Bhutan for Life
Environmental and Social Management Plan for
Biological Corridor 06 (Trashigang)
January 2024 - June 2025

1. Introduction

1.1 Project Background

The Bhutan for Life (BFL) project aims to ensure a robust network of Protected Areas (PAs) and Biological Corridors (BCs) that secure human well-being, biodiversity conservation and increase climate resilience in Bhutan. The project shall sustain for 14-years, in this duration an immediate improvement to the management of Bhutan's protected areas for climate resilience and biodiversity gains are sought. Meanwhile the country would gradually ratchet up its own financing resources.

BFL seeks to achieve the following objectives:

- Help Bhutan remain carbon neutral by increasing forest and vegetative cover within the Protected Area System;
- Enhance the socio-economic wellbeing of communities in the vicinity of the PAS through climate-informed natural resources management;
- Maintain stable, thriving, and diverse populations of key species contributing toward national and global biodiversity goals; and
- Strengthen organizational, institutional, and financial capacity for effective management of PAS. BFL includes five components that reflect these goals, divided into 16 milestones (or outputs) and over 80 detailed activities.

1.2 Scope of ESMP

The preparation of this Environmental and Social Management Plan (ESMP) was deemed necessary in order to manage the environmental and social impacts. The mitigation actions required to implement the project was in accordance with the requirements of WWF's Social Safeguards Integrated Policies and Procedures (SIPP), the project's Environmental and Social Management Framework (ESMF), and the applicable national legislation and regulations.

The ESMP provides an overview of the environmental and social baseline conditions on the routes of the proposed second segment of the project, summarizes the potential impacts associated with the proposed activities and sets out the management measures required to mitigate any potential negative impacts.

This ESMP will be implemented by BFL focal person in each park authority (PA) and biological corridor (BC), and by the contractor to be commissioned by each PA/BC for the project.

1.3 Purpose of ESMP

This site-specific ESMP is a project-specific source document detailing the environmental and social protection requirements to mitigate and minimize the adverse impacts. The ESMP's primary purpose is to ensure that the environmental requirements and social commitments associated with the project are carried forward into implementation and operational phases of the project and are effectively managed. The specific objectives of this ESMP are as hereunder:

- Minimizing any adverse environmental, social and health impacts resulting from the project activities;
- Conducting all project activities in accordance with the relevant RGoB Laws and WWF's safeguard operational policies and guidelines;
- Preventing environmental degradation as a result of either individual subprojects or their cumulative effects;
- Enhancing the positive environmental and social outcomes of project activities;
- Ensuring that the proposed mitigation measures are feasible and cost-efficient;
- Providing an Action Plan to ensure that the project impact mitigation measures are properly implemented and monitored; and
- Ensuring that all stakeholders are engaged in the project activities' preparation and implementation, and their concerns are fully addressed.

1.4 Applicable law, policies, and regulation

This ESMP is developed in strict adherence and compliance to the guidelines set forth in BFL's ESMF.

Applicable RGoB laws and policies include the Constitution of the Kingdom of Bhutan, 2008; legislation on land and moveable property (Land Act of Bhutan 2007; Land Rules, 2007; The Moveable Cultural Property act of Bhutan, 2005); legislation and regulations on forests and protected areas (National Environment Protection Act, 2007; Forest and Nature Conservation Act of Bhutan, 2023; Forest and Nature Conservation Rules and Regulations of Bhutan, 2023;National Forest Policy, 2011); legislation on water and waste prevention (Water Act of Bhutan, 2011; Waste Prevention and Management Act, 2009); legislative requirements on environmental assessment (Environmental Assessment Act, 2000 and Regulations on the Environmental Clearance of Projects, 2001); and other relevant laws (The Local Government Act of Bhutan, 2009; Livestock

Act of Bhutan, 2001; The Biodiversity Act of Bhutan, 2003; The Pesticides Act of Bhutan, 2000; The Penal Code of Bhutan, 2004; National Access and Benefit Sharing (ABS) Policy (Draft), 2014), and Local Government Act of Bhutan, 2009.

WWF's safeguards policies that are relevant to this project are as follows:

- Policy on Environment and Social Risk Management;
- Policy on Protection of Natural Habitats;
- Policy on Involuntary Resettlement; Policy on Indigenous Peoples;
- Standard on Pest Management;
- Policy on Accountability and Grievance System;
- Standard on Physical Cultural Resources;
- General standards on both occupational and community health and safety and energy efficiency.

In general, RGoB's laws, policies, and guidelines are in line with the WWF's environmental and social safeguards requirements. However, there are a few differences between the two systems. Regarding environmental impacts, there are no direct contradictions between the RGoB laws and regulations and the WWF's SIPP, but the requirement of the latter is more extensive. All project activities should fully comply both with the RGoBs Regulations on the Environmental Clearance of Projects, and with the procedures and mitigation measures prescribed in this ESMF. In case the WWF's SIPP requirements turn out to be

extensive, strict, or detailed compared to RGoB legislation and policies, the former will apply to all project activities.

Regarding social impacts, the status of non-title holders and informal land use, and the commitment to participatory decision-making processes conclude the primary discrepancies between the RGoB laws and regulations and the WWF's SIPP. First, according to the WWF's SIPP, all users of land and natural resources (including people that lack any formal legal ownership title or usage rights) are eligible to some form of assistance or compensation if the project adversely affects their livelihoods. The RGoB laws only recognize the eligibility of land owners or formal users to receive compensation in such cases. Second, the WWF's SIPP require extensive community consultations during the project in order to develop various safeguards documents. RGoB legislation does not include three requirements reflected in SIPP. For the purpose of the BFL project, the provisions of the WWF's SIPP shall prevail over the RGoB legislation in all cases of discrepancy.

2. Environmental and Socio-Economic Conditions

Geological and topographical conditions

Biological Corridor 6 has an area of 232.76 km^2 stretched across part of Serthig (62.14 km^2), Samrang (1.26 km^2), Martshala (64.9 km^2) and Lauri (42.24 km^2) gewog under Samdrup Jongkhar Dzongkhag and part of Kangpara (0.14 km^2) and Merak (62.08 km^2) gewog under Trashigang Dzongkhag. Approximately, 73.3% of the total BC6 area falls under the jurisdiction of Samdrup Jongkhar and remaining 26.7% in Trashigang Dzongkhag. Other than the seasonal herding, there is no permanent settlements inside the BC6.

It falls within the extent of 26.938424° N to 27.228972°N, 91.772602°E to 91.929680°E. In the north, it shares border with Sakteng Wildlife Sanctuary (SWS) from Tsegom Jong (27.215987°N,

91.83728°E) until Phangtshu Zurtshe (27.205177°N, 91.926187°E) via Thongphu (27.208092°N, 91.854904°E) and Gangkam Zor (27.226943°N, 91.875425°E) in Merak. While in the south, it shares border with Jomotshangkha Wildlife Sanctuary (JWS) from Tshophangma (26.935766°N, 91.823544°E) in Samrang to Nonai (26.957041°N, 91.883763°E) in Serthig. In the east, it stretches along the ridge and valleys of Kemajong

(27.026294°N, 91.87651°E) in Serthig to Borang Tshephu Zor (27.186493°N, 91.925531°E) in Merak and Lauri boundary via above Taksang (27.104045°N, 91.856585°E) in Lauri, Benangwong (27.158052°N, 91.883564°E) above Phajogoenpa and Chongtharchen (27.164623°N, 91.889236°E) above Khashiteng village under Merak. In the west, BC6 boundary is aligned along the Tshophangma ridge (26.939695°N, 91.842762°E) above SMCL mining in Samrang to Ningsangla (27.162971°N, 91.817852°E) in Merak via ridge and valleys of Thelemthang/Dalemthang (26.973089°N, 91.790529°E) in Martshala and Chenla (27.088196°N, 91.782953°E) range in Kangpara.

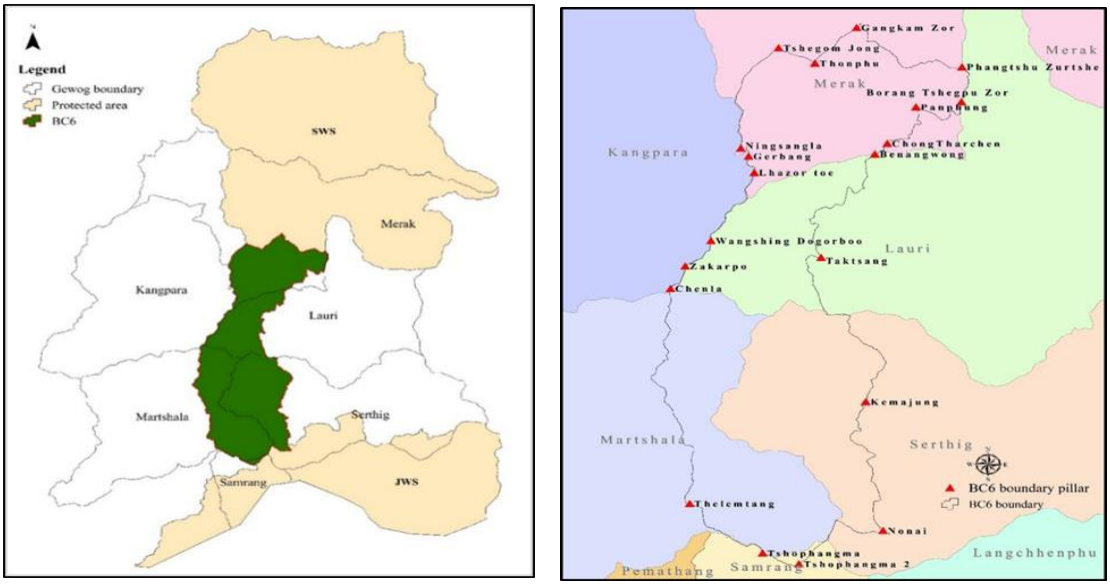

Figure 1: General location of BC 6 in relation to B2C2 in Bhutan

Climatic conditions

The landscape of BC6 is characterized by diverse topography. Based on the slope classification standard for developing Local Forest Management Plan (LFMP) of Bhutan, 59.3% of the BC6 landscape qualify as gentle (slope < 35º), followed by 26.9% as moderate (slope 35º-45º) and 13.8% as steep slope (slope >45 º). These slopes are mostly south facing (42.9%), followed by north (32.6%), east (17%) and west (7.4%).

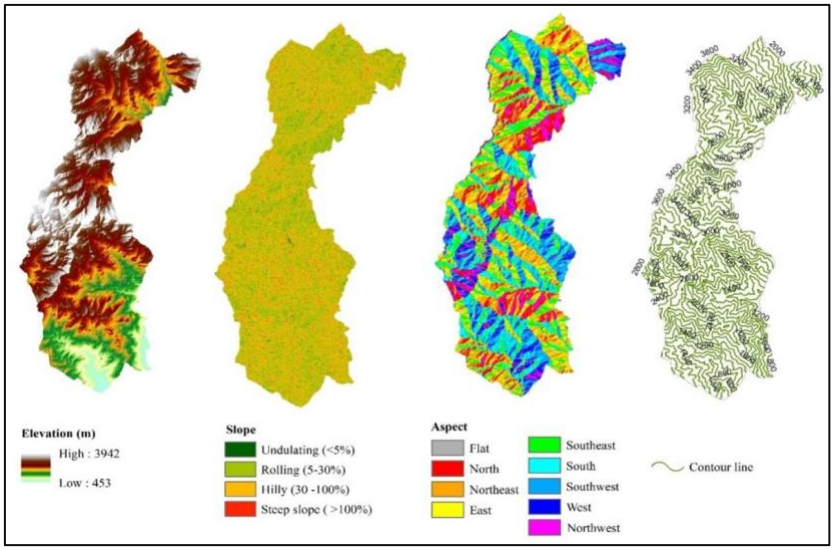

Figure 2: Geophysical map of BC6. Figure 3 Slope & Aspect of BC 6 (Slope is re-classed into Gentle (≤25 º), Moderate (≥25 º to 35 º) & Steep Slope (≥35º)

Elevation rises from approximately 453m in Samrang to 3942m on the peak of Chenla. Almost, 67% of the landscape is located above 2000m, thus experiencing temperate climate and remaining 33% occur in the elevation below 2000m that experience subtropical climate (DoFPS, 2022b).

However, according to Bhutan map of Köppen climate classification, BC6 falls in dry-winter humid subtropical climate or warm temperate climate with dry winter and hot summer (Cwa) under humid subtropical climate or warm temperate climate. It is characterized by dry winter and wet summer influenced by monsoon (Kottek et al., 2006).

Biological corridor 6 landscape experiences average mean temperature of approximately 7°C to 20°C year-round. However, during the peak cold season (December to February): temperature in certain higher elevation may drop to below zero degree with snowfall. Meanwhile temperature may shoot beyond 25°C in lower region of the BC during hot season (June to August).

Average monthly precipitation in the landscape ranges from 5.5mm to 366.2mm (avg. approximately 144mm) with the majority of the precipitation in the month of June to August. (Fig.5).

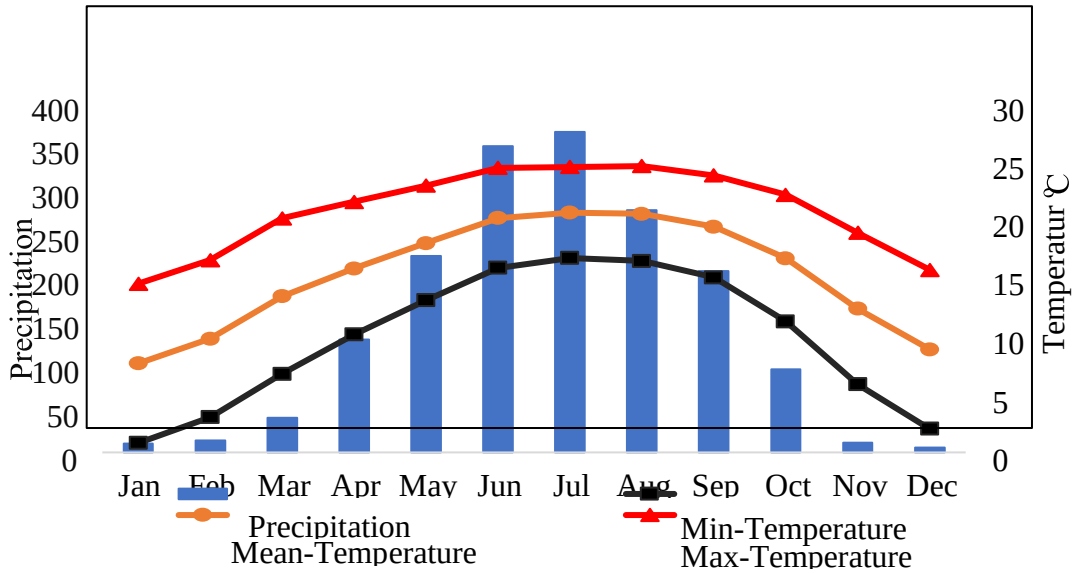

Figure 3: Monthly climatology of minimum temperature, maximum temperature, mean temperature and precipitation 1991-2020 (Data source: Climate change knowledge portal for development practitioners and policy maker)

Hydrological conditions

There are several seasonal and permanent networks of streams flowing through the landscape of BC6. Collection of this stream network contributes significantly as the tributaries for Jomori river that flows through Jomotshangkha, Nonai river at Nonai and Samrang river at Samrang. Small river of Phajogoenpa and Taksang village also originates from BC6 that later joins Jomori river.

Flora and fauna

Within BC6 there is a great variability in elevation based on which the landscape can be divided into two major ecological zones comprising sub-tropical (elevation <2000m) and temperate zone (2000-4000m) (DoFPS, 2022b). According to forest types of Bhutan maps and statistics, BC6 has ten different forest types (DoFPS, 2022a). Cool broadleaved forest, warm broadleaved forest and evergreen oak forest are three dominant forest types present in the landscape (Table 2) harbouring diverse floristic and faunal composition.

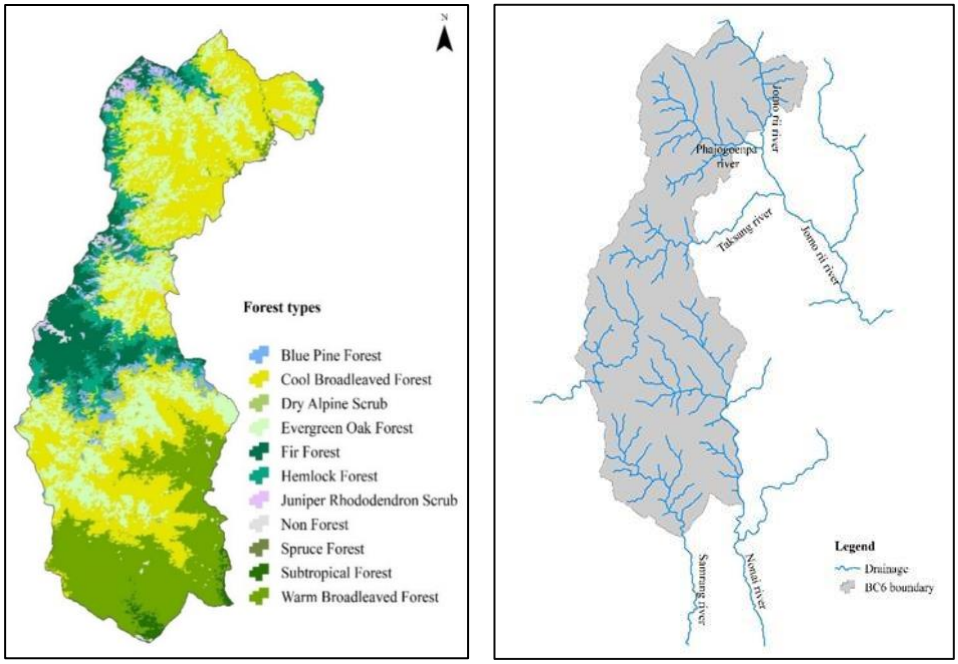

Figure 4: Forest types in BC6 and watershed areas

Sl.no	Forest types	Area_(km^2)	Coverage (%)
1	Cool Broadleaved Forest	84.67	36.38
2	Warm Broadleaved Forest	46.92	20.16
3	Evergreen Oak Forest	45.09	19.37
4	Fir Forest	19.93	8.56
5	Hemlock Forest	17.70	7.60
6	Blue Pine Forest	6.72	2.89
7	Juniper Rhododendron Scrub	3.26	1.40
8	Subtropical Forest	2.19	0.94
9	Spruce Forest	1.11	0.48
10	Dry Alpine Scrub	0.39	0.17
	Sub-total: Area under forest	**227.99**	**97.95**
11	Non-forest area	4.77	2.05
	Total area	**232.76**	**100.00**

Table 1: Forest types inside BC6

Based on free listing and rapid biodiversity assessment (RBA), floristic compositions consist of 485 plant species belonging to 102 families. From 102 families recorded, 58 species are Ericaceae, Rosaceae (*n=34*), Asteraceae (*n=30*), 27 species from Orchidaceae, while one species each were recorded from family Rafflesiaceae, Trochodendraceae and Thymelaeaceae. Among 485 plant species recorded, 207 were herbs, 81 trees, 26 orchids, 7 ferns and 4 lianas. However, only 274 species were recorded during RBA and analyzed using PC-ORD.

A small stretch along Chenla-Threlphu recorded 33 species of Rhododendron with two varieties of *Rhododendron arboreum* Var. roseum and *Rhododendron kesangiae* var. album. The area is home to significant and endangered species like *Sapria himalayana, Bulbophyllum trongsaense, Illicium griffithii* and *Taxus wallichiana* and other vulnerable species like *Aristolochia griffithii, Rhododendron dalhousiae and Merriliopanax alpinus.*

The tree and shrub composition includes five live forms such as conifer, deciduous and evergreen trees, evergreen and deciduous shrubs. It has a considerable proportion of relative abundance among all the life forms. Evergreen shrub forms the major composition with 55.2% (*n=73)*, followed by deciduous trees (26.35 %, *n=43*), conifer tree (8.09 %, *n=6*), evergreen tree (6.45%, *n=13*) and deciduous shrubs (3.86%, *n=7*) from six Gewog.

The corridor is a sanctuary to many charismatic and conservation significant mammals. During rapid biodiversity assessment (RBA) the camera trapping exercise was conducted using 22 camera traps installed inside the 4kmx4km survey grids. Camera trap survey resulted in an effort of 1210 trapping nights, capturing 32,287 images, of which 1954 images (6%) were of 24 mammalian species representing 24 genera, 16 families and five orders. However, the remaining recorded images were birds, humans and livestock.

A total of 24 mammal species were recorded, out of which four (17%) species are endangered

(EN), five (21%) species are vulnerable (VU), three species (13%) are near threatened (NT) and 12 species (50%) are least concerned (LC). Overall, 12 species i.e., 50% of the total recorded species are globally threatened mammal species. In addition, the nine mammal species such as Musk deer, Red panda, Gaur, Asiatic elephant, Himalayan serow, Common leopard, Clouded leopard, Leopard cat and Himalayan black bear are strictly protected in Schedule I, Forest and Nature Conservation Act (FNCA) 1995 of Bhutan.

Total of 1374 individuals recorded adopting McKinnon bird listing method belonging to 188 species categorized under 57 families and 17 orders. All 188 species play an important ecological role in an ecosystem and few recorded species are of utmost significance at national and global context Table. 1.

Table 2: Species checklist of international and national importance

IUCN status	Species
Endangered (EN)	***
Vulnerable (VU)	Beautiful Nuthatch (*Sitta formosa*), Great Hornbill (*Buceros bicornis*), & us-necked Hornbill (*Aceros nipalensis*)
Near Threatened (NT)	Satyr Tragopan (*Tragopan satyra*) & Gray-headed Parakeet (*Psittacula hii*)
Schedule Species (FNCA, Bhutan)	Monal Pheasant (*Lophophorus impejanus*), Rufous-necked Hornbill (*Aceros nipalensis*), Beautiful Nuthatch (*Sitta formosa*), Great Hornbill (*Buceros bicornis*)

Socio-economic conditions

Other than the seasonal huts, there are no permanent settlements inside the BC6 landscape. Approximately, 60 herders from Merak and Sakteng, seven from Kangpara (1 Kangpara, 3 each from Zordung and Threlphu) and 20 from Lauri gewog (Momring 16, 2 each from Ralnang and Taksang) graze their livestock in and around the landscape of BC6.

Top five major occupational groups of the sampled household are farmers followed by student, employee, herders and housewife. All the respondents from Merak and Sakteng were herders primarily

dependent on livestock and the majority from Khashiteng were Tsampa or religious practitioners. While respondents from Phajogoenpa, Ralnang, Momring and Larjab, Threlphu, Zordung and Kangpara were predominantly farmers.

3. Planned activities for January 2023 - June 2024

3.1 *Maintenance of Forest Beat Office at Shongphu*

a. Budget: Nu. 1,500,000
b. Timeline: January - June, 2024
c. Location: Rangjung,Shongphu Gewog, Trashigang

The Beat Office, Shongphu is located in Rangjung, a satellite town under Shongphu Gewog. The current structure is in need of major maintenance work due to termite infestation affecting the wooden structure. Enhancing the maintenance of the office is crucial for improving protected area management and ensuring efficient public service delivery to the communities of the Gewog. The major maintenance and site development of the Beat Office are planned to be carried out during the 6th Year of BFL funding (2024), specifically in the 1st and 2nd Quarter (January 2024 to June 2024). Design and estimates for the maintenance work have been completed, and technical approvals from relevant authorities are secured.

The maintenance works encompasses roof replacement, ceiling and flooring changes, restroom development, re-electrification, sanitation and plumbing works, site drain and door replacement, painting and site development.

Nu. 1.5M is allocated for the activity. It will be implemented through community contract award with technical and administrative support from Dzongkhag Administration, Trashigang. Approximately 10 to 15 local workers will be employed. They will be hosted in their respective houses, since all labourers will be employed from the locality. Electricity and water will be used from the existing Office, while water will be shared from the existing water tap head.

Potential social and environmental impacts

Following are some the possible common environmental and social impacts foreseen during the implementation of the proposed activities:

i. Environment Impacts:

· Waste generation: wastes such as termite infested wooden structures that is going to be replaced, cement bags, wooden cut-offs, electrical materials

• Air pollution: dust as a result of construction works and possible emissions from transportation vehicles

- Noise disturbance: Possible noise disturbance as a result of outdoor equipment usage and transportation vehicles driving around the construction site
- Risks of falling stones from the area above the site

ii. Social Impacts

· Worker's health and safety

5. Mitigation Measures for Environmental and Social Impacts

Potential impacts to the environment and society along with the mitigating measures are listed below in the table:

Potential impact	Impact scale	Proposed mitigation measures	Responsibility part	Cost
Activity 1: Maintenance of Forest Beat Office at Shongphu Geog, Trashigang District				**Nu. 1,50,000**
1. Waste generation: wastes su rmite infested wooden structure is going to be replaced, cement , wooden cut-offs, electrical erials	Minor (Short term)	• Identification and segregation of different waste types at the site; • Proper containers/waste bins should be provided at the activity site; • Dumping of waste on the sides of the road, on private land, o r non-designated places should be prohibited; and • Collection, transportation and final disposal of all waste gnated waste disposal sites will be undertaken regularly. • Burning of construction waste should be prohibited. But the ter sted woods will be either burned or disposed of in designated areas upon ssment.	Contractor and BC l	
2. Noise disturbance: Possible e disturbance as a result of outd pment usage and transportation cles driving around the truction site	Minor (Short term)	• Earplugs and protecting devices shall be provided to workers on cessary • The construction works should not be permitted during the nig perations on site shall be restricted to the hours 7am-7pm	Contractor and BC l	
3. Air quality: dust as a result o truction works and possible ssions from transportation vehic	Minor (Short term)	• Construction site, transportation routes and materials handling s ld be water-sprayed on dry and windy days; • Construction materials should be stored in appropriate and cove es to minimize dust; • Before allowing vehicles on site, fitness and emission uments of the vehicle shall be produced • Vehicle loads likely to emit dust need to be covered; Workers sh r protective masks if dust appears	Contractor and BC l	

4. Risks of hanging rocks abov ite	Minor (Long term)	● The hanging rocks will be removed and made into terraces to av ificant hazard to individuals and structures below. ● The area will be landscaped with bamboo species, hedges, and ot mental plants to serve the dual purpose of soil binding and beautification	Contractor and BC l	
5. Workers' health and safety	Minimum/ minor rt term)	• Comply with the BFL's occupational health and safety guidelines; • Ensure regular health screening for the workers pre and dur vities; • Ensure that no underage workers, or children are engaged; • Ensure decent work conditions, including an appropriate sal king hours, accommodation and food for workers shall be provided to kers; Ensure that workers are employed on the principle of equal opportunity treatment, and there is no discrimination • Implement a grievance mechanism for workers (and t nizations, where they exist) to raise workplace concerns.	Contractor and BC l	

6. ESMP Implementation arrangements

The project activities will be implemented by the BFL focal person. The focal person will be responsible for aligning the procedures with ESMP. Compliance with existing rules to obtain clearances, permits, approvals, or consent documents from relevant authorities and stakeholders will also be monitored by the focal person.

This ESMP should be part of the contract that the BC-06 management will sign with the contractor(s) in order to implement the planned activities in BC-06 for the implementing period January 2024 to June 2025. The contractor is obligated to perform the proposed preventive or mitigating environmental and social measures. Any documents related to the application of these measures are advised to be stored as evidence (e.g., letter asking the municipality for disposal of inert waste, records on OHS information session performed for all workers before start of activities, all developed EHS plans, etc.). An OHS information session should be organized by the contractor for all workers prior to the start of the project activities and prior to any specific tasks with high health risks.

The BC-06 Supervisor (Engineer) needs to monitor the implementation of the proposed measures by the Contractor or Contractor's subcontractors. This should be done through visual checks and review of the records of evidence. Non-compliances should be recorded in a non-compliance report and submitted to the BC-06 Focal Officer immediately who will report it to the ESS Focal Officer at the PCU. Any non-compliance should be dealt with appropriate measures and the evidence should be maintained.

Disbursement of project funds to the contractors will be contingent upon their full compliance with the requirements.

7. ESMP monitoring arrangements

The BFL focal of BC-06 will closely monitor the implementation of all planned activities and the required mitigation measures and ensure that they fully comply with this ESMP. The terms and conditions included in the environment clearances issued by RGoB's national authorities wherever and whenever required must be strictly followed. The BC-06 management is also fully responsible for the compliance of all external contractors and service providers with the safeguard requirements outlined in the OHS annexed. Protocol for monitoring of activities under this ESMP will be carried out as follows:

Sl. No.	Activities	Monitoring te	Timeline		Location	Means of Verification
			Start	Complete		
1	Maintenance of Beat Offic ngphu	Field Focal	Jan 2024	June 2024	Rangjung, ngphu	Field visits an Reports
		ESS Focal	May 2024	May 2024		
		BFLFS	July 2024	July 2024		

Monitoring by implementing entities:

- At least weekly field visits
- Monthly reports prepared by implementing entities and submitted to ESS officer

Monitoring by ESS Focal officer at PCU:

- Monitoring through photographic/video evidence submitted by the IAs during the implementation as per the given dateline in the table above;
- Reports by ESS officer to BFL Fund Secretariat - Semi-annual report submitted to the BFL Fund Secretariat in July, 2024 and January 2025; and
- Bi-annual reports of the Secretariat to WWF US (as part of mid-year and final Annual Performance Reports).

8. Capacity Need and Budget

The two activities under this ESMP will be implemented by the BFL focal person, Chief Forestry Officer, supervising engineer, and a contractor that will employ workers as mentioned in the contract agreement.

Sl. No.	Activity	Amount (Nu.)	Budget for ESS mitigation
1	Maintenance of Beat Office at Shongphu	1,500,000	20,000
Total		**1,500,000**	**20,000**

The proposed activities are of very small scale and there are no adverse social and environmental impacts which require mitigation measures. Therefore, separate funds for mitigation measures are not proposed.

9. Consultation and Disclosure Mechanisms

The ESMP has been prepared by BC-06 management under Divisional Forest office, Trashigang and no requirement of consultation is identified as per the rules and regulations of Bhutan since, the two activities are to be carried within the registered land of Divisional Forest Office.

The full English version of this ESMP, as well as an executive summary in Bhutanese, shall be disclosed/uploaded on the website of MoENR, BFL and WWF. The hard copies of the ESMP would be made available at the BC-06 Management Office (Divisional Forest office, Trashigang) and at the PCU Office.

10. Stakeholder engagement plan

As per the RGoB, the two projects will be provided to the contractors through the tender system. Engagement of local individuals will be advised but their engagement will be decided by the contractor. All the procedures and activities in the projects will be coordinated, managed, and implemented by the assigned contractor and only monitoring and evaluation of the activities is expected from the BC-06 Management Office. A separate stakeholder engagement plan need not be prepared for the implementation of the activities.

10.Grievance Redressal Mechanisms

This ESMP and its mitigation measures are required to be disclosed to communities for 30 days prior to the start of implementation of activities.

In addition, the BFL focal point is responsible for making local communities aware of the grievance mechanisms: the BFL-specific grievance mechanism, WWF's Grievance Mechanism, and the GCF Independent Review Mechanism.

BFL-specific Grievance Mechanism

A grievance redressal mechanism (GRM) is in place to address any grievances arising from the implementation of BFL activities, on resources, non-performances of project obligation including safeguards, violation of law and/or corruption, project governance and implementation, fair access and benefit sharing, stakeholder engagement, labor-related issues and incidents, gender related issues and others.

If the stakeholders have any grievances related to the BLF project they can report their grievances via letter, phone call or verbally to nearby gewog or forest offices. The report can also be sent to the BFL PCU office or WWF office. The specific brochure for the GRM is attached in the annexure for any grievance related to implementation of the project activities.

WWF Grievance Mechanism

A grievance can be filed with the Project Complaints Officer (PCO), a WWF staff member fully independent from the Project Team, who is responsible for the WWF Grievance Mechanism and who can be reached at:

Email: SafeguardsComplaint@wwfus.org

Mailing address:

Project Complaints Officer

Safeguards Complaints,

World Wildlife Fund

1250 24th Street NW

Washington, DC 20037

Stakeholders may also submit a complaint online through an independent third-party platform at https://secure.ethicspoint.com/domain/media/en/gui/59041/index.html.

GCF Independent Review Mechanism

The Independent Review Mechanism (IRM) provides recourse to those affected or who may be affected by GCF projects. Complainants can find information on filing a complaint and proceed to file a complaint on the GCF IRM website: https://irm.greenclimate.fund/case-register/file-complaint.

Annexure 1

BFL: Suggested Occupational Health and Safety Standards

Employers and supervisors are obliged to implement all reasonable precautions to protect the health and safety of workers. Implementing entities should hire contractors that have the technical capability to manage the occupational health and safety issues of their workers, extending the application of the hazard management activities through formal procurement agreements.

This section provides guidance and examples of reasonable precautions to implement in managing principal risks to occupational health and safety. It is based on the IFC's Environmental, Health, and Safety Guidelines (April 30, 2007) and the Occupational Health and Safety Guidelines of Bhutan's Construction Development Corporation Ltd., which relies on the national Regulation on Occupational Health, Safety and Welfare 2012, Regulation on Working Conditions 2012 and Labour Act 2007, and in compliance to Sl. No. 21 of Regulation on Occupational Health, Safety and Welfare 2012.

1. General Facility Design and Operation

Integrity of Workplace Structures

Permanent and recurrent places of work should be designed and equipped to protect occupational health and safety:

- Surfaces, structures and installations should be easy to clean and maintain, and not allow for accumulation of hazardous compounds.
- Buildings should be structurally safe, provide appropriate protection against the climate, and have acceptable light and noise conditions.
- Fire resistant, noise-absorbing materials should, to the extent feasible, be used for cladding on ceilings and walls.
- Floors should be level, even, and non-skid.
- Heavy oscillating, rotating or alternating equipment should be located in dedicated buildings or structurally isolated sections.

Severe Weather and Facility Shutdown

· Workplace structures should be designed and constructed to withstand the expected elements for the region and have an area designated for safe refuge (e.g., in case of earthquake).

Workspace and Exit

· The space provided for each worker, and in total, should be adequate for safe execution of all activities, including transport and interim storage of materials and products.

Fire Precautions

The workplace should be designed to prevent the start of fires through the implementation of fire codes applicable to industrial settings. Other essential measures include:

- The workplace shall be provided with adequate means of protection and escape in case of fire.
- The workplace shall be provided with adequate number of relevant fire extinguishers.
- Workers shall wear shoes without iron or steel nails or any other exposed ferrous materials which is likely to cause sparks by friction.
- Smoking, lightening, or carrying of matches, lighters or smoking materials shall be prohibited.
- All other precautions, as are reasonably practicable, shall be taken to prevent initiation of ignition from all other possible sources such as open flames, frictional sparks, overheated surfaces of machinery or plant, chemical or physical, chemical reaction and radiant heat.
- At every workplace adequate provision of water supply for firefighting shall be provided and maintained.
- Equipping facilities with firefighting equipment (e.g., fire extinguishing bottle). The equipment should be maintained in good working order and be readily accessible. It should be adequate for the dimensions and use of the premises, equipment installed, physical and chemical properties of substances present, and the maximum number of people present.
- Manual firefighting equipment shall be easily accessible and simple to use.

- Fire extinguishers and emergency alarm systems that are both audible and visible should be in place.

Lavatories and Showers

- Adequate lavatory facilities (toilets and washing areas) should be provided for the number of people expected to work in the facility (at least one for every 20 workers). Toilet facilities should also be provided with adequate supplies of hot and cold running water and soap.

Potable Water Supply

- Adequate supplies of potable drinking water should be provided to workers at the work site.

Clean Eating Area

· Where there is potential for exposure to substances poisonous by ingestion, suitable arrangements are to be made for provision of clean eating areas where workers are not exposed to the hazardous or noxious substances.

Lighting

- Workplaces should, to the degree feasible, receive natural light and be supplemented with sufficient artificial illumination to promote workers' safety and health, and enable safe equipment operation. Supplemental 'task lighting' may be required where specific visual acuity requirements should be met.
- Emergency lighting of adequate intensity should be installed upon failure of the principal artificial light source to ensure safe shut-down, evacuation, etc.

Safe Access

- Passageways for pedestrians and vehicles within and outside buildings should be segregated and provide for easy, safe, and appropriate access.
- Equipment and installations requiring servicing, inspection, and/or cleaning should have unobstructed, unrestricted, and ready access.
- Covers should, if feasible, be installed to protect against falling items.
- Measures to prevent unauthorized access to dangerous areas should be in place.

First Aid

- The employer should ensure that qualified first-aid can be provided at all times. A sufficient number of first aid boxes or cupboards shall be provided and maintained so as to be readily available during all working hours, provided that the distance of the nearest first aid box or a cupboard stall be not more than 200m from any working place.
- First aid kits include all equipment outlined in Annex 1 to these Guidelines.
- Remote sites should have written emergency procedures in place for dealing with cases of trauma or serious illness up to the point at which patient care can be transferred to an appropriate medical facility.

Work Uniform

- The contractor shall provide a working uniform to each worker.
- All workers shall be required to attend the duty in proper uniform unless otherwise instructed by the Contractor.

Air Supply

- Sufficient fresh air should be supplied for indoor and confined workspaces. Factors to be considered in ventilation design include physical activity, substances in use, and process related emissions. Air distribution systems should be designed so as not to expose workers to draughts.
- Re-circulation of contaminated air is not acceptable. Heating, ventilation and air conditioning (HVAC) systems should be equipped, maintained and operated so as to prevent growth and spreading of disease agents (e.g. Legionnella pneumophilia) or breeding of vectors (e.g. mosquitoes and flies) of public health concern.

2. Information Provision on Occupational Health and Safety (OHS)

- The Contractor is responsible to hold an information session to familiarize all workers with the OHS procedures specified in these guidelines, in order to ensure they are apprised of the basic site rules of work at / on the site and of personal protection and preventing injury to fellow workers.
- The information session should consist of basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate. Any site-specific hazard or color coding in use should be thoroughly reviewed as part of orientation training.

3. Physical Hazards

· Physical hazards represent potential for accident or injury or illness due to repetitive exposure to mechanical action or work activity.

Rotating and Moving Equipment

Injury or death can occur from being trapped, entangled, or struck by machinery parts due to unexpected starting of equipment or unobvious movement during operations. Recommended protective measures include:

- Designing machines to eliminate trap hazards and ensuring that extremities are kept out of harm's way under normal operating conditions. Examples of proper design considerations include two-hand operated machines to prevent amputations or the availability of emergency stops dedicated to the machine and placed in strategic locations.
- Where a machine or equipment has an exposed moving part or exposed pinch point that may endanger the safety of any worker, the machine or equipment should be equipped with, and protected by, a guard or other device that prevents access to the moving part or pinch point. Guards should be designed and installed in conformance with appropriate machine safety standards.

Noise

- No worker should be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C).
- The use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110dB(A). Hearing protective devices provided should be capable of reducing sound levels at the ear to at least 85 dB(A).
- Although hearing protection is preferred for any period of noise exposure in excess of 85 dB(A), an equivalent level of protection can be obtained, but less easily managed, by limiting the duration of noise exposure. For every 3 dB(A) increase in sound levels, the

'allowed' exposure period or duration should be reduced by 50 percent.

- Prior to the issuance of hearing protective devices as the final control mechanism, use of acoustic insulating materials, isolation of the noise source, and other engineering controls should be investigated and implemented, where feasible.
- Periodic medical hearing checks should be performed on workers exposed to high noise levels.

Vibration

Exposure to hand-arm vibration from equipment such as hand and power tools, or whole-body vibrations from surfaces on which the worker stands or sits, should be controlled through choice of equipment, installation of vibration dampening pads or devices, and limiting the duration of exposure.

Electrical

Exposed or faulty electrical devices, such as circuit breakers, panels, cables, cords and hand tools, can pose a serious risk to workers. Overhead wires can be struck by metal devices, such as poles or ladders, and by vehicles with metal booms. Vehicles or grounded metal objects brought into close proximity with overhead wires can result in arcing between the wires and the object, without actual contact. Recommended actions include:

- Marking all energized electrical devices and lines with warning signs
- Locking out (de-charging and leaving open with a controlled locking device) and taggingout (warning sign placed on the lock) devices during service or maintenance
- Checking all electrical cords, cables, and hand power tools for frayed or exposed cords and following manufacturer recommendations for maximum permitted operating voltage of the portable hand tools

- Double insulating / grounding all electrical equipment used in environments that are, or may become, wet; using equipment with ground fault interrupter (GFI) protected circuits
- Protecting power cords and extension cords against damage from traffic by shielding or suspending above traffic areas
- Appropriate labeling of service rooms housing high voltage equipment ('electrical hazard') and where entry is controlled or prohibited
- Establishing "No Approach" zones around or under high voltage power lines
- Rubber tired construction or other vehicles that come into direct contact with, or arcing between, high voltage wires may need to be taken out of service for periods of 48 hours and have the tires replaced to prevent catastrophic tire and wheel assembly failure, potentially causing serious injury or death
- Conducting detailed identification and marking of all buried electrical wiring prior to any excavation work

Eye Hazards

Solid particles from a wide variety of industrial operations, and/or a liquid chemical spray may strike a worker in the eye causing an eye injury or permanent blindness. Recommended measures include:

- Use of machine guards or splash shields and/or face and eye protection devices, such as safety glasses with side shields, goggles, and/or a full-face shield. Frequent checks of these types of equipment prior to use to ensure mechanical integrity is also good practice.
- Where machine or work fragments could present a hazard to transient workers or passersby, extra area guarding or proximity restricting systems should be implemented, or PPE required for transients and visitors.
- Provisions should be made for persons who have to wear prescription glasses either through the use overglasses or prescription hardened glasses.

Welding / Hot Work

Welding creates an extremely bright and intense light that may seriously injure a worker's eyesight. In extreme cases, blindness may result. Additionally, welding may produce noxious fumes to which prolonged exposure can cause serious chronic diseases. Recommended measures include:

· Provision of proper eye protection such as welder goggles and/or a full-face eye shield for all personnel involved in, or assisting, welding operations. Additional methods may include the use of welding barrier screens around the specific work station (a solid piece of light metal, canvas, or plywood designed to block welding light from others). Devices to extract and remove noxious fumes at the source may also be required.

Working Environment Temperature

Exposure to hot or cold working conditions in indoor or outdoor environments can result temperature stress-related injury or death. Use of personal protective equipment (PPE) to protect against other occupational hazards can accentuate and aggravate heat-related illnesses. Extreme temperatures in permanent work environments should be avoided through implementation of engineering controls and ventilation. Where this is not possible, such as during short-term outdoor work, temperature-related stress management procedures should be implemented which include:

- Monitoring weather forecasts for outdoor work to provide advance warning of extreme weather and scheduling work accordingly
- Providing temporary shelters to protect against the elements during working activities or for use as rest areas
- Use of protective clothing
- Providing easy access to adequate hydration such as drinking water or electrolyte drinks, and avoiding consumption of alcoholic beverages

Ergonomics, Repetitive Motion, Manual Handling

Injuries due to ergonomic factors, such as repetitive motion, overexertion, and manual handling, take prolonged and repeated exposures to develop, and typically require periods of weeks to months for recovery. These OHS problems should be minimized or eliminated to maintain a productive workplace. Controls may include:

- Facility and workstation design with 5th to 95th percentile operational and maintenance workers in mind
- Use of mechanical assists to eliminate or reduce exertions required to lift materials, hold tools and work objects, and requiring multi-person lifts if weights exceed thresholds

- Selecting and designing tools that reduce force requirements and holding times, and improve postures
- Incorporating rest and stretch breaks into work processes, and conducting job rotation
- Implementing quality control and maintenance programs that reduce unnecessary forces and exertions

Working at Heights

Fall prevention and protection measures should be implemented whenever a worker is exposed to the hazard of falling more than two meters; into operating machinery; into water or other liquid; into hazardous substances; or through an opening in a work surface. Fall prevention / protection measures may also be warranted on a case-specific basis when there are risks of falling from lesser heights. Fall prevention may include:

- Installation of guardrails with mid-rails and toe boards at the edge of any fall hazard area
- Proper use of ladders and scaffolds by trained workers
- Use of fall prevention devices, including safety belt and lanyard travel limiting devices to prevent access to fall hazard area, or fall protection devices such as full body harnesses used in conjunction with shock absorbing lanyards or self-retracting inertial fall arrest devices attached to fixed anchor point or horizontal life-lines
- Appropriate training in use, serviceability, and integrity of the necessary PPE
- Inclusion of rescue and/or recovery plans, and equipment to respond to workers after an arrested fall

Illumination

Work area light intensity should be adequate for the general purpose of the location and type of activity, and should be supplemented with dedicated work station illumination, as needed. Controls should include:

- Use of energy efficient light sources with minimum heat emission
- Undertaking measures to eliminate glare / reflections and flickering of lights
- Taking precautions to minimize and control optical radiation including direct sunlight.
- Exposure to high intensity UV and IR radiation and high intensity visible light should also be controlled
- Controlling laser hazards in accordance with equipment specifications, certifications, and recognized safety standards. The lowest feasible class Laser should be applied to minimize risks.

4. Personal safety equipment for workers

All workers are equipped with the following personal safety equipment: helmet, gloves, ordinary boots and reflective vest.

Workers that are exposed to dust should also be provided with eye protection glasses and face mask. Workers that are exposed to noise should be provided with ear plugs. Workers that need to work in the dark should be provided with hand and cap lamps. Workers are instructed regarding safety equipment as follows:

- Always wear complete set of protective wear.
- Do not wear loose clothing, such as overhang shirt, jackets, mufflers etc.
- Tuck shirt and jacket well.
- Secure helmet with belt under the chin.
- Tuck the bottom sleeves of trouser inside safety boot.
- Dress with reflector

5. Standards for workers' accommodation

1. General living facilities

- The location of the facilities is designed to avoid flooding or other natural hazards
- The living facilities are located within a reasonable distance from the worksite.
- Transport is provided to worksite safe and free.
- The living facilities are built using adequate materials, kept in good repair and kept clean and free from rubbish and other refuse.

2. Drainage

- The site is adequately drained.

3. Heating, air conditioning, ventilation and light

- Living facilities are provided with adequate heating, ventilation, and light systems including emergency lighting.

4. Water

- Workers have easy access to a supply of clean/ potable water in adequate quantities.
- The quality of the water complies with national/local requirements or WHO standards.
- Tanks used for the storage of drinking water are constructed and covered to prevent water stored therein from becoming polluted or contaminated.
- The quality of the drinking water is regularly monitored.

5. Wastewater and solid waste

- Wastewater, sewage, food and any other waste materials are adequately discharged in compliance with national and/or international standards and without causing any significant impacts on camp residents, the environment or surrounding communities.
- Specific containers for rubbish collection are provided and emptied on a regular basis.
- Pest extermination, vector control and disinfection are undertaken throughout the living facilities at least once.

6. Rooms/dormitories facilities

- Rooms/dormitories are kept in good condition.
- Rooms/dormitories are aired and cleaned at regular intervals.
- Rooms/dormitories are built with easily cleanable flooring material.
- Rooms/dormitories and sanitary facilities are located in the same buildings.
- Residents are provided with enough space.
- The number of workers sharing the same room/dormitory is minimized.
- Doors and windows are lockable and provided with mosquito screens when necessary.
- Mobile partitions or curtains are provided.
- Adequate number of furniture such as table, chair, mirror, and lamps are provided for all workers.
- Separate sleeping areas are provided for men and women.

7. Bed arrangements and storage facilities

- A separate bed is provided for every worker.
- The practice of "hot-bedding" is prohibited.
- There is a minimum space of 1 meter between beds.
- The use of double deck bunks is minimized.
- If double deck bunks are in use, there is enough clear space between the lower and upper bunk of the bed.
- Workers are provided with comfortable mattresses. Workers may be expected to use their own pillows and bed linens.
- Workers wash bed linen frequently and applied with adequate repellents and disinfectants (where conditions warrant).
- Adequate facilities for the storage of personal belongings are provided.
- Separate storages for work clothes and PPE and depending on condition, drying/airing areas are provided.

8. Sanitary and toilet facilities

- Sanitary and toilet facilities are constructed from materials that are easily cleanable.
- Sanitary and toilet facilities are cleaned frequently and kept in working condition.
- Toilets, showers/bathrooms and other sanitary facilities are designed to provide workers with adequate privacy including ceiling to floor partitions and lockable doors.
- Separate sanitary and toilet facilities are provided for men and women.

- Toilet facilities are conveniently located and easily accessible.
- Toilet facilities are environmentally friendly (e.g., pit toilet) and sewage is not disposed into the worksite.
- Open defecation in the vicinity of project sites should be prohibited.
- An adequate number of hand wash basins and showers/bathrooms facilities are provided.
- Shower facilities are provided with water heating facilities.

9. Cooking and laundry facilities

Cooking and laundry facilities should available for workers at the worksite or in close vicinity to it. These facilities should be kept in clean and sanitary conditions.

10. Leisure, social and telecommunications facilities

- Basic social collective spaces should be available to workers.
- Workers are provided with dedicated places for religious observance, as appropriate.
- The employer provides workers with local sim cards that can be used for communication on their personal cell phones.

Contents of first aid box or cup-boards

The first aid boxes or cup-boards shall be distinctively marked with white cross on a green background and shall contain the following equipment:

1. Small sterilized dressings (12)
2. Medium size sterilized dressings (6)
3. Large size sterilized dressings (6)
4. Large size sterilized burn dressings (6)
5. (1/2 oz.) Sterilized cotton wool (6 packets)
6. (2oz.) Bottle containing a two per cent alcoholic solution of iodine (1)
7. (2oz.) Bottle containing Betadine (antiseptic solution) having the dose and mode of administration indicated on the label (1)
8. Roll of adhesive plaster (1)
9. A snake bite lancet (1)
10. Torch light (1)
11. Pair of scissors (1)
12. Tablets Aspirin (5gms) 2 dozen
13. Burn Ointment (2 tubes)
14. Dettol (2 phial, about 2 ozs)
15. Bandages 4 inches wide
16. Bandages 2 inches wide
17. Triangular bandages (2)
18. Packets of safety pins (1)
19. A supply of suitable splint

Annexure 2

Drawing and Estimate of Maintenance work of Beat Office, Shongphu

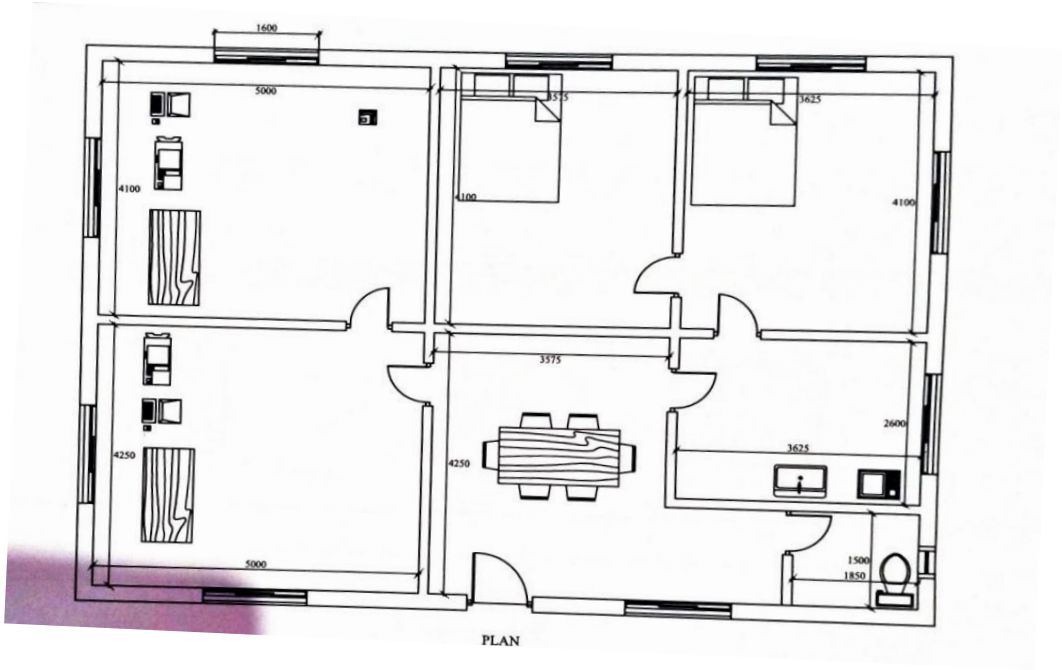

Figure 6; Design of Beat Office, Shongphu

BHUTAN
Believe

དཔལ་ལྡན་འབྲུག་གཞུང་།
རྫོང་ཁག་བདག་སྐྱོང་ བཀོད་སྒང་།

Royal Government of Bhutan
Dzongkhag Administration
Trashigang

(Strive to learn, improve & transform with times)

TDA/DE&HSS-14/2023-2024/1303 Date: 27/10/2023

TECHNICAL SANCTION

Technical sanction is hereby accorded for the **"Major Renovation of Forest Office at Rangjung under Shongphu Gewog"** is amounting to **Nu.1,319,431.45 [civil works is Nu.1,004,143.23 & Electrical is Nu. 315288.22] (One Million Three Hundred Nineteen Thousand Four Hundred Thirty One & Chetrum Four Five)** only. The estimate is based on BSR 2023 (Base Town S/Jongkhar- Rate) with cost index of 7.63%.

Name of work: Major Renovation of Forest Office at Rangjung under Shongphu Gewog.
Agency: Dzongkhag Administration Trashigang.
Report: Estimate & drawing attached for reference.
Work Scope: Major renovation of Forest office on existing old structure.
Time of Completion: 6 (Six) Months
Technical supervisor: Tenzin Chophel (JE)

The Financial & Administrative Approval (FAA) may be accorded from the Divisional Forestry section.

Offtg.Engineer
Chief Dzongkhag Engineer
Dzongkhag Engineering & Human Settlement Sector
Trashigang

Copy to:

1. The Dasho Dzongda, Dzongkhag Administration Trashigang for kind information.
2. The DTC members for kind information.
3. The Range Office, Rangjung for necessary action.
4. Office copy.

Figure 7; Technical Sanction from Dzongkhag

Annexure- BFL specific GRM brochure