	33	0.1051	5	0.0087	0.0217	8	36	
2	Sal	<i>Shorea robusta</i>	41	0.1306	10	0.0134	0.0669			
3	Sal	<i>Shorea robusta</i>	32	0.1019	4.5	0.0082	0.0183			
4	Sal	<i>Shorea robusta</i>	38	0.1210	10	0.0115	0.0575			
5	Sal	<i>Shorea robusta</i>	42	0.1338	9	0.0140	0.0632			
6	Sal	<i>Shorea robusta</i>	40	0.1274	8	0.0127	0.0510			
7	Sal	<i>Shorea robusta</i>	36	0.1146	7	0.0103	0.0361			
8	Sal	<i>Shorea robusta</i>	41	0.1306	9	0.0134	0.0602			
5	Sal	<i>Shorea robusta</i>	36	0.1146	9	0.0103	0.0464			
6	Sal	<i>Shorea robusta</i>	38	0.1210	8	0.0115	0.0460			
7	Sal	<i>Shorea robusta</i>	39	0.1242	7	0.0121	0.0424			
8	Sal	<i>Shorea robusta</i>	41	0.1306	9	0.0134	0.0602			
9	Sal	<i>Shorea robusta</i>	53	0.1688	13	0.0224	0.1454			
10	Sal	<i>Shorea robusta</i>	32	0.1019	4.5	0.0082	0.0183			
11	Sal	<i>Shorea robusta</i>	58	0.1847	15	0.0268	0.2009			
	Mauwa	<i>Englehardtia spicata</i>	50	0.1592	9	0.0199	0.0896			
12	Sal	<i>Shorea robusta</i>	33	0.1051	5	0.0087	0.0217			
						0.225	1.046	9	38	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Badkaulo	<i>Casuarina</i> sp.	2	
2	Karipatta	<i>Murraya coenigii</i>	1	
3	Kande Banmara	<i>Lantana camara</i>	1	
4	Asuro	<i>Justicia adhatoda</i>	2	
Total			6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Titepati	<i>Artemisia</i> sp.	3	
2	....	<i>Adiantum</i> sp.	4	
3	Siru	<i>Imperata cylindrica</i>	10	
4	Githa	<i>Dioscorea bulbifera</i>	1	
Total			18	



Sample Plot No.: 22
 District : Achham
 Name of Forest : Not known
 Crown Co 30%

Project Structure : Surge tank area
 VDC and Ward No.: Hattikot, 37
 Forest : Imaltukra CF
 Aspect : W

Plot Size : 10 x 10m
 Name of Place : Nr Thapagaun
 Basal Area (%) : 0.1828
 Slope : 20°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Simal	<i>Bombax ceiba</i>	65	0.2070	11	0.0336	0.1850	3	8	
2	Saal	<i>Shorea robusta</i>	62	0.1975	11	0.0306	0.1683			
3	Saal	<i>Shorea robusta</i>	55	0.1752	10	0.0241	0.1204			
4	Khiro	<i>Shorea robusta</i>	55	0.1752	9	0.0241	0.1084			
5	Saal	<i>Shorea robusta</i>	56	0.1783	12	0.0250	0.1498			
6	Saal	<i>Shorea robusta</i>	34	0.1083	5	0.0092	0.0230			
7	Saal	<i>Shorea robusta</i>	55	0.1752	8	0.0241	0.0963			
8	Saal	<i>Shorea robusta</i>	39	0.1242	7	0.0121	0.0424			
						0.1828	0.8937			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	.....	<i>Sida sp.</i>	2	
2	Badkaulo	<i>Casearia sp.</i>	1	
	Kande Banmara		1	
3		<i>Lantana camara</i>		
4	Karipatta	<i>Murraya coenigii</i>	3	
5	Sisno	<i>Urtica dioica</i>	1	
		Total	8	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Gittha	<i>Dioscorea bulbifera</i>	1	
2	Sinka	<i>Cheilanthes sp.</i>	4	
3	Unyu	<i>Adiantum sp.</i>	5	
4	.....	<i>Commelina sp.</i>	2	
5	.....	<i>Cynotis sp.</i>	2	
		Total	14	



Sample Plot No.: 23

District : Achham

Name of F Not known

Crown Co 35%

Project Structure : Surge tank area

VDC and Ward No.: Hattikot, 37

Forest : Imaltukra CF

Aspect : W

Plot Size : 10 x 10m

Name of Place : Nr Thapagaun

Basal Area (%) : 0.1572

Slope : 20°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Tooni	<i>Toona ciliata</i>	52	0.1656	8	0.0215	0.0861	2	10	
2	Saal	<i>Shorea robusta</i>	56	0.1783	9	0.0250	0.1124			
3	Saal	<i>Shorea robusta</i>	48	0.1529	11	0.0183	0.1009			
4	Saal	<i>Shorea robusta</i>	44	0.1401	7	0.0154	0.0539			
5	Saal	<i>Shorea robusta</i>	42	0.1338	8	0.0140	0.0562			
6	Saal	<i>Shorea robusta</i>	43	0.1369	7	0.0147	0.0515			
7	Khanayo	<i>Ficus cumia</i>	70	0.2229	6	0.0390	0.1170			Tree cut branches
8	Saal	<i>Shorea robusta</i>	34	0.1083	5	0.0092	0.0230			
						0.1572	0.6011			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kande Banmara	<i>Lantana camara</i>	1	
2	Karipatta	<i>Murraya coenigii</i>	3	
3	.....	<i>Desmodium sp.</i>	2	
4		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Banmara	<i>Eupatorium adenophorum</i>	6	
2	...	<i>Adiantum sp.</i>	4	
3	Gittha	<i>Dioscorea bulbifera</i>	1	
4	Gandhe	<i>Ageratum conyzoides</i>	5	
5	Sinka	<i>Cheilanthes sp.</i>	4	
		Total	20	



Sample Plot No.: 24
 District : Achham
 Name of Forest : Not known
 Crown Co 30%

Project Structure : Surge tank area
 VDC and Ward No.: Hattikot, 37
 Forest : Imaltukra CF
 Aspect : W

Plot Size : 10 x 10m
 Name of Place : Nr Thapagaun
 Basal Area (%) : 0.1320
 Slope : 20°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Khirro	<i>Sapum insigne</i>	48	0.1529	7	0.0183	0.0642			
2	Saal	<i>Shorea robusta</i>	64	0.2038	12	0.0326	0.1957	2	6	
3	Tooni	<i>Toona ciliata</i>	28	0.0892	5	0.0062	0.0156			
4	Saal	<i>Shorea robusta</i>	33	0.1051	5	0.0087	0.0217			
5	Saal	<i>Shorea robusta</i>	44	0.1401	9	0.0154	0.0694			
6	Saal	<i>Shorea robusta</i>	45	0.1433	7	0.0161	0.0564			
7	Saal	<i>Shorea robusta</i>	43	0.1369	7	0.0147	0.0515			
8	Bhimai	<i>Grewia optiva</i>	50	0.1592	12	0.0199	0.1194			
						0.1320	0.5939			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhaiyaro	<i>Woodfordia fruticosa</i>	1	
2	Karipatta	<i>Murraya coenigii</i>	2	
3	.....	<i>Desmodium sp.</i>	3	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Sinka	<i>Cheilanthes sp.</i>	1	
2	Gittha	<i>Dioscorea bulbifera</i>	4	
3	....	<i>Urtica sp.</i>	5	
4	Kharuki	<i>Pogonanthum crinitum</i>	1	
		Total	11	



Sample Plot No.: 25
 District : Achham
 Name of Forest : Not known
 Crown Co 35%

Project Structure : Surge tank area
 VDC and Ward No.: Hattikot, 37
 Forest : Imaltukra CF
 Aspect : W

Plot Size : 10 x 10m
 Name of Place : Nr Thapagaun
 Basal Area (%) : 0.1191
 Slope: 25°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area ($\pi d^2/4$ (m ²))	Volume = Basal Area x Tree Height			
1	Saal	<i>Shorea robusta</i>	44	0.1401	6	0.015	0.046	2	5	
2	Saal	<i>Shorea robusta</i>	44	0.1401	8	0.015	0.062			
3	Tooni	<i>Toona ciliata</i>	48	0.1529	10	0.018	0.092			
4	Saal	<i>Shorea robusta</i>	32	0.1019	4	0.008	0.016			
5	Botdharo	<i>Lagerstroemia parviflora</i>	46	0.1465	9	0.017	0.076			
6	Saal	<i>Shorea robusta</i>	34	0.1083	4	0.009	0.018			
7	Saal	<i>Shorea robusta</i>	67	0.2134	10	0.036	0.179			
						0.119	0.489			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1		<i>Colebrokia oppositifolia</i>	2	
2		<i>Casearia sp.</i>	1	
3		<i>Woodfordia fruticosa</i>	1	
4		<i>Murraya coenigii</i>	2	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Sinka	<i>Cheilanthes sp.</i>	1	
2	Githa	<i>Dioscorea bulbifera</i>	4	
3	Gandhe	<i>Ageratum conyzoides</i>	4	
4		<i>Opismenus sp.</i>	5	
5		Total	14	



Sample Plot No.: 26
District : Achham
Name of Forest : Not known
Crown Co 30%

Project Structure : Surge tank area
VDC and Ward No.: Hattikot, 37
Forest : Imaltukra CF
Aspect : W

Plot Size : 10 x 10m
Name of Place : Nr Thapagaun
Basal Area (%) : 0.1331
Slope : 20°

a. Tree species			Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
S.N	me of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
	Local	Scientific								
1	Jamun	<i>Syzygium cumini</i>	60	0.1911	12	0.029	0.172	1	4	
2	Saal	<i>Shorea robusta</i>	35	0.1115	6	0.010	0.029			
3	Saal	<i>Shorea robusta</i>	38	0.1210	6	0.011	0.034			
4	Saal	<i>Shorea robusta</i>	48	0.1529	12	0.018	0.110			
5	Saal	<i>Shorea robusta</i>	61	0.1943	10	0.030	0.148			
6	Saal	<i>Shorea robusta</i>	49	0.1561	8	0.019	0.076			
7	Saal	<i>Shorea robusta</i>	45	0.1433	8	0.016	0.064			
						0.133	0.635			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Badkaulo	<i>Casearia</i> sp.	1	
2	....	<i>Urena</i> sp.	3	
3	Karipatta	<i>Murraya coenigii</i>	2	
4	Dhursul	<i>Woodfordia fruticosa</i>	1	
		Total	7	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Sinka	<i>Cheilanthes</i> sp.	2	
2	Banmara	<i>Eupatorium adenophorum</i>	4	
3	Titepati	<i>Artemisia</i> sp.	2	
4	Kharuki	<i>Pogonanthum crinitum</i>	8	
		Total	16	



Sample Plot No.: 27
District : Achham
Name of Place : Not known
Crown Co 30%

Project Structure : Nr Surge tank and PH
VDC and Ward No.: Hatikot,37
Forest : Imaltukra CF
Aspect : W

Plot Size : 20 x 20m
Name of Place : Unknown
Basal Area (%) : 0.1570
Slope : 40°

a. Tree species

S.N	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Saal	Shorea robusta	55	0.1752	10	0.0241	0.1445	20	52	
2	Saal	Shorea robusta	68	0.2166	14	0.0368	0.3092			
3	Saal	Shorea robusta	71	0.2261	18	0.0401	0.4335			
4	Saal	Shorea robusta	73	0.2325	20	0.0424	0.5091			
5	Saal	Shorea robusta	72	0.2293	20	0.0413	0.4953			
6	Saal	Shorea robusta	70	0.2229	17	0.0390	0.3979			
7	Saal	Shorea robusta	95	0.3025	22	0.0719	0.9485			
8	Saal	Shorea robusta	67	0.2134	13	0.0357	0.2788			
9	Saal	Shorea robusta	64	0.2038	14	0.0326	0.2739			
10	Saal	Shorea robusta	76	0.2420	21	0.0460	0.5794			
11	Saal	Shorea robusta	73	0.2325	20	0.0424	0.5091			
12	Saal	Shorea robusta	68	0.2166	18	0.0368	0.3976			
13	Saal	Shorea robusta	53	0.1688	10	0.0224	0.1342			
14	Saal	Shorea robusta	91	0.2898	23	0.0659	0.9099			
15	Saal	Shorea robusta	73	0.2325	21	0.0424	0.5346			
16	Saal	Shorea robusta	32	0.1019	5	0.0082	0.0245			
						0.628	6.880			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Badkaulo	Casearia sp.	1	
2		Urena sp.	5	
3	Kande Banimara	Lantana camara	1	
		Total	7	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kharuki	Pogonanthum crinitum	20	
2	Gittha	Dioscorea bulbifera	1	
3	Sinka	Cheilanthes sp.	5	
		Total	26	



Sample Plot No.: 28
District : Achham
Name of Forest : Not known
Crown Co 30%

Project Structure : Nr Surge tank and PH
VDC and Ward No.: Hattikot, 37
Forest : Imaltukra CF
Aspect : W

Plot Size : 15 x 15m
Name of Place : Unknown
Basal Area (%) : 0.1395
Slope : 40°

a. Tree species

S.N.	Name of Plant Species		Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific	CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height			
1	Saal	Shorea robusta	62	0.1975	13	0.0306	0.1989	11	26	
2	Saal	Shorea robusta	62	0.1975	13	0.0306	0.1989			
3	Saal	Shorea robusta	71	0.2261	14	0.0401	0.2809			
4	Saal	Shorea robusta	73	0.2325	19	0.0424	0.4031			
5	Saal	Shorea robusta	70	0.2229	19	0.0390	0.3706			
6	Saal	Shorea robusta	77	0.2452	22	0.0472	0.5193			
7	Saal	Shorea robusta	75	0.2389	18	0.0448	0.4031			
8	Saal	Shorea robusta	70	0.2229	20	0.0390	0.3901			
						0.314	2.765			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Badkaulo	Casearia sp.	1	
2		Sida sp.	4	
3	Kande Banmara	Lantana camara	1	
4	Karipatta	Murraya koenigii	2	
		Total	8	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Kharuki	Pogonanthum crinitum	20	
2	Githa	Dioscorea bulbifera	1	
3	Gandhe	Ageratum conyzoides	5	
4	Banmara	Eupatorium adenophorum	5	
		Total	31	



Sample Plot No.: 29
District : Achham
Name of Forest known
Crown Co 45%

Project Structure : Reservoir area
VDC and Ward No.: Kushkot-5
Forest Type : jukaban CF
Aspect : W

Plot Size : 20 x 15m
Name of Place : Ekadi Dobhan
Basal Area (%) : 0.0645
Slope : 60°

a. Tree species

S.N	Sapling, Pole and Tree		CBH (cm)	Diameter (m)	Height (m)	Basal Area [πd ² /4 (m ²)]	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Name of Plant	Scientific								
Local										
1	Malato	<i>Macaranga pustulata</i>	34	0.1083	5	0.0092	0.0230			
2	Malato	<i>Macaranga pustulata</i>	32	0.1019	4.5	0.0082	0.0183			
5	Mauwa	<i>Englehardtia spicata</i>	47	0.1497	15	0.0176	0.1319			
6	Mauwa	<i>Englehardtia spicata</i>	45	0.1433	14.5	0.0161	0.1169			
7	Mauwa	<i>Englehardtia spicata</i>	46	0.1465	14.5	0.0168	0.1221			
8	Mauwa	<i>Englehardtia spicata</i>	42	0.1338	14.5	0.0140	0.1018			
9	Mauwa	<i>Englehardtia spicata</i>	60	0.1911	18	0.0287	0.2580			
10	Malato	<i>Macaranga pustulata</i>	33	0.1051	5.5	0.0087	0.0238			
11	Malato	<i>Macaranga pustulata</i>	38	0.1210	7	0.0115	0.0402			
12	Malato	<i>Macaranga pustulata</i>	35	0.1115	6	0.0098	0.0293			
13	Malato	<i>Macaranga pustulata</i>	32	0.1019	5	0.0082	0.0204			
14	Tooni	<i>Toona ciliata</i>	45	0.1433	16	0.0161	0.1290			
15	Sindure	<i>Mallotus philippinensis</i>						1	2	
16	Khirro	<i>Sapium insigne</i>						2	4	
						0.1648	1.0148	3	6	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhure	<i>Colebrokia oppositifolia</i>	1	
2	Asuro	<i>Justicia adhatoda</i>	2	
3	Karipatta	<i>Murraya coenigii</i>	1	
4	Sisno	<i>Urtica dioica</i>	2	
		Total	6	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Uhyu	<i>Pteris</i> sp.	4	
2	Sarpako Makai	<i>Ariesaema</i> sp.	2	
3	Kaane	<i>Urtica / Boehmeria</i> sp ?	4	
4	Babiyo	<i>Eulaliopsis binata</i>	8	
		Total	18	



Sample Plot No.: 30

District : Bajura

Name of F Not known

Crown Co 5%

Project Structure : Reservoir area

VDC and Ward No.:Barabise

Forest Type :Jukana lamkana CF

Aspect : E

Plot Size : 30x 15m

Name of Place : Near Ekdi Dobhan

Basal Area (%) : 0.044

Slope : 15°

a. Tree species

S.N	Sapling, Pole and Tree		CBH (cm)	Diameter (m)	Height (m)	Basal Area ($\pi d^2/4$ (m ²))	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Name of Plant	Scientific								
1	Malato	<i>Macaranga pustulata</i>	45	0.1433	5	0.0161	0.0403		2	
2	Sindure	<i>Mallotus philippinensis</i>	55	0.1752	7	0.0241	0.0843			
3	Sindure	<i>Mallotus philippinensis</i>	50	0.1592	6	0.0199	0.0597			
4	Sal	<i>Shorea robusta</i>	32	0.1019	5	0.0082	0.0204	1	3	
5	Sindure	<i>Mallotus philippinensis</i>	35	0.1115	4	0.0098	0.0195			
6	Bhalayo	<i>Rhus</i> sp.	35	0.1115	5	0.0098	0.0244			
7	Simal	<i>Bombax ceiba</i>	42	0.1338	7	0.014	0.049			
8	Daar	<i>Boehmeria rugulosa</i>	34	0.1083	4.5	0.0092	0.0207	1		
9	Daar	<i>Boehmeria rugulosa</i>	32	0.1019	4	0.0082	0.0163	1		
10	Amala	<i>Phyllanthus emblica</i>						1		
11	Saal	<i>Shorea robusta</i>	34	0.1083	7	0.0092	0.0322			
12	Saal	<i>Shorea robusta</i>	53	0.1688	11	0.0224	0.1230			
13	Saal	<i>Shorea robusta</i>	48	0.1529	11	0.0183	0.1009			
14	Saal	<i>Shorea robusta</i>	38	0.1210	7	0.0115	0.0402			
15	Saal	<i>Shorea robusta</i>	34	0.1083	11	0.0092	0.0506			
16	Saal	<i>Shorea robusta</i>	36	0.1146	11	0.0103	0.0568	14	26	
						0.2001	0.7385			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhaiyaro	<i>Woodfordia fruticosa</i>	1	
2	Areli	<i>Mimosa rubicaulis</i>	1	
3		<i>Phyllanthus</i> sp.	3	
4		<i>Urena</i> sp.	2	
5	karipatta	<i>Murraya coenigii</i>	2	
6	Dhusure	<i>Colebrokia oppositifolia</i>	1	
7	Ghangaru	<i>Pyracantha crenulata</i>	1	
	Total		11	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Gittha	<i>Dioscorea bulbifera</i>	1	
2		<i>Cyperus</i> sp.	3	
3	Kuro	<i>Cynoglossum</i> sp.	4	
4	Titepati	<i>Artemisia</i> sp.	2	
	Total		10	



Sample Plot No.: 31

District : achham

Name of F Not known

Crown Co 30%

Project Structure : Upper surface of Reservoir area

VDC and Ward No.: Kuskot

Forest :Jukan:Community

W

Plot Size : 10 x 10m

Name of Place : Near Ekdi Dobhan

Basal Area (%) : 0.285

Slope : 10°

a. Tree species

S.N	Local Name	Scientific Name	Sapling, Pole and Tree					Sapling (Nos.)	Seedling (Nos.)	Remarks
			CBH (cm)	Diameter (m)	Height (m)	Basal Area ($\pi d^2/4$ (m ²))	Volume = Basal Area x Tree Height			
1	Saal	<i>Shorea robusta</i>	68	0.2166	20	0.0368	0.3682			
2	Saal	<i>Shorea robusta</i>	62	0.1975	11	0.0306	0.1683			
3	Saal	<i>Shorea robusta</i>	59	0.1879	11	0.0277	0.1524			
4	Sindure	<i>Mallotus philippinensis</i>	32	0.1019	5	0.0082	0.0204			
5	Saal	<i>Shorea robusta</i>	62	0.1975	11	0.0306	0.1683			
6	Sindure	<i>Mallotus philippinensis</i>	35	0.1115	6	0.0098	0.0293			
7	Sindure	<i>Mallotus philippinensis</i>	32	0.1019	5	0.0082	0.0204			
8	Saal	<i>Shorea robusta</i>	38	0.1210	7	0.0115	0.0402			
9	Saal	<i>Shorea robusta</i>	64	0.2038	11	0.0326	0.1794			
10	Saal	<i>Shorea robusta</i>	56	0.1783	11	0.0250	0.1373			
11	Saal	<i>Shorea robusta</i>	42	0.1338	7	0.0140	0.0492			
12	Saal	<i>Shorea robusta</i>	60	0.1911	11	0.0287	0.1576			
13	Saal	<i>Shorea robusta</i>	55	0.1752	11	0.0241	0.1325			
14	Sindure	<i>Shorea robusta</i>	60	0.1911	9	0.0287	0.1290			
15	Saal	<i>Shorea robusta</i>	62	0.1975	9	0.0306	0.1377			
16	Saal	<i>Shorea robusta</i>	63	0.2006	9	0.0316	0.1422			
17	Sindure	<i>Mallotus philippinensis</i>	48	0.1529	8	0.0183	0.0734			
18	Saal	<i>Shorea robusta</i>	35	0.1115	5	0.0098	0.0244			
19	Tooni	<i>Toona ciliata</i>	34	0.1083	5.5	0.0092	0.0253		2	
						0.416	2.155	17	24	

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Gadaule (Karip)	<i>Murraya coenigi</i>	2	
2	Badkaule	<i>Casuarina sp.</i>	2	
3	KandeBbanmaa	<i>Lantana camera</i>	1	
3	.....	<i>Urena sp.</i>	3	
3	Bhatte	<i>Desmodium sp.</i>	2	
Total			10	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	.....	<i>Oplesmenus sp.</i>	10	
2	Gittha	<i>Dioscorea bulbifera</i>	2	
3	Unvu	<i>Adiantum sp.</i>	4	
4	Titepati	<i>Artemisia sp.</i>	2	
Total			18	



Sample Plot No.: 32

District : Bajura

Name of E Not known

Crown Co 35%

Project Structure : Upper surface of Reservoir area

VDC : Bahrabise,

Forest Type : Jukana Lamkana CF

Aspect : E

Plot Size : 10 x 10m

Name of Place : Near Ekdi Dobhan

Basal Area (%) : 0.3301

Slope : 10°

a. Tree species

S.N	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area $[\pi d^2/4 (m^2)]$	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
1	Sindure	<i>Mallotus philippinensis</i>	37	0.1178	6	0.0109	0.0327			
2	Saal	<i>Shorea robusta</i>	33	0.1051	5	0.0087	0.0217	12	25	
3	Saal	<i>Shorea robusta</i>	32	0.1019	4.5	0.0082	0.0183			
4	Kokkade	<i>Homalium sp.</i>	52	0.1656	9	0.0215	0.0969			
5	Saal	<i>Shorea robusta</i>	40	0.1274	7	0.0127	0.0446			
6	Saal	<i>Shorea robusta</i>	68	0.2166	10	0.0368	0.1841			
7	Saal	<i>Shorea robusta</i>	32	0.1019	5	0.0082	0.0204			
8	Saal	<i>Shorea robusta</i>	41	0.1306	6	0.0134	0.0402			
9	Dabdabe	<i>Garuga pinnata</i>	45	0.1433	7	0.0161	0.0564			
10	Dabdabe	<i>Garuga pinnata</i>	40	0.1274	6	0.0127	0.0382			
11	Sindure	<i>Mallotus philippinensis</i>	50	0.1592	8	0.0199	0.0796			
12	Saaj	<i>Terminalia alata</i>						2		
13	Saal	<i>Shorea robusta</i>	42	0.1338	7	0.0140	0.0492			
14	Saal	<i>Shorea robusta</i>	55	0.1752	11	0.0241	0.1325			
15	Saal	<i>Shorea robusta</i>	42	0.1338	11	0.0140	0.0772			
16	Saal	<i>Shorea robusta</i>	40	0.1274	7	0.0127	0.0446			
17	Saal	<i>Shorea robusta</i>	40	0.1274	11	0.0127	0.0701			
18	Saal	<i>Shorea robusta</i>	32	0.1019	11	0.0082	0.0448			
						0.2549	1.0514			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Asuro	<i>Justicia adhatoda</i>	2	
2	Dhaiyaro	<i>Woodfordia fruticosa</i>	1	
3	Dhursul	<i>Colebrokia oppositifolia</i>	1	
4	Karipatta	<i>Murraya coenigi</i>	2	
		Total	5	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Gittha	<i>Dioscorea bulbifera</i>	1	
2	Kharuki	<i>Pogonanthum crinitum</i>	12	
3	Titepati	<i>Artemisia sp.</i>	2	
4	Banmara	<i>Eupatorium adenophorum</i>	4	
		Total	17	



Sample Plot No.: 33

District : achham

Name of F Not known

Crown Co 30%

Project Structure : Upper surface of Reservoir area

VDC : Kuskot, Acchham

Forest Type : Jukaana Community forest

Aspect : W

Plot Size : 10 x 10m

Name of Place :Above Ekdi Dobhan

Basal Area (%) {0.337

Slope : 15°

a. Tree species

S.N	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [πd ² /4 (m ²)]	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
1	Saal	<i>Shorea robusta</i>	32	0.1019	5	0.0082	0.0204	14	24	
2	Sindure	<i>Mallotus philippinensis</i>	76	0.2420	22	0.0460	0.5059			
3	Saal	<i>Shorea robusta</i>	64	0.2038	13	0.0326	0.2120			
4	Saal	<i>Shorea robusta</i>	72	0.2293	20	0.0413	0.4127			
5	Saal	<i>Shorea robusta</i>	62	0.1975	12	0.0306	0.1836			
6	Saal	<i>Shorea robusta</i>	67	0.2134	12	0.0357	0.2144			
7	Kokkade	<i>Homalium sp.</i>	42	0.1338	7	0.0140	0.0492			
8	Saal	<i>Shorea robusta</i>	34	0.1083	7	0.0092	0.0322			
9	Saal	<i>Shorea robusta</i>	55	0.1752	11	0.0241	0.1325			
10	Saal	<i>Shorea robusta</i>	50	0.1592	11	0.0199	0.1095			
11	Saal	<i>Shorea robusta</i>	40	0.1274	7	0.0127	0.0446			
12	Saal	<i>Shorea robusta</i>	45	0.1433	11	0.0161	0.0887			
13	Saal	<i>Shorea robusta</i>	40	0.1274	11	0.0127	0.0701	14		
14	Saal	<i>Shorea robusta</i>	42	0.1338	7	0.0140	0.0492			
15	Sindure	<i>Mallotus philippinensis</i>	55	0.1752	8	0.0241	0.0963			
16	Saal	<i>Shorea robusta</i>	34	0.1083	5.5	0.0092	0.0253			
17	Sindure	<i>Mallotus philippinensis</i>	66	0.2102	10	0.0347	0.1734			
18	Saal	<i>Shorea robusta</i>	32	0.1019	5	0.0082	0.0204			
19	Badkaulo	<i>Casearia sp.</i>				0.3934	2.4403		2	
								14	26	

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1		<i>Murraya coenigi</i>	2	
2		<i>Sarcococca sp.</i>	3	
3		<i>Colebrokia oppositifolia</i>	1	
4		<i>Sida sp.</i>	3	
5		<i>Desmodium sp.</i>	2	
		Total	11	

c. Herb Species (1m x 1m)

S.N.	Local name	Scientific Name	Nos.	Remarks
1	Gandhe	<i>Ageratum conyzoides</i>	5	
2	Githa	<i>Dioscorea bulbifera</i>	1	
3	Banmara	<i>Eupatorium adenophorum</i>	4	
4	Unyu	<i>Cheilanthes sp.</i>	2	
		Total	12	



Sample Plot No.: 34

District : Bajura

Name of Forest : Not known

Crown Co 35%

Project Structure : Upper surface of Reservoir area

VDC : Bahrabise

Forest Type : Jukana Lamkana CF

Aspect : E

MP

Plot Size : 10 x 10m

Name of Place : Near Ekdi Dobhan

Basal Area (%) : 0.402

Slope : 10°

a. Tree species

S.N	Name of Plant Species		CBH (cm)	Diameter (m)	Height (m)	Basal Area [$\pi d^2/4$ (m ²)]	Volume = Basal Area x Tree Height	Sapling (Nos.)	Seedling (Nos.)	Remarks
	Local	Scientific								
1	Saal	<i>Shorea robusta</i>	32	0.1019	5	0.008	0.020	16	21	
2	Saal	<i>Shorea robusta</i>	34	0.1083	6	0.009	0.028			
3	Saal	<i>Shorea robusta</i>	84	0.2675	22	0.056	0.618			
4	Saal	<i>Shorea robusta</i>	32	0.1019	5	0.008	0.020			
5	Saal	<i>Shorea robusta</i>	82	0.2611	22	0.054	0.589			
6	Saal	<i>Shorea robusta</i>	33	0.1051	4.5	0.009	0.020			
7	Saal	<i>Shorea robusta</i>	35	0.1115	6	0.010	0.029			
8	Saal	<i>Shorea robusta</i>	75	0.2389	18	0.045	0.403			
9	Sindure	<i>Mallotus philippinensis</i>	72	0.2293	11	0.041	0.227			
10	Saal	<i>Shorea robusta</i>	42	0.1338	7	0.014	0.049			
11	saal	<i>Shorea robusta</i>	48	0.1529	8	0.018	0.073			
12	Kakkade	<i>Homalium sp.</i>	40	0.1274	7	0.013	0.045			
13	Saal	<i>Shorea robusta</i>	40	0.1274	7	0.0127	0.0446			
14	Saal	<i>Shorea robusta</i>	50	0.1592	11	0.0199	0.1095			
15	Saal	<i>Shorea robusta</i>	35	0.1115	11	0.0098	0.0536			
16	Saal	<i>Shorea robusta</i>	38	0.1210	7	0.0115	0.0402			
17	Saal	<i>Shorea robusta</i>	42	0.1338	11	0.0140	0.0772			
18	Saal	<i>Shorea robusta</i>	34	0.1083	11	0.0092	0.0506			
						0.362	2.497			

b. Shrub Species (5m x 5m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1	Dhursul	<i>Colebrokia oppositifolia</i>	2	
2	Badkaulo	<i>Casearia sp.</i>	1	
3	Gadaule (Karip)	<i>Murraya coenigi</i>	2	
4	Asuro	<i>Justicia adhatoda</i>	2	
Total			7	

c. Herb Species (1m x 1m)

S.N.	Local Name	Scientific Name	Nos.	Remarks
1		<i>Ageratum conyzoides</i>	4	
2		<i>Dioscorea bulbifera</i>	1	
3		<i>Eupatorium adenophorum</i>	5	
4		<i>Oplismenus sp.</i>	2	
Total			12	



Table C4: Flora of the Project Area

S.No.	Botanical Name	Local Name	Family	Remarks
1.	<i>Acacia catechu</i>	Khayar	Leguminosae	SS, PA
2.	<i>Adina cordifolia</i>	Haldu	Rubiaceae	PA
3.	<i>Achyranthes aspera</i>	Datiwan	Acanthaceae	PA
4.	<i>Adiantum capillus-veneris</i>		Pteridaceae	SS, PA
5.	<i>Aegle marmelos</i>	Bel	Rutaceae	PA
6.	<i>Aeginetia indica</i>		Orobanchaceae	SS, PA
7.	<i>Ageratum conyzoides</i>	Gandhe	Compositae	SS, PA
8.	<i>Albizzia lebeck</i>	Kalo Siris	Leguminosae	PA
9.	<i>Albizzia procera</i>	Seto Siris	Leguminosae	PA
10.	<i>Alnus nepalensis</i>	Uttis	Betulaceae	SS, PA
11.	<i>Alangium sp.</i>		Alangiaceae	PA
12.	<i>Amaranthus spinosus</i>	Lundekanda	Amaranthaceae	PA
13.	<i>Ariesaema</i>	Sarpako Makai	Araceae	SS, PA
14.	<i>Artemisia sp</i>	Titepati	Compositae	SS,PA
15.	<i>Artemisia indica</i>	Titepati	Compositae	SS,PA
16.	<i>Atrocarpus lakoocha</i>	Badahar	Moraceae	PA
17.	<i>Asparagus raceamosus</i>	Kurilo	Liliaceae	PA
18.	<i>Bridelia retusa</i>	Gayo	Euphorbiaceae	PA
19.	<i>Bauhinia vahlii</i>	Bhorla	Leguminosae	SS,PA
20.	<i>Bauhinia malabarica</i>		Leguminosae	PA
21.	<i>Bauhinia variegata</i>	Koiralo	Leguminosae	PA
22.	<i>Begonia sp.</i>	Magarkanche	Begoniaceae	SS,PA



23.	<i>Bidens pilosa</i>	Kuro	Compositeae	PA
24.	<i>Boehmeria rugulosa</i>	Daar	Urticaceae	SS, PA
25.	<i>Bombax ceiba</i>	Simal	Bombacaceae	SS, PA
26.	<i>Butea minor</i>	Bhuleyro	Leguminosae	PA
27.	<i>Callicarpa macrophylla</i>		Verbenaceae	PA
28.	<i>Callicarpa arborea</i>	Guelo	Verbenaceae	SS, PA
29.	<i>Calotropis gigantia</i>	Aank	Asclepiadaceae	PA
30.	<i>Cannabis astiva</i>	Gaanja	Cannabinaceae	PA
31.	<i>Cappilipedium assimile</i>	Musekhari	Compositae	PA
32.	<i>Carex sp</i>		Cyperaceae	PA
33.	<i>Casearia sp.</i>	Badkaulo	Flacourtiaceae	SS, PA
34.	<i>Cassia tora</i>	Chakramardi	Leguminosae	SS, PA
35.	<i>Cassia occidentalis</i>	Taapre	Leguminosae	SS, PA
36.	<i>Centella asiatica</i>	Ghodtaapre	Umbelliferae	SS, PA
37.	<i>Cheilanthes dalhouasiae</i>	Sinka	Polypodiaceae	PA
38.	<i>Cheilanthes sp.</i>	Sinka	Polypodiaceae	PA
39.	<i>Colebrokia oppositifolia</i>	Dhursul	Labiatae	SS, PA
40.	<i>Cissampelos sp.</i>	Batulpate	Menispermaceae	SS, PA
41.	<i>Crassocephalum crepidioides</i>		Compositae	PA
42.	<i>Cuscuta reflexa</i>	Amarlata	Cuscutaceae	PA
43.	<i>Cynodon dactylon</i>	Dubo	Gramineae	SS, PA
44.	<i>Cynoglossum sp.</i>	Kuro	Boraginaceae	PA
45.	<i>Cyperus rotundus</i>	Mothe	Cyperaceae	PA
46.	<i>Cyperus sp.</i>		Cyperaceae	PA



47.	<i>Dalbergia sissoo</i>	Sissoo	Leguminosae	SS, PA
48.	<i>Desmodium sp</i>	Bhatte	Leguminosae	SS, PA
49.	<i>Desmosttachys bipinnata</i>	Kush	Gramineae	PA
50.	<i>Dendrocalamus sp.</i>	Banabans	Gramineae	PA
51.	<i>Dioscorea bulbifera</i>	Gitthha	Dioscoreaceae	SS, PA
52.	<i>Dioscorea deltoidea</i>	Vyakur	Dioscoreaceae	SS, PA
53.	<i>Diploknema butyracea</i>	Chiuri	Sapotaceae	PA
54.	<i>Dryopteris cochleata</i>	Nihuro	Polypodiaceae	SS
55.	<i>Dryopteris vittata</i>			PA
56.	<i>Dicranopteris linearis</i>		Polypodiaceae	PA
57.	<i>Eclipta prostrata</i>	Bhringiraj	Compositae	PA
58.	<i>Englehardtia spicata</i>	Pahadi Mauwa	Juglandaceae	SS, PA
59.	<i>Equisetum arvense</i>	Ankhle jhar	Equisetaceae	PA
60.	<i>Eriophorum cosmosum</i>			PA
61.	<i>Erythrina stricta</i>	Haldu	Leguminosae	PA
62.	<i>Eulaliopsis binata</i>	Babiyo	Gramineae	PA
63.	<i>Euphorbia hirta</i>		Euphorbiaceae	SS, PA
64.	<i>Eupatorium adenophorum</i>	Banmara	Composiate	SS, PA
65.	<i>Ficus auriculata</i>	Timilo	Moraceae	PA
66.	<i>Ficus benjamina</i>	Sami	Moraceae	PA
67.	<i>Ficus benghalensis</i>	Bar	Moraceae	PA
68.	<i>Ficus nerifolia</i>	Dudhilo	Moraceae	PA
69.	<i>Ficus lacor</i>	Kabhro	Moraceae	PA
70.	<i>Ficus semicordata</i>	Khanayo	Moraceae	PA



71.	<i>Ficus religiosa</i>	Peepal	Moraceae	SS, PA
72.	<i>Ficus sp 1.</i>		Moraceae	SS, PA
73.	<i>Ficus sp 2</i>		Moraceae	SS, PA
74.	<i>Ficus hispida</i>	Kharseto	Moraceae	PA
75.	<i>Garuga pinnata</i>	Dabdabe	Burseraceae	SS, PA
76.	<i>Gonatanthus sp.</i>	Jaluko	Araceae	SS, PA
77.	<i>Grewia optiva</i>	Syalphusro	Tiliaceae	SS, PA
78.	<i>Gnaphalium affine</i>		Composite	PA
79.	<i>Homalium nepalense</i>	Kakkade	Flacourtiaceae	PA
80.	<i>Heteropogon contortus</i>	Khar	Gramineae	SS, PA
81.	<i>Hibiscus rosa-chinensis</i>	Bahramase	Malvaceae	PA
82.	<i>Hedychium sp.</i>		Zingiberaceae	PA
83.	<i>Hypericum sp.</i>		Hypericaceae	PA
84.	<i>Imperata cylindrica</i>	Siru	Gramineae	SS, PA
85.	<i>Indigofera sp.</i>		Leguminosae	PA
86.	<i>Ipomea sp.</i>	Besaram		PA
87.	<i>Inula cappa</i>	Gai Tihare	Compositae	SS, PA
88.	<i>Jasminum multiflorum</i>	Jai		PA
89.	<i>Jatropha curcus</i>	Sajiwan	Euphorbiaceae	SS, PA
90.	<i>Kydia sp.</i>		Malvaceae	SS, PA
91.	<i>Justicia adhatoda</i>	Asuro	Acanthaceae	SS, PA
92.	<i>Lagestrormia parviflora</i>	Botdhaiyaro	Lythraceae	SS, PA
93.	<i>Lantana camara</i>	Kande Banmara	Verbenaceae	SS, PA
94.	<i>Litsea monopetala</i>	Kutmiro	lauraceae	PA



95.	<i>Lygodium japonicum</i>	Kukurjhar	Schizaceae	PA
96.	<i>Macaranga pustulata</i>	Malato	Euphorbiaceae	SS, PA
97.	<i>Mangifera indica</i>	Aaap	Anacardiaceae	PA
98.	<i>Mallotus philippinensis</i>	Sindure	Euphorbiaceae	SS, PA
99.	<i>Melia azadiractah</i>	Bakenu	Meliaceae	PA
100.	<i>Mentha arvensis</i>	Pudina	Labiataea	PA
101.	<i>Mimosa rubicaulis</i>	Arelu	Leguminosae	SS, PA
102.	<i>Murraya coenigii</i>	Karipatta	Rutaceae	SS, PA
103.	<i>Mussaenda sp.</i>	Dhobibmi	Rubiaceae	PA
104.	<i>Nephrolepis cordifolia</i>	Pani Amala	Davalliaceae	SS, PA
105.	<i>Osbeckia nepalense</i>	Rato Chulsi	Melastomaceae	SS, PA
106.	<i>Onychium ?japaonicum</i>	Unyu		SS, PA
107.	<i>Oroxylon indicum</i>	Tatelo	Bignoniaceae	SS, PA
108.	<i>Osyris sp.</i>	Nundhiki	Santalaceae	PA
109.	<i>Oxalis corniculata</i>	Chariamilo	Oxalidaceae	SS, PA
110.	<i>Parthenium houstonianum</i>		Compositae	PA
111.	<i>Perilla frutescens</i>	Silam	Labiatae	PA
112.	<i>Phyllanthus emblica</i>	Amala	Euphorbiaceae	SS, PA
113.	<i>Pinus roxburghii</i>	Rani Salla	Pinaceae	SS, PA
114.	<i>Plumeria rubra</i>	Apocynaceae	Apocynaceae	PA
115.	<i>Polygonum flaccidum</i>	Pire	Polygonaceae	PA
116.	<i>Pyrus pashia</i>	Mayal	Rosaceae	PA
117.	<i>Pyracantha crenulata</i>	Ghangharu	Rosaceae	SS, PA
118.	<i>Piper longum</i>	Pipla	Piperaceae	PA



119.	<i>Pogonanthum crinitum</i>	Kharuki	Gramineae	SS, PA
120.	<i>Pogostemon bengalensis</i>	Rudilo	Labiatae	PA
121.	<i>Polygonum sp.</i>		Polygonaceae	PA
122.	<i>Prunella vulgaris</i>		Labiatae	PA
123.	<i>Premna barbata</i>	Gineri	Verbenaceae	PA
124.	<i>Pteris biaurita</i>		Polypodiaceae	PA
125.	<i>Pteris vittata</i>	Unyu	Polypodiaceae	SS, PA
126.	<i>Quamoclit pennata</i>	Jayanti lahara	Convolvulaceae	PA
127.	<i>Reinwardtia indica</i>	Pyauli	Linaceae	PA
128.	<i>Ricinus communis</i>	Ader	Euphorbiaceae	PA
129.	<i>Rubus ellipticus</i>	Aiselu	Rosaceae	SS,L,R
130.	<i>Rumex hastatus</i>	Halhale	Polygonaceae	PA
131.	<i>Saccharum spontaneum</i>	Ukhu	Gramineae	PA
132.	<i>Salvia sp</i>		Labiatae	PA
133.	<i>Sapium insigne</i>	Khirro	Euphorbiaceae	SS, PA
134.	<i>Sarcococca sp.</i>		Buxaceae	PA
135.	<i>Schima wallichii</i>	Chilaune	Theaceae	PA
136.	<i>Schleichera oleosa</i>	Kusum	Sapindaceae	PA
137.	<i>Scuteelaria repens</i>	Bansilam	Labiatae	PA
138.	<i>Selaginella sp.</i>	Ajammaributi	Selaginellaceae	PA
139.	<i>Semecarpus anacardium</i>	Bhalayo	Anacardiaceae	SS, PA
140.	<i>Shorea robusta</i>	Sal	Dipterocarpaceae	SS, PA
141.	<i>Sida rhombifolia</i>	Bankapaskuro	Malvaceae	SS, PA
142.	<i>Smilacina sp.</i>	Smilacinaceae	Smilacinaceae	PA



143.	<i>Smilax sp.</i>	Kukurdaino		PA
144.	<i>Sonchus sp.</i>		Compositae	SS, PA
145.	<i>Solanum xanthocarpum</i>	Kantakari	Solanaceae	SS, PA
146.	<i>Solanum nigrum</i>	Kaaligedi	Solanaceae	PA
147.	<i>Spondias pinnata</i>	Amaro	Anacardiaceae	PA
148.	<i>Syzygium cuminii</i>	jamun	Myrtaceae	SS, PA
149.	<i>Smilax macrophylla</i>	Kukurdaino	Smilacaceae	PA
150.	<i>Strobilanthes sp.</i>	Khursaniphool	Acanthaceae	PA
151.	<i>Terminalia chebula</i>	Harro	Combretaceae	PA
152.	<i>Terminalia alata</i>	Saaj	Combretaceae	PA
153.	<i>Themeda triandra</i>	Khar	Graminae	SS, PA
154.	<i>Toona ciliata</i>	Tooni	Meliaceae	SS, PA
155.	<i>Trichilia connaroides</i>	Ankhitare	Meliaceae	PA
156.	<i>Thysanolaena maxima</i>	Amriso	Gramineae	PA
157.	<i>Urena sp.</i>		Malvaceae	SS, PA
158.	<i>Urtica dioica</i>	Sisno	Urticaceae	SS, PA
159.	<i>Vitex negundo</i>	Simali	Verbenaceae	SS, PA
160.	<i>Wendlandia coriacea</i>		Rubiaceae	PA
161.	<i>Woodfordia fruticosa</i>	Dhaiyaro	Lythraceae	SS, PA
162.	<i>Xanthium strumarium</i>	Kapalekuro	Compositae	SS, PA
163.	<i>Xeromphis spinosa /Randia</i>	(Mainkanda)	Rubiaceae	SS, PA
164.	<i>Zizyphus mauritaniana</i>	Bayar	Rhamnaceae	PA

Note: PA- Project Area, SS=Site specific



Table C-5 : Traditional and Ethno-botanical Uses of Forest Resources

S N	Botanical Name	Local Name	Use Categories							Remarks
			M	F	T	E	O	R	Fi	
1.	<i>Acacia catechu</i>	Khayar	√			√				
2.	<i>Adina cordifolia</i>	Haldu			√					
3.	<i>Achyranthes aspera</i>	Datiwan	√							
4.	<i>Aegle marmelos</i>	Bel	√							
5.	<i>Albizzia lebbek</i>	Kalo Siris			√					
6.	<i>Albizzia procera</i>	Seto Siris			√					
7.	<i>Alnus nepalensis</i>	Uttis			√					
8.	<i>Amaranthus spinosus</i>	Lundekanda	√							Green vegetable
9.	<i>Ariesaema sp.</i>	Sarpako Makai								Food of famine
10.	<i>Artemisia sp</i>	Titepati	√							
11.	<i>Artemisia indica</i>	Titepati	√				√			
12.	<i>Atrocarpus lakoocha</i>	Badahar		√						
13.	<i>Asparagus raceamosus</i>	Kurilo	√							
14.	<i>Bridelia retusa</i>	Gayo		√						
15.	<i>Bauhinia vahlii</i>	Bhorla								Leaves for local umbrella
16.	<i>Bauhinia malabarica</i>		√							
17.	<i>Bauhinia variegata</i>	Koiralo	√							Flowers for pickle
18.	<i>Begonia sp.</i>	Magarkanche								Cultural
19.	<i>Boehmeria rugulosa</i>	Daar								Wooden containers
20.	<i>Bombax ceiba</i>	Simal		√						Pillow cotton
21.	<i>Calotropis gigantea</i>	Aank	√							
22.	<i>Cannabis astiva</i>	Ganja	√							Narcotic
23.	<i>Cappilipedium assimile</i>	Musekhari	√							
24.	<i>Cassia tora</i>	Chakramardi	√							
25.	<i>Cassia occidentalis</i>	Taapre	√							
26.	<i>Centella asiatica</i>	Ghodtaapre	√							
27.	<i>Cheilanthes sp.</i>	Sinka	√							Piercing of ears
28.	<i>Cissampelos sp.</i>	Batulpate	√							



29.	<i>Cuscuta reflexa</i>	Amarlata	✓							
30.	<i>Cynodon dactylon</i>	Dubo	✓					✓		
31.	<i>Cyperus rotundus</i>	Mothe	✓							
32.	<i>Dalbergia sissoo</i>	Sissoo	✓	✓						
33.	<i>Desmostachys bipinnata</i>	Kush		✓				✓		
34.	<i>Dendrocalamus sp.</i>	Banabans			✓	✓				
35.	<i>Dioscorea bulbifera</i>	Gitthha								Wild edible
36.	<i>Dioscorea deltoidea</i>	Vyakur								Wild edible
37.	<i>Diploknema butyracea</i>	Chiuri				✓				
38.	<i>Dryopteris cochleata</i>	Nihuro								Wild green vegetable
39.	<i>Eclipta prostrata</i>	Bhringiraj	✓							
40.	<i>Englehardtia spicata</i>	Pahadi Mauwa			✓					
41.	<i>Erythrina stricta</i>	Haldu			✓					
42.	<i>Eulaliopsis binata</i>	Babiyo		✓		✓				
43.	<i>Eupatorium adenophorum</i>	Banmara	✓							
44.	<i>Ficus auriculata</i>	Timilo		✓						
45.	<i>Ficus benamina</i>	Sami		✓						
46.	<i>Ficus benghalensis</i>	Bar	✓					✓		
47.	<i>Ficus nerifolia</i>	Dudhilo		✓						
48.	<i>Ficus lacor</i>	Kabhro		✓						
49.	<i>Ficus semicordata</i>	Khanayo		✓						
50.	<i>Ficus religiosa</i>	Peepal	✓					✓		
51.	<i>Ficus hispida</i>	Kharseto		✓						
52.	<i>Garuga pinnata</i>	Dabdabe		✓						
53.	<i>Grewia optiva</i>	Syalphusro		✓						
54.	<i>Heteropogon contortus</i>	Khar								Roofing
55.	<i>Hibiscus rosa-chinensis</i>	Bahramase					✓			
56.	<i>Hedychium sp.</i>									Wild ornamental
57.	<i>Hypericum sp.</i>									Wild ornamental
58.	<i>Jasminum multiflorum</i>	Jai				✓				
59.	<i>Jatropha curcus</i>	Sajiwan	✓			✓				
60.	<i>Justicia adhatoda</i>	Asuro	✓							



61.	<i>Lagestrormia parviflora</i>	Botdhaiyaro			✓					
62.	<i>Litsea monopetala</i>	Kutmiro		✓						
63.	<i>Mangifera indica</i>	Aaap			✓	✓				
64.	<i>Mallotus philippinensis</i>	Sindure	✓							
65.	<i>Melia azadiractah</i>	Bakenu	✓		✓					
66.	<i>Mentha arvensis</i>	Pudina	✓			✓				
67.	<i>Mimosa rubicaulis</i>	Arelu	✓							
68.	<i>Murraya coenigii</i>	Karipatta	✓			✓				
69.	<i>Nephrolepis cordifolia</i>	Pani Amala								Landslide protection
70.	<i>Osbeckia nepalense</i>	Rato Chulsi								Wild ornamental
71.	<i>Oroxylon indicum</i>	Tatelo					✓			
72.	<i>Osyris sp.</i>	Nundhiki	✓							
73.	<i>Perilla frutescens</i>	Silam				✓				
74.	<i>Phyllanthus emblica</i>	Amala	✓			✓				
75.	<i>Pinus roxburghii</i>	Rani Salla			✓	✓				
76.	<i>Plumeria rubra</i>	Apocynaceae					✓			
77.	<i>Pyrus pashia</i>	Mayal								Wild edible fruit
78.	<i>Pyracantha crenulata</i>	Ghangharu								Wild edible fruit
79.	<i>Piper longum</i>	Pipla	✓							Roofing
80.	<i>Pogonanthum crinitum</i>	Kharuki								
81.	<i>Pogostemon bengalensis</i>	Rudilo	✓							
82.	<i>Premna barbata</i>	Gineri		✓						
83.	<i>Pteris vittata</i>	Unyu								
84.	<i>Quamoclit pennata</i>	Jayanti lahara					✓			
85.	<i>Reinwardtia indica</i>	Pyauli					✓			
86.	<i>Ricinus communis</i>	Ader	✓			✓				
87.	<i>Rubus ellipticus</i>	Aiselu								
88.	<i>Saccharum spontaneum</i>	Ukhu				✓				
89.	<i>Salvia sp</i>						✓			
90.	<i>Sapium insigne</i>	Khirro								Fish poison
91.	<i>Schima wallichii</i>	Chilaune			✓					
92.	<i>Schleichera oleosa</i>	Kusum			✓					



93.	<i>Shorea robusta</i>	Sal			✓	✓				
94.	<i>Smilax sp.</i>	Kukurdaino						✓		
95.	<i>Sonchus sp.</i>									
96.	<i>Solanum xanthocarpum</i>	Kantakari	✓							
97.	<i>Solanum nigrum</i>	Kaaligedi	✓							
98.	<i>Spondias pinnata</i>	Amaro	✓							Wild edible fruit
99.	<i>Syzygium cumini</i>		✓		✓					
100.	<i>Smilax macrophylla</i>	Kukurdaino						✓		
101.	<i>Strobilanthes sp.</i>	Khursaniphool								
102.	<i>Terminalia chebula</i>	Harro	✓		✓					
103.	<i>Terminalia alata</i>	Saaj			✓					
104.	<i>Themeda triandra</i>	Khar								Roofing
105.	<i>Toona ciliata</i>			✓	✓					
106.	<i>Trichilia connaroides</i>	Ankhitare			✓					
107.	<i>Thysanolaena maxima</i>									Broom
108.	<i>Urtica dioica</i>	Sisno	✓							
109.	<i>Vitex negundo</i>	Simali	✓							
110.	<i>Woodfordia fruticosa</i>	Dhaiyaro	✓							
111.	<i>Zizyphus mauritaniana</i>	Bayar								Wild edible fruit

Medicinal, F=Fodder, T=Timber, E=Economical, O=Ornamental, R=Religious, Fi=Fiber



Table D-1a Forest loss at different project components

SN	Project Component	Types of Forest (as per Forest Act)	Forest Area (ha)	Loss of vegetation			Crown Cover (%)	Basal Area (%)	Vegetation Type
				Seedling / ha.	Saplings / ha.	No. of trees >10cm DBH / ha			
1	Reservoir	Juke and Rakse CF of Achham and Jukeban Lamkana CF of Bajura district	6.51	930	583	591.3	5-45	0.023 - 0.3988	Sal, Malato, Mauwa, Sindure Khirro, Kokkade, Badkaulo, Bhalayo, Daar, Amala, saaj
2	Headworks								
a	Dam	Rakse CF and Juke CF	0.07	280	150	25	20	0.015	Malato, Khirro,
b	Settling Basin	Juke CF	1.25	117	16	216.66	20	0.0265	Khirro, Pahadi Mauwa, Faledo, Malato, Rohini, Ghangharu
c	Road to headworks	Rakse CF	0.35	467	117	150	25	0.0676	kalo Siris, Khirro, Kokkade, Sindure
3	Adit	Imiltukra CF	2.47	303	469	1089.66	5-40	0.14-0.25	Saal, Malato, Mayal, Khirro, Uttis
4	Road to adit	Imiltukra CF and Sukethana	1.5	544	352	240	5	0.1073	Malato, Mayal, Uttis, Saal
	Total		12.15						



Table D-1 b: Total Loss in terms of plant species

Botanical Name	Local Name	Avg DBH/Ran ge* (FOR>10c m DBH)	Loss of Vegetation **					Standing Wood Volume		Biomass for Standing Tree (KG.) (Wet) (Dry)	Biomass Uses***	
			Loss of Regeneration		Loss of Tree(Number)			Wood volume m3	Timber(Cft)			Fuel wood (Chatta)
					Pole Class	Tree Class						
			Seedling	Sapling								
Macaranga pustulata	Malato	18.76	10.78	4.61	213	92	67.79	2390.95	4.78	52876	Low quality timber	
Englehardtia spicata	Pahadi Mauwa	15.07	12.33	3.06	237	0	27.47	968.8669	1.9377338	21426.6	Low quality timber	
Toona ciliata	Tooni	13.18	22.53	3.01	59	0	4.57	161.1839	0.3223678	3564.6	Low quality timber	
Mallotus philippinensis	Sindure	14.13	10.78	30.8	533	0	47.11	1661.5697	3.3231394	36745.8	Low quality timber, medicinal	
Sapium insigne	Khirro	15.4	9.23	20.01	296	0	24.83	875.7541	1.7515082	19367.4	Low quality fire wood, fish poisoning	
Shorea robusta	Saal	17.01	286.41	161.69	2341.09	118	295.89	10436.04	20.8720806	230794.2	one of the best Timber	
Homalium nepalense	Kokkade	12.35	40.03	9.23	148	0	6.18	217.9686	0.4359372	4820.4	Low quality implement and fuelwood	
Rhus sp.	Bhalayo	11.15	0	0	30	0	0.29	10.2283	0.0204566	226.2	Low quality fuelwood	



Table D-1c: Total Forest Loss

Types of Forest (as per Forest Act)	Forest Arae(ha)	Loss of vegetation**				Crown Cover (%)	Standing Wood Volume		Biomass for Standing Tree Kg (Wet & Dry)	Biomass Uses*
		LOSS OF REGENERATION		LOSS OF TREE(Number)			Timber(Cft)	Fuel wood (Chatta)		
		Seedling /ha	Sapling/ha	Pole Class	Tree Class					
Community	12.15	8996	6055	4480	328	5-45%	29310.425	58.61	648203.02	Timber, fuelwood, agricultural implements, fodder, etc
Total	12.15	8996	6055	4420	328	5-45%	29310.425	58.61	648203.02	

Note:

** Seedling 0-4cm DBH; Sapling 4-10cmDBH;Pole class 10-30cm DBH;Tree class > 30cm DBH

*** Possible usage are -fire, wood, fodder, etc

Other type of forest will not be affected by the project



Table D-1 d: Loss of Non-timber forest products

S.No.	Non timber Forest Species	Community Forest	
		Seedling /ha	Sapling/ha
1	Dhaiyaro	12	2
2	Asuro	5	0
3	Sisno	10	0
4	Amala	3	1
5	Jamun	3	1
6	Aiselu	4	0

Note:

Other type of forest will not be affected by the project



Table D-1e: Valuation of Forest Product Loss

S.No.	Botanical Name	Local Name	Value of Timber (Pole and Tree)
1	<i>Macaranga pustulata</i>	Malato	4,57,500
2	<i>Englehardtia spicata</i>	Pahadi Mauwa	3,55,555
3	<i>Toona ciliata</i>	Tooni	2,65,500
4	<i>Mallotus philippinensis</i>	Sindure	7,99,500
5	<i>Sapium insigne</i>	Khirro	59,200
6	<i>Shorea robusta</i>	Saal	14,753,000
7	<i>Homalium nepalense</i>	Kokkade	2,22,000
8	<i>Rhus sp.</i>	Bhalayo	6,000
9	<i>Bombax ceiba</i>	Simal	3,30,000
10	<i>Boehmeria rugulossa</i>	Daar	88,500
11	<i>Garuga pinnata</i>	Dabdabe	88,500
12	<i>Erythrina sp.</i>	Phaledo	4,500
13	<i>Pyracantha crenulata</i>	Ghangharu	4,500
14	<i>Albizzia lebbeck</i>	Siris	1,33,500
15	<i>Pyrus pashia</i>	Mayal	1,77,000
16	<i>Alnus nepalensis</i>	Uttis	4,44,000
	Total		15,334,200

Note :-Valuation is based on the local value per trees as fixed by the administrative authority for some of the trees and average is taken for non-specified ones



Appendix-D: Impact Tables



1 (A) - Loss of Land of Project Affected Families and Households

S.No.	Project Component	Name of Land Owner	GP_NP	Sex	Age	Religion	Caste	Family Size	Irr_Khet (Ha)	Unlr_Khet (Ha)	Barl (Ha)	Pakho (Ha)	Total (Ha)	Affected (Ha)	Value	%Loss
1	Inundation Area	Gore Saud	Budhiganga NP-10	M	73	Hindhu	Chhetri	7	0.10	0.86	0.00	0.10	1.07	0.12	870675	11.56
2	Inundation Area	Jaumati Buda	Budhiganga NP-10	M	72	Hindhu	Chhetri	13	0.20	0.00	0.00	0.81	1.02	0.43	3063225	42.70
3	Inundation Area	Lal Bdr. Buda	Budhiganga NP-10	M	55	Hindhu	Chhetri	14	0.51	0.00	0.00	0.15	0.66	0.19	1314825	28.20
4	Inundation Area	Buddhi Singh Saud	Budhiganga NP-10	M	76	Hindhu	Chhetri	12	0.36	0.41	0.00	1.27	2.04	0.16	1113900	7.76
5	Inundation Area	Sher Bdr. Buda	Budhiganga NP-10	M	66	Hindhu	Chhetri	12	0.41	0.00	0.05	0.51	0.97	0.15	1089225	15.98
6	Inundation Area	Bile Saud	Mellekh GP-4	M	75	Hindhu	Chhetri	7	0.00	0.00	0.00	0.05	0.05	0.05	352500	98.28
7	Inundation Area	Manjite Saud	Mellekh GP-4	M	52	Hindhu	Chhetri	5	0.15	0.00	0.35	0.35	0.85	0.20	1410353	23.46
8	Inundation Area	Rinari Saud	Mellekh GP-4	M	70	Hindhu	Chhetri	10	0.15	0.00	0.41	0.51	1.07	0.27	1875300	24.90
9	Power House and AR	Dale Saud	Mellekh GP-4	M	65	Hindhu	Chhetri	8	0.12	0.00	0.24	0.65	1.01	0.53	3704775	52.03
10	Power House and AR	Jogi Saud	Mellekh GP-4	M	58	Hindhu	Chhetri	9	0.53	0.00	0.11	0.10	0.74	0.59	4166550	79.86
11	Power House and AR	Nalyatya Saud	Mellekh GP-4	M	57	Hindhu	Chhetri	7	0.22	0.13	0.21	0.12	0.68	0.15	1089225	22.72
12	Power House and AR	Narajite Saud	Mellekh GP-4	M	71	Hindhu	Chhetri	9	0.42	0.21	0.2	0.43	1.26	0.55	3881025	43.69
13	Power House and AR	Rana Singh Saud	Mellekh GP-4	M	67	Hindhu	Chhetri	11	0.34	0.13	0.32	0.12	0.91	0.17	1219650	19.01
14	Power House and AR	Ammare Saud	Mellekh GP-8	M	68	Hindhu	Chhetri	7	0.14	0.21	0.22	0.10	0.67	0.03	215025	4.55
15	Power House and AR	Bal Bdr. Saud	Mellekh GP-8	M	35	Hindhu	Chhetri	9	0.10	0.20	0.05	0.25	0.61	0.25	1762500	40.95
16	Power House and AR	Bude Saud	Mellekh GP-8	M	71	Hindhu	Chhetri	7	0.20	0.31	0.03	0.00	0.53	0.22	1536900	40.81
17	Power House and AR	Dhananam Saud	Mellekh GP-8	M	45	Hindhu	Chhetri	7	0.51	0.00	0.00	0.76	1.27	0.74	5234625	58.38
18	Power House and AR	Dhane Saud	Mellekh GP-8	M	78	Hindhu	Chhetri	8	0.15	0.25	0.00	0.00	0.41	0.05	366600	12.78
19	Power House and AR	Dharma Singh Nayak	Mellekh GP-8	M	69	Hindhu	Chhetri	7	0.34	0.11	0.24	0.15	0.84	0.15	1078650	18.21
20	Power House and AR	Gagan Singh Saud	Mellekh GP-8	M	72	Hindhu	Chhetri	9	0.10	0.00	0.00	0.51	0.61	0.43	3042075	70.68
21	Power House and AR	Gagane Saud	Mellekh GP-8	M	27	Hindhu	Chhetri	7	0.31	0.00	0.05	0.25	0.61	0.21	1508700	35.05
22	Power House and AR	Jaharsingh Saud	Mellekh GP-8	M	68	Hindhu	Chhetri	11	0.42	0.00	0.13	0.31	0.86	0.14	965850	15.93



23	Power House and AR	Jayanath Yogi	Sanfebagar NP-4	M	44	Hindhu	Chhetri	14	0.20	0.25	1.02	0.76	2.24	0.27	1875300	11.88
24	Power House and AR	Jhapatsingh Nayak	Mellekh GP-8	M	55	Hindhu	Chhetri	12	0.22	0.00	0.43	0.54	1.19	0.18	1269000	15.13
25	Power House and AR	Kallane Saud	Mellekh GP-8	M	70	Hindhu	Chhetri	6	0.15	0.00	0.00	0.10	0.25	0.05	317250	17.69
26	Power House and AR	Karbire Saud	Mellekh GP-8	M	44	Hindhu	Chhetri	7	0.76	1.02	0.00	0.76	2.54	0.09	606300	3.38
27	Power House and AR	Mannaje Saud	Mellekh GP-8	M	70	Hindhu	Chhetri	6	0.46	0.00	0.00	0.61	1.07	0.30	2139675	28.41
28	Power House and AR	Nain Singh Lohar	Mellekh GP-8	M	64	Hindhu	Dalit	10	0.15	0.00	0.00	0.10	0.25	0.20	1427625	79.60
29	Power House and AR	Padma Devi Kunwar	Sanfebagar NP-4	F	68	Hindhu	Chhetri	6	0.20	0.00	0.10	0.25	0.56	0.07	518175	13.13
30	Power House and AR	Preme Lohar	Mellekh GP-8	M	56	Hindhu	Dalit	10	0.15	0.00	0.00	0.10	0.25	0.21	1462875	81.57
31	Power House and AR	Ram Singh Kunwar	Sanfebagar NP-4	M	55	Hindhu	Chhetri	6	0.20	0.00	0.05	0.10	0.36	0.08	564000	22.46
32	Power House and AR	Ranjite Lohar	Mellekh GP-8	M	54	Hindhu	Dalit	15	0.15	0.00	0.00	0.12	0.27	0.17	1226700	63.82
33	Power House and AR	Sansare Saud	Mellekh GP-8	M	39	Hindhu	Chhetri	8	0.02	0.08	0.02	0.10	0.22	0.04	299625	19.43
34	Power House and AR	Sarjane Saud	Mellekh GP-8	M	55	Hindhu	Chhetri	9	0.36	0.05	0.36	0.00	0.76	0.43	3024450	56.21
35	Power House and AR	Sete Lohar	Mellekh GP-8	M	52	Hindhu	Dalit	9	0.10	0.00	0.00	0.34	0.44	0.19	1311300	42.10
36	Power House and AR	Tule Singh Kunwar	Sanfebagar NP-4	M	33	Hindhu	Chhetri	5	0.15	0.25	0.51	0.41	1.32	0.08	560475	6.01
37	Power House and AR	Ujjale Saud	Mellekh GP-8	M	53	Hindhu	Chhetri	5	0.06	0.00	0.18	0.00	0.24	0.15	1053975	62.52
38	Adit and AR	Dal Bdr. Saud	Mellekh GP-8	M	55	Hindhu	Chhetri	10	1.12	0.41	0.00	0.00	1.53	0.03	246461	2.29
39	Adit and AR	Jhuma Devi Saud	Mellekh GP-8	F	59	Hindhu	Chhetri	5	0.41	0.41	0.00	0.00	0.81	0.20	1385614	24.14
40	Adit and AR	Mane Thakulla	Mellekh GP-8	M	70	Hindhu	Chhetri	17	0.51	0.76	0.00	0.00	1.27	0.37	2587117	28.85
41	Adit and AR	Kallane Thakulla	Mellekh GP-8	M	74	Hindhu	Chhetri	10	0.25	0.36	0.10	0.00	0.71	0.71	4988058	99.33
42	Adit and AR	Narapati Saud	Mellekh GP-8	M	76	Hindhu	Chhetri	10	0.25	0.10	0.31	0.00	0.66	0.09	628458	13.48
43	Adit and AR	Dhikira Devi Saud	Mellekh GP-8	F	65	Hindhu	Chhetri	8	0.00	0.20	0.00	0.00	0.20	0.08	556266	38.77
44	Adit and AR	Ramba Devi Thakulla	Mellekh GP-8	F	72	Hindhu	Chhetri	10	1.27	0.51	0.00	0.76	2.54	0.09	626244	3.49
45	Adit and AR	Khamba Saud	Mellekh GP-8	M	48	Hindhu	Chhetri	7	0.36	1.02	0.41	0.00	1.78	0.36	2511915	20.01
46	Adit and AR	Gopi Saud	Mellekh GP-8	M	58	Hindhu	Chhetri	10	0.10	0.15	0.00	0.05	0.31	0.25	1745171	81.09



47	Adit and AR	Khakindra Saud	Mellekh GP-8	M	40	Hindhu	Chhetri	9	1.20	0.00	0.13	0.12	1.45	0.44	3128790	30.61
48	Adit and AR	Kalusing Saud	Mellekh GP-8	M	29	Hindhu	Chhetri	9	0.15	0.25	0.00	0.00	0.41	0.23	1631518	56.86
49	Adit and AR	Gokul Saud	Mellekh GP-8	M	43	Hindhu	Chhetri	5	0.15	0.00	0.00	0.36	0.51	0.09	634500	17.69
50	Adit and AR	Binira Saud	Mellekh GP-8	F	57	Hindhu	Chhetri	10	0.25	0.25	0.00	0.10	0.61	0.18	1244325	28.91
51	Adit and AR	Prasade Saud	Mellekh GP-8	M	76	Hindhu	Chhetri	5	0.20	0.00	0.00	0.15	0.36	0.15	1036343	41.28
52	Adit and AR	Bane Saud	Mellekh GP-8	M	65	Hindhu	Chhetri	10	0.25	0.25	0.00	0.25	0.76	0.19	1362680	25.33
53	Adit and AR	Kanje Saud	Mellekh GP-8	M	26	Hindhu	Chhetri	10	0.25	0.00	0.00	0.00	0.25	0.11	789396	44.02
54	Adit and AR	Ram Bahadur Thakulla	Mellekh GP-8	M	57	Hindhu	Chhetri	9	0.15	0.20	0.00	0.05	0.41	0.11	754350	26.29
55	CampSite and AR	Dhana Bdr. Bogati	Sanfebagar NP-10	M	57	Hindhu	Chhetri	5	0.05	0.12	0.00	0.05	0.22	0.12	824850	52.76
56	CampSite and AR	Dhana Bdr. Mahata	Sanfebagar NP-10	M	75	Hindhu	Chhetri	6	0.15	0.00	0.05	0.10	0.31	0.09	623925	28.99
57	CampSite and AR	Duse Mahata	Sanfebagar NP-10	M	68	Hindhu	Chhetri	8	0.12	0.00	0.08	0.32	0.52	0.04	282000	7.69
58	CampSite and AR	Gor Bdr. Mahata	Sanfebagar NP-10	M	46	Hindhu	Chhetri	9	0.20	0.00	0.00	0.31	0.51	0.40	2791800	77.84
59	CampSite and AR	Jagat Bdr. Mahata	Sanfebagar NP-10	M	60	Hindhu	Chhetri	10	0.15	0.00	0.00	0.15	0.31	0.06	440625	20.47
60	CampSite and AR	Jahar Singh Mahata	Sanfebagar NP-10	M	67	Hindhu	Chhetri	11	0.11	0.07	0.31	0.12	0.61	0.02	133950	3.11
61	CampSite and AR	Laxman Mahata	Sanfebagar NP-10	M	52	Hindhu	Chhetri	4	0.15	0.00	0.05	0.00	0.20	0.05	373650	26.04
62	CampSite and AR	Nanda Singh Mahata	Sanfebagar NP-10	M	65	Hindhu	Chhetri	7	0.22	0.11	0.13	0.23	0.69	0.10	719100	14.78
63	CampSite and AR	Nara Bdr. Mahata	Sanfebagar NP-10	M	56	Hindhu	Chhetri	13	0.41	0.00	0.00	0.08	0.48	0.10	676800	19.86
64	CampSite and AR	Nath Bogati	Sanfebagar NP-10	M	77	Hindhu	Chhetri	8	0.10	0.00	0.32	0.45	0.87	0.56	3976200	64.70
65	CampSite and AR	Prem Bdr. Mahata	Sanfebagar NP-10	M	66	Hindhu	Chhetri	7	0.31	0.11	0.00	0.13	0.55	0.07	521700	13.45
66	CampSite and AR	Ramnath Bogati	Sanfebagar NP-10	M	54	Hindhu	Chhetri	6	0.45	0.13	0.11	0.23	0.92	0.16	1124475	17.34
67	CampSite and AR	Ramnath Mahata	Sanfebagar NP-10	M	55	Hindhu	Chhetri	6	0.10	0.00	0.00	0.00	0.10	0.03	232650	32.43
68	CampSite and AR	Sagare Bogati	Sanfebagar NP-10	M	47	Hindhu	Chhetri	7	0.15	0.00	0.00	0.51	0.66	0.66	4624800	99.18
69	CampSite and AR	Tile Bogati	Sanfebagar NP-10	M	45	Hindhu	Chhetri	8	0.10	0.00	0.00	0.10	0.20	0.19	1321875	92.13
70	Office Camp	Dhangiri Bogati	Sanfebagar NP-10	M	48	Hindhu	Chhetri	3	0.31	0.12	0.00	0.45	0.88	0.68	4803870	77.43
71	Dam Site and AR	Bhakte Batala	Sanfebagar NP-13	M	57	Hindhu	Chhetri	10	0.15	0.14	0.13	0.13	0.55	0.42	2939850	75.46


 नेपाल सरकार
 तथा वतावरण मन्त्रालय
 सिंहदरबार काठमाडौं

72	Dam Site and AR	Dan Singh Batala	Sanfebagar NP-13	M	80	Hindhu	Chhetri	4	0.12	0.21	0.00	0.54	0.87	0.36	2569725	41.90
73	Dam Site and AR	Dilli Singh Saud	Sanfebagar NP-13	M	47	Hindhu	Chhetri	8	0.15	0.00	0.05	0.10	0.31	0.10	669750	31.12
74	Dam Site and AR	Jogi Batala	Sanfebagar NP-13	M	65	Hindhu	Chhetri	6	0.05	1.37	0.03	0.36	1.81	0.16	1092750	8.58
75	Dam Site and AR	Maha Batala	Sanfebagar NP-13	M	53	Hindhu	Chhetri	6	0.36	0.00	0.00	0.36	0.71	0.39	2763600	55.04
76	Dam Site and AR	Maha Singh Batala	Sanfebagar NP-13	M	45	Hindhu	Chhetri	10	0.51	0.00	0.00	1.02	1.53	0.01	52875	0.49
77	Dam Site and AR	Maipati Batala	Sanfebagar NP-13	M	40	Hindhu	Chhetri	6	0.15	0.00	0.05	0.25	0.46	0.02	162150	5.02
78	Dam Site and AR	Mannaje Batala	Sanfebagar NP-13	M	76	Hindhu	Chhetri	10	0.15	0.05	0.25	0.00	0.46	0.17	1202025	37.24
79	Dam Site and AR	Nanda Batala	Sanfebagar NP-13	M	40	Hindhu	Chhetri	6	0.05	0.00	0.00	1.42	1.48	0.19	1353600	13.01
80	Dam Site and AR	Piram Batala	Sanfebagar NP-13	M	75	Hindhu	Chhetri	7	0.08	0.00	0.03	0.22	0.33	0.23	1593300	68.09
		TOTAL						669	20.91	11.80	7.81	21.30	61.82	17.34	122247979	28.05



2 (A) - Loss of Cereal Crops Production of Project Affected Families and Households

S.No.	Project Component	Name of Land Owner	GP_NP	Total Cereal Crops Production (MT)					Loss of Cereal Crops Production (MT)					% of Total Loss of Cereal Crops				
				Paddy	Wheat	Maize	Millet	Total	Paddy	Wheat	Maize	Millet	Total	Paddy	Wheat	Maize	Millet	Total
1	Inundation Area	Gore Saud	Budhiganga NP-10	1.53	0.62	0.39	0.25	2.79	0.15	0.07	0.04	0.03	0.29	9.5	11.6	10.6	13.6	10.5
2	Inundation Area	Jaumati Buda	Budhiganga NP-10	1.46	0.59	0.37	0.23	2.65	0.51	0.25	0.14	0.12	1.03	35.3	42.7	39.2	50.1	38.8
3	Inundation Area	Lal Bdr. Buda	Budhiganga NP-10	0.95	0.38	0.24	0.15	1.72	0.22	0.11	0.06	0.05	0.44	23.3	28.2	25.9	33.1	25.6
4	Inundation Area	Buddhi Singh Saud	Budhiganga NP-10	2.92	1.18	0.74	0.47	5.31	0.19	0.09	0.05	0.04	0.37	6.4	7.8	7.1	9.1	7.0
5	Inundation Area	Sher Bdr. Buda	Budhiganga NP-10	1.39	0.56	0.35	0.22	2.52	0.18	0.09	0.05	0.04	0.37	13.2	16.0	14.7	18.8	14.5
6	Inundation Area	Bile Saud	Mellekh GP-4	0.07	0.03	0.02	0.01	0.13	0.06	0.03	0.02	0.01	0.12	81.2	98.3	90.2	115.4	89.2
7	Inundation Area	Manjite Saud	Mellekh GP-4	1.22	0.49	0.31	0.20	2.22	0.24	0.12	0.07	0.05	0.47	19.4	23.5	21.5	27.5	21.3
8	Inundation Area	Rinari Saud	Mellekh GP-4	1.53	0.62	0.39	0.25	2.79	0.32	0.15	0.09	0.07	0.63	20.6	24.9	22.8	29.2	22.6
9	Power House and AR	Dale Saud	Mellekh GP-4	1.45	0.59	0.37	0.23	2.63	0.62	0.30	0.17	0.14	1.24	43.0	52.0	47.7	61.1	47.2
10	Power House and AR	Jogi Saud	Mellekh GP-4	1.06	0.43	0.27	0.17	1.93	0.70	0.34	0.20	0.16	1.40	66.0	79.9	73.3	93.8	72.5
11	Power House and AR	Nalyatya Saud	Mellekh GP-4	0.98	0.39	0.25	0.16	1.77	0.18	0.09	0.05	0.04	0.37	18.8	22.7	20.8	26.7	20.6
12	Power House and AR	Narajite Saud	Mellekh GP-4	1.81	0.73	0.46	0.29	3.29	0.65	0.32	0.18	0.15	1.30	36.1	43.7	40.1	51.3	39.7
13	Power House and AR	Rana Singh Saud	Mellekh GP-4	1.31	0.53	0.33	0.21	2.37	0.21	0.10	0.06	0.05	0.41	15.7	19.0	17.4	22.3	17.3
14	Power House and AR	Ammare Saud	Mellekh GP-8	0.96	0.39	0.24	0.15	1.75	0.04	0.02	0.01	0.01	0.07	3.8	4.6	4.2	5.3	4.1
15	Power House and AR	Bal Bdr. Saud	Mellekh GP-8	0.88	0.35	0.22	0.14	1.59	0.30	0.15	0.08	0.07	0.59	33.8	40.9	37.6	48.1	37.2
16	Power House and AR	Bude Saud	Mellekh GP-8	0.77	0.31	0.19	0.12	1.39	0.26	0.13	0.07	0.06	0.52	33.7	40.8	37.4	47.9	37.1
17	Power House and AR	Dhananam Saud	Mellekh GP-8	1.83	0.74	0.46	0.29	3.32	0.88	0.43	0.25	0.20	1.76	48.2	58.4	53.6	68.5	53.0
18	Power House and AR	Dhane Saud	Mellekh GP-8	0.58	0.24	0.15	0.09	1.06	0.06	0.03	0.02	0.01	0.12	10.6	12.8	11.7	15.0	11.6
19	Power House and AR	Dharma Singh Nayak	Mellekh GP-8	1.21	0.49	0.30	0.19	2.19	0.18	0.09	0.05	0.04	0.36	15.0	18.2	16.7	21.4	16.5
20	Power House and AR	Gagan Singh Saud	Mellekh GP-8	0.88	0.35	0.22	0.14	1.59	0.51	0.25	0.14	0.12	1.02	58.4	70.7	64.8	83.0	64.2
21	Power House and AR	Gagane Saud	Mellekh GP-8	0.88	0.35	0.22	0.14	1.59	0.25	0.12	0.07	0.06	0.51	28.9	35.1	32.2	41.1	31.8
22	Power House and AR	Jaharsingh Saud	Mellekh GP-8	1.23	0.50	0.31	0.20	2.24	0.16	0.08	0.05	0.04	0.32	13.2	15.9	14.6	18.7	14.5
23	Power House and AR	Jayanath Yogi	Sanfagar NP-4	3.21	1.30	0.81	0.51	5.84	0.32	0.15	0.09	0.07	0.63	9.8	11.9	10.9	13.9	10.8



24	Power House and AR	Jhapatsingh Nayak	Mellekh GP-8	1.71	0.69	0.43	0.27	3.10	0.21	0.10	0.06	0.05	0.43	12.5	15.1	13.9	17.8	13.7
25	Power House and AR	Kallane Saud	Mellekh GP-8	0.37	0.15	0.09	0.06	0.66	0.05	0.03	0.01	0.01	0.11	14.6	17.7	16.2	20.8	16.1
26	Power House and AR	Karbire Saud	Mellekh GP-8	3.65	1.48	0.92	0.59	6.63	0.10	0.05	0.03	0.02	0.20	2.8	3.4	3.1	4.0	3.1
27	Power House and AR	Mannaje Saud	Mellekh GP-8	1.53	0.62	0.39	0.25	2.79	0.36	0.18	0.10	0.08	0.72	23.5	28.4	26.1	33.3	25.8
28	Power House and AR	Nain Singh Lohar	Mellekh GP-8	0.37	0.15	0.09	0.06	0.66	0.24	0.12	0.07	0.05	0.48	65.7	79.6	73.0	93.4	72.3
29	Power House and AR	Padma Devi Kunwar	Sanfebagar NP-4	0.80	0.32	0.20	0.13	1.46	0.09	0.04	0.02	0.02	0.17	10.8	13.1	12.0	15.4	11.9
30	Power House and AR	Preme Lohar	Mellekh GP-8	0.37	0.15	0.09	0.06	0.66	0.25	0.12	0.07	0.06	0.49	67.4	81.6	74.8	95.8	74.1
31	Power House and AR	Ram Singh Kunwar	Sanfebagar NP-4	0.51	0.21	0.13	0.08	0.93	0.09	0.05	0.03	0.02	0.19	18.5	22.5	20.6	26.4	20.4
32	Power House and AR	Ranjite Lohar	Mellekh GP-8	0.39	0.16	0.10	0.06	0.71	0.21	0.10	0.06	0.05	0.41	52.7	63.8	58.5	74.9	57.9
33	Power House and AR	Sansare Saud	Mellekh GP-8	0.31	0.13	0.08	0.05	0.57	0.05	0.02	0.01	0.01	0.10	16.0	19.4	17.8	22.8	17.6
34	Power House and AR	Sarjane Saud	Mellekh GP-8	1.10	0.44	0.28	0.18	1.99	0.51	0.25	0.14	0.12	1.02	46.4	56.2	51.6	66.0	51.0
35	Power House and AR	Sete Lohar	Mellekh GP-8	0.63	0.26	0.16	0.10	1.15	0.22	0.11	0.06	0.05	0.44	34.8	42.1	38.6	49.4	38.2
36	Power House and AR	Tule Singh Kunwar	Sanfebagar NP-4	1.90	0.77	0.48	0.30	3.45	0.09	0.05	0.03	0.02	0.19	5.0	6.0	5.5	7.1	5.5
37	Power House and AR	Ujjale Saud	Mellekh GP-8	0.34	0.14	0.09	0.05	0.62	0.18	0.09	0.05	0.04	0.35	51.6	62.5	57.4	73.4	56.8
38	Adit and AR	Dal Bdr. Saud	Mellekh GP-8	2.19	0.89	0.55	0.35	3.98	0.04	0.02	0.01	0.01	0.08	1.9	2.3	2.1	2.7	2.1
39	Adit and AR	Jhuma Devi Saud	Mellekh GP-8	1.17	0.47	0.30	0.19	2.12	0.23	0.11	0.07	0.05	0.47	19.9	24.1	22.1	28.3	21.9
40	Adit and AR	Mane Thakulla	Mellekh GP-8	1.83	0.74	0.46	0.29	3.32	0.43	0.21	0.12	0.10	0.87	23.8	28.9	26.5	33.9	26.2
41	Adit and AR	Kallane Thakulla	Mellekh GP-8	1.02	0.41	0.26	0.16	1.86	0.84	0.41	0.24	0.19	1.68	82.0	99.3	91.1	116.6	90.2
42	Adit and AR	Narapati Saud	Mellekh GP-8	0.95	0.38	0.24	0.15	1.72	0.11	0.05	0.03	0.02	0.21	11.1	13.5	12.4	15.8	12.2
43	Adit and AR	Dhikira Devi Saud	Mellekh GP-8	0.29	0.12	0.07	0.05	0.53	0.09	0.05	0.03	0.02	0.19	32.0	38.8	35.6	45.5	35.2
44	Adit and AR	Ramba Devi Thakulla	Mellekh GP-8	3.65	1.48	0.92	0.59	6.63	0.11	0.05	0.03	0.02	0.21	2.9	3.5	3.2	4.1	3.2
45	Adit and AR	Khamba Saud	Mellekh GP-8	2.56	1.03	0.65	0.41	4.64	0.42	0.21	0.12	0.10	0.84	16.5	20.0	18.4	23.5	18.2
46	Adit and AR	Gopi Saud	Mellekh GP-8	0.44	0.18	0.11	0.07	0.80	0.29	0.14	0.08	0.07	0.59	67.0	81.1	74.4	95.2	73.6
47	Adit and AR	Khakindra Saud	Mellekh GP-8	2.08	0.84	0.53	0.33	3.78	0.53	0.26	0.15	0.12	1.05	25.3	30.6	28.1	35.9	27.8
48	Adit and AR	Kalusing Saud	Mellekh GP-8	0.58	0.24	0.15	0.09	1.06	0.27	0.13	0.08	0.06	0.55	47.0	56.9	52.2	66.7	51.6
49	Adit and AR	Gokul Saud	Mellekh GP-8	0.73	0.30	0.18	0.12	1.33	0.11	0.05	0.03	0.02	0.21	14.6	17.7	16.2	20.8	16.1
50	Adit and AR	Binira Saud	Mellekh GP-8	0.88	0.35	0.22	0.14	1.59	0.21	0.10	0.06	0.05	0.42	23.9	28.9	26.5	33.9	26.2
51	Adit and AR	Prasade Saud	Mellekh GP-8	0.51	0.21	0.13	0.08	0.93	0.17	0.09	0.05	0.04	0.35	34.1	41.3	37.9	48.5	37.5



52	Adit and AR	Bane Saud	Mellekh GP-8	1.10	0.44	0.28	0.18	1.99	0.23	0.11	0.06	0.05	0.46	20.9	25.3	23.2	29.7	23.0
53	Adit and AR	Kanje Saud	Mellekh GP-8	0.37	0.15	0.09	0.06	0.66	0.13	0.06	0.04	0.03	0.27	36.3	44.0	40.4	51.7	40.0
54	Adit and AR	Ram Bahadur Thakulla	Mellekh GP-8	0.58	0.24	0.15	0.09	1.06	0.13	0.06	0.04	0.03	0.25	21.7	26.3	24.1	30.9	23.9
55	CampSite and AR	Dhana Bdr. Bogati	Sanfebagar NP-10	0.32	0.13	0.08	0.05	0.58	0.14	0.07	0.04	0.03	0.28	43.6	52.8	48.4	61.9	47.9
56	CampSite and AR	Dhana Bdr. Mahata	Sanfebagar NP-10	0.44	0.18	0.11	0.07	0.80	0.10	0.05	0.03	0.02	0.21	23.9	29.0	26.6	34.0	26.3
57	CampSite and AR	Duse Mahata	Sanfebagar NP-10	0.75	0.30	0.19	0.12	1.36	0.05	0.02	0.01	0.01	0.09	6.4	7.7	7.1	9.0	7.0
58	CampSite and AR	Gor Bdr. Mahata	Sanfebagar NP-10	0.73	0.30	0.18	0.12	1.33	0.47	0.23	0.13	0.11	0.94	64.3	77.8	71.4	91.4	70.7
59	CampSite and AR	Jagat Bdr. Mahata	Sanfebagar NP-10	0.44	0.18	0.11	0.07	0.80	0.07	0.04	0.02	0.02	0.15	16.9	20.5	18.8	24.0	18.6
60	CampSite and AR	Jahar Singh Mahata	Sanfebagar NP-10	0.88	0.35	0.22	0.14	1.59	0.02	0.01	0.01	0.01	0.04	2.6	3.1	2.9	3.7	2.8
61	CampSite and AR	Laxman Mahata	Sanfebagar NP-10	0.29	0.12	0.07	0.05	0.53	0.06	0.03	0.02	0.01	0.13	21.5	26.0	23.9	30.6	23.6
62	CampSite and AR	Nanda Singh Mahata	Sanfebagar NP-10	0.99	0.40	0.25	0.16	1.80	0.12	0.06	0.03	0.03	0.24	12.2	14.8	13.6	17.4	13.4
63	CampSite and AR	Nara Bdr. Mahata	Sanfebagar NP-10	0.69	0.28	0.18	0.11	1.26	0.11	0.06	0.03	0.03	0.23	16.4	19.9	18.2	23.3	18.0
64	CampSite and AR	Nath Bogati	Sanfebagar NP-10	1.25	0.51	0.32	0.20	2.27	0.67	0.33	0.19	0.15	1.34	53.4	64.7	59.4	75.9	58.7
65	CampSite and AR	Prem Bdr. Mahata	Sanfebagar NP-10	0.79	0.32	0.20	0.13	1.43	0.09	0.04	0.02	0.02	0.18	11.1	13.5	12.3	15.8	12.2
66	CampSite and AR	Ramnath Bogati	Sanfebagar NP-10	1.32	0.53	0.33	0.21	2.40	0.19	0.09	0.05	0.04	0.38	14.3	17.3	15.9	20.4	15.7
67	CampSite and AR	Ramnath Mahata	Sanfebagar NP-10	0.15	0.06	0.04	0.02	0.27	0.04	0.02	0.01	0.01	0.08	26.8	32.4	29.8	38.1	29.4
68	CampSite and AR	Sagare Bogati	Sanfebagar NP-10	0.95	0.38	0.24	0.15	1.72	0.78	0.38	0.22	0.18	1.55	81.9	99.2	91.0	116.4	90.1
69	CampSite and AR	Tile Bogati	Sanfebagar NP-10	0.29	0.12	0.07	0.05	0.53	0.22	0.11	0.06	0.05	0.44	76.1	92.1	84.5	108.2	83.7
70	Office Camp	Dhangiri Bogati	Sanfebagar NP-10	1.26	0.51	0.32	0.20	2.30	0.81	0.40	0.23	0.18	1.61	63.9	77.4	71.0	90.9	70.3
71	Dam Site and AR	Bhakte Batala	Sanfebagar NP-13	0.79	0.32	0.20	0.13	1.44	0.49	0.24	0.14	0.11	0.99	62.3	75.5	69.2	88.6	68.5
72	Dam Site and AR	Dan Singh Batala	Sanfebagar NP-13	1.25	0.50	0.32	0.20	2.27	0.43	0.21	0.12	0.10	0.86	34.6	41.9	38.4	49.2	38.0
73	Dam Site and AR	Dilli Singh Saud	Sanfebagar NP-13	0.44	0.18	0.11	0.07	0.80	0.11	0.06	0.03	0.03	0.22	25.7	31.1	28.5	36.5	28.3
74	Dam Site and AR	Jogi Batala	Sanfebagar NP-13	2.59	1.05	0.66	0.42	4.71	0.18	0.09	0.05	0.04	0.37	7.1	8.6	7.9	10.1	7.8
75	Dam Site and AR	Maha Batala	Sanfebagar NP-13	1.02	0.41	0.26	0.16	1.86	0.46	0.23	0.13	0.11	0.93	45.4	55.0	50.5	64.6	50.0
76	Dam Site and AR	Maha Singh Batala	Sanfebagar NP-13	2.19	0.89	0.55	0.35	3.98	0.01	0.00	0.00	0.00	0.02	0.4	0.5	0.5	0.6	0.4
77	Dam Site and AR	Maipati Batala	Sanfebagar NP-13	0.66	0.27	0.17	0.11	1.19	0.03	0.01	0.01	0.01	0.05	4.1	5.0	4.6	5.9	4.6
78	Dam Site and AR	Mannaje Batala	Sanfebagar NP-13	0.66	0.27	0.17	0.11	1.19	0.20	0.10	0.06	0.05	0.40	30.7	37.2	34.2	43.7	33.8
79	Dam Site and AR	Nanda Batala	Sanfebagar NP-13	2.12	0.86	0.54	0.34	3.85	0.23	0.11	0.06	0.05	0.45	10.7	13.0	11.9	15.3	11.8
80	Dam Site and AR	Piram Batala	Sanfebagar NP-13	0.48	0.19	0.12	0.08	0.87	0.27	0.13	0.08	0.06	0.54	56.2	68.1	62.5	79.9	61.8
				88.71	35.86	22.44	14.22	161.23	20.55	10.06	5.77	4.68	41.06	23.2	28.0	25.7	32.9	25.5



2 (B) - Loss of Cash Crops Production of Project Affected Families and Households

S.No.	Project Component	Name_HH_Head	GP_NP	Total Cash Crops Production (MT)			Loss of Cash Crops Production (MT)			% of Total Loss of Cash Crops	
				Potato	Pulses	Total	Potato	Pulses	Total	Potato	Pulses
1	Inundation Area	Gore Saud	Budhiganga NP-10	0.34	0.07	0.41	0.03	0.01	0.043	9.8	13.3
2	Inundation Area	Jaumati Buda	Budhiganga NP-10	0.32	0.07	0.39	0.12	0.03	0.150	36.3	49.3
3	Inundation Area	Laf Bdr. Buda	Budhiganga NP-10	0.21	0.04	0.25	0.05	0.01	0.064	23.9	32.5
4	Inundation Area	Buddhi Singh Saud	Budhiganga NP-10	0.65	0.13	0.78	0.04	0.01	0.055	6.6	9.0
5	Inundation Area	Sher Bdr. Buda	Budhiganga NP-10	0.31	0.06	0.37	0.04	0.01	0.053	13.6	18.4
6	Inundation Area	Biile Saud	Mellekh GP-4	0.02	0.00	0.02	0.01	0.00	0.017	83.4	98.3
7	Inundation Area	Manjite Saud	Mellekh GP-4	0.27	0.06	0.33	0.05	0.02	0.069	19.9	27.1
8	Inundation Area	Rinari Saud	Mellekh GP-4	0.34	0.07	0.41	0.07	0.02	0.092	21.1	28.7
9	Power House and AR	Dale Saud	Mellekh GP-4	0.32	0.07	0.39	0.14	0.04	0.181	44.2	60.0
10	Power House and AR	Jogi Saud	Mellekh GP-4	0.24	0.05	0.28	0.16	0.04	0.204	67.8	92.2
11	Power House and AR	Nalyalya Saud	Mellekh GP-4	0.22	0.04	0.26	0.04	0.01	0.053	19.3	26.2
12	Power House and AR	Narajite Saud	Mellekh GP-4	0.40	0.08	0.48	0.15	0.04	0.190	37.1	50.4
13	Power House and AR	Rana Singh Saud	Mellekh GP-4	0.29	0.06	0.35	0.05	0.01	0.060	16.1	21.9
14	Power House and AR	Ammare Saud	Mellekh GP-8	0.21	0.04	0.26	0.01	0.00	0.011	3.9	5.3
15	Power House and AR	Bal Bdr. Saud	Mellekh GP-8	0.19	0.04	0.23	0.07	0.02	0.086	34.8	47.2
16	Power House and AR	Bude Saud	Mellekh GP-8	0.17	0.03	0.20	0.06	0.02	0.075	34.6	47.1
17	Power House and AR	Dhananam Saud	Mellekh GP-8	0.40	0.08	0.49	0.20	0.06	0.256	49.6	67.4
18	Power House and AR	Dhane Saud	Mellekh GP-8	0.13	0.03	0.16	0.01	0.00	0.018	10.8	14.7
19	Power House and AR	Dharma Singh Nayak	Mellekh GP-8	0.27	0.05	0.32	0.04	0.01	0.053	15.5	21.0
20	Power House and AR	Gagan Singh Saud	Mellekh GP-8	0.19	0.04	0.23	0.12	0.03	0.149	60.0	81.6
21	Power House and AR	Gagane Saud	Mellekh GP-8	0.19	0.04	0.23	0.06	0.02	0.074	29.8	40.4
22	Power House and AR	Jaharsingh Saud	Mellekh GP-8	0.27	0.06	0.33	0.04	0.01	0.047	13.5	18.4
23	Power House and AR	Jayanath Yogi	Sanfebagar NP-4	0.71	0.15	0.86	0.07	0.02	0.092	10.1	13.7
24	Power House and AR	Jhapatsingh Nayak	Mellekh GP-8	0.38	0.08	0.46	0.05	0.01	0.062	12.8	17.5
25	Power House and AR	Kellane Saud	Mellekh GP-8	0.08	0.02	0.10	0.01	0.00	0.016	15.0	20.4
26	Power House and AR	Karbire Saud	Mellekh GP-8	0.81	0.17	0.97	0.02	0.01	0.030	2.9	3.9
27	Power House and AR	Mannaje Saud	Mellekh GP-8	0.34	0.07	0.41	0.08	0.02	0.105	24.1	32.8
28	Power House and AR	Nain Singh Lohar	Mellekh GP-8	0.08	0.02	0.10	0.05	0.02	0.070	67.6	91.9



29	Power House and AR	Padma Devi Kunwar	Sanfebagar NP-4	0.18	0.04	0.21	0.02	0.01	0.025	11.2	15.2
30	Power House and AR	Preme Lohar	Mellekh GP-8	0.08	0.02	0.10	0.06	0.02	0.072	69.3	94.1
31	Power House and AR	Ram Singh Kunwar	Sanfebagar NP-4	0.11	0.02	0.14	0.02	0.01	0.028	19.1	25.9
32	Power House and AR	Ranjite Lohar	Mellekh GP-8	0.09	0.02	0.10	0.05	0.01	0.060	54.2	73.6
33	Power House and AR	Sansare Saud	Mellekh GP-8	0.07	0.01	0.08	0.01	0.00	0.015	16.5	22.4
34	Power House and AR	Sarjane Saud	Mellekh GP-8	0.24	0.05	0.29	0.12	0.03	0.148	47.7	64.9
35	Power House and AR	Sete Lohar	Mellekh GP-8	0.14	0.03	0.17	0.05	0.01	0.064	35.7	48.6
36	Power House and AR	Tule Singh Kunwar	Sanfebagar NP-4	0.42	0.09	0.51	0.02	0.01	0.027	5.1	6.9
37	Power House and AR	Ujjale Saud	Mellekh GP-8	0.08	0.02	0.09	0.04	0.01	0.052	53.1	72.1
38	Adit and AR	Dal Bdr. Saud	Mellekh GP-8	0.49	0.10	0.58	0.01	0.00	0.012	1.9	2.6
39	Adit and AR	Jhuma Devi Saud	Mellekh GP-8	0.26	0.05	0.31	0.05	0.01	0.068	20.5	27.9
40	Adit and AR	Mane Thakulla	Mellekh GP-8	0.40	0.08	0.49	0.10	0.03	0.127	24.5	33.3
41	Adit and AR	Kallane Thakulla	Mellekh GP-8	0.23	0.05	0.27	0.19	0.05	0.237	84.3	99.3
42	Adit and AR	Narapati Saud	Mellekh GP-8	0.21	0.04	0.25	0.02	0.01	0.031	11.4	15.6
43	Adit and AR	Dhikira Devi Saud	Mellekh GP-8	0.06	0.01	0.08	0.02	0.01	0.027	32.9	44.7
44	Adit and AR	Ramba Devi Thakulla	Mellekh GP-8	0.81	0.17	0.97	0.02	0.01	0.031	3.0	4.0
45	Adit and AR	Khamba Saud	Mellekh GP-8	0.57	0.12	0.68	0.10	0.03	0.123	17.0	23.1
46	Adit and AR	Gopi Saud	Mellekh GP-8	0.10	0.02	0.12	0.07	0.02	0.085	68.9	93.6
47	Adit and AR	Khakindra Saud	Mellekh GP-8	0.46	0.09	0.56	0.12	0.03	0.153	26.0	35.3
48	Adit and AR	Kalusing Saud	Mellekh GP-8	0.13	0.03	0.16	0.06	0.02	0.080	48.3	65.6
49	Adit and AR	Gokul Saud	Mellekh GP-8	0.16	0.03	0.19	0.02	0.01	0.031	15.0	20.4
50	Adit and AR	Binira Saud	Mellekh GP-8	0.19	0.04	0.23	0.05	0.01	0.061	24.5	33.4
51	Adit and AR	Prasade Saud	Mellekh GP-8	0.11	0.02	0.14	0.04	0.01	0.051	35.0	47.6
52	Adit and AR	Bane Saud	Mellekh GP-8	0.24	0.05	0.29	0.05	0.01	0.067	21.5	29.2
53	Adit and AR	Kanje Saud	Mellekh GP-8	0.08	0.02	0.10	0.03	0.01	0.039	37.4	50.8
54	Adit and AR	Ram Bahadur Thakulla	Mellekh GP-8	0.13	0.03	0.16	0.03	0.01	0.037	22.3	30.3
55	CampSite and AR	Dhana Bdr. Bogati	Sanfebagar NP-10	0.07	0.01	0.08	0.03	0.01	0.040	44.8	60.9
56	CampSite and AR	Dhana Bdr. Mahata	Sanfebagar NP-10	0.10	0.02	0.12	0.02	0.01	0.031	24.6	33.5
57	CampSite and AR	Duse Mahata	Sanfebagar NP-10	0.17	0.03	0.20	0.01	0.00	0.014	6.5	8.9
58	CampSite and AR	Gor Bdr. Mahata	Sanfebagar NP-10	0.16	0.03	0.19	0.11	0.03	0.137	66.1	89.8
59	CampSite and AR	Jagat Bdr. Mahata	Sanfebagar NP-10	0.10	0.02	0.12	0.02	0.00	0.022	17.4	23.6
60	CampSite and AR	Jahar Singh Mahata	Sanfebagar NP-10	0.19	0.04	0.23	0.01	0.00	0.007	2.6	3.6
61	CampSite and AR	Laxman Mahata	Sanfebagar NP-10	0.06	0.01	0.08	0.01	0.00	0.018	22.1	30.1



62	CampSite and AR	Nanda Singh Mahata	Sanfebagar NP-10	0.22	0.04	0.26	0.03	0.01	0.035	12.6	17.1
63	CampSite and AR	Nara Bdr. Mahata	Sanfebagar NP-10	0.15	0.03	0.19	0.03	0.01	0.033	16.9	22.9
64	CampSite and AR	Nath Bogati	Sanfebagar NP-10	0.28	0.06	0.33	0.15	0.04	0.195	54.9	74.7
65	CampSite and AR	Prem Bdr. Mahata	Sanfebagar NP-10	0.17	0.04	0.21	0.02	0.01	0.026	11.4	15.5
66	CampSite and AR	Ramnath Bogati	Sanfebagar NP-10	0.29	0.06	0.35	0.04	0.01	0.055	14.7	20.0
67	CampSite and AR	Ramnath Mahata	Sanfebagar NP-10	0.03	0.01	0.04	0.01	0.00	0.011	27.5	37.4
68	CampSite and AR	Sagare Bogati	Sanfebagar NP-10	0.21	0.04	0.25	0.18	0.04	0.220	84.2	99.2
69	CampSite and AR	Tile Bogati	Sanfebagar NP-10	0.06	0.01	0.08	0.05	0.01	0.063	78.2	92.1
70	Office Camp	Dhangiri Bogati	Sanfebagar NP-10	0.28	0.08	0.34	0.18	0.05	0.235	65.7	89.3
71	Dam Site and AR	Bhakte Batala	Sanfebagar NP-13	0.18	0.04	0.21	0.11	0.03	0.144	64.1	87.1
72	Dam Site and AR	Dan Singh Batala	Sanfebagar NP-13	0.28	0.06	0.33	0.10	0.03	0.126	35.6	48.3
73	Dam Site and AR	Dilli Singh Saud	Sanfebagar NP-13	0.10	0.02	0.12	0.03	0.01	0.033	26.4	35.9
74	Dam Site and AR	Jogi Batala	Sanfebagar NP-13	0.57	0.12	0.69	0.04	0.01	0.053	7.3	9.9
75	Dam Site and AR	Maha Batala	Sanfebagar NP-13	0.23	0.05	0.27	0.11	0.03	0.135	46.7	63.5
76	Dam Site and AR	Maha Singh Batala	Sanfebagar NP-13	0.49	0.10	0.58	0.00	0.00	0.003	0.4	0.6
77	Dam Site and AR	Maipati Batala	Sanfebagar NP-13	0.15	0.03	0.18	0.01	0.00	0.008	4.3	5.8
78	Dam Site and AR	Mannaje Batala	Sanfebagar NP-13	0.15	0.03	0.18	0.05	0.01	0.059	31.6	43.0
79	Dam Site and AR	Nanda Batala	Sanfebagar NP-13	0.47	0.10	0.57	0.05	0.01	0.066	11.0	15.0
80	Dam Site and AR	Piram Batala	Sanfebagar NP-13	0.11	0.02	0.13	0.06	0.02	0.078	57.8	78.6
		Total		19.66	4.02	23.68	4.68	1.28	5.97	23.8	32.0



Table D-1a Forest loss at different project components

SN	Project Component	Types of Forest (as per Forest Act)	Forest Area(ha)	Loss of vegetation			Crown Cover (%)	Basal Area (%)	Vegetation Type
				Seedling / ha.	Saplings / ha.	No. of trees >10cm DBH /ha			
1	Reservoir	Juke and Rakse CF of Achham and Jukeban Lamkana CF of Bajura district	6.51	930	583	591.3	5-45	0.023 - 0.3988	Sal, Malato, Mauwa. Sindure Khirro, Kokkade, Badkaulo, Bhalayo, Daar, Amala, saaj
2	Headworks								
a	Dam	Rakse CF and Juke CF	0.07	280	150	25	20	0.015	Malato, Khirro,
b	Settling Basin	Juke CF	1.25	117	16	216.66	20	0.0265	Khirro, Pahadi Mauwa, Faledo, Malato, Rohini, Ghangharu
c	Road to headworks	Rakse CF	0.35	467	117	150	25	0.0676	kalo Siris, Khirro, Kokkade, Sindure
3	Adit	Imiltukra CF	2.47	303	469	1089.66	5-40	0.14-0.25	Saal, Malato, Mayal, Khirro, Uttis
4	Road to adit	Imiltukra CF and Sukethana	1.5	544	352	240	5	0.1073	Malato, Mayal, Uttis, Saal
	Total		12.15						



Table D-1c: Total Forest Loss

Types of Forest (as per Forest Act)	Forest Arae(ha)	Loss of vegetation**				Crown Cover (%)	Standing Wood Volume		Biomass for Standing Tree Kg (Wet & Dry)	Biomass Uses*
		LOSS OF REGENERATION		LOSS OF TREE(Number)			Timber(Cft)	Fuel wood (Chatta)		
		Seedling /ha	Sapling/ha	Pole Class	Tree Class					
Community	12.15	1297.63	453.3	4481	328	5-45%	29310.425	58.61	648203.02	Timber, fuelwood, agricultural implements, fodder, etc
Total	12.15	7948	5553	4481	328	5-45%	29310.425	58.61	648203.02	

Note:

** Seedling 0-4cm DBH; Sapling 4-10cmDBH; Pole class 10-30cm DBH; Tree class > 30cm DBH

*** Possible usage are -fire, wood, fodder, etc

Other type of forest will not be affected by the project



Table D-1 b: Total Loss in terms of plant species

Botanical Name	Local Name	Avg DBH/Range* (FOR>10cm DBH)	Loss of Vegetation **				Wood volume m3	Standing Wood Volume		Biomass for Standing Tree (KG.) (Wet) (Dry)	Biomass Uses***
			Loss of Regeneration		Loss of Tree(Number)			Timber(Cft)	Fuel wood (Chatta)		
			Seedling	Sapling	Pole Class	Tree Class					
<i>Macaranga pustulata</i>	Malato	18.76	10.78	4.61	213	92	67.79	2390.95	4.78	52876	Low quality timber
<i>Englehardtia spicata</i>	Pahadi Mauwa	15.07	12.33	3.06	237	0	27.47	968.867	1.9377338	21426.6	Low quality timber
<i>Toona ciliata</i>	Tooni	13.18	22.53	3.01	59	0	4.57	161.184	0.3223678	3564.6	Low quality timber
<i>Mallotus philippinensis</i>	Sindure	14.13	10.78	30.8	533	0	47.11	1661.57	3.3231394	36745.8	Low quality timber, medicinal
<i>Sapium insigne</i>	Khirro	15.4	9.23	20.01	296	0	24.83	875.754	1.7515082	19367.4	Low quality fire wood, fish poisoning
<i>Shorea robusta</i>	Saal	17.01	286.41	161.69	2342	118	295.89	10436	20.8720806	230794.2	one of the best Timber
<i>Homalium nepalense</i>	Kokkade	12.35	40.03	9.23	148	0	6.18	217.969	0.4359372	4820.4	Low quality implement and fuelwood



<i>Rhus sp.</i>	Bhalayo	11.15	0	0	30	0	0.29	10.2283	0.0204566	226.2	Low quality fuelwood
<i>Bombax cdeiba</i>	Simal	18.15	0	0	60	0	108.23	3817.27	7.6345442	84419.4	
<i>Casearia sp.</i>	Amala		0	59	0	0					
<i>Boehmeria rugulosa</i>	Daar	10.19	0	0	59	0	1.09	38.4443	0.0768886	850.02	Wooden vessels
<i>Phyllanthus emblica</i>	Amala	0	30	0	0						
<i>Garuga pinnata</i>	Dabdabe	11.94	1.55	1.55	59	0	2.8	98.756	0.197512	2184	Fodder, fuelwood
<i>Terminalia alata</i>	Saaj		59	0	0	0					Timber
<i>Erythrina sp.</i>	Phaledo	14.33	0	0	30	0	1.42	50.0834	0.1001668	1107.6	Low quality timber
<i>Pyracantha crenulata</i>	Ghangharu	10.19	0	0	30	0	0.59	20.8093	0.0416186	460.2	Stick, wild edible fruit
<i>Albizzia lebbeck</i>	Siris	40.34	0	0	30	59	128.68	4538.54	9.0770872	100370.4	Low quality timber
<i>Pyrus pashia</i>	Mayal	23.88	0	0	118	0	21.84	770.297	1.5405936	17035.2	Low quality timber, wild edible fruit
<i>Alnus nepalensis</i>	Uttis	25.47	6.16	30.8	237	59	92.25	3253.66	6.507315	71955	Timber
Total					4481	328	831.03	29310.4	58.6208496	648203	



Table D-1 d: Loss of Non-timber forest products

S.N.	Non timber Forest Species	Community Forest	
		Seedling /ha	Sapling/ha
1	Dhaiyaro	12	2
2	Asuro	5	0
3	Sisno	10	0
4	Amala	3	1
5	Jamun	3	1
6	Aiselu	4	0

Note:

Other type of forest will not be affected by the project

Table D-1e: Valuation of Forest Product Loss

S.No.	Botanical Name	Local Name	Value of Timber (Pole and Tree)
1	<i>Macaranga pustulata</i>	Malato	4,57,500
2	<i>Englehardtia spicata</i>	Pahadi Mauwa	3,55,555
3	<i>Toona ciliata</i>	Tooni	2,65,500
4	<i>Mallotus philippinensis</i>	Sindure	7,99,500
5	<i>Sapium insigne</i>	Khirro	59,200
6	<i>Shorea robusta</i>	Saal	14,753,000
7	<i>Homalium nepalense</i>	Kokkade	2,22,000
8	<i>Rhus sp.</i>	Bhalayo	6,000
9	<i>Bombax ceiba</i>	Simal	3,30,000
10	<i>Boehmeria rugulosa</i>	Daar	88,500
11	<i>Garuga pinnata</i>	Dabdabe	88,500
12	<i>Erythrina sp.</i>	Phaledo	4,500
13	<i>Pyracantha crenulata</i>	Ghangharu	4,500
14	<i>Albizzia lebbeck</i>	Siris	1,33,500
15	<i>Pyrus pashia</i>	Mayal	1,77,000
16	<i>Alnus nepalensis</i>	Uttis	4,44,000
	Total		15,334,200

Note :-Valuation is based on the local value per trees as fixed by the administrative authority for some of the trees and average is taken for non-specified ones



Appendix-E: Stakeholder Consultation



Table-1: Name List/Attendance of Ward Level PRA Participants

**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2018**

Checklist for Ward Level PRA

1. General Information

1. Ward : 10 2. Ward no. : 10
3. Village/Settlement : Santebagarob 4. Venue : Tamsi, Mahabharat
5. Facilitator : Ramna, K. Pokharel 6. Date : 2075.10.1.10
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	मानविक मिए	42	5		90	कृषि	सन्तेबगर	[Signature]
2	मानविक मिए	38	5		90	कृषि	"-6	[Signature]
3	मानविक मिए	46	5		8	"	"-6	[Signature]
4	मानविक मिए	20	5		SLC	"	"-6	
5	मानविक मिए	29	5		6	कृषि	"-6	[Signature]
6	मानविक मिए	67	5		7	कृषि	"-6	[Signature]
7	मानविक मिए	60	5		6	कृषि	"-6	[Signature]
8	मानविक मिए	42	5		3	कृषि	"-6	[Signature]
9	मानविक मिए	68	5		SLC	कृषि	"-6	[Signature]
10	मानविक मिए	47	5		90	कृषि	"-6	[Signature]
11	मानविक मिए	39	5		SLC	कृषि	"-6	[Signature]
12	मानविक मिए	47	5		81	कृषि	"-6	[Signature]
13	मानविक मिए	64	5		81	कृषि	"-6	[Signature]
14	मानविक मिए	44	5		"	कृषि	"-6	[Signature]
15								
16								
17								
18								
19								
20								



**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2018**

Checklist for Ward Level PRA

1. General Information

1. Ward : 13 Babla 2. Ward no. 13
3. Village/Settlement : Babalgauri 4. Venue : Babalgauri
5. Facilitator : Chhatra Tamrakar 6. Date : 07-5-11-11
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	उमालान्त जोशी	37	M	ब्राह्मण	Bed	शिक्षण	बाबला-1	
2	चण्डू बडाला	34	"	बोधी	Med	शिक्षण	" 2	
3	कालु सिंह बिष्ट	28	"	"	I.Ed	शिक्षण	" 3	
4	पुरुषोत्तम सिंह (शाह)	25	F	"	I.Ed	"	बाबला-2	
5	बल व. शाकद	46	M	बोधी	S.L.C	कृषि	बाबला-4	
6	प्रकाश बिष्ट	20	"	"	M.Ed	शिक्षण	बाबला-5	
7	हेरा बडाला	46	"	"	लटर	कृषि	बाबला-5	
8	मलु बडाला	93	"	"	S.L.C	विद्यार्थी	बाबला-5	
9	मलु व. बिष्ट	83	"	"	S.L.C	शिक्षण	" 3	
10	अनक बडाला	33	"	"	मल्ल	कृषि	" 3	
11	सिरा सिंह बिष्ट	48	M	"	मल्ल	कृषि	" 3	
12	अम बहादुर बडाला	20	M	"	B.Ed	Student	बाबला-5	
13	गोर्खा बहादुर बडाला	25	M	"	S.L.C	"		
14								
15								
16								
17								
18								
19								
20								



**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2018**

Checklist for Ward Level PRA

1. General Information

1. Ward : 4 (Mellekh) 2. Ward no. : 4
3. Village/Settlement : Sandhole, ghol 4. Venue : Sandhole
5. Facilitator : Panxa, Panchare 6. Date : 07/11/18
7. Details of Participants: 13

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	गोबुल साउद	25	♂		D-E2	गृहि	गुहले-२	
2	विष्णु साउद	34	♂		7	"	"	
3	दिग्वि साउद	60	♂		साउद	"	"	
4	साउद साउद	43	♂		11	"	"	
5	सावित्र साउद	36	♀		10	"	"	
6	दल साउद	42	♂		साउद	"	"	
7	साउद साउद	36	♂		7	"	"	
8	साउद साउद	35	♂		साउद	"	"	
9	साउद साउद	20	♂		"	गोबुल	"	
10	साउद साउद	20	♂		"	"	"	
11	साउद साउद	45	♂		"	गोबुल	"	
12	साउद साउद	25	♂		"	"	"	
13	प्रमोदी साउद	45	♀		"	"	"	
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**Budhiganga Hydropower Project
Environmental and Social Impact Assessment**

2018

Checklist for Ward Level PRA

1. General Information

1. Ward : 8
2. Ward no. : 8 Mellekha
3. Village/Settlement : ए.ए.सी.कोट, नेल्केवा
4. Venue : बुद्धिगंगा हाइड्रोपावर प्रोजेक्ट
5. Facilitator :
6. Date : 07.01.12
7. Details of Participants : 8

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	खिता साउंढ	५२	F	देवी	हाई	बुद्धिगंगा	- ४	खिता
2	राजिन्द्र साउंढ	६५	M	"	"	"	- ४	राजिन्द्र
3	देवरा साउंढ	३५	F	"	1-A	नोकरी	- ४	देवरा
4	राम साउंढ	१५	M	देवी	S	ग्यापार	बुद्धिगंगा ४, ५, ६	RAM
5	जो. ड. साउंढ	४२	M	"	U	नोकरी	"	जो. ड. साउंढ
6	कृष्ण ड. साउंढ	२८	M	"	S	कृषि	"-४	कृष्ण
7	महाजन पि.डावट	६०	M	"	Bed	बुद्धिगंगा	- ४	महाजन
8	वीर बहादुर साउंढ	६८	M	"	सहा	कृषि	- ४	वीर
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Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2018

Checklist for Ward Level PRA

1. General Information

1. Ward : 10
2. Ward no. : 10
3. Village/Settlement : Budhiganga
4. Venue : Maikabazar
5. Facilitator : Ranuaj. N. Pakhrail
6. Date : 20.7.2018
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	गिरधर ब. साउंड	42	M	क्षेत्री	4	कृषि		
2	मिन व. जैदी	40	"	ब्राह्मण	10	कृषि		
3	कुट्टि सिं जैदी	35	"	क्षेत्री	सहाय	कृषि		
4	उद्यम सिं साउंड	42	"	"	5	कृषि		
5	चन्द्र साउंड	65	"	"	5	ग्राह्यार		
6	विष्णु ब. साउंड	33	"	"	7	कृषि		
7	लाल ब. पुठा	55	"	"	सहाय	कृषि		
8	नन्द पुठा	41	"	"	7	कृषि		
9	चन्द्र व. जैदी	51	"	ब्राह्मण	7	"		
10	मति क्षी साउंड	42	F	क्षेत्री	सहाय	कृषि		
11	उम्बर ब. साउंड	41	M	"	10	"		
12	कुशी व. साउंड	38	M	क्षेत्री	5	कृषि		
13	देव ब. साउंड	33	"	"	8	कृषि		
14	जानक साउंड	34	"	"	8	"		
15	चन वि. क.	53	"	दलित	सहाय	"		
16	विष्णु राज जैदी	33	"	ब्राह्मण	10	"		
17	गिरधर पुठा	57	"	क्षेत्री	2	"		
18	देव ब. पुठा	65	"	"	3	"		
19	तिलक साउंड	17	"	"	8	विद्यार्थी		
20	चर ब. साउंड	32	"	"	सहाय	कृषि		



**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA**

1. General Information

1. Municipality/RM : Sankabagar 2. Ward no. : 13
3. Village/Settlement : Babla 4. Venue : Budhabagar
6. Date : 07.11.19 5. Facilitator : Pamraj

7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Maipati Bataia	55	M		Literate	Labour	Sank-13	
2	Divek Kunwar	25	M		Overseas	Student	"-13	
3	Sobha Babli	41	F		5	Business	"-13	
4	Lokeshwar Kunwar	35	F		3	"	"-13	
5	Sharmila Kunwar	24	F		10	"	"-13	
6	Ishwar Bataia	21	M		JTA	"	"-13	
7	Maneshwar Kunwar	35	F		8	"	"-13	
8	Khanti K. Rawal	28	F		Becham	"	"-13	
9	Sabha Sunwar	37	F		8	"	"-13	
10	Trishna Kunwar	21	F		SLC	"	"-13	
11	Maniraj Kunwar	29	M		"	"	"-13	
12	Kalasha Kunwar	19	F		SLC	"	"-13	
13	Setman Babli	43	M		1A	"	"-13	
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Budhiganga Hydropower Project
Environmental and Social Impact Assessment (EIA - 20mw)
Checklist for Ward Level PRA

1. General Information

1. Municipality/RM : Budhiganga 2. Ward no. : 10
3. Village/Settlement : Malikabazar 4. Venue : Malikabazar Chowk
6. Date : 07.11.16 5. Facilitator : P. Anil Kumar
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education/Main Occupation	Address	Signature
1	Padam Saud	47	M		8 Business	Budhiganga-2a-10	पदम
2	Chandra Dev Jaisi	52	M		8 Agri-	"	चन्द्र
3	Rana Saud	53	M		Literate	"	राना
4	Keke Saud	57	M		"	"	केके
5	Bharanaj Jaisi	24	M		9	"	भरनाज
6	Tekke Saud	55	M		Literate	"	तेके
7	Man Ddr. Saud	33	M		8	"	मान
8	Kamal Ddr. Saud	37	M		8 Business	"	कमल
9	Chandra Ddr. Thapa	39	M		5	"	चन्द्र
10	Surva Saud	34	M		4 Agri	"	सुर्वा
11	Narvesh Duda	22	M		SLC Business	"	नारवेष
12	Chandra Saud	68	M		Literate	"	चन्द्र
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Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA

1. General Information

1. Municipality/RM

...मेल्लख-५

3. Village/Settlement

...कमखो...

6. Date

...०२/०५/१९...

2. Ward no.

...१५...

4. Venue

...कमखो...

5. Facilitator

...पामखी-कमखो...

7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Shankar Bdr. Saud	48	M	98656243 30	SLC	Agriculture	mellakh-4	[Signature]
2	Bile Saud	70	M	9949036405	Literate	"	"-4	[Signature]
3	Bire Saud	49	M		"	"	"-4	[Signature]
4	Dogi Saud	65	M		"	"	"-4	[Signature]
5	Rinari Saud	71	M		"	"	"-4	[Signature]
6	Dal Bdr Saud	56	M		8	"	"-4	[Signature]
7	Suna Saud	32	F		SLC	Business	"-4	[Signature]
8	Ram Bdr. Saud	32	M		SLC	"	"-4	[Signature]
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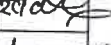
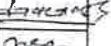
**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA**

1. General Information

1. Municipality/RM : ..mallerkh.....
3. Village/Settlement : ..Pratichot.....
6. Date : ..07.5.11.5.....

2. Ward no. : ..8.....
4. Venue : ..Chautara (Near Health post).....
5. Facilitator : ..Ramesh K. Paudyal.....

7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Ujjale Saud	55	M		5	Agriculture	Sanfe-8	
2	Khimta Devi Saud	45	F		Literate	"	"-8	
3	Prem Saud	45	M		4	Business	"-8	
4	Bajirasingh Lohar	60	M		Literate	Agrar	"-8	
5	Kirte Saud	40	M		"	Mason	"-8	
6	Rajendra Saud	44	M		"	Business	"-8	
7	Tej Bdr. Saud	45	M		SLC	Teaching	"-8	
8	Narendra Saud	25	M		10	Job	"-8	
9	Pabi Saud	60	F		Literate	-	"-8	
10	Jaishara Saud	43	F		11	Hotel	"-8	
11	Dir Bdr Saud	31	M		Bachelor	Job	"-8	
12	Ujjale Saud	43	M		Literate	Agriculture	"-8	
13	Kalusingh Saud	48	M		6	Business	"-8	
14	Kalusingh Saud	47	M		5	Mason	"-8	
15	Sarjane Saud	62	M		Literate	Agri.	"-8	
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Budhiganga Hydropower Project
Environmental and Social Impact Assessment
Checklist for Ward Level PRA

1. General Information

1. Municipality/RM : Sanfebagar. 2. Ward no. : 10
3. Village/Settlement : Thanti 4. Venue : Hotel
6. Date : 07-5-14 5. Facilitator : Ramraj, K. Panchari
7. Details of Participants:

S.N.	Name	Age	Sex	Caste/ Ethnicity	Education	Main Occupation	Address	Signature
1	Dadhisingh Dogati	59	M		Literate	Agriculture	Sanfe-10	
2	Amrit Mahata	21	M		Inter	Teaching	11-10	
3	Mahendra Dogati	30	M		SLC	Unemploy	11-10	
4	Sarpsingh Dogati	68	M		Literate	Agriculture	11-10	
5	Surya Dogati	36	M		SLC	Army	11-10	
6	Sarda Dogati	49	F		Literate	Agriculture	11-10	
7	Manasisingh Lohar	50	M		Literate	Arar -work	11-10	
8	Parbati Dogati	25	F		5	Business	11-10	
9	Sarita Bista Dogati	30	F		5	Teaching	11-10	
10	Sarita Bista	28	F		Inter	Ngo worker	11-10	
11	Lok Bala/Bogati	47	M		Bachelor	Teacher	11-10	
12	Sarada Bogati	30	F		Gen	Business	11-10	
13	Dilip Dogati	30	M		SLC	Hotel	11-10	
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**Budhiganga Hydropower Project
Environmental and Social Impact Assessment
2018**

Checklist for Ward Level PRA

1. General Information

1. Ward : Old - 7, New - 4 2. Ward no. : 7, Sanf. Subag
3. Village/Settlement : Matmandu, Sanf. 4. Venue : Matmandu
5. Facilitator : Pamsha 6. Date : 07-5-10
7. Details of Participants: 10

S.N.	Name	Age	Sex	Caste/ Ethnicity	Educ ation	Main Occupation	Address	Signature
1	Ratna Tamata	45	M		Liter	Agri	Hatkot	रतन
2	Hainsingh "	55	M		"	"	" - 4	हैनसिंग
3	Shersingh "	53	M		"	"	" - 4	शेर
4	Prem Singh "	61	M		5	Job	Sanf. - 4	प्रेम
5	Jayendra od	47	M		7	Agri	"	जेन्द्र
6	Sarsane Lohar	49	M		5	Agri/occupy	"	सर्सने
7	Bhuwane "	42	M		Liter	"	"	भुवने
8	Luge tamata	49	M		"	Agri	"	लुगे
9	Lapmi Lohar	52	F		"	"	"	लपमी
10	Khanti od	48	M		"	"	"	खन्ती
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Table -2: Issues and Concerns Raised by Stakeholders during Ward Level PRA

S.N	Name of Rural Municipality/ Municipality	Issues and Concerns Raised by Stakeholders
1	Budhi Ganga Municipality, Ward Number - 10	• Support to local schools for drinking water, toilet and educational materials • Support for Chadapani Ghat Irrigation Project • Support for Ikrigard- Kuskot foot trail • Support for tourism development of Bhagwati Rock (big rock under which more than 500 people could take shelter) • Employment opportunity for local people • Provide share of BHP to local people • Support for income generation activities • Protection of traditional water mills (<i>Ghatta</i>)
2	Mellekh Rural Municipality, Ward Number -4	• Conservation of community forest (Juka, Ikrigad) • Supports for renovation of school buildings of the ward • Support for drinking water, toilet and educational materials to local schools • Support to manage Odalkota spring for drinking water and irrigation • Protection of traditional water mills (<i>Ghatta</i>) • Support Barhabishe- Kuskot (Lamakhadi-Dab Market) road • Conservation of Lingkot Temple (2 K.M from dam site) • Protection of cremation sites (pingaghat, Lingkot ghat, Sherabagar) • Give priority for employment to local people • Compensation for land owners living within 3 km of the reserve wire • Quick implementation of the project • Coordination/information to the community before starting construction activities • Transparency regarding project activities and expenditure (corruption case filled in CIA during construction of road from project office to powerhouse) • Transparent regarding compensation of land • Support poor and women for income generating activities • Project should implement study report of Budhiganga HEP prepared in 2052 B.S. • Protection of water mills
3	Sanfegagar Municipality, Ward Number -13	• Conservation of Rakshe Community Forest • Protection of water resources of the area • Support for Ardali Micro Hydro power project • Protection of Cremation sites(Ardalighat, Budhabagar) • Protection of Water mills • Implement awareness raising program against Chhaupadi • Conservation of Virkhamba (archeological importance) • Provide employment • Support poor and women for income generating activities • Provide skill development training

4	Mellekh Rural Municipality, Ward Number -8	• Conservation of Imil Tukra Community forest • Support to renovate health post building of the ward • Protection of water mills • Support for Hatikot - Thanti and Hatikot- Mastmandu foot trail • Support for conservation of historic Vimkot Palace • Support for operation and maintenance of drinking water schemes • Priority in employment • School support
5	Sanfebagar Municipality, Ward Number -10	• Support local schools for drinking water, toilet and boundary wall • Support to manage water resources • Protection of water mills • Protection of cremation site (Aamkuna Ghat) • Employment to local people in the project • Support for local development of the ward • Timely completion of the project • Support to manage irrigation schemes • Employment for project affected households due to land acquisition
6	Sanfebagar Municipality , Ward Number -4	• Employment to local people in the project • Support on local development • Support on management of water resources • Support to manage irrigation schemes • Timely completion of project



Table -3: Name List of Participants of Public Consultation

A. Municipality: Budhiganga Ward No: 10 Settlement: Devalsain, Barhbish Date: 2075-1-9

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Manoj Kumal	41	M	B BS	Salaried Job	Budhiganga -10
2	Khadak Rawal	51	M	7	Agriculture	Budhiganga -10
3	Sar Kumal	57	M	7	Mason Work	Budhiganga -10
4	Subash Rawal	16	M	9	Study	Budhiganga -10
5	Bal Bdr. Lohar	62	M	5	Agriculture	Budhiganga -10
6	Dipak Rawal	16	M	9	Study	Budhiganga -10
7	Jang Bdr. Nepali	63	M	10	Agriculture	Budhiganga -10
8	Dipak Rawal	30	M	SLC	Agriculture	Budhiganga -10
9	Dipendra Rawal	24	M	I Com	Business	Budhiganga -10
10	Dan Bdr. Kumal	48	M	Literate	Agriculture	Budhiganga -10
11	Dilip Rawal	33	M	7	Agriculture	Budhiganga -10
12	Prasad Kumal	40	M	7	Business	Budhiganga -10
13	Krishna Rawal	32	M	8	Agriculture	Budhiganga -10
14	Bal Bdr. Rawal	27	M	Illiterate	Agriculture	Budhiganga -10
15	Dinesh Kumal	22	M	Literate	Agriculture	Budhiganga -10
16	Sher Bdr. Rawal	19	M	10	Agriculture	Budhiganga -10
17	Rup rawal	24	M	12	Salaried Job	Budhiganga -10
18	Bajire Bad	50	M	2	Agriculture	Budhiganga -10
19	Rabindra Kumal	36	M	2	Agriculture	Budhiganga -10
20	Sete Rawal	90	M	Literate	Old (Retired)	Budhiganga -10

2: Rural Municipality: Mellekh Ward No: 4 Settlement: Kalamuda, Kuskot Date: 2075-1-7

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Jogi Saud	61	M	Literate	Agriculture	Mellekh-4
2	Dal Bdr Saud	52	M	Literate	Agriculture	Mellekh-4
3	Haite Saud	50	M	Literate	Agriculture	Mellekh-4
4	Jagat Saud	24	M	7	Agriculture	Mellekh-4
5	Bikram Saud	35	M	7	Agriculture	Mellekh-4
6	Lal Chandra Rawal	41	M	Literate	Agriculture	Mellekh-4
7	Jhanka Bdr. Saud	45	M	SLC	Agriculture	Mellekh-4
8	Nata Saud	52	M	Literate	Agriculture	Mellekh-4
9	Gokul Saud	26	M	B Ed	Unemployed	Mellekh-4
10	Kailash Saud	23	M	7	Agriculture	Mellekh-4
11	Kalu Singh Saud	40	M	Literate	Agriculture	Mellekh-4
12	Kamal Tamrakar	48	M	Literate	Agriculture	Mellekh-4
13	Billai Saud	70	M	Literate	Agriculture	Mellekh-4
14	Amar Bdr. Rawal	39	M	Literate	Agriculture	Mellekh-4
15	Sukra Saud	53	M	Literate	Agriculture	Mellekh-4
16	Prem Saud	47	M	5	Business	Mellekh-4
17	Nayan Singh Saud	43	M	7	Business	Mellekh-4

3. Rural Municipality: Mellekh Ward No: 8 Settlement: Pipalchaur, Hatikot Date: 2075-1-5

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Khinta Saud	47	F	Literate	Agriculture	Mellekh -8
2	Bishna Saud	20	F	10	HH Work	Mellekh -8
3	Hira Saud	62	M	Literate	HH Work	Mellekh -8
4	Sushila Saud	23	F	12	Salaried Job	Mellekh -8



5	Hira Mijhar	66	M	Literate	Agriculture	Mellekh -8
6	Bir Bdr. Saud	32	M	B Ed	Salaried Job	Mellekh -8
7	Rajendra Saud	23	M	I Ed	Study	Mellekh -8
8	Mansara Saud	40	F	Literate	HH Work	Mellekh -8
9	Gokul Saud	28	M	9	Agriculture	Mellekh -8
10	Devshara Saud	18	F	9	Business	Mellekh -8
11	Pashupati Saud	23	F	I Ed	Study	Mellekh -8
12	Gopi Saud	55	M	5	Agriculture	Mellekh -8
13	Arjun Raj Dhungana	23	M	I Ed	Study	Mellekh -8
14	Arjun Bhul	18	M	SLC	Study	Mellekh -8
15	Bishal Dhungana	17	M	SLC	Study	Mellekh -8
16	Karna Bahadur Saud	42	M	8	Salaried Job	Mellekh -8
17	Chhabi Lal Dhungana	32	M	9	Agriculture	Mellekh -8

4. Municipality: Sanfebagar Ward No: 10 Settlement: Thanti, Ghungurkot Date: 2075-1-8

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Chandra Singh Bogati	76	M	Literate	Agriculture	Sanfebagar-10
2	Khadak Singh Mahata	37	M	Literate	Agriculture	Sanfebagar-10
3	Nav Raj Bhatta	54	M	SLC	Teaching	Sanfebagar-10
4	Girendra Bogati	32	M	B Ed	Teaching	Sanfebagar-10
5	Bhoj Raj Bhandari	28	M	+2	Agriculture	Sanfebagar-10
6	Lalit Bogati	42	M	MA	Salaried Job	Sanfebagar-10
7	Lok Bdr Bogati	46	M	BA	Salaried Job	Sanfebagar-10
8	Remant Bogati	47	M	IA	Agriculture/SW	Sanfebagar-10
9	Mani Raj Bogati	65	M	SLC	Agriculture	Sanfebagar-10
10	Dabal Bogati	33	M	Literate	Business	Sanfebagar-10
11	Nirmala Bogati	28	F	Literate	Business	Sanfebagar-10
12	Sarda Bogati	30	F	8	Agriculture	Sanfebagar-10
13	Madan Bogati	19	F	+2	Study	Sanfebagar-10
14	Mohan Singh Bogati	74	M	4	HH Work	Sanfebagar-10
15	Sarpaya Bogati	67	M	3	HH Work	Sanfebagar-10
16	Suraj Thakulla	31	M	B Ed	Salaried Job	Sanfebagar-10

5. Municipality: Sanfebagar Ward No: 13 Settlement: Budhabagar Date: 2075-1-8

S.N.	Name	Age	Sex	Education	Occupation	Address
1	Purna Bdr Sunar	48	M	SLC	Business	Sanfebagar-13
2	Hira Singh Kunwar	28	M	M Ed	Business	Sanfebagar-13
3	Kiran devi Kunwar	21	F	SLC	Business	Sanfebagar-13
4	Gopal Bahadur Batala	37	M	SLC	Business	Sanfebagar-13
5	Dinesh Nepali	40	M	7	Tailoring	Sanfebagar-13
6	Chet Bahadur Kunwar	37	M	B Ed	Business	Sanfebagar-13
7	Laxmi Devi Kunwar	23	F	I Ed	Student	Sanfebagar-13
8	Dev Raj Kunwar	18	M	8	Driving	Sanfebagar-13
9	Bir Bahadur Batala	38	M	SLC	Agriculture	Sanfebagar-13
10	Bhim Nepali	20	M	SLC	Tailoring	Sanfebagar-13
11	Khuru Damai	38	F	Literate	Tailoring	Sanfebagar-13
12	Puspa Nepali	17	M	10	Study	Sanfebagar-13
13	Dipak Kunwar	17	M	9	Study	Sanfebagar-13
14	Mahan Nepali	18	M	7	Agriculture	Sanfebagar-13
15	Dambar Kumari Kunwar	19	F	10	Study	Sanfebagar-13



16	Radhika Kunwar	25	F	I Ed	Business	Sanfebagar-13
17	Narma Kunwar	48	F	Literate	Agriculture	Sanfebagar-13
18	Chandra Bdr. Kunwar	45	M	8	Business	Sanfebagar-13
19	Surat Sunar	40	M	SLC	Business	Sanfebagar-13
20	Jank Bahadur Kunwar	32	M	IA	Business	Sanfebagar-13



Annex-:...

Issues and Concerns Raised by Stakeholders in Public Consultation

S. N.	Municipality/Ward/ Settlement	Issues and Concerns
1	Budhiganga Municipality, Ward No.10, Devalsain, Barhbish	• Support Shree Singada and Masteshwari schools for drinking water, toilet, boundary wall and class room construction • Support for protection/management of Khokela Spring located in Mastmandu Community Forest • Protection of affected water mills • Funding support for construction of Ikrigad Micro Hydro Project • Support for maintenance of Lingbagar- Kuskot foot trail • Support for Mastmandu Temple • Protection of Ikrigad (Vora) cremation Site • Employment Opportunity • Good compensation for acquired land • Electricity facility
2	Mellekh Rural Municipality, Ward No. 4, Kalamuda, Kuskot	• Conservation of Jukaban Community Forest • Support for Pratibha Child Development Center • Support to manage existing irrigation schemes • Protection of watermills • Support to Lamakhadi- Dab Bazar Road • Protection of Lingkot Temple • Protection of Cremation sites • Support to recovery loss of income from fishery • Employment Opportunity • Support for income generation activities
3	Sanfebagar Municipality, Ward No. 13, Budhabagar	• Support to Jalpadevi Primary School (drinking water, toilet & CDC) • Support for drinking water in community • Protection of water mills • Employment opportunity • Compensation of acquired land at prevailing market price • Protection of community forest • Support for income generation activities • Support to control landslides
4	Mellekh Rural Municipality, Ward No. 8, Pipalchaur, Hatikot	• Support to Pipalchaur Primary School for building construction • Protection of water mills • Protection of Santada Cremation Site • Employment opportunity • Support for management of drinking water sources • Support for income generation activities
5	Sanfebagar Municipality, Ward No. 10, Thantibazar	• Support to Ganga Primary School for building construction, drinking water, toilet and educational materials • Support for drinking water facility in Tansibazar • Support to operate Tansi Irrigation System • Funding support for regular operation to Dubkabagar Micro Hydro • Protection of water mills • Protection of Ardali Cremation Site • Employment opportunity • Minimize environmental loss • Provide detail project information to community



Table -5: Name List of Respondents of Key Informant Interview

S.N.	Name	Age	Sex	Caste/Ethnicity	Education	Occupation	Address	Position	Contact No.
1	Mr. Sher Bdr. Budha	67	M	Chhetri	8 Class	Agriculture	Budhiganga Mun. ward-10	Chairperson, Juka CFUG	9865944445
2	Mr. Tapendra Bikram Shah	30	M	Chhetri	JTA	Salaried job	Budhiganga Mun. ward-10	Ag. Technician	9868814630
3	Mr. Bhuwan Raj Jaisi	35	M	Brahmin	B Ed	Salaried job	Budhiganga Mun. ward-10	Account/Admin Assistant	9848693572
4	Mrs. Kamala Devi Tamrakar	37	F	Dalit	8 Class	Tailoring	Mellekh Rural Mun. ward -4, Kuskot	Nominated Member Mellekh Rural Municipality	9848690678
5	Mr. Hira Bdr. Shah	38	M	Chhetri	10 Class	Business	Mellekh Rural Mun. ward -4, Kuskot	Memembr, Jukaban CFUG	097690599
6	Mr. Bhoj Bdr. Saud	30	M	Chhetri	MA	Salaried job	Mellekh Rural Mun. Ward-8,	NA	9749699376
7	Mr. Jit Bdr. Saud	45	M	Chhetri	Intermediate	Teaching	Mellekh Rural Mun. Ward-8,	Kalika Sec. School	9848558059
8	Mr. Khagendra Saud	43	M	Chhetri	Intermediate	Agriculture	Mellekh R. Mun. Ward-8, Hatikot	Chairperson, Ward -8, Mellekh Rural Municipality	9868567447
9	Mrs. Jayanti Bogati	40	F	Chhetri	10 Class	Business	Sanfebagar Mun. Ward-10, Thanti	Ward Mem/ Mun. EC Member, Ward- 10, Sanfebagar Mu.	9868800182
10	Mr. Remant Bdr. Bogati	47	M	Chhetri	SLC	Business	Sanfebagar Mun. Ward-10	Former Chairperson, Ghugurkot VDC	9860654706
11	Mr. Lok Bdr. Bogati	45	M	Chhetri	Bachelor	Teaching	Sanfebagar Mun. Ward-10	Teacher, Thanti Primary School	9848586169
12	Mr. Sagar Singh Babli	45	M	Dalit	I Sc./ CMA	Business (Medical Shop)	Sanfebagar Mun. Ward-13	Chairperson, Sanfebagar Mun. Ward-13	9848684811
13	Mr. Purna Bdr. Kunwar	57	M	Chhetri	8 Class	Business	Sanfebagar Mun. Ward-13	Chairperson, Budhabagar Samaj Samiti	NA
14	Mr. Dipak Batala	24	M	Chhetri	Intermediate	Business	Sanfebagar Mun. Ward-13	Vice Sec., Raksha CFUG	NA



Appendix-F: Public Hearing



Notice for Public Hearing in Arthik National Daily

२०७५ साउन २२ गते मंगलबार (August 7, 2018) पाना नं.: ५ www.aarthikdainik.com

सार्वजनिक सुनुवाइ कार्यक्रमको सूचना

नेपाल सरकार, ऊर्जा, जलस्रोत तथा सिंचाइ मन्त्रालय, विद्युत् विकास विभाग, बुढीगंगा जलविद्युत् आयोजनाबाट प्रस्तावित बुढीगंगा जलविद्युत् आयोजना (२०४ मेगा) को वातावरण संरक्षण नियमावली २०५४ को नियम ७ (२) अनुसार वातावरणीय प्रभाव मूल्याङ्कन (EIA) मस्यौदा प्रतिवेदन उपर राय-सुझाव लिनको लागि सार्वजनिक सुनुवाइ कार्यक्रम मिति २०७५ साल भदौ ५ गते मङ्गलबार अछाम जिल्ला साँफेबगर नगरपालिका यहा नं. १० ठाँटीस्थित श्री ठाँटी आधारभूत विद्यालय प्राङ्गणमा बिहान ११:०० बजेदेखि सुरु हुने भएकोले आयोजना प्रभावित (साँफेबगर नगरपालिका, मेलेख गाउँपालिका र बुढीगंगा नगरपालिका) व्यक्ति तथा सरोकारवालाहरूलाई उक्त कार्यक्रममा उपस्थित भई आफ्नो अमूल्य राय-सुझाव दिनुहुनको लागि हार्दिक आमन्त्रण गर्दछौ ।

आयोजक
बुढीगंगा जलविद्युत् आयोजना
कालिकास्थान, काठमाडौं
फोन नं. : ०१-४४२३२०६
ईमेल : info@bhp.gov.np



Program Schedule

बुढीगंगा जलविद्युतआयोजनाको वातावरणीय प्रभावमुल्याङ्कन सार्वजनिक सुनुवाई कार्यक्रमतालिका, भाद्र ५, २०७५, ठाँटी बजार अछाम

कार्यक्रम संचालन: पंकजकुमार पाखरेल

१. सहभागिहरुको नामदर्ता:

२. आसन ग्रहण

- सभापति : श्री लोक बहादुर वोगटी, प्रधानाध्यापक, ठाँटी आधारभूतविद्यालय, ठाँटी
- प्रमुखअतिथि : श्री नर बहादुर वोगटी, संयोजक, जिल्ला समन्वय समिति, अछाम
- विशिष्ट अतिथि : श्री कुलबहादुर कुँवर, नगर प्रमुख, साँफेबगर नगरपालिका
- अतिथि : श्री सागर सिंह बावली, वडा अध्यक्ष, साँफेबगर न.पा. वडा नं. १३
- अतिथि : श्री कृष्ण व. बुढा, वडा अध्यक्ष, साँफेबगर न.पा. वडा नं. ३
- अतिथि : श्री विर बहादुर साउद, वडा अध्यक्ष, मेल्लेख गा.पा. वडा नं. ४
- अतिथि : श्री खगेन्द्र साउद, वडा अध्यक्ष, मेल्लेख गा.पा. वडा नं. ८
- अतिथि : श्री धर्मराज जैशी, वडा अध्यक्ष, बुढीगंगा न.पा. वडा नं. १०
- अतिथि : श्री भरत खडका, का.वा. वडा अध्यक्ष, साँफेबगर न.पा. १०
- अतिथि : श्री पुष्पराज भट्ट, सदस्य, नेपालपत्रकार माहसंघ, प्रदेश नं ७
- अतिथि : श्री जयन्तीवोगटी, नगर सदस्य, साँफेबगर नगर कार्यपालिका
- अतिथि : श्री कमल देवीताम्राकार, सदस्य, मेल्लेख गाउँकार्यपालिका
- अतिथि : श्री शिवकुवर, जिल्ला कमिटी सदस्य, नेकपा
- अतिथि : श्री भंकर बहादुर साउद, जिल्लाकोषाध्यक्ष, नेपालीकाँग्रेस
- अतिथि : श्री धुवराजउपाध्याय, प्रमुख, ईलाकावनकार्यालय, कुलदेवमाण्डौ, वाजुरा
- अतिथि : श्री दिलबहादुर महत्त, प्रहरी नायवनिरिक्षक, ई. प्र. कार्यालय, घुघुरकोट, अछाम
- अतिथि : श्री कमल साउद, अध्यक्ष, बुढीगंगा सरोकार समिति, ठाँटी
- अतिथि : श्री दिला देवी साउद, वडा सदस्य, मेल्लेख गा.पा. ४
- अतिथि : श्री मोहनसिंह ठकुल्ला, वडा सदस्य, मेल्लेख गा.पा. ८
- अतिथि : श्री नवलसिंह राउत, वडा सदस्य, साँफेबगर न. पा. १३
- अतिथि : श्री शेर व. विक, वडा सदस्य, साँफेबगर न.पा, १०
- अतिथि : श्री भक्त भण्डारी, अध्यक्ष, शिक्षकअभिभावक संघ, ठाँटी आधारभूतविद्यालय ठाँटी

३. सार्वजनिक सुनुवाई उदघाटन: श्री नर बहादुर वोगटी, प्रमुखअतिथिसंयोजक, जिल्ला समन्वय समिति, अछाम ।



४. व्याचवितरण र खादाओढाई सभापति र सवै अतिथिहरुलाई सम्मान :श्री विर वहादुर बोहरा, सि.डि.ई., बुढीगंगा जलविद्युतआयोजना, साईट कार्यालय, ठाँटी, अछाम ।

५. स्वागतमन्तव्य :श्रीमतीपुनम पाण्डे, बुढीगंगा जलविद्युतआयोजना, प्रोजेक्ट अफिस ।

६. बुढीगंगा जलविद्युतआयोजनाको वातावरणीय प्रभावमुल्याङ्कनप्रतिवेदनकोसारांशपुस्तिकावितरण र वातावरणीय प्रभावमुल्याङ्कनप्रतिवेदनको सारांश प्रस्तुती :

- प्राविधिकपक्ष : डा. नारायण भक्तश्रेष्ठ
- वातावरणीय पक्ष : श्री भरत मणी शर्मा

७. मन्तव्य:

- अतिथि : श्री पुष्पराज भट्ट, सदस्य, नेपालपत्रकार माहसंघ, प्रदेश नं ७
- अतिथि : श्री भुकर वहादुर साउद, जिल्लाकोषाध्यक्ष, नेपालीकाँग्रेस
- अतिथि : श्री शिवकुवर, जिल्ला कमिटी सदस्य, ने.क.पा.
- अतिथि : श्री जयन्तीवोगटी, नगर सदस्य, साँफेवगर नगर कार्यपालीका
- अतिथि : श्री धर्मराज जैशी, वडा अध्यक्ष, बुढीगंगा न.पा.वडा नं. १०
- अतिथि : श्री खगेन्द्र साउद, वडा अध्यक्ष, मेल्लेख गा.पा. वडा नं. ८
- अतिथि : श्री विर वहादुर साउद, वडा अध्यक्ष, मेल्लेख गा.पा. वडा नं. ४
- अतिथि : कृष्ण व. वुढा, वडा अध्यक्ष, साँफेवगर न.पा. वडा नं. ३
- अतिथि: श्री सागर सिंह वावली, वडा अध्यक्ष, साँफेवगर न.पा. वडा नं. १३
- विशिष्ट अतिथि : श्री कुलवहादुर कुँवर, नगर प्रमुख, साँफेवगर नगरपालीका
- प्रमुखअतिथि : श्री नर वहादुर वोगटी, संयोजक, जिल्ला समन्वय समिति, अछाम

८. प्रश्नोत्तरतथा छलफल शत्र

- लिखितप्रश्नतथा सुझावहरु माग ।
- सहभागिहरुबाट प्रश्न सोध्ने/सुझावदिने ।
- आयोजनाको तर्फबाट सहभागिहरुकाप्रश्नको जवाफदिने/उनीहरुका जिज्ञासा समाधानगर्ने ।

९. सार्वजनिक सुनुवाई कार्यक्रमको समापन:

- सभापतिश्री लोक वहादुर वोगटी बाट मन्तव्य सहीतकार्यक्रमको समापन।



Summary of Major Issues/Concerns Raised by Participants During Public Hearing

A. Compensation

1. Compensation for unregistered land
2. Compensation for private land excluded in Land Survey of 2045
3. Compensation for loss of private trees and house
4. No discrimination in compensation rate for land of Bajura and Achham.
5. Solve the issue of compensation of private land of Bajura.

B. Accessibility

1. Access road from dam site to connect Budhabagar and Kuskot.
2. Access road from powerhouse site to Hatikot.
3. Access of bridge and road to powerhouse site for local people.
4. Support for Kuskot-Babla-Khaptad access road.
5. Access road linking powerhouse site, Hatikot and Mellekh.

C. Community Support

1. Implement community support programs through user groups.
2. Provide to date information regarding community support program.
3. Develop tourism activities in the poundage area.
4. Support for local development in the project affected area.
5. Support for drinking water in Thanti Bazar.
6. Support to Mellekh-Chaukhutte Campus.
7. Reason for no community support program in Hatikot in the current FY.
8. Coordinate with local elected representatives while implementing community support.

D. Livelihood

1. Support for cage fishing in the poundage area for affected families rely on fishing for livelihood.
2. Provide employment to local people as per their skill and capacity in the project work.
3. Classify marginally affected, affected and seriously affected families/HHs and support accordingly.
4. Water of Budhiganga River for operation of traditional water mills (Ghatta).
5. Operation of Serabagar Irrigation System.
6. Address the livelihood issue of fishing families due to dewater and poundage area.

E. Forestry

1. Provide details on species of trees to be removed from community forest and its cost.
2. Specify plantation area and process of plantation for the loss of trees of community forest.

F. Others

1. Quick implementation of the project to reduce cost.
2. Fencing of dam area to protect human and livestock from accidents.
3. Reason for frequent change of Project Manager of BHP.
4. Reason for not including ward no. 3 of Sanfebagar Municipality as project affected ward.
5. No coordination with elected representatives regarding project activities.
6. Implement awareness program regarding project activities in the project area.
7. Reason for high increase in project cost than the original estimate.
8. Protection of Lingkot Temple located near dam site.
9. Tunneling affect on drinking water, irrigation and private house.
10. Proportion of royalty distribution in the affected areas.
11. Maintain transparency in community support programs/project activities.



Written Comments/Suggestion Received in the Public Hearing

S.N.	Name	Address	Occupation	Questions, Comments/Suggestion
1.	Dammar Bdr. Saud	Budhiganga Municipality, ward no.10	Agriculture	1. Why our compensation rate of land not increased? 2. Why discrimination in compensation rate for our land? 3. Why we have not received compensation on time? 4. Why there is no community development program in our area?
2.	Padam Bdr. Saud	Budhiganga Municipality, ward no.10	Business	1. Why delay in implementation of DW project of Rs. 2 million in Budhiganga Municipality -10? 2. Why delay in hiring of local staff from the project affected area? 3. What is measure to protect Tithana of 450 HHs from submergence?
3	Nirpa Bdr. Saud	Mellekh Rural Municipality, ward no. 4	Agriculture	1. What should be done for operation of water turbines (Ghatta) and income of local people from fishing? 2. What should be done to raise income of local community? 3. What strategy should be adopted for seriously affected and affected community? 4. Compensation of excluded land, house and trees. 5. Access road to local people from dam site and powerhouse area.
4	Rinari Saud	Mellekh Rural Municipality, ward no. 4	-	1. Compensation for unregistered land. 2. When compensation of house and trees will be distributed?
5	Kamal Saud	Mellekh Rural Municipality, ward no. 4	Agriculture	1. Mitigation measures for tunneling impact on water sources. 2. Access road and bridge to connect Sanfebagar ward no 13 and Mellekh ward no. 4. 3. Fencing of dam area for protection of users 4. Fish hatchery.
6	Nain Bdr. Saud	Mellekh Rural Municipality, ward no. 8	Agriculture	1. Alternative for people like me dependent on fishing. 2. Provide net and skill training
7	Puspa Raj Bhatta	Sanfebagar -9	Journalist	1. Increase coordination. 2. Accelerate construction work. 3. Rehabilitation of affected people.
8	Bhpendra Mahata	Sanfebagar Municipality, ward no. 10	Agriculture	1. Why tender/quotation for community support programs such as drinking water, irrigation, school and health? How to end the system?
9	Sagar Sing Babali	Municipality, ward no. 13	Politics	1. As the dam site is located in Babala it should be given main role in project activities.
10	Rudra Aryal	Bhalbari-1, Morang	Researcher, TU, Anthropology Dept.	1. Total number of directly and indirectly project affected HHs/families is not provided. 2. Is there any plan to provide certain unit free or low cost electricity to locals? 3. What role/responsibility will be given to local people for long term management of the project?





Participants of Public Hearing

बूढीगंगा जलविद्युतआयोजना
वातावरणीय प्रभाव मूल्याङ्कन(EIA) प्रतिवेदन सम्बन्धी
सार्वजनिक सुनुवाई कार्यक्रम
उपस्थिति

मिति: २०७५ भाद्र ५ मते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाईल नं.	इसखत नं.
१	मोहन चंद मोदी	हॉटेल कारिदा	रिजिटर	९८५४८८४६९	मोहन चंद
२	नर वंदन	मि.न.स.प्रभु	प्रभु	९८६०६०५३००	नर वंदन
३	कुल कं.कुल	लाफेन्स	प्रभु	९८५०६०६९९८	कुल कं.कुल
४	संगर सिंह वाकली	सा.न.पा.१२ वाकली	पंडित	९८५४२६५२४	संगर सिंह
५	जयनारायण जोशी	सा.न.पा.१०	महाराष्ट्र	९८६८८००१४२	जयनारायण
६	कमल देवितामडा	मेल्मेरवाण	महाराष्ट्र	९८५४६९०६७८	कमल देवितामडा
७	सुविनंद वं.साउंड	" "	वज.अध्यक्ष	९८६८५७५५७	सुविनंद वं.साउंड
८	धनप्रेम जेठे	उदीरगांव	वडा अध्यक्ष	९८५४६५४९२१	धनप्रेम जेठे
९	रुद्र अर्पण	महाराष्ट्र विभाग, मुंबई	महाराष्ट्र	९८५१३६२६३९	रुद्र अर्पण
१०	भरत चंद वडका	वडा सदस्य	वडा अध्यक्ष	९८५४६१०२१७	भरत चंद वडका
११	महादेव चंद मंडा	महाराष्ट्र विभाग, मुंबई	महाराष्ट्र	९८६३४३४३४३	महादेव चंद मंडा
१२	महादेव चंद सावळ	मेल्मेरवाण	महाराष्ट्र	९८५४६२६९९४	महादेव चंद सावळ
१३	पुर्ण चंद साउंड	मेल्मेरवाण	महाराष्ट्र		पुर्ण चंद साउंड
१४	त्रिा देवि जोशी	सा.न.पा.१०	महाराष्ट्र		त्रिा देवि जोशी
१५	प्रिता रावण	" "			प्रिता रावण
१६	वज्र जोशी	" "			वज्र जोशी
१७	शुभिला "	" "			शुभिला
१८	भारत देवि "	मेल्मेरवाण	महाराष्ट्र		भारत देवि
१९	नाति देवि "	" "			नाति देवि
२०	नाति जोशी	सा.न.पा.१०	महाराष्ट्र		नाति जोशी
२१	शिवदास मंडा	सा.न.पा.१०	महाराष्ट्र		शिवदास मंडा
२२	विक्रम जोशी	सा.न.पा.१०	महाराष्ट्र		विक्रम जोशी
२३	हरिमान मंडा	मेल्मेरवाण	महाराष्ट्र		हरिमान मंडा
२४	भगत राव	" "			भगत राव
२५	रम चंद विने	सा.न.पा.१०	महाराष्ट्र	९८५४६२६९९४	रम चंद विने
२६	Nabin Kark.	K.T.M		९८५०३३३५५	Nabin Kark.
२७	महाराष्ट्र राव	महाराष्ट्र		९८५०३३३५५	महाराष्ट्र राव

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मिति: २०७५ भाद्र ५ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाईल नं.	दस्तखत
१८७	पुष्प म जाँडे	बूढीगंगा ज.वि.आ. काठमाडौं	बज्रिनिष्ठ	९८४१५३४५७९	P. Pandey
१९७	जय राम प्रजापति	मिथुन मिथुन विभाग	क्रि.ई.	९८४९७२२२६	जय राम
२०७	वीर बहादुर बोहरा	बुद्धिजा ज.वि.आ.	सि.टेई	९८५१४४२५३	वीर बहादुर
२१७	मकर बहाला	बुद्धिजा ज.वि.आ.	क्रि.ई.	९८५९३३३३३	मकर
२२७	गोविन्द ब. भुल	"	क्रि.ई.	९८६६५२६०२८	गोविन्द
२३७	सुब्रह्मण्य उपाध्याय	जिल्ला ब. कामाखी	ट्रेडर	९८५४७५७३५५	सुब्रह्मण्य
२४७	र. गोपाल राई	र.म.क/३५५ JV	DT/EIA	९८५१०६६२९०	र. गोपाल
२५७	डी. नारायण मल्ल खड्क	र.म.क - ३५५ ज.वि.आ.	म.म.क	९८५१-५८-५०-२६	डी. नारायण
२६७	नरेश मल्लिकार्जुन	"	EIA ट्रेडर	९८५१३३३५९	नरेश
२७७	रमेश रेग्मी	र.म.क.क.क.क.	मि.ई.ई.	९८५१३७७६१७	रमेश
२८७	गौरीश. म. म. म. म.	र.म.क.क.क.क.		९८६८८८१९२	गौरीश
२९७	व. म. म. म. म.	र.म.क.क.क.क.क.		९८५४१७६५५१	व. म. म. म. म.
३०७	श्री लाल कुमारी	ने.म.प.		९८५११५२८३९	श्री लाल
३१७	टिकाराम मोगरी	र.म.क.क.क.क.क.		९८५४५११५५९	टिकाराम
३२७	बबल बोगरी	र.म.क.क.क.क.क.		९८५४५११५५९	बबल
३३७	जार्जनी बोगरी	र.म.क.क.क.क.क.		९८५४५११५५९	जार्जनी
३४७	मिपारा बोगरी	र.म.क.क.क.क.क.		९८५४५११५५९	मिपारा
३५७	रासना "	र.म.क.क.क.क.क.		९८५४५११५५९	रासना
३६७	रामलाल म.म.	र.म.क.क.क.क.क.	प.म.क.क.	९८५४५११५५९	रामलाल
३७७	सुन्दर म.म.	र.म.क.क.क.क.क.	प.म.क.क.	९८५४५११५५९	सुन्दर
३८७	गुप. व. राउत	मेल्लेख ४ कु.म.	म.म.क.क.	९८५४५११५५९	गुप. व. राउत
३९७	निरक. म.म.	मेल्लेख ४ कु.म.	म.म.क.क.	९८५४५११५५९	निरक.
४०७	नैन सिंह लोहार	"			नैन सिंह
४१७	मकर व. म.म.	मेल्लेख ४ कु.म.	म.म.क.क.	९८५४५११५५९	मकर
४२७	वि. म. म. म.	मेल्लेख ४ कु.म.	म.म.क.क.	९८५४५११५५९	वि. म. म. म.
४३७	कृष्ण म.म. म.	र.म.क.क.क.क.क.	म.म.क.क.	९८५४५११५५९	कृष्ण
४४७	गुप. व. म.म.	मेल्लेख ४ कु.म.	म.म.क.क.	९८५४५११५५९	गुप. व. म.म.

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मिति: २०७१ भाद्र ५ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाइल नं.	दस्तखत
५२	प्र. गीति दिल न. ग. ग. ग.	इ. ज. ज. ज. ज. ज. ज.	गोडरी	९८४८५५११७६	के. ग.
५६	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.	९८६५०५८८०७७	ग. ग. ग.
५७	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
५८	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
५९	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
६०	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
६१	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.	९८५९५५९८००००	ग. ग. ग.
६२	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
६३	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.	९८५९५९९९९९९९	ग. ग. ग.
६४	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
६५	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
६६	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
६७	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
६८	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
६९	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७०	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७१	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७२	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७३	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७४	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७५	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७६	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७७	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७८	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
७९	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
८०	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.
८१	गो. ग. ग. ग. ग. ग.	ग. ग. ग. ग. ग. ग.	ग. ग. ग.		ग. ग. ग.

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मिति: २०७५ भाद्र शुक्ले

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मिति: २०७५ भाद्र १ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाइल नं.	दस्तखत
१०९	प्रगत साउँद	मेल्नेवा १८ हातीकोट			
११०	तिलक साउँद	" "			
१११	धनराज साउँद	" "			
११२	रथ साउँद	मेल्नेवा १८ हातीकोट			
११३	प्रेम साउँद	" "			
११४	Xhem R. Budha	Nantegunda, Malla Kh		९८४८६९०५५५	
११५	Kriti Singh	Narmandu, Sange		९८४८६५७२८८	
११६	जोगी साउँद	मेल्नेवा १८ हातीकोट			
११७	मन्जरा साउँद	मेल्नेवा १८ हातीकोट			
११८	प्रियम बोराटे	सा.नं.पा.१० बुद्धकोट		९८२४६९३८०५	
११९	प्रसाद सिंह ओगरी	सा.नं.पा.१० बुद्धकोट			
१२०	कर्ण क बोराटे	" " "			
१२१	रघु सिंह बोराटे	सा.नं.पा.१० बुद्धकोट			
१२२	गंगा क खेत	सा.नं.पा.१० बुद्धकोट	कृषि	९८६५६५०५६७	
१२३	नरेश सिंह खेत	सा.नं.पा.१० बुद्धकोट	कृषि	९८६९५५३३५३	
१२४	Severden Boraite	सा.नं.पा.१० बुद्धकोट			
१२५	सुरज बोराटे	सा.नं.पा.१० बुद्धकोट	कृषि	९८४८५५५५५५	
१२६	प्रेम महता	सा.नं.पा.१० बुद्धकोट			
१२७	राम बोराटे	" " "			
१२८	कान्त सिंह	सा.नं.पा.१० बुद्धकोट	कृषि		
१२९	शाह देवि	सा.नं.पा.१० बुद्धकोट			
१३०	राधाका	" " "			
१३१	प्रियता थापा	मेल्नेवा १८ हातीकोट			
१३२	दान क साउँद	मेल्नेवा १८ हातीकोट			
१३३	मेनी साउँद	" " "			
१३४	हर्ष साउँद	मेल्नेवा १८ हातीकोट			
१३५	मनिराज वरुण	सा.नं.पा.१० बुद्धकोट			

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मिति: २०७५ भाद्र ५ गते

क्र.सं.	नाम	कार्यालय/ठेगाना	पेशा	फोन/मोबाइल नं.	दस्तखत
१३६	मधुसूदन खड्का	सुर्खेत जंगल विभाग	लघाणा	९८४४२३४४४	
१३६	महेन्द्र खड्का	महेन्द्र खड्का ११.५१०		९८६८७५६१०५	
१३८	कुमार खड्का	कुमार खड्का २			
१३९	महेन्द्र खड्का	"			
१४०	महेन्द्र खड्का	"			
१४१	महेन्द्र खड्का	"			
१४२	महेन्द्र खड्का	"			
१४३	महेन्द्र खड्का	"			
१४४	महेन्द्र खड्का	"			
१४५	महेन्द्र खड्का	"			
१४६	महेन्द्र खड्का	"			
१४७	महेन्द्र खड्का	"			
१४८	महेन्द्र खड्का	"			
१४९	महेन्द्र खड्का	"			
१५०	महेन्द्र खड्का	"			
१५१	महेन्द्र खड्का	"			
१५२	महेन्द्र खड्का	"			
१५३	महेन्द्र खड्का	"			
१५४	महेन्द्र खड्का	"			
१५५	महेन्द्र खड्का	"			
१५६	महेन्द्र खड्का	"			
१५७	महेन्द्र खड्का	"			
१५८	महेन्द्र खड्का	"			
१५९	महेन्द्र खड्का	"			
१६०	महेन्द्र खड्का	"			
१६१	महेन्द्र खड्का	"			
१६२	महेन्द्र खड्का	"			

१६३. महेन्द्र खड्का सा.न.पा.१०
१६४. महेन्द्र खड्का सा.न.पा.१०



नेपाल सरकार
उर्जा, जलस्रोत तथा सिचाई मन्त्रालय
विद्युत बिकास विभाग
बुढीगंगा जलविद्युत आयोजनाको
वातावरणीय प्रभाव मूल्याङ्कन (EIA) सम्बन्धि सार्वजनिक सुनुवाई कार्यक्रम



बाँध स्थल



विद्युत गृह क्षेत्र

आयोजक

बुढीगंगा जल विद्युत आयोजना
कालिकास्थान, काठमाडौं
फोन नं. : ०१-४४२३२०६

ईमेल: info@bhp.gov.np



आयोजना सम्बन्धि जानकारी (आयोजनाका प्रमुख संरचना तथा विषेताहरु)

- आयोजनाको नाम : बुढीगंगा जलविद्युत आयोजना
- आयोजना प्रभावित क्षेत्र : बुढीगंगा नगरपालिका (वडा नं: १०),
साफेबगर नगरपालिका (वडा नं: ४, १०, १३) र
मेल्लेख गाउँपालिका (वडा नं: ४, ८)
- आयोजनाको किसिम : पोण्डेज रन अफ रिभर
- बाँध स्थल : बुढीगंगा तथा इकरीगाड खोलाको दोभान भन्दा
२०० मि. तल २५ मि. उचाई तथा ८३ मि.
लम्बाई
- जलाशय : २.०६ कि.मि. लम्बाई १२ हे. क्षेत्रफल तथा १०
लाख
घनमिटर क्षमता
- वालुवा थिग्रयाउने पोखरी : २ वटा (१२ मि. चौडाई तथा ९२ मि. लम्बाई)
- मुख्य सुरुङ : ५.६ कि.मि. लम्बाई तथा ४ मि. व्यास भएको
- सर्ज साफ्ट भुमिगत : ५३.३५ मि. अग्लो तथा ७.५ मि व्यास भएको
- पेन स्टक : १६५.१५ मि. तथा २.८ मि. व्यास भएको भुमिगत
- टर्वाइनको किसिम र संख्या : फान्सिस, २ वटा (१०.२० मेगावाट)
- विद्युत गृह तथा २६.२५ : सतह (३९.७ मि. लम्बाई X १४.८ मि. चौडाई
मि. उचाई)
- जडित क्षमता : २०.४० मेगावाट
- ग्रस हेड : ९४.८३ मि
- डिजाइन बहाव : २६ घनमिटर/से.
- न्युनतम औसत वातावरणीय बहाव : ०.९६ घन मि./से.
- आयोजना सडक : ३.३ कि.मि.
- प्रशारण लाइन : ८०.२९ कि.मि. १३२ के.भी. डबल सर्किट (
- साफेबगर - कैलाली पहलमानपुर)
- आयोजनाको अनुमानित लागत : ९७०८.५७ मिलियन नेपाली रु.
- आयोजनामा लगानी : कुवेत कोष, साउदी कोष तथा नेपाल सरकारको
संयुक्त लगानी
- आयोजनाको आर्थिक विश्लेषण : B/C = ०.३९, IRR = १६.०९%

१. परिचय

बुढीगंगा जलविद्युत आयोजना उर्जा, जलश्रोत तथा सिचाई मन्त्रालय, विद्युत विकास विभागद्वारा बुढीगंगा नदीमा प्रस्तावित गरिएको छ । विद्युत विकास विभागको मुख्य कार्य जल विद्युत आयोजनाहरूको अनुमति पत्र, विद्युत उत्पादन, प्रसारण तथा वितरणको अनुगमन, बहुउद्देशिय तथा अन्तरदेशिय जलविद्युत आयोजनाहरूको विकास तथा आयोजना निर्माण, उत्पादन र प्रसारण सम्बन्धि आवश्यक निर्देशिकाहरू तयार गर्ने रहेको छ ।

आयोजनाको वातावरणीय प्रभाव मुल्यांकन वातावरण संरक्षण नियमावली, २०५४ अनुसार गरिएको छ । यस अध्ययनमा जलविद्युत आयोजना तथा यस भित्र निर्माण गरिने बाटो लाई समावेश गरिएको छ । विद्युत प्रसारण लाईन यस अध्ययनको कार्यक्षेत्र भित्र पर्दैन ।

आयोजनाको वातावरणीय प्रभाव मुल्यांकन कार्य स्मेक ईन्टरनेशनल प्रा.लि. अष्ट्रेलिया तथा उदय कन्सलटेन्सी प्रा.लि.को संयुक्त उपक्रमद्वारा गरिएको छ ।

वातावरण संरक्षण नियमावलीले निर्दिष्ट गरे बमोजिम यस आयोजनाको वातावरणीय प्रभाव मुल्यांकनको निम्न उद्देश्य रहेको छ:

- आयोजना स्थलको भौतिक, जैविक तथा सामाजिक आर्थिक क्षेत्रको स्थलगत तथ्याङ्कहरू संकलन गरी आयोजनाको निर्माणबाट पर्न सक्ने सकारात्मक, नकारात्मक तथा समग्र प्रभावहरूको पहिचान गर्ने;
- वातावरणीय प्रभाव मुल्यांकनबाट प्रस्तावित वातावरणीय प्रभाव न्यूनीकरण, अनुगमन तथा वातावरणीय परीक्षण कार्यक्रमहरू कार्यान्वयन गर्नको लागि वातावरणीय व्यवस्थापन योजना बनाउने;
- वातावरण सम्बन्धी योजना तर्जुमा तथा निर्णयहरूमा स्थानीय व्यक्तिहरूलाई सहभागी गराउने ।

२. सान्दर्भिक नीति, ऐन, नियम, निर्देशिका तथा सन्धिहरूको पुनरावलोकन

आयोजना संग सम्बन्धित नीति, ऐन, नियम, निर्देशिका तथा सन्धिहरूको पालना गर्ने दायित्व प्रस्तावकको हुनेछ । अध्ययनको क्रममा वातावरण संरक्षण ऐन २०५३ र नियमावली २०५४, जलविद्युत विकास नीति २०५६, विद्युत ऐन २०४९ र नियमावली २०५०, वन ऐन २०४९, र जग्गा अधिग्रहण ऐन २०३४ तथा श्रम ऐन २०४९ लाई पुनरावलोकन गरिएको छ ।

३. आयोजनाको विवरण



प्रस्तावित आयोजना प्रदेश नं. ७ को वाजुरा तथा अछाम जिल्लामा पर्दछ । यस आयोजना क्षेत्र भित्र अछाम जिल्लाको साँफेवगर नगरपालीकाको वडा नं. ४, १३ र १० , मेल्लेख गाउँपालिकाको वडा नं. ४ र ८ तथा वाजुरा जिल्लाको बुढीगंगा नगरपालीकाको वडा नं. १० पर्दछन् । आयोजना क्षेत्र राष्ट्रिय निकुञ्ज, संरक्षित क्षेत्र, वन्य जन्तु आरक्ष, मध्यवर्ती क्षेत्र तथा वातावरणीय दृष्टिकोणले शंवेदनशील क्षेत्र भित्र पर्दैन ।

आयोजना स्थल साँफे -मर्तडी सडकबाट पुग्न सकिन्छ । बाँध स्थल विद्यमान साँफे मर्तडी सडकको बुढावगरवाट करीव ७०० मि. वाटो वनाएर जान सकिन्छ भने विद्युतगृहका लागि करीव १.३ कि.मी. वाटो आवश्यक पर्दछ । आयोजनाको धेरैजसो संरचनाहरु नदीको बायाँ तर्फ प्रस्ताव गरिएको छ । आयोजनाको बाँध निर्माण स्थल बुढीगंगा -ईकरीगाडको दोभान भन्दा करीव २०० मी.तल प्रस्ताव गरिएको छ ।

प्रस्तावित बाँधको उचाई खोलाको सतहवाट २४ मी.तथा लम्वाई ८३ मी. को हुनेछ । यस आयोजनाको बाँध निर्माण पश्चात बुढीगंगा नदीमा २.०६ कि.मी. लामो तथा १३.४ हे. क्षेत्रफल वरावरको जलाशय निर्माण हुनेछ । आयोजना अन्तर्गत ५.६ कि. मी. शुरुङ्ग, भूमिगत सर्ज सफ्ट, १६५.१५ मी पेनस्टक तथा सतहमा विद्युत गृह निर्माण गरि विद्युत उत्पादन पश्चात सो पानीलाई टेलरेस मार्फत पुनः बुढीगंगा नदीमा खसालिनेछ ।

प्रस्तावित आयोजना पोन्डेज रन-अफ-रिभर किसिमको आयोजना हो र यसबाट २०.४० मेगावाट विद्युत शक्ति उत्पादन गरिनेछ । आयोजनाको डिजाइन डिस्चार्ज २६ घनमीटर प्रति सेकेण्ड रहेको छ तथा आयोजना निर्माणको कूल अनुमानित लागत रु ९७०८.५७ मिलियन रहेको छ । आयोजनाबाट उत्पादित विद्युत शक्तिलाई ८०.२९ कि.मी. लामो १३२ के.भी. प्रसारण लाइनबाट कैलाली जिल्लाको पहलमानपुर सव-स्टेशनमा जोडिनेछ ।

आयोजना निर्माण अवधिको लागि आवश्यक विद्युत शक्तिको आपूर्तिको लागि ठाँटी वजारवाट ११ के. भी. लाइन विस्तार गरिनेछ । आयोजना निर्माणको क्रममा दक्ष, अर्धदक्ष, अदक्ष गरी जम्मा ८०० व्यक्तिहरुले रोजगारी पाउनेछन् ।

४. आवश्यक तथ्याङ्क तथा संकलन विधि

यस आयोजनाको वातावरणीय प्रभाव मुल्यांकन कार्य वातावरणविद्, वातावरण इन्जिनियर, वनस्पति विज्ञ, वन्यजन्तु विद्, माछा विशेषज्ञ, सामाजिक आर्थिक विशेषज्ञ तथा समाजशास्त्रीहरुको संयुक्त टोलीद्वारा गरिएको छ । आयोजनाको वातावरणीय प्रभाव अध्ययनको लागि स्थलगत सर्भेक्षण कार्य सन् २०१६ र २०१८ मा गरिएको थियो । अध्ययनको क्रममा सन्दर्भ सामाग्रीहरुको पुनरावलोकन, नमुना परीक्षण, आयोजनाबाट प्रभावित परिवारहरुको घरधुरी सर्भेक्षण, समुहगत छलफल, सरोकारवालाहरूसँग छलफलहरु गरि गरिएका छन् । सन्दर्भ सामाग्रीहरुको पुनरावलोकनको क्रममा आयोजनाको सम्भाव्यता अध्ययन प्रतिवेदन, विस्तृत ईन्जिनियरिङ्ग प्रतिवेदन, केन्द्रिय तथ्याङ्क विभागबाट प्रकाशित तथ्याङ्क, जिल्ला पार्श्वचित्र, जिल्ला वन कार्यालयबाट प्रकाशित प्रतिवेदनहरु तथा समान प्रकारका अन्य जलविद्युत आयोजनाहरुको वातावरणीय प्रभाव मुल्यांकन प्रतिवेदनहरु समेत पुनरावलोकन गरिएको छ ।

वातावरणीय अध्ययन कार्यको लागि आयोजना क्षेत्रलाई मुख्य तथा नजीक गरी दुइ भागमा बर्गीकरण गरीएको छ । आयोजनाबाट अस्थायी तथा स्थायी रुपमा अधिग्रहण भई विभिन्न संरचनाहरु रहने ठाउँ तथा त्यस्को ५०० मी. क्षेत्रभित्रको भू-भागलाई मुख्य क्षेत्रमा

वर्गीकरण गरिएको छ भने प्रभावित गाउँपालिका तथा नगरपालिकाको सम्बन्धित वडालाई नजिकको क्षेत्रमा वर्गीकरण गरिएको छ ।

आयोजनाद्वारा प्रस्ताव गरिएका विभिन्न संरचनाहरूको निर्माण क्षेत्रको भौतिक वातावरण सम्बन्धि विभिन्न तथ्याङ्कहरू जस्तै भू-उपयोग, पहिरो, भिरालोपन आदि स्थलगत अवलोकन गरि गरिएको छ । तथ्याङ्क संकलनको लागि स्थलगत अध्ययन, प्रयोगशाला परीक्षण तथा विभिन्न किसिमका नक्साहरू प्रयोग गरिएका छन् । वातावरणीय अध्ययनको लागि आवश्यक हाइड्रोलोजि तथा जियोलोजि सम्बन्धी तथ्याङ्कहरू आयोजनाको विस्तृत ईन्जिनियरिङ्ग प्रतिवेदनमा उल्लेख भए अनुसार राखिएको छ भने ध्वनी तथा वायु सम्बन्धी तथ्याङ्क आयोजनाको निश्चित ठाउँमा आवश्यक उपकरण प्रयोग गरि लिइएको छ ।

वन सम्बन्धी तथ्याङ्क आयोजनाद्वारा प्रस्तावित विभिन्न संरचनाहरू रहने स्थानमा Quadrat बाट लिइएको छ । प्रत्येक Quadrat मा घनत्व, विरुवाको प्रकार, उचाइ, गोलाइ आदि तथ्याङ्क हरूको संकलन गरीएको छ । प्रत्येक प्लटमा १० से.मी. भन्दा माथी गोलाइ भएका रुखहरूको गणना गरीएको छ । आयोजना स्थलमा पाइने संरक्षित प्रजातीका विरुवाहरूको पहिचान उपलब्ध सन्दर्भ सामग्रीहरूको सहयोगले गरिएको छ ।

स्तनधारी जनावरहरू, चरा, सरीसृप तथा उभयचरहरूको अध्ययन स्थलगत अवलोकन तथा स्थानीय व्यक्तिहरूसँग छलफल गरी गरिएको छ । बुढीगंगा नदीमा माछा सम्बन्धी अध्ययनको लागि नदीको विभिन्न ५ वटा ठाउँबाट नमुना संकलन, Plankton हरूको नमुना संकलन तथा माछाको वासस्थान सम्बन्धी अध्ययनहरू गरीएको छ ।

आयोजनाबाट स्थायी रूपमा घर जग्गा अधिग्रहण हुने अथवा आयआर्जन तथा अन्य जिविकोपार्जनका स्रोतहरू प्रभावी हुने परिवारहरूलाई आयोजना प्रभावित परिवार तथा त्यस्ता व्यक्तिहरूलाई प्रभावित व्यक्तिमा वर्गीकरण गरिएको छ । आयोजनाबाट प्रभावित व्यक्तिहरूको पहिचान जग्गा अधिग्रहणकालागि प्रकाशित सूचना, कित्ता नापी नक्सा तथा स्थलगत निरीक्षण गरी गरिएको छ । यस आयोजनाबाट प्रभावित ८० घरधुरीहरूको सर्भेक्षण गरीएको छ । घरधुरी सर्भेक्षण अन्तर्गत जनसंख्या, शिक्षा, शीप, जातजाती, आय व्यय तथा कृषी उत्पादन सम्बन्धी तथ्याङ्कहरू संकलन गरिएको छ । अध्ययनको क्रममा ११ ठाउँमा वडास्तरीय छलफल, ६ ठाउँमा समूहगत छलफल, बजार सर्भेक्षण तथा विभिन्न व्यक्तिहरूसँग अन्तर्वार्ता गरिएको छ ।

५. आयोजना क्षेत्रको विद्यमान वातावरणीय अवस्था

५.१ भौतिक वातावरण

आयोजना क्षेत्र लेसर हिमालय क्षेत्रमा पर्दछ र प्रभावी क्षेत्र समुद्र शतहबाट करीव ६०० मी. तथा ८०० मी. उचाइमा रहेको छ । आयोजना क्षेत्रको भौगोलिक अवस्थाको अध्ययन गर्दा भिरालो जग्गा, पहरा, वन तथा खोलानाला आदि रहेको छ । आयोजना स्थलको मुख्य भू-उपयोग मध्ये खेतीयोग्य जमीन, वन, वस्ती, खोला, बगर तथा पर्ति जग्गा रहेको छ । बुढीगंगा नदीको औषत बहाव ६५.६ धन मी./प्रति सेकेण्ड रहेको छ भने औषत अधिकतम तथा न्यूनतम बहाव क्रमशः २५५.६ धन मी./प्रति सेकेण्ड तथा १३.१ धन मी./प्रति सेकेण्ड रहेको छ । आयोजनाका मुख्य संरचनाहरू बुढीगंगा Gneiss मा रहेका छन् । आयोजनाको प्रस्तावित बाँध स्थलमा ध्वनीको स्तर L१० ६१ डेसिबल तथा L९० ५७ डेसिबल तथा विद्युत गृहमा क्रमशः ५२ डेसिबल र ४२ डेसिबल रहेको छ । त्यसैगरी



TSP, Pm₁₀ तथा Sulphurdioxide को मात्रा १५६,४८ तथा २२ µgm/m³ रहेको छ । विद्युत गृह क्षेत्रको अधिकतम तापक्रम ३८.१८ डिग्री से. तथा न्यूनतम तापक्रम ३.०५ डिग्री से. रेकर्ड गरिएको छ । त्यसैगरी पानीको परीक्षणबाट प्राप्त तथ्याङ्क अनुसार परीक्षण गरीएका Parameters हरु मध्ये pH, total dissolved solid तथा suspected solid को मात्रा क्रमशः ८, १२४-१४२ मिग्रा/ली. र ६-१६ मि. ग्रा. प्रति लि. रहेको छ ।

५.२ स्थलीय वातावरण

आयोजना क्षेत्रमा पाईने मुख्य वनहरुमा mixed hardwood forest, साल तथा सल्लाको वन रहेको छ । जलाशय क्षेत्रमा पाईने मुख्य रुख विरुवाहरुमा साल, मलातो, सिन्दुरे, खिर्छो, वडकाउले, टुनी र पहाडी महुवा रहेका छन् । आयोजना क्षेत्रमा पाईने विरुवाहरुको मुख्य प्रजातीमा साल, खयर, हल्दु, सेतो सिरिस, कालो सिरिस, बोट घाइरो, भोर्ला, वडकाउलो, गुहेलो, खनियो आदी रहेका छन् । वन ऐन २०४९ अनुसार साल व्यापारिक प्रयोजनका लागि बन्देज गरिएको प्रजातीहरु मध्ये हो ।

आयोजना स्थलमा कूल ५ वटा सामुदायिक वन रहेका छन् । यसको कूल क्षेत्रफल २५६.८ हे. छ । सामुदायिक वनबाट स्थानीय व्यक्तिहरुले काठ, दाउरा, फल तथा जडिबुटी संकलन गर्दछन् । आयोजना स्थल मानव वस्ती तथा मानवीय क्रियाकलापले प्रभावित क्षेत्र भएकोले जनावरको लागि सुहाउँदो वासस्थान भएको पाइदैन । आयोजना क्षेत्रमा पाइएका १२ प्रजातीका जनावरहरु मध्ये ९ प्रजातीका जनावरहरु जस्तै बाँदर, लङ्गुर बाँदर, स्याल, आदि प्राय देखिन्छन् भने ३ प्रजातीका जनावरहरु कहिले काहिँ मात्र देखिन्छन् ।

आयोजना क्षेत्रमा कूल ४७ प्रजातीका चराहरु पाइएका छन् । जसमध्ये ३१ वटा अधिक मात्रामा, ४ प्रचुर मात्रामा तथा १२ प्रजातीका चराहरु कहिलेकाहिँ मात्र देखिन्छन् । आयोजना क्षेत्रमा पाईने चराहरुमा १६ प्रजाती वन क्षेत्रमा, ८ वटा खोलानालामा १४ वटा खुला क्षेत्र तथा वस्ती र ९ प्रजाती सवैखाले वासस्थानमा पाईन्छन् । काग मैना, लामपुच्छे, सुगा यस भेगमा पाइने मुख्य चराहरु हुन । आयोजना क्षेत्रमा ६ प्रजातीका सरीसृपहरु पाईन्छन् । छेपारो, ग्रिन पिट भाइपर तथा माउन्टेन पिट भाइपर आयोजना क्षेत्रमा पाईने मुख्य सरीसृपहरु हुन ।

आयोजना क्षेत्रमा पाइने स्तनधारी जनावरहरुमध्ये ६ प्रजातीका जनावरहरु विभिन्न संरक्षित समुहमा पर्दछन् । बाँदर, लङ्गुर बाँदर, घोरल, स्याल, मलछाप्रा तथा चितुवा CITES सूचीमा पर्दछन् । त्यसै गरी परेवालाइ CITES III मा सूचिकृत गरिएको छ ।

५.३ जलीय वातावरण

बुढीगंगा नदीमा ३३ प्रजातीका Phytoplankton हरु पाइन्छन् । त्यसै गरी यस नदीमा १७ प्रजातीका Zooplankton तथा २३ प्रजातीका पानीमा पाइने कीराहरु पाइन्छन् । बाँध स्थल देखि प्रस्तावित बिद्युत गृह स्थल सम्मको बुढीगंगा नदीको विभिन्न खण्डमा Run, Riffle तथा Pools किसिमका Habitat हरु पाइन्छन् । सर्भेक्षण गरिए अनुसार बुढीगंगा नदीमा २५ प्रजातीका माछाहरु पाइन्छन् । यस मध्ये १७ प्रजातिका माछाहरु सर्भेक्षणको क्रममा पाईएका छन् भने ८ प्रजातिका माछाहरु स्थानिय व्यक्तिहरुले दिएको जानकारीका आधारमा उल्लेख गरिएको छ । कूल २५ प्रजाति मध्ये ५ वटा लामोदुरी सम्म ओहोर दोहोर गर्ने, ८ मध्यम दुरी तथा बाँकी १२ प्रजातिका रेसिडेन्ट माछाहरु हुन । रेकर्ड गरिएका माछाहरु मध्ये गोच, कल्ले, करङ्ग, वुचे असला, कालो सहर र पहेंलो सहर IUCN रेड

लिष्टमा पर्दछन् । असला (चुचे, वुचे) सबै भन्दा बढी (५४.५७%) पाईन्छ । बुढीगंगा नदीमा औसतरूपमा माछाको क्याच पर युनिट ईफोर्ट ०.१६ रहेको छ ।

५.४ सामाजिक आर्थिक तथा सांस्कृतिक वातावरण

आयोजना क्षेत्रको कूल जनसंख्या १६,९३१ रहेको छ । जसमध्ये ४५.९% पुरुष तथा ५१.४% महिला छन् । आयोजना क्षेत्रको जम्मा घरधुरी ३,१९९ तथा औषत परिवार संख्या ५.२ छ । आयोजना क्षेत्रमा बसोवास गर्ने जातहरूमा क्षेत्री (६०.४%) तथा दलीत (३०.०%), रहेका छन् । आयोजना क्षेत्रमा कूल ७१ वटा वस्तीहरू छन् । आयोजना क्षेत्रको साक्षरता दर ६० % रहेको छ । जसमध्ये पुरुष साक्षरता ७६.१ तथा महिला साक्षरता ४७ % रहेको छ । आयोजना क्षेत्रमा २१ वटा प्राथमिक, ५ वटा निम्न माध्यमिक, ६ माध्यमिक र ४ उ.मा.वि गरी जम्मा ३६ वटा विद्यालयहरू रहेका छन् । आयोजना क्षेत्रमा खानेपानीको मुख्य श्रोत धाराको पानी (६९.१%) रहेको छ भने Spout (२१.९%), ईनार (७.६ %) तथा बाँकी नदी तथा खोलाबाट रहेको छ । कृषि तथा पशुपालन आयोजना क्षेत्रका मानिसहरूको जीविकोपार्जनको मुख्य श्रोत रहेको छ ।

आयोजनाबाट प्रभावित सर्भेक्षण गरिएका परिवारहरूको कूल घरधुरी ६६९ रहेको छ, यसमध्ये ४९.७८% पुरुष तथा ५०.२२ महिला छन् । सर्भे गरिएका घरधुरीहरूको औसत परिवार संख्या ८.१४ रहेको छ, यसमध्ये ७२.४% साक्षर छन् भने जातजातीहरूमा ९४.२% क्षेत्री छन् भने ५.८% दलित रहेका छन् ।

आर्थिक रूपमा सकृय १५-५९ वर्ष उमेर समुहका करीब ७५.६ प्रतिशत जनसंख्या जीविकोपार्जनको लागि कुनै न कुनै पेशामा संलग्न छन् । प्रभावित परिवारहरूको वार्षिक औषत आम्दानी रु. १,४३,२१६ छ । जसमध्ये गैह्र कृषि आम्दानी मुख्य स्रोतको रूपमा रहेको छ । औषत वार्षिक खर्च रु. १,३५,९२८ छ जसमध्ये ४३.३% खर्च खाद्यान्न तर्फ रहेको अध्ययनले देखाएको छ । सर्भेक्षण गरिएका प्रभावित परिवारहरूको स्वामीत्वमा औषत ०.७७ हे. जग्गा रहेको देखिन्छ । यसमध्ये ९३.७५% पुरुष तथा ६.२५% महिला प्रधान परिवारहरू छन् । कूल प्रभावित परिवार मध्ये ३३.८% सिमान्तकृत तथा ६१.३% साना किसानहरू छन् । प्रभावित परिवारहरू मध्ये मात्र ३१.७५% परिवारहरूको आफुले लगाएको बालीको उब्जनीबाट खाद्यान्नको आपूर्ति हुने गरेको देखिएको छ ।

६. वातावरणीय प्रभाव

आयोजनाको वातावरणीय प्रभावहरूको पहिचान विभिन्न संरचनाहरूको निर्माण तथा अन्य कार्यहरूबाट वातावरणमा पर्न सक्ने प्रभावहरूको अध्ययन गरि गरिएको छ । आयोजनाको निर्माणबाट भौतिक, स्थलीय, जलीय तथा सामाजिक आर्थिक वातावरणमा पर्न सक्ने सकारात्मक, नकारात्मक तथा समग्र प्रभावहरूको पहिचान यस अध्ययनमा गरिएको छ ।

६.१ सकारात्मक प्रभावहरू

निर्माण चरण

- आयोजनाको निर्माण चरणमा १५० दक्ष, ३०० अर्धदक्ष तथा ३५० अदक्ष गरी कूल ८०० व्यक्तिहरूले रोजगारी पाउनेछन् ।
- आयोजनाको निर्माणबाट आयोजना क्षेत्रमा व्यापार व्यवसायको बृद्धि हुन जानेछ ।



- स्थानीय व्यक्तिहरुको शीप तथा दक्षतामा बृद्धि हुने ।
- आयोजनाको निर्माणले स्थानीय स्तरमा आर्थिक क्रियाकलाप बृद्धि भई विद्यमान सेवा सुविधाहरुमा बढोत्तरी हुने ।

संचालन चरण

- बिद्युत गृह संचालनको लागि करीव १०० जनाले रोजगारी पाउनुका साथै आवधिक मर्मत सम्भार कार्यहरुमा थप रोजगारीका अवसरहरु स्थानीय स्तरमा सृजना हुने ।
- आयोजनाबाट १२० गेगावाट घण्टा बिद्युत उत्पादन भई राजश्व तथा देश विकासमा सघाउ पुग्ने ।
- आयोजना क्षेत्रमा राम्रो सेवा सुविधा उपलब्ध भई जग्गाको मुल्यांकनमा बृद्धि भई पर्यटन लगायत अन्य क्षेत्रमा सकारात्मक असर पर्ने ।

६.२ नकारात्मक प्रभावहरु

यस आयोजनाबाट पहिचान गरिएका कूल ७९ नकारात्मक प्रभावहरु मध्ये ५३ कमस्तरका, २० मध्यमस्तरका तथा ६ वटा उच्चस्तरका रहेका छन् । बाँध विग्रिने भत्किने, माछाको ओहोर दोहोरमा असर, नदीको केही भागमा सुख्खा समयमा पानी कम हुने/सुक्ने, घरजग्गा अधिग्रहण तथा पेशागत सुरक्षामा पर्न सक्ने असरहरु उच्च प्रभावमा वर्गिकरण गरिएका छन् ।

६.२.१ भौतिक वातावरण

निर्माण चरण

- आयोजनाको कार्यान्वयनले २०.८४ हे. खेतीयोग्य जमीन, १२.१५ हे. वन, ५ हे. पर्ती जग्गा तथा १३.७५ हे. खोला वगर आदि गरी कूल ५१.७४ हे. भू-उपयोग प्रभावित हुने ।
- अधिग्रहण गरीने जग्गाको भू-वनोटमा असर पर्ने ।
- विभिन्न मेसिनहरुको संचालन सवारी साधनको ओहोर दोहोर तथा विष्फोटक पदार्थको कारणले आयोजना क्षेत्रमा SPM, NO_x So₂ को मात्रा बढ्न सक्ने ।
- विष्फोटक पदार्थ, ठुला गाडी तथा ढुंगा गिट्टी फुटाउने यन्त्रहरुको प्रयोगले वायु प्रदुशण ८०-९५ डेसिमल सम्म हुन सक्ने ।
- करीब ३,१८,१५० घनमीटर माटोको व्यवस्थापन, सिमेण्ट तथा अन्य रसायनिक पदार्थबाट पानी प्रदुषण हुन सक्ने ।
- आयोजनाबाट निस्किएको फोहोर मैलाको उचित व्यवस्थापन नहुँदा जल, वायु तथा माटो प्रदुषित हुने ।

संचालन चरण:

- पानीको बहावमा परिवर्तन भई भू-क्षय तथा पहिरोको समस्या उत्पन्न हुन सक्ने ।



- वाटो नजिक वस्तीको विस्तार, पुवांधार निर्माण आदीले गर्दा भू उपयोगमा परिवर्तन हुन सक्ने ।

६.२.२ स्थलीय वातावरण

निर्माण चरण:

- आयोजना निर्माणको लागि ५ वटा सामुदायिक वनको १२.१५ हे. वनक्षेत्र प्रभावित हुने, यो कुल सामुदायिक वनको क्षेत्रफलको ४.७३% हुन आउँछ ।
- आयोजनाको निर्माण गर्दा विभिन्न १६ प्रजातीका ४८०९ वटा रुखहरु हटाउनु पर्ने जस मध्ये ४४८१ वटा पोल साइज तथा ३२८ वटा रुख साइजका छन् । आयोजना निर्माणले ८३१.०३ घनमीटर काठ तथा ६,४८,२०३ के.जी वायोमास नोक्सानी हुने ।
- आयोजनाको लागि आवश्यक कामदारहरुले गर्दा स्थानीय स्तरमा दाउराको मागमा बृद्धि भई स्थानीय वनमा चाप पर्न सक्ने । आयोजनाको कामदारहरुलाई अरु वैकल्पिक श्रोत उपलब्ध नभएमा करीव २५४.८ मे. टन दाउरा आवश्यक पर्ने ।
- वन क्षेत्रको जग्गा प्रभावित भई वन्य जन्तुको वासस्थानमा असर पर्न सक्ने ।
- निर्माण कार्यले वन्य जन्तुको दैनिक क्रियाकलापमा असर पर्न सक्ने ।
- गैरकाष्ठ वन पैदावार प्रजातिका विरुवाहरु जस्तै असुरो, अमला, जामुन ऐसेलुको Seedling तथा सिस्नोको Sampling नोक्सानी हुने ।
- साल तथा अन्य महत्वपूर्ण प्रजातिका रुखहरुमा अवैधानिकरूपमा चाप पर्न सक्ने ।

६.२.३ जलीय वातावरण

निर्माण चरण :

- निर्माणको गतिविधि तथा माटो फाल्नाले माछाको वासस्थानमा असर पर्न सक्ने ।

संचालन चरण

- लामो दुरी तथा मध्यम दुरीसम्म ओहोर दोहोर गर्ने माछाको आवत जावतमा असर पर्न सक्ने ।
- नदीको ६.८ कि.मी.खण्डमा पानीको मात्रा कम भई माछामा असर पर्न सक्ने ।
- बालुवा थिग्राउने पोखरीवाट बालुवा सफा गर्दा नदीको तल्लो भागमा माछाको वासस्थानमा असर पर्न सक्ने ।

६.२.४ सामाजिक आर्थिक तथा साँस्कृतिक वातावरण

पुर्व निर्माण चरण:

- आयोजना निर्माणको लागि ८० परिवारको १७.३४ हे. जग्गा अधिग्रहण हुने । यस बाहेक ८ हे. निजी जग्गा अस्थायी रूपमा भाडामा लिइनेछ ।
- प्रभावित परिवारहरु मध्ये १३.७५% को १०% भन्दा कम जग्गा, ३१.२५% परिवारको १० देखि २५% सम्म जग्गा, २७.५% परिवारको २५ देखि ५०% सम्म जग्गा तथा १२.५% परिवारको ७५ देखि १००% सम्म जग्गा अधिग्रहण हुनेछ ।
- आयोजना निर्माणले १० परिवारहरुको ६ वटा घर तथा ५ वटा गोठ अधिग्रहण हुनेछ ।



निर्माण चरण:

- निर्माणको समयमा हुने विभिन्न गतिविधिले दुर्घटना बढ्न सक्ने ।
- स्थानीय खानेपानीको स्रोतमा चाप बढ्नुका साथै गोरेटो बाटोमा असर पर्न सक्ने ।
- विभिन्न बर्ग तथा समुहका व्यक्तिहरु एकै ठाउँमा जम्मा हुने भएकोले कामदार-कामदार, कामदार-स्थानीय व्यक्ति र स्थानीय व्यक्ति तथा आयोजना व्यवस्थापन बिच विभिन्न विवादहरु श्रृजना हुन सक्ने ।
- स्थानियस्तरमा प्रयोग हुने वस्तु तथा खाद्यान्नको मूल्य वृद्धि हुने तथा उपलब्धतामा कमी आई आदिवासी तथा गरीब परिवारहरुलाई अप्रत्यक्ष असर पर्न सक्ने ।
- आयोजना निर्माणको क्रममा स्थानिय व्यक्तिहरुको आयमा वृद्धि भई अनुत्पादक कार्यमा खर्च हुन सक्ने ।

संचालन चरण:

- निर्माण कार्य सम्पन्न भए पछि आयोजना क्षेत्रमा आर्थिक कृयाकलाप घट्न जानेछ ।
- बाँधबाट पूर्व सूचना विना पानी छार्डिँदा खोलाको नजिक भएका गाइ वस्तु तथा मानिसहरुलाई असर पर्न सक्ने ।
- आयोजना निर्माणको लागि स्थायी रुपमा जग्गा अधिग्रहण हुन गई ४१.०६ मे.टन खाद्यान्नको उत्पादन तथा ५.९६ मे.टन नगदे बालीको उत्पादनमा कमी आउनु ।

६.३ समग्र प्रभावहरु:

विद्युत विकास विभागद्वारा प्रस्तावित बुढीगंगा खोला साना जलविद्युत आयोजना तथा बुढीगंगा जलविद्युत आयोजनाहरुबाट वातावरणमा पर्न सक्ने प्रभावहरुको अध्ययन संयुक्त रुपमा गरिएको छ ।

- बुढीगंगा साना जलविद्युत आयोजना (३.५ कि.मी) तथा बुढीगंगा जलविद्युत आयोजना (६.८ कि.मी) को कार्यान्वयनले बुढीगंगा नदीको १०.३७ कि.मी. खण्डमा पानीको बहाव कम हुन गई पानीको शुद्धता गुणस्तर तथा जलचरमा पर्ने प्रभाव ।
- बाँध तथा जलाशयको निर्माणले पानीको बहावमा परिवर्तन भई यसबाट उत्पन्न हुन सक्ने असरहरु ।
- दुवै आयोजनाहरुको कार्यान्वयनको लागि १४.१६ हे. वन क्षेत्र (बुढीगंगा साना २.०१ र बुढीगंगा आयोजनाको १२.१५ हे.) प्रभावित हुने ।
- दुवै आयोजनाहरुको कार्यान्वयनले २५.९५ हे. जग्गा अधिग्रहण हुने ।
- आयोजनाहरुको कार्यान्वयनले खाद्यान्न अपुग भएका परिवारहरुलाई चाप बढ्न सक्ने ।

७. वैकल्पिक अध्ययन

प्रस्तावित आयोजनाको वैकल्पिक अध्ययन आयोजनाको सम्भाव्यता अध्ययनको एउटा अंगको रुपमा गरिएको थियो । यस अन्तर्गत बुढीगंगा नदीमा १८ मेगावाट देखि २२ मेगावाट सम्मको विभिन्न ४ वटा विकल्पहरुको अध्ययन मेटकन कन्सल्टेन्टद्वारा सन १९९८ मा गरिएको थियो । यी विकल्पहरु मध्ये सम्भाव्यता अध्ययनको क्रममा देखिएको उत्तम

विकल्पको विस्तृत ईन्जिनियरिङ्ग गरिएको छ । यसै गरी निजी जग्गा तथा वनमा पर्ने प्रभावलाई न्यून गर्न भूमीगत बालुवा थिगाउने पोखरीको प्रस्ताव गरिएको छ । जलाशयको Full Supply Level (FSL) वस्ती, वन जङ्गल तथा निजी जग्गामा पर्न सक्ने प्रभावहरूको अध्ययन गरी तय गरीएको छ । यसै गरी विकल्पहरूको अध्ययन गर्ने क्रममा आयोजना निर्माण विधि, निर्माण तालिका, वन क्षेत्रको प्रयोग तथा आयोजना विनाको विकल्पको समेत अध्ययन गरिएको छ ।

८. वातावरणीय प्रभाव न्यूनीकरण तथा अभिवृद्धि कार्यक्रम

प्रस्तावित अभिवृद्धि तथा न्यूनिकरणका कार्यक्रमहरू लगु गर्न मुख्य दायित्व प्रस्तावकको हुनेछ ।

८.१ सकारात्मक प्रभाव अभिवृद्धि कार्यक्रम

- स्थानीय व्यक्तिहरूलाई रोजगारीमा प्राथमिकता दिने । प्राथमिकता तय गर्दा आयोजनाबाट व्यक्तिहरूमा पर्न गएको प्रभावको आधारमा गर्ने ।
- आयोजना निर्माणको लागि आवश्यक पर्ने स्थानीय तहमा उपलब्ध सेवा सुविधाहरूको प्रयोग गरी स्थानीय विकासमा सहयोग गर्ने ।

८.२ नकारात्मक प्रभाव न्यूनिकरण तथा अभिवृद्धि कार्यक्रम

८.२.१ वातावरणीय प्रभाव पर्न नदिन चालिने उपायहरू

अस्थायी रूपमा प्रयोग हुने संरचनाहरू कम उब्जनी हुने किसिमका जग्गा भएको ठाउँमा प्रस्ताव गरिएको छ भने खन्ने काम सुख्खा समयमा गर्ने, प्लाष्टिङ्ग न्यून गर्ने तथा कृषिङ्ग प्लाण्ट वस्तीबाट टाढा राखिएको छ । त्यसै गरी बालुवा थिगाउने पोखरीमा जम्मा भएको बालुवा नदीमा पानीको बहाव बढी भएको वेलामात्र नदीमा पठाइनेछ । आयोजनामा कार्यरत कर्मचारीहरूको लागि चमेना घर को व्यवस्था, सूचनामुलक तथा निर्देशनात्मक होर्डिङ बोर्डको व्यवस्था, कामदारहरू परिचालन गरी रुख विरुवा हटाइने र चोरी, शिकारी हुन नदिन आवश्यक शुरुक्षात्मक प्रकृया अपनाईने छ ।

स्वास्थ्य तथा शुरुक्षा कार्यायोजना, आयोजना अन्तर्गत सँचालीत सवारी साधनहरूको सँचालन निर्देशिका, प्लाष्टिङ्ग गर्नु अगाडी तथा पछि साइरन बजाउने, सुपथ मुल्य पसल स्थापना, स्थानीय व्यक्तिहरूको पानीको आवश्यकतामा असर नपर्ने गरी पानीको प्रयोग तथा विना भेदभाव रोजगारीको अवसर आदि वातावरणीय प्रभाव पर्न नदिन चालिने अन्य उपायहरू हुन ।

८.२.२ न्यूनीकरणका उपायहरू

प्रस्तावित आयोजनाको कार्यान्वयनले भौतिक, स्थलीय, जलीय तथा सामाजिक आर्थिक र साँस्कृतिक वातावरणमा पर्न सक्ने प्रभावहरूलाई न्यूनीकरण गर्न निम्न कार्यक्रमहरू प्रस्ताव गरिएका छन् ।

८.२.२.१ भौतिक वातावरण

- वायो-इन्जिनियरिङ्ग प्रविधि प्रयोग गरी भिरालो जग्गाको उचित व्यवस्थापन गर्ने ।
- अस्थायी रूपमा प्रयोग भएको जग्गालाई पुरानो अवस्थामा व्यवस्थित गरिने ।
- सुख्खा समयमा बाटो तथा अन्य निर्माण स्थलमा दिनको दुई पटक पानी छर्किइने छ । शुरुङ्गमा Ventilator को उचित व्यवस्था गरिनेछ ।
- आयोजना अन्तर्गत संचालित सवारी साधनहरूलाई मापदण्ड अनुसार व्यवस्थापन गरिनुका साथै ध्वनी प्रदुषण कम गर्ने उपायहरू अवलम्बन गरिनेछ ।
- प्रत्येक क्याम्पहरूमा शौचालयको निर्माण गरिनेछ ।
- शुरुङ्ग तथा अन्य क्षेत्रबाट निस्कने माटो तथा ढुङ्गाहरू लाई प्रस्ताव गरिएका क्षेत्रहरूमा उचित व्यवस्थापन गरिनेछ ।

माथि उल्लेखित कार्यहरू ठेक्का सम्झौताको शर्त अनुसार ठेकेदार मार्फत गरिनेछ । यसका अतिरिक्त आयोजनाकोलागि निर्माण गरिने सडकमा वायोइन्जिनियरिङ्ग कार्यकोलागि ३ मिलियन प्रस्तावित गरिएको छ ।

८.२.२.२ स्थलीय वातावरण

- आयोजना लाई आवश्यक वन क्षेत्रको जग्गा नेपाल सरकारको प्रचलित नियमानुसार प्रयोग गरिनेछ । विद्यमान प्रावधान अनुरूप आयोजनाले स्थायीरूपमा प्रयोग गरिने जग्गाको सट्टा भर्नावापत सम्बन्धित वन कार्यालयलाई जग्गा अथवा एक मुष्ठ रकम उपलब्ध गराईनेछ ।
- प्राथमिकता प्राप्त आयोजनालाई वन क्षेत्रको जग्गा उपलब्ध गराउने कार्य विधि २०७४ वमोजिम १:२५ अनुपातमा कूल १,२०,२२५ तथा स्थायीरूपमा अधिग्रहण गरिने १२.१५ हे. जग्गाको १६००/हे. का दरले १९,९४० गरि जम्मा १,४०,१६५ विरुवाहरू लगाउनुका साथै ५ वर्ष सम्म संरक्षण गरिनेछ ।
- आयोजना क्षेत्रका सामुदायिक वनको आय बृद्धि गर्ने उद्देश्यले ३०,००० गैह्र काष्ठ वन पैदावारका विरुवाहरू वितरण गरिनेछ ।
- सामुदायिक वनका पदाधिकारीहरूलाई वन संरक्षण सम्बन्धी सचेतनामुलक कार्यक्रम संचालन गर्नुका साथै आवश्यक सचेतना तथा जानकारीमुलक होर्डिङ बोर्डहरू राखिनेछ ।
- सामुदायिक वनका प्रतिनिधिहरूलाई वन व्यवस्थापन, आयआर्जन सम्बन्धि तालिमहरू दिईनेछ ।
- आयोजनामा कार्यरत लेवर, सुपरभाइजर तथा स्थानीय व्यक्तिहरूलाई वन्यजन्तु सम्बन्धी सचेतना तालिम दिइनेछ ।

स्थलीय वातावरण अन्तर्गत प्रस्ताव गरिएको वातावरणीय प्रभाव न्यूनिकरण तथा अभिवृद्धि कार्यक्रमकोलागि रु ४१.७४ मिलियन लाग्ने अनुमान गरिएको छ, यसमध्ये निर्माण चरणमा रु ३५.३३ मिलियन तथा संचालन चरणमा रु ६.४१ मिलियन प्रस्ताव गरिएको छ ।

८.२.२.३ जलीय वातावरण



- माछामा पर्ने प्रभावलाई कम गर्न पानी कम हुने ६.८७ कि.मी. नदी खण्डमा थप Pool Type Habitat निर्माण गरिनेछ ।
 - माछाको ओहोर दोहोर निर्वाध रुपमा गर्नको लागि फिस लेडर प्रस्ताव गरिएको छ ।
 - पानी कम हुने (बर्षको ५ महिना) समयमा न्यूनतम ०.९९ घन मीटर प्रति सेकेण्ड पानी बाँधबाट छोडिनेछ ।
 - आयोजना स्थलमा थलचर संरक्षणकालागि सूचनामूलक तथा निर्देशनात्मक होर्डिङ बोर्डहरु राखिनेछ ।
 - स्थानियस्तरमा माटापालन प्रबर्द्धन गर्नाकालागि विभिन्न प्रकारका अध्ययन, प्राविधिक सहयोग तथा माछाका भुराहरु वितरण गर्ने जस्ता कार्यहरु गरिनेछ ।
- जलीय वातावरणमा पर्न सक्ने प्रभाव कम गर्न तथा अभिवृद्धि कार्यक्रम संचालन गर्नकालागि रु ३.५३ मिलियन लाग्ने अनुमान गरिएको छ ।

८.२.२.४ सामाजिक आर्थिक तथा साँस्कृतिक वातावरण

- आयोजना निर्माणको लागि स्थायी रुपमा आवश्यक पर्ने जग्गा नियमानुसार अधिग्रहण प्रकृया शुरु भईसकेको छ ।
- अस्थायी रुपमा आवश्यक पर्ने जग्गालाई सम्बन्धीत जग्गा धनी सँग सम्झौता गरी भाडामा लिइनेछ ।
- आयोजनाबाट हुने वालीनालीको क्षतिपुर्तिवापत उचित रकम उपलब्ध गराइनेछ ।
- आयोजनाबाट हानी नोक्सानी हुने निजी विरुवाहरुको उचित छतिपुर्ती दिइनेछ ।
- आयोजनाबाट १०% देखि २५% सम्म जग्गा प्रभावित हुने २५ परिवारहरुलाई कृषि सहयोग कार्यक्रम उपलब्ध गराइनेछ ।
- आयोजनाबाट २५% देखि १००% जग्गा प्रभावित हुने ४५ परिवारहरुलाई हाउस वायरिङ, प्लम्बिङ, ड्राइभिङ, कुकिङ आदि क्षेत्रमा सीपमुलक तालिम प्रदान गरिनेछ ।
- आयोजनाबाट प्रभावित ८ उत्पिडित घरधुरीहरुलाई सिलाइ वुनाइ तथा पेशागत शीप सम्बन्धी थप तालिम तथा सहयोगका कार्यक्रमहरु संचालन गरिनेछ ।
- आयोजनाबाट प्रभावित हुने घर तथा गोठहरुलाई उचित मुआब्जा दिएर अधिग्रहण गरिनेछ । यस अन्तर्गत घरले ओगटेको जग्गा तथा सँरचना वापतको रकम उपलब्ध गराइनेछ ।
- प्रभावित हुने ६ घरधुरीलाई स्थानान्तरण भत्ता तथा यातायात खर्च वापत रु २५,००० उपलब्ध गराइनेछ । यस बाहेक प्रभावित घरधुरीहरुलाई सीपमुलक तालिमहरु प्रदान गरिनेछ ।
- आयोजना क्षेत्रमा एक मेडिकल डाक्टर सहितको क्लिनिकको स्थापना गरिनेछ । यसका साथै हेलिप्याड तथा एम्बुलेन्सको पनि व्यवस्था गरिनेछ । निर्माण कार्यमा सँलग्न व्यक्तिहरुलाई प्रत्येक ६ महिनामा स्वास्थ्य तथा सुरक्षा सम्बन्धी तालिमको प्रस्ताव गरिएको छ साथै आयोजनामा कार्यरत कर्मचारीहरुलाई कामको प्रकृति अनुसार सुरक्षाका सामाग्रीहरु उपलब्ध गराइनेछ ।
- आयोजनामा कार्यरत कर्मचारी तथा निर्माण सामाग्रीहरुको सुरक्षार्थ सुरक्षा गार्डको व्यवस्था गरिनेछ ।

- स्थानिय गैरसरकारी संस्था, क्लब तथा साँस्कृतिक र महिला समूहहरूलाई साँस्कृतिक कार्यक्रमको संचालन गर्नकालागि आवश्यक सहयोग गर्ने ।
- आयोजनाबाट प्रभावित ५ महिला परिवारहरूलाई ३ महिने सिलाई बुनाई तालिम तथा ४ वटा दलित परिवारलाई ३९० घण्टाको शीपमूलक तालिमहरु दिईनेछ ।
- स्थानियस्तरमा मुआब्जाको सदुपयोग, रोजगारी, आयोजनाबाट पर्न सक्ने सामाजिक तथा साँस्कृतिक प्रभाव आदि विषयमा सचेतना कार्यक्रम संचालन गरिनेछ ।
- आयोजनाबाट ७५% देखि १००% सम्म जग्गा पर्ने १० घर परिवारलाई एकपटकलाई आयआर्जनको नयाँ/थप कार्य शुरु गर्न प्रतिघर धुरी रु २,००,००० सहयोग उपलब्ध गराउने ।
- आयोजनाबाट प्रभावित परिवारहरूलाई वाली ह्यास बापत रु ३५४७३- का दरले २ बर्षको रकम उपलब्ध गराईनेछ ।
- सामाजिक, आर्थिक तथा साँस्कृतिक वातावरणमा पर्न सक्ने असरहरु न्यून गर्न तथा अभिवृद्धि कार्यक्रम संचालन गर्नकालागि रु १९.९० मिलियन लाग्ने अनुमान गरिएको छ । यसमध्ये निर्माण चरणकालागि रु १८ मिलियन तथा संचालन चरणमा रु १.९० मिलियन प्रस्ताव गरिएको छ ।

८.२.३ सामुदायिक सहयोग कार्यक्रम

- आयोजनाबाट प्रभावित नगरपालिका तथा गाउँपालिकाको सम्बन्धित वडाबाट ५ जना प्रतिनिधित्व हुनेगरि कुल ३० जनालाई सिपमूलक तालिम प्रदान गर्ने ।
- आयोजनाले सामाजिक सहयोग कार्यक्रम अन्तर्गत खानेपानी, विद्यालय, स्वास्थ्य तथा सरसफाई जस्ता आधारभूत क्षेत्रमा सहयोगका कार्यक्रमहरु संचालन गर्नेछ ।
- आयोजना क्षेत्रमा विद्युतीकरणकालागि आवश्यक सहयोग गर्ने ।

सामुदायिक सहयोग कार्यक्रम अन्तर्गत रु ३० मिलियन प्रस्ताव गरिएको छ । यसमध्ये निर्माण चरणमा २३.८० मिलियन तथा संचालन चरणमा रु ६.५० मिलियन लाग्ने अनुमान गरिएको छ ।

९. वातावरणीय व्यवस्थापन योजना

आयोजनाको वातावरणीय व्यवस्थापनको सम्पूर्ण दायित्व आयोजना प्रस्तावकको हुनेछ ।

९.१ वातावरणीय व्यवस्थापन कार्य

आयोजनाको वातावरणीय व्यवस्थापन योजना अन्तर्गत रुख कटानीको स्वीकृति लिने, पुर्नवास तथा पुर्नस्थापना योजना, क्याम्प तथा ट्राफिक व्यवस्थापन योजना तथा प्रदुषण नियन्त्रण योजनाहरु तयार गरीएका छन् । यसैगरी थलचर तथा जलचर व्यवस्थापन योजना, पहिरो तथा माटो व्यवस्थापन योजना, स्वास्थ्य तथा शुरुक्षा योजना, आकस्मिक व्यवस्थापन योजना र गुनासो व्यवस्थापन योजनाहरु तयार गरिएका छन् ।

९.२ सँगठनात्मक व्यवस्था तथा उत्तरदायित्व

प्रस्तावित आयोजनाको वातावरणीय व्यवस्थापन कार्यको लागि आयोजना प्रमुखको कार्यालय, बुढीगंगा वातावरणीय अनुगमन इकाई, बुढीगंगा वातावरणीय तथा सामाजिक



व्यवस्थापन इकाई, ठेकेदार, परामर्शदाता/ईन्जिनियर, स्थानीय समन्वय समिति, संयुक्त अनुगमन समिति गठनको प्रस्ताव गरिएको छ। प्रस्तावित वातावरणीय व्यवस्थापन योजना लागु गर्ने प्रमुख दायित्व आयोजना प्रमुखको हुनेछ।

९.३ वातावरणीय अनुगमन:

आधारभुत, पालनात्मक तथा प्रभाव मुल्यांकन सम्बन्धी अनुगमन कार्यहरु प्रस्ताव गरिएका छन्। अनुगमन कार्य भौतिक, स्थलीय, जलीय तथा सामाजिक आर्थिक पक्षको निर्माण पूर्व, निर्माण अवधि तथा संचालन चरणमा गरिनेछ।

आधारभुत अनुगमन:

आयोजनाको निर्माण कार्य शुरु हुनु अगावै आधारभुत तथ्याङ्कहरु सँकलन गरी विद्यमान तथ्याङ्कहरुलाई अद्यावधिक गरिनेछ। यस अन्तर्गत मुख्य सुचकांक जस्तै भू-उपयोग, भिरालोपन, वनस्पति, वस्ती, स्वास्थ्य तथा सरसफाई आदि सम्बन्धी तथ्याङ्कहरु सँकलन गरी अद्यावधिक गरिनेछ।

पालनात्मक अनुगमन:

पालनात्मक अनुगमन अन्तर्गत प्रस्ताव गरिएका वातावरणीय प्रभाव न्यूनीकरणका कार्यक्रमहरुको उचित कार्यान्वयन, ठेक्का शर्त मा उल्लेख भएका वातावरण सम्बन्धी कार्यहरुको अनुगमन आदि पर्दछन्।

प्रभाव मुल्यांकन:

यस अन्तर्गत आयोजना कार्यान्वयनले भौतिक, स्थलीय, जलीय तथा सामाजिक आर्थिक वातावरणमा पर्न सक्ने प्रभावहरुको अनुगमन गरिन्छ। अनुगमन कार्य दैनिक, मासिक, त्रैमासिक तथा वार्षिक रुपमा गरिन्छ।

९.४ वातावरणीय परीक्षण:

वातावरण संरक्षण नियमावली २०५४ अनुसार प्रस्तावित आयोजनाको वातावरणीय परीक्षण कार्य वन तथा वातावरण मन्त्रालयले आयोजना सम्पन्न भएको २ बर्ष पछि गर्नेछ। भू-उपयोग, वायो ईन्जिनियरिङ्ग प्रविधिको प्रयोग, वन फँडानी, जग्गा तथा घर प्रभावित तथा स्थानीय रोजगारी जस्ता पक्षहरु वातावरणीय परीक्षणमा समावेश गरिन्छन्। यस अन्तर्गत भौतिक, स्थलीय, जलीय तथा सामाजिक, आर्थिक र साँस्कृतिक वातावरणका विभिन्न पक्षहरु समावेश गरिनेछन्।

९.४ वातावरणीय व्यवस्थापन लागत:

यस आयोजनाको वातावरणीय व्यवस्थापन कार्यको लागत रु. १३२.०४ मिलियन अनुमान गरिएको छ । यस बाहेक वातावरणीय परीक्षण कार्यको लागि रु. १.१७ मिलियन लाग्ने अनुमान गरिएको छ । प्रस्तावित लागत अनुमान आयोजनाको कूल लागत अनुमानको १.३६% हुन आउँछ ।

१०. जनसम्पर्क

यस आयोजनाको जनसम्पर्क कार्य आयोजनाको क्षेत्र निर्धारण गर्ने समय देखि शुरु गरिएको छ । समुहगत छलफल, चेकलिष्ट सर्भेक्षण, वडा स्तरीय बैठक, बजार सर्भेक्षण तथा लक्षित समुह संग छलफल जनसम्पर्कको लागि अपनाइएका विधिहरु हुन् । वातावरणीय प्रभाव मुल्यांकन मस्यौदा प्रतिवेदनमा स्थानीय व्यक्तिहरुको राय सुझाव लिने उद्देश्यले आयोजना प्रभावित ठाँटीवजारमा सार्वजनिक सुनुवाई कार्यक्रम गरिएको थियो । उक्त कार्यक्रम मा विभिन्न जातजाती, पेशा, व्यवसायका कूल १६४ जना सहभागि भएका थिए । स्थानियस्तरका प्रतिनिधिहरुले उत्साहपूर्वक कार्यक्रममा सहभागिता जनाएका थिए । यस कार्यक्रममा आयोजनाको प्राविधिक तथा वातावरणीय पक्षको प्रस्तुतीका साथै सरोकारवालाहरुको रायसुझाव संकलन गरि प्रतिवेदनमा समावेश गरिएको छ । यसले सम्बन्धीत सरोकारवालाहरुलाई आयोजनाको विविध पक्षवारे जानकारी लिन सहयोग पुगेको छ ।

११. उपसंहार

वातावरणीय प्रभाव मुल्यांकन प्रतिवेदनले देखाए बमोजिम आयोजनाबाट वातावरणमा पर्न सक्ने प्रभावहरु न्यून देखि मध्यम समुहका छन् र यसलाई उचित व्यवस्थापन गर्न सकिन्छ ।



Appendix-G: Consent Letter of Affected CFUGs



श्री जुगाबन कामाखी सांमुदायिक वन उपभांका
समीती १०

मिति २०८२/०१/०६

पस ०६४/०६४

प न २

श्री बुढीगंगा जलविद्युत आयोजना
साईट आफिस
साफेबुङगा न.पा १० ढाढी अदाम

विषय :- सहमति प्रदान गरिएको सम्बन्धमा
उपरोक्त विषयका सम्बन्धमा विद्युत विकास विभाग
बुढीगंगा जलविद्युत आयोजनाको प्रस्तावित बुढीगंगा जलविद्युत
आयोजनाको वातावरणीय प्रभाव मूल्यांकन (EIA) प्रति
वेबन हिवकृत गर्ने कम्प्या यस सांमुदायिक वनको सहमति
आवश्यक भएकोले वन क्षेत्रको जग्गा अन्य कार्यको लागि
प्रयोग गर्ने कार्यविधि २०७२ अनुसार गर्ने गरी यो सहमति
पत्र प्रदान गरिएको छ।

भवदीय

रोर बहादुर बुढा

अध्यक्ष, वानुस



नेपाल सरकार
वन तथा वातावरण मन्त्रालय
सिंहदरबार काठमाडौं

श्री मुका वन सागुदायिनी वन उपभोक्ता
संघ सह कुल्कोट ४०४५ अर्द्धांग

पं. लि. ०६४१०६८
च. नं. १



मिति २०७४/११/५

श्री बुढीगंगा जलविद्युत आयोजना
राष्ट्रिय आर्किभ
सम्मेलन नं. ५५-१० अर्द्धांग

विषय :- सहमति प्रदान गरिएको सम्बन्धमा।

उपरोक्त विषय सम्बन्धमा विद्युत विकास विभागद्वारा
गंगा जलविद्युत आयोजनाद्वारा प्रस्तावित बुढीगंगा जल
विद्युत आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन
प्रतिवेदन स्वीकृत गर्ने क्रममा यो सानुदायिनी वनको
सहमति आवश्यक भएकोले वन क्षेत्रको मूल्याङ्कन
कार्यको लागि प्रयोग गर्ने कार्यविधि २०७२ अनुसार
गर्ने गरी श्री सहमति पत्र प्रदान गरिएको हो।

 भवदिय
अध्यक्ष शालिमान साइद
मुका वन सागुदायिनी
कुल्कोट अर्द्धांग



श्री इमलटुका वेतालमाण्डौ सामुदायिक वन उपभोक्ता समुह
८ हाल मेल्लेख गा.पा. ८ हात्तिकोट, अछाम



मिति : २०७५।०९।०५

प.सं. ०७४।०७५

च.नं. ०१

श्री बुढीगंगा जलविद्युत आयोजना

साइट कार्यालय सा.न.पा. १० ठाँटीबजार, अछाम

विषय : सहमति प्रदान गरिएको सम्बन्धमा ।

उपरोक्त विषय सम्बन्धमा विद्युत विकास विभाग बुढीगंगा जलविद्युत आयोजनाद्वारा प्रस्तावित बुढीगंगा जलविद्युत आयोजनाको वातावरणीय प्रभाव मूल्यांकन प्रतिवेदन स्विकृत गर्ने क्रममा यस सामुदायिक वनको सहमति आवश्यक भएकोले वन क्षेत्रको जग्गा अन्य कार्यको लागि प्रयोग गर्ने कार्यविधि २०७३ अनुसार गर्ने गरि यो सहमति पत्र प्रदान गरिएको छ ।

भवदिय

रत्नसिंह ठकुरा

अध्यक्ष श्री रत्नसिंह ठकुरा

इमलटुका वेतालमाण्डौ

सा.व.उ.स.

मेल्लेख गा.पा. ८, अछाम



श्री सुनेहना एच. डी. ३-६ ठाहा
मेलेलेख



प.सं. ०७४१०७८

मिति २०७८/०९/०८

च.नं. ०२

श्री सुनेहना अलावेधुत आयोजना
संगरेष प्रालिम
सोपान बगर नगरपालिका १० अछाम

विषय: सहमति प्रदान गरिएको सम्बन्धमा।

उपर्युक्त विषय सम्बन्धमा विद्युत विकास विभाग-
सुनेहना अलावेधुत आयोजना द्वारा प्रस्तावित सुनेहना अलावेधुत
आयोजनाको वातावरणीय प्रभाव मूल्याङ्कन (EIA) प्रतिवेदन
प्रिबिडित गर्ने क्रममा यस थप सामुदायिक पत्रको सहमति प्राप्त
-शुद्ध भएकोले वन क्षेत्रको मरग, अन्य कार्यको लागि
प्रयोग गर्ने कार्यविधि २०७३ अनुसार गर्ने जति योसम्म
पत्र प्रदान गरिएको छ।

भवादिप

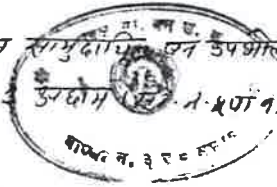
अध्यक्ष श्री कलु सिंह साङ्के

सुनेहना एच. डी. ३-६ मेलेलेख गा.पा

८ अछाम



श्री रास सामुदायिक एवं उपभोक्ता समूह
वाढला उपभोक्ता (सं. नं. ५७/१९)



पस-०६४१०६५
च.नं. ४

मिति २०७५/०१/०९

श्री बुढीगंगा अलावेष्टुल आयोजना
सदर अफिस
साई बगर नगरपालिका - १० ठाटी
अधाम

विषय :- सहमति प्रदान गरिएको सम्बन्धमा

उपरोक्त विषय सम्बन्धमा विद्युत विकास विभाग बुढीगंगा
अलावेष्टुल आयोजनाको प्रस्तावित अल बुढीगंगा अलावेष्टुल-
आयोजनाको कार्यावलीय प्रभाव मूल्याङ्कन (EIA) प्रतिके
स्वीकृत गर्ने क्रममा यस सामुदायिक वनको सहमति प्राप्त
भएकोले वन इकाई अगग अन्य कार्यको लागि प्रयोग गर्ने
कार्यविधि २०७२ अनुसार गर्ने गरि यो सहमति पत्र प्रदान
गरिएको छ।

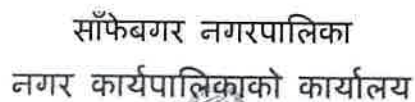
प्रवादिम

दिपक बहादुर खराला
सा.वं. समेत राख्न अग्रिम



Appendix-H: Recommendation Letter





साँफेबगर अछाम
७ नो. प्रदेश नेपाल

च.नं.: ५१९

मिति : २०७५/०१/०६

विषय : सिफारिस सम्बन्धमा ।

श्री बुढीगंगा जलविद्युत आयोजना
साईड कार्यालय घुघुरकोट, अछाम ।

प्रस्तुत विषयमा वुढीगंगा जलविद्युत आयोजनाको च.नं. ३११ मिति २०७५/०१/०५ को पत्रानुसार वातावरणीय प्रभाव मूल्यांकन (EIA) प्रतिवेदन सम्बन्धित मन्त्रालयबाट स्वीकृत गर्ने क्रममा वातावरण संरक्षण नियमावली २०५४ को नियम १० बमोजिम सो आयोजना कार्यन्वयनको लागि नियमानुसार सिफारिस गरिन्छ ।

(कुलबहादुर कुँवर)

— नगर प्रमुख
कुल बहादुर कुँवर
नगर प्रमुख

फोन नं. ०१७-६२५१७८, ६२५१७९, ६२५१७६, ६२५१८०, फ्याक्स नं. ०१७-६२५१३७, E-mail id : sanfebagamun@gmail.com
Website : www.sanfebagamun.gov.np





तेल्लेख गाउँपालिका
गाउँ कार्यपालिकाको कार्यालय
बिन्देवासिमी, अछाम ।
७ नं. प्रवेश, नेपाल ।

प.सं. २०७४/०७५

च.नं. ४१९

मिति :- २०७५/०९/०६

विषय :- सिफारिस सम्बन्धमा ।

श्री बुढीगंगा जलविद्युत आयोजना,
साईड कार्यालय, घघुरकोट अछाम ।

उपरोक्त सम्बन्धमा बुढीगंगा जलविद्युत आयोजनाको च.नं. ३२ को प्राप्त पत्रानुसार वातावरणीय प्रभाव
मुल्याङ्कन (EIA) प्रतिवेदन सम्बन्धित मन्त्रालयबाट स्वीकृत गर्ने क्रममा वातावरण संरक्षण नियमावली २०५४ को
नियम १० बमोजिम सो आयोजना कार्यान्वयनको लागि नियमानुसार सिफारिस गरिन्छ ।


(लोक बहादुर बोहरा)
अध्यक्ष

लोक बहादुर बोहरा
अध्यक्ष





बुढीगंगा नगरपालिका
नगर कार्यपालिकाको कार्यालय
कुल्देवमाण्डौ, बाजुरा
७ नं. प्रदेश नेपाल

प.सं. :- २०७४/०७५

च.नं. :- ३११

मिति : २०७५/११/५

विषय : सिफारीस सम्बन्धमा ।

श्री बुढीगंगा जलविद्युत आयोजना
सड्डेड कार्यालय धुधुरकोट अछाम

उपर्युक्त सम्बन्धमा बुढीगंगा जलविद्युत आयोजनाको च.नं.-३३ को प्राप्त पत्रानुसार वातावरणीय प्रभाव
मूल्याङ्कन (EIA) प्रतिवेदन सम्बन्धित मन्त्रालयबाट स्वीकृत गर्ने क्रममा वातावरण संरक्षण नियमावली २०५४ को
नियम १० सो आयोजना कार्यान्वयनको लागि नियमानुसार सिफारीस गरिन्छ ।

दीपक विक्रम शाह

नगर प्रमुख
दीपक विक्रम शाह



Appendix-I



Appendix-J



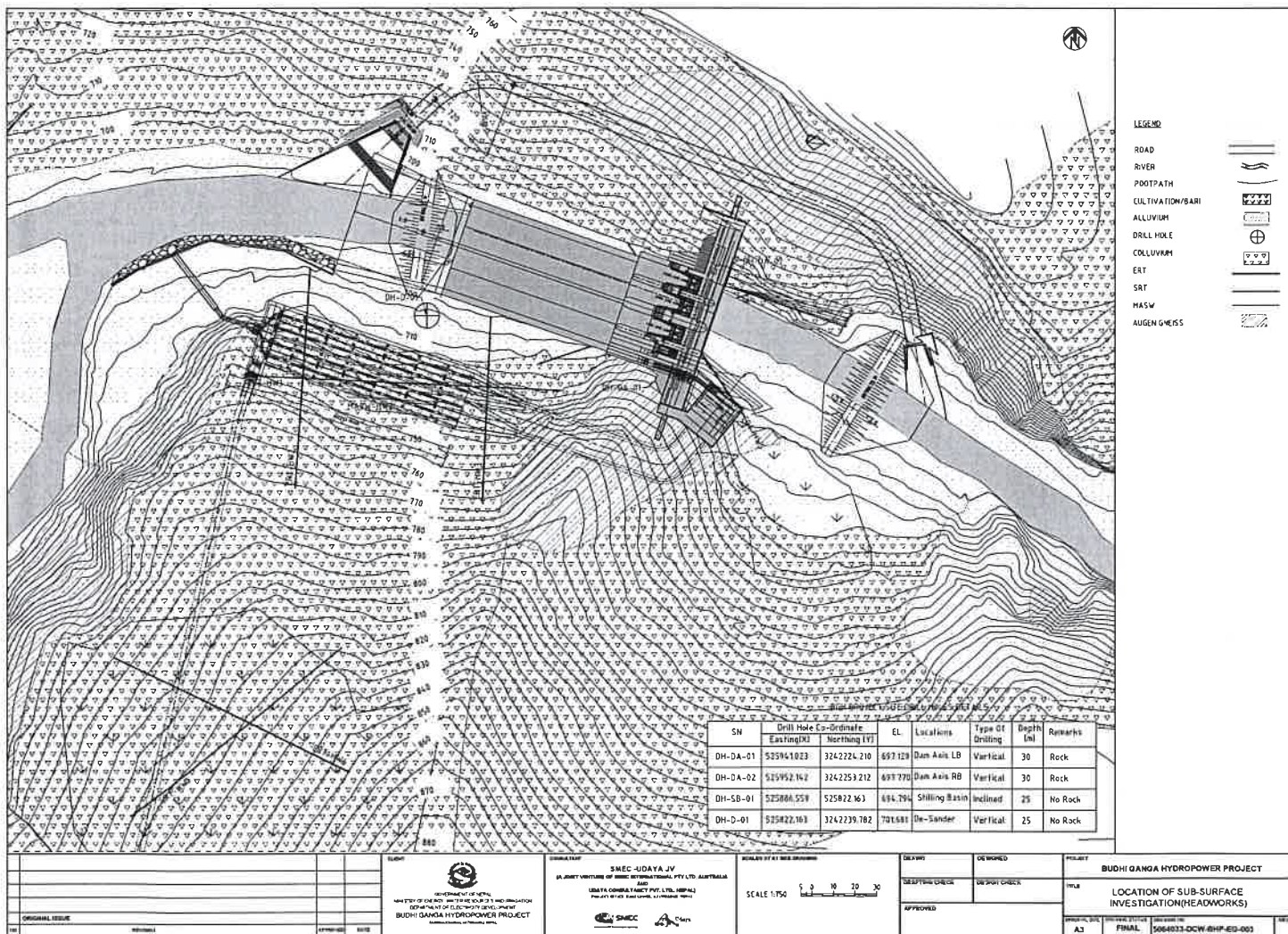
Table -1: List of the Key Contacted Person

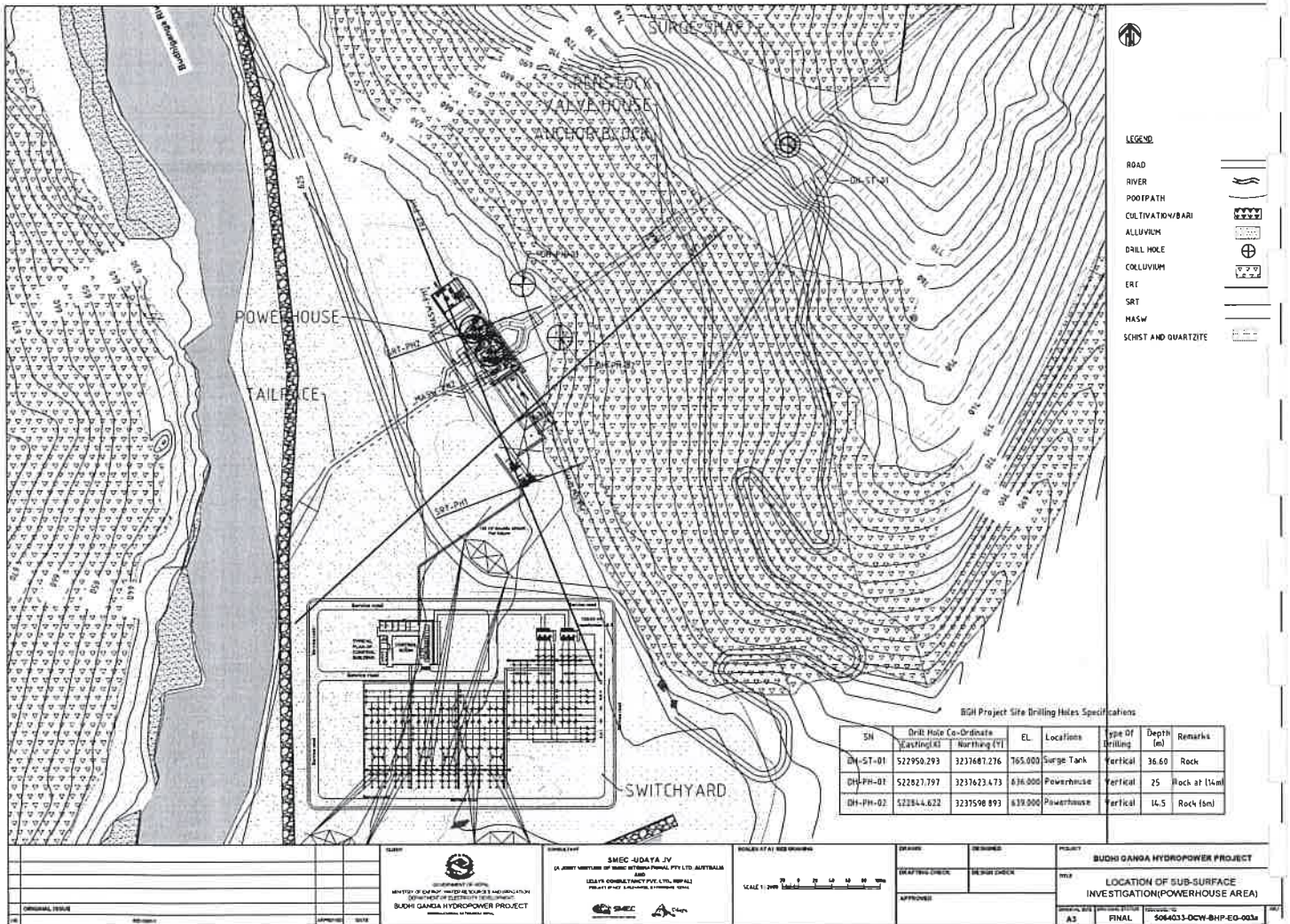
S.N.	Name	Position	Address
1	Mr. Kul Bahadur Kunwar	Mayor	Sanfebagar Municipality, Achham
2	Mr Deepak Bikram Shah	Mayor	Budhiganga Municipality, Bajura
3	Mr. Lok Bahadur Boharo	Chairperson	Mellekh Rural Municipality, Achham
4	Mr. Sagar Singh Babali	Ward Chairperson	Sanfebagar Municipality - 13, Achham
5	Mr. Khagendra Saud	Ward Chairperson	Mellekh Rural Municipality - 8, Achham
6	Mrs. Jayanti Bogati	Municipal Member	Sanfebagar Municipality, Thanti Bazar, Achham
7	Mrs. Kamala Devi Tamrakar	Nominated Member	Mellekh Rural Municipality -4, Kuskot
8	Mr. Lok Bahadur Bogati	Head Teacher	Shree Thanti Basic School, Sanfebagar Municipality, Tahnti Bazar
9	Ran Singh Thakula	Chairman ,	Shree Imiltukra Betalmandu, Community Forest User Group, Mellekh Rural Municipality - 8, Achham
10	Mahesh Thakula	Member	Shree Imiltukra Betalmandu, Community Forest User Group, Mellekh Rural Municipality - 8, Achham
11	Mr. Sher Bahadur Budha	Chairman	Shree Jukaban Lamkana Group, Budhiganga Municipality - 10, Bajura
12	Mr. Saliman Saud	Chairman	Shree Jukaban Community Forest User Group, Mellekh Rural Municipality -4, Achham
13	Mr. Hira Bahadur	Member	Shree Jukaban Community Forest User Group, Mellekh Rural Municipality -4, Achham
14	Hansa Batala	Chairman	Rakse - Sanfebagar Municipality - 13
15	Mr. Deeak Bahadur Batala	Secretary	Shree Rakse Community Forest User Group, Sanfebagar Municipality - 13
16	Chandra Bahadur Batala	Member	Shree Rakse Community Forest User Group, Sanfebagar Municipality - 13
17	Mr. Kalu Sing Saud	Chairman	Shree Sukethana Community Forest User Group, Mellekh Rural Municipality -8, Achham
18	Mr. Remant Bahadur Bogati	Former Chairperson, Ghugurkot VDC	Sanfebagar Municipality- Ward-10, Achham
19	Mr. Purna Bahadur Kunwar	Chairman,	Budhabagar Samaj Samiti, Sanfebagar Municipality -13, Achham
20	Mr. Chakra Sunar	Member	Federation of Nepalese Chambers of Commerce and Industry, Sanfebager Municipality, Accham
21	Mr. Mean Bahadur	Secretary	Working for Access and Creation Nepal (NGO), Sanfebager Municipality, Accham
22	Mr. Hikmat Kuwar	Member	Working for Access and Creation Nepal (NGO), Sanfebager Municipality, Accham
23	Mr. Lal Bahadur	Businessman	Sanfebagar Municipality - 13, Babala, Achham
24	Mr. Prakash Bista	Teacher	National Higher Secondary School, Achham
25	Mr. Sanjay Thakula	Local Fisherman	Sanfebager Municipality, Thanti Bazar, Accham
26	Mr. Prem KC	Local fisherman	Sanfebager Municipality, Thanti Bazar, Accham



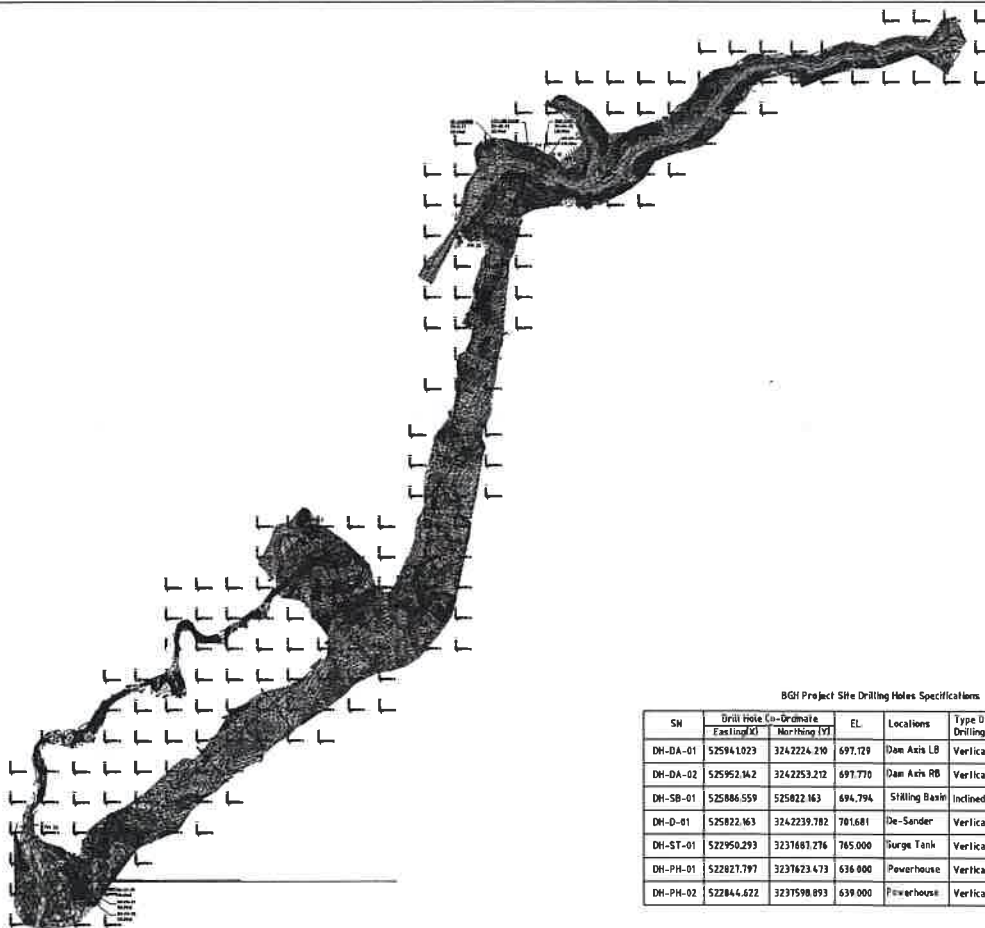
Appendix-K







नेपाल सरकार
वन तथा वातावरण मन्त्रालय
सिंहदरबार काठमाडौं



- LEGEND**
- ROAD
 - TREE
 - HOUSE
 - INDEX COUNTER
 - RIVER
 - CLIFF, ROCK
 - POOTPATH
 - STREAM
 - ESTTLEMENT
 - CONTROL POINT
 - CULTIVATION/BARI
 - ALLUVIUM
 - COLLUVIUM
 - AUGEN GNEISS
 - SCHIST AND QUARTZITE
 - ATTITUDE OF FOLIATION
 - LOCATION
 - ATTITUDE OF JOINT
 - DRILL HOLE

BGI Project Site Drilling Holes Specifications

SN	Drill Hole Co-Ordinate		EL.	Locations	Type Of Drilling	Depth (m)	Remarks
	Eastings (X)	Northing (Y)					
DH-DA-01	52594.1023	3242224.210	697.129	Dam Axis LB	Vertical	30	Rock
DH-DA-02	525952.142	3242253.212	697.770	Dam Axis RB	Vertical	30	Rock
DH-SB-01	525886.559	525822.163	694.794	Stilling Basin	Inclined	25	No Rock
DH-D-01	525822.163	3242239.782	701.681	De-Sander	Vertical	25	No Rock
DH-ST-01	522950.293	3237687.276	765.000	Surge Tank	Vertical	36.60	Rock
DH-PH-01	522827.797	3237623.473	636.000	Powerhouse	Vertical	25	Rock at 14m
DH-PH-02	522844.622	3237598.893	639.000	Powerhouse	Vertical	14.5	Rock (6m)

MINISTRY OF ENERGY GOVERNMENT OF NEPAL UNIVERSITY OF BUDDHIST WATER RESOURCES INVESTIGATION DEPARTMENT OF ELECTRICITY DEVELOPMENT BUDHI GANGA HYDROPOWER PROJECT		CLIENT SMDC-JUDAYA JV AN JOINT VENTURE OF SMDC HYDROPOWER PVT. LTD. AUSTRALIA AND JUDAYA CONSULTANTS PVT. LTD. NEPAL PROJECT OF BUDHI GANGA HYDROPOWER PROJECT SCALE 1:1000		DESIGNED DRIFTING CHECK DESIGN CHECK APPROVED		PROJECT BUDHI GANGA HYDROPOWER PROJECT LOCATION OF GEOPHYSICAL INVESTIGATION AND DRILL HOLE AT PROJECT AREA DATE 15/01/2023 FINAL 50648033-DCW-BHP-ED-001	
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नेपाल सरकार
वातावरण मन्त्रालय
सिंहदरबार काठमाडौं

Appendix-L: Copy of contract (few pages)





**Detail Engineering Design and Environmental
Impact Assessment including Social Impact
Assessment of Budhi Ganga Hydropower Project
(20 MW), Achham**

CONTRACT AGREEMENT

Between

Budhi Ganga Hydropower Project

Kalikasthan, Kathmandu

Tel: 00977-1-4423205, 4423206

Fax: 00977-1-4423207

Email: info@bhp.gov.np

And

**SMEC International Pty Ltd, Australia in JV with
Udaya consultancy (P) Ltd, Nepal**

Dated: 29 June 2015 (2072/03/14)

Appendix H: Cost Estimates in Local Currency
Appendix I: Form of Guarantee for Advance Payments
Appendix J: Minutes of Negotiations Meetings

2. The mutual rights and obligations of the Client and the Consultants shall be as set forth in the Contract, in particular:

- (a) the Consultants shall carry out the Services in accordance with the provisions of the Contract; and
- (b) the Client shall make payments to the Consultants in accordance with the provisions of the Contract.

IN WITNESS WHEREOF, the Parties hereto have caused this Contract to be signed in their respective names as of the day and year first above written.

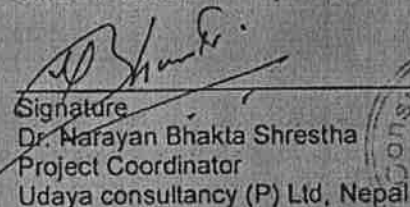
For and on behalf of Budhi Ganga
Hydropower Project


Government of Nepal
Ministry of Energy Development
Department of Electricity Development
Budhi Ganga Hydropower Project
Kathmandu, Nepal

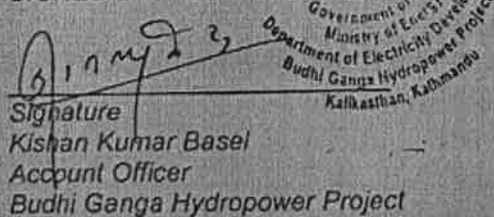
Signature
Santosh Baral
Project Manager
Budhi Ganga Hydropower Project
Date: 29 June 2015

For and on behalf of SMEC International Pty
Ltd, Australia in JV with Udaya consultancy (P)
Ltd, Nepal


Signature
Mr. Udeep Lal Shrestha
Country Manager - Nepal
SMEC International Pty Ltd, Australia


Signature
Dr. Narayan Bhakta Shrestha
Project Coordinator
Udaya consultancy (P) Ltd, Nepal

SIGNED IN THE PRESENCE OF:


Signature
Kishan Kumar Basel
Account Officer
Budhi Ganga Hydropower Project


Signature
Prakash Singh Bhujel
Business Development Officer
SMEC International Pty Ltd, Australia

TERMS OF REFERENCE DETAILED ENGINEERING DESIGN AND ENVIRONMENTAL IMPACT STUDY INCLUDING SOCIAL IMPACT ASSESSMENT OF BUDHI GANGA HYDROPOWER PROJECT

1. General

Feasibility study and Environmental Impact Assessment (EIA) Study of Budhi Ganga Hydropower Project was completed in 1998 by Medium Hydropower Study Project (MHSP). In order to implement the project, detailed engineering design (DED) and updating EIA study of the project are being initiated. The scope of consulting services for the DED and ESIA study shall include but not necessarily limited to the followings:

- a) Review of previous feasibility and EIA study reports (MHSP, 1998), collection of other relevant information, maps and conceptual design guideline and identify the investigation gap.
- b) Conduct field investigations for hydrological surveys, topographical surveys, geological, geotechnical and construction materials investigations including drilling, seismic activity investigations, logistics surveys, transmission line surveys and access road surveys.
- c) Prepare and establish design criteria for the detailed design of all major project components.
- d) Design civil work structures such as dam, intake, desanding basin, waterways (tunnel, surge tank, drop shaft), powerhouse with tailrace and switchyard.
- e) Design power generating equipment and substation, including auxiliary equipment.
- f) Design hydraulic steel structures such as gates, valves and penstock pipes.
- g) Perform hydraulic model tests, to confirm the design features for headwork and desanding basin.
- h) Prepare construction plan and schedules for implementation
- i) Prepare construction cost estimates derived from unit prices and quantities, including cash flows in local and foreign currencies.
- j) Reassess economic and financial analyses of the technical arrangement adopted.
- k) Prepare tender documents for civil works including bridge, electromechanical equipment and hydraulic steel structures.
- l) Prepare tender document for preparatory works (camp site, access & construction road, water supply, power supply and other construction facilities etc.), transmission line and associated substation.


 Government of Nepal
 Ministry of Energy
 Department of Electricity Supply
 Budhi Ganga Hydropower Project
 Kathmandu

- m) Prepare a design report with full documentation on the actual design including all design principle, criteria, parameters and standards to which the project has been designed, all major calculations and analyses and all drawings to be issued for bidding.
- n) Update the EIA report prepared as per the National EIA Guidelines, 1993 and prepare Environmental Studies Report as well as Environmental and Social Management Plan (ESMP) as per Environment Protection Act, 1997 and Environment Protection Rules, 1997 and relevant guidelines of the leading agencies (Kuwait Fund and Saudi Fund).

2. Field Investigation

Major field investigations works have been carried out during the feasibility and EIA studies. The reports suggested to conduct additional drilling works at the weir axis, desanding basin and tunnel alignment, additional seismic survey profiles near the intake and power house area, hydraulic model test, determining sedimentation pattern in the reservoir using computer software and preparing Comprehensive Mitigation Management Plan (CMMP). As more than a decade of time has elapsed, some additional investigations are required at the project area. Hence, a field program for additional investigations shall be prepared based on previous feasibility and EIA reports. In general, the field investigation program/schedule shall follow the following sequence taking reference from the Feasibility Study Guidelines (2003) prepared by the DoED:

- a) Topographical Survey and Mapping
- b) Hydro-meteorological and Sediment Study
- c) Engineering Geological Mapping
- d) Geophysical Surveys
- e) Seismicity/Seismic Study
- f) Core Drilling and Field Testing
- g) Construction Material Survey
- h) Detailed Engineering Survey of road
- i) Detailed Engineering Survey of transmission line, Switchyard & Substation
- j) Muck Disposal Survey
- k) Power Evacuation Survey
- l) Construction Labor Survey and camp facilities
- m) Updating Environmental Studies and prepare ESMP.

The approximate field investigation works are described as below

