

Executive Summary

BFL has been categorized as a Category B project, as the potential adverse environmental and social impacts on population within the Protected Areas or those living around who depend on the PA for their livelihoods or environmentally important areas are site-specific, reversible and can be readily mitigated.

Therefore, to ensure that all BFL funded projects and programs are environmentally and socially sustainable as well as in line with BFL's policies and guidelines, an Environmental and Social Management Plan (ESMP) involving stakeholder participation and timely public disclosure is required.

An Environmental and Social Management Plan for Forest Resource, Planning and Monitoring Division describes mitigation measures/good practices at activity level which are required as per the screening protocol. All the screened activities which has potential risks to environment and social management have to prepare ESMP which include environment management and mitigation plans during pre-activity, activity implementation and closing phases. Hence, it contains description of the detailed actions including communities, roles, communication and reporting and monitoring processes required as part of the implementation. In order to ensure that the issues of all stakeholders are taken into account, it includes a stakeholder engagement plan. The plan includes identification of stakeholders, method of engagement, timing and logistics. It is a requirement for all parks and biological corridors to keep record, reporting, review, auditing and update ESMP yearly as per the planned activities.

The activities that required ESMPs for the year 2025 under Forest Resource, Planning and Monitoring Division are as follows:

1. 1st Year Maintenance of plantations (87 Ha) at following location:
 - 1.1.Maintenance of 25 Ha Plantation at Sangchokor under BC1-Below road
 - 1.2.Maintenance of 37 Ha Plantation at Sangchokor under BC1-Opposite
 - 1.3.Maintenance of 25 Ha Plantation at Tanga under JKSNR

བཀོད་ཁྱབ་བཅུད་དོན།

འབྲུག་རྒྱལ་ཡོངས་སྤྱི་ཁྲིའི་ཆོ་སྲོག་མ་དདུལ་འདི་མཐའ་འཁོར་གནས་སྤངས་དང་མི་ཕྱེད་འོས་འབབ་ཅན་གྱི་ལས་འགུལ་གྱི་དབྱེ་ཁག་ ཁ་པ་ (Category

B) རང་ལུ་ཚུད་དེ་ཡོད་པ་ཡིན། དེ་ཡང་ལས་འགུལ་འདི་ལས་བརྟེན་ཏེ་སྤངས་སྤྱོད་པ་ཁོངས་ནང་སྤྱོད་མེད་མི་མེད་དང་ ཡང་ན་ སྤངས་སྤྱོད་པ་ཁོངས་ཀྱི་མཐའ་སྐོར་ཏེ་འཛོལ་སྤངས་སྤྱོད་པ་ཁོངས་ལུ་བརྟེན་སྤྱོད་མེད་མི་མེད་ ཡང་ན་ གལ་ཅན་གྱི་མཐའ་སྐོར་གནས་སྤངས་ཀྱི་ས་ཁོངས་ཚུ་ལུ་གཞོན་པ་འབྱུང་ནི་དེ་ཉེན་ཁ་ཡོད་པ་ད་ གལ་སྤངས་གཞོན་པ་འབྱུང་པ་ཅིན་ གཞོན་ཉེན་ཚུ་དམིགས་གསལ་ས་གནས་ནང་རྒྱུང་མ་ཅིག་འབྱུང་ནི་དང་ གཞོན་ཉེན་མར་ཕབ་རྒྱབ་ནི་དང་ཚ་མེད་ཡང་གཏང་ཚུགས་པ་ཡིན།

དེ་འབད་མ་ལས་ འབྲུག་རྒྱལ་ཡོངས་སྤྱི་ཁྲིའི་ཆོ་སྲོག་མ་དདུལ་ཐོག་ལུ་ རྒྱབ་སྐྱོར་འབད་ཡོད་པའི་ལས་འགུལ་དང་ལས་ལྷ་ཚུ་ མཐའ་འཁོར་གནས་སྤངས་དང་མི་ཕྱེ་གཉིས་ལུ་ལུན་བརྟན་གྱི་ཕན་པ་ཡོད་པ་བཟོ་བ་གི་མ་ཚད་ འབྲུག་རྒྱལ་ཡོངས་སྤྱི་ཁྲིའི་ཆོ་སྲོག་མ་དདུལ་གྱི་སྤྱི་བྱུས་ལམ་སྟོན་དང་འབྲེལ་ཐབས་ལུ་ མཐའ་འཁོར་གནས་སྤངས་དང་མི་ཕྱེ་འཛོན་སྐྱོང་འཆར་གཞི་འདི་དགོཔ་ད་ མི་དམངས་སྲོལ་བསྟན་དང་ དུས་དང་དུས་སུ་མི་དམངས་ལུ་གསལ་བ་བཤད་ནི་འདི་དགོཔ་ཡིན།

ནགས་ཚལ་འཛོན་སྐྱོང་འཆར་གཞི་དང་བརྟན་ཏོགས་ཕྱེ་ཚན། ་ནགས་ཚལ་དང་སྤྱི་ཁྲིའི་ ་ཞབས་ཏོག་ལས་ཁུངས་གི་ ་རང་བཞིན་གནས་སྤངས་དང་མི་ཕྱེ་འཛོན་སྐྱོང་འཆར་གཞི་འདི་ནང་ ་སྤྱི་ཁྲིའི་དང་སྲོག་ཆགས་རྒྱུན་ལམ་ཚུ་ནང་ལས་སྤྱོད་འབད་བའི་སྐབས་ ་ཐབས་ལམ་དང་བཟང་སྤྱོད་ཚུ་གསལ་སྟོན་འབད་མ་ཡིན་པ་ད་ ་འདི་ཡང་ལས་སྤྱིའི་གདམ་སེལ་ལམ་ལུགས་དང་འབྲེལ་ཏེ་ཡིན། ་གདམ་སེལ་འབད་ཡོད་པའི་ལས་སྤྱོད་ནང་ལས་ ་མཐའ་འཁོར་གནས་སྤངས་དང་མི་ཕྱེ་གཞོན་ཏེ་ཡོད་པའི་ལས་སྤྱོད་ཀྱི་དོན་ལུ་ ་མཐའ་འཁོར་གནས་སྤངས་དང་མི་ཕྱེ་འཛོན་སྐྱོང་འཆར་གཞི་བཟོ་དགོ། ་འཛོན་སྐྱོང་འཆར་གཞི་འདི་ནང་ ་ལས་སྤྱོད་འགོ་མ་བཅུགས་པའི་ཏེ་མ་གཞི་བཅུགས་འབད་བའི་སྐབས་དང་མཚུག་བསྐྱུལ་ད་ལུ་ ་མཐའ་འཁོར་གནས་སྤངས་འཛོན་སྐྱོང་དང་གཞོན་ཉེན་མར་ཕབ་ཀྱི་ཐབས་ལམ་ཚུ་བཅུགས་དགོཔ་ཡིན། ་དེ་འབད་མ་ལས་འཛོན་སྐྱོང་འཆར་གཞི་འདི་ནང་ ་ལས་སྤྱོད་མི་ཕྱེ་ ་ལུ་འགན། ་བད་སྤྱོད་དང་སྟན་ལྷ། ་དེ་ལས་སྤྱོད་ཏོག་ལམ་ལུགས་ཚུ་གི་སྐོར་ལས་འབྲེལ་བཤད་ཁ་གསལ་ཚུད་དགོཔ་ཡིན། ་འཛོན་སྐྱོང་འཆར་གཞི་འདི་ནང་ལུ་ ་གལ་གཏོགས་འབད་དགོཔ་པའི་ཁེ་གུད་ཡོད་མི་ཚུ་གི་ཉོག་བཤད་ཚུ་ཚུད་དགོཔ་པའི་ཁར་ ་ཁེ་གུད་ཡོད་པའི་མི་ཚུ་གི་དོན་ལུ་གལ་གཏོགས་འཆར་གཞི་དགོ། ་གལ་གཏོགས་འཆར་གཞི་འདི་ནང་ ་ཁེ་གུད་ཡོད་མི་ངོས་འཛོན་འབད་ནི་དང་གལ་གཏོགས་འབད་ནི་དེ་ལམ་ལུགས་ ་དེ་ལས་གལ་གཏོགས་ཀྱི་དུས་ཚོད་དང་བཅའ་སྤྱི་ཚུ་ཚུད་དགོཔ་ཡིན། ་སྤྱི་ཁྲིའི་དང་སྲོག་ཆགས་རྒྱུན་ལམ་ཡིན་ཚད་ཚུ་གི་མཆར་གཞི་ལས་སྤྱོད་འབྲེལ་ཏེ་ ་དུན་ཐོ་དང་སྟན་ལྷ། ་བསྐྱར་ཞིབ། ་ཅིས་དཔྱད་འབད་ནི། ་དེ་ལས་ ་མཐའ་འཁོར་གནས་སྤངས་དང་མི་ཕྱེ་འཛོན་སྐྱོང་འཆར་གཞི་འདི་ལོ་བསྟར་བཞིན་དུ་དུས་མཐུན་བཟོ་དགོཔ་ཡིན།

ནགས་ཚལ་འཛོན་སྐྱོང་འཆར་གཞི་དང་བརྟན་ཏོགས་ཕྱེ་ཚན་གི་དོན་ལུ་བྱི་ལོ་ ༢༠༢༥ རང་མཐའ་འཁོར་གནས་སྤངས་དང་མི་ཕྱེ་འཛོན་སྐྱོང་འཆར་གཞི་དགོཔ་ཡོད་པའི་ལས་སྤྱོད་ཡང་།

༡༥ ལོ་དང་པའི་ཤིང་བཅུགས་སའི་ས་ཁོངས་ཚུ་ ་གཤམ་གསལ་ས་ཁོངས་ཚུ་གི་འོག་ལུ་ ་ཉེག་ཏར་༢༧ ལུ་ ་རྒྱུན་སྐྱོང་རྒྱབ་སྐྱོར་འབད་ནི།

༡༦ ་སང་ཆོ་ཀོར་ ་ལམ་གྱི་འོག་ལུ་ཤིང་བཅུགས་སའི་ས་ཁོངས་ ་ཉེག་ཏར་༢༥ ལུ་ ་རྒྱུན་སྐྱོང་འབད་ནི།

༡༧ ་སང་ཆོ་ཀོར་ལུ་ཤིང་བཅུགས་སའི་ས་ཁོངས་ ་ཉེག་ཏར་༣༧ ལུ་ ་རྒྱུན་སྐྱོང་འབད་ནི།

༡༨ ་ག་གི་སྤྱིང་ཆེད་འོག་འོག་ ་སྤངས་ག་ ་ལུ་ཡོད་པའི་ཤིང་བཅུགས་སའི་ས་ཁོངས་ ་ཉེག་ཏར་༢༥ ལུ་ ་རྒྱུན་སྐྱོང་འབད་ནི།

Bhutan for Life
Environmental and Social Management Plan for
Forest Resources Planning and Management Division (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 RGoB's Regulations on the Environmental Clearance of Projects, and with the procedures and mitigation measures prescribed in this ESMP.

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

i. BC2 Paro

Paro Dzongkhag (District) is situated in the north-western part of the country located at an altitude of 2000 to 5600 meter above the sea level with temperate climatic condition. Under the protected area systems, the BC-2 falls under the Dzongkhag connecting Jigme Dorji National Park in the north and Jigme Keser Strict Nature Reserve (JKSNR) in the west with general topography of gentle slopes, ranging from 2,100 to 4,700 meters in some areas and considered one of the most beautiful with fertile land and scenic beauty. It covers a total area of 1293 Sq. km and has a population of 35260. The temperature ranges from 26 to 14 degree Celsius in summer and 14 to minus 5 during winter. The Dzongkhag has National Highway links to both Phuentsholing and Thimphu. Within the Dzongkhag, there exists a road network comprising of 122 kms highway and 311.02 kms of farm road. The only International Airport within the jurisdiction makes the Dzongkhag an aerial gateway to the Kingdom and it benefits the farmers and business owners of Paro Dzongkhag at large. The Dzongkhag Administration consists of 10 Gewogs with 10 Renewable Natural Resources (RNR) Centers delivering public services.

Paro Dzongkhag features a variety of vegetation zones determined by altitude and dominated by Coniferous Forest (Fir forest-19.65%, Blue pine- 13.84% and Spruce and Hemlock Forest up to 11.19% other factors. Higher elevations, above 3500m, are characterized by snow, scree, and rock outcrops.

Pachhu the main river flowing through the valley originates from Jumolhari mountain range joined by various streams finally joining the Thimchhu to form Wangchu at Chhuzom about 26km

downstream from the main Paro town. Water bodies such as small lake, ponds, marshland and waterhole are found in its natural extent.

Paro Dzongkhag is a hub of biodiversity, showcasing a variety of ecosystems and species. It's home to a significant portion of Bhutan's diverse flora and fauna, BC-2 connecting to parts of the Jigme Dorji National Park (JDNP) and Jigme Keser Strict Nature Reserve (JKSNR). The area is home to diverse animal life, including mammals like the red panda, snow leopard, and various species of wild cats, as well as a rich avifauna with numerous bird species.

Proposed project site condition Sangachokhor plantation-62 hectares:

The site condition of the current project (Sangachokhor plantation) area consists of mainly blue pine forest which was destroyed by the forest fire during the year 2018 and due to the dry weather condition, the natural regeneration in the area was not able to regain its aesthetic view. Therefore, the initial creation of plantation was proposed and carried out with the RGoB fund support during the financial year 2024-25. However, since there is no assured fund provision for the maintenance of those plantations in the subsequent years. The maintenance fund has been proposed from the BFL project starting 1st year maintenance from the financial year 2025-26 and beyond to ensure survival of the planted seedlings in the area. The plantation consists of a total of 62 hectares under 2 different locations (opposite Sangachokhor-37 hectares and Sangachokhor below road-25 hectares). A total of around 60 thousand seedlings of fire-resistant species like *Quercus griffithii*, *Quercus semicarpifolia*, *Quercus lanata*, *Cupressus corneyana* and *Melia azedarach* were planted. The Plantation sites lie adjoining village settlement about 100 meters away from the Lango village and about 10 to 15 minutes walking distance from the road head.

ii. Jigme Keser Strict Nature Reserve (JKSNR)

Jigme Keser Strict Nature Reserve (JKSNR) falls under Haa Dzongkhag with a total area of 609.51 Km², and covers mostly Haa Dzongkhag (five out of its six geogs), and Samtse Dzongkhag (two geogs). With most pristine temperate and alpine ecosystems with rich biodiversity and several distinct ecosystems supporting a variety of plant and animal species. It is home to dense forests, alpine meadows, and wetlands. The reserve's elevation ranges from 1,361 meters to over 5,597 meters above sea level, encompassing diverse terrains such as rugged mountains, rocky peaks, screes, sacred alpine lakes, and narrow valleys.

The socio-economic conditions within JKSNR are intricately linked to the natural environment, with the livelihoods of local communities deeply rooted in sustainable agricultural and pastoral practices in the upper regions. While subsistence farming integrated with livestock raising are common in the lower regions. However, challenges such as human-wildlife conflicts necessitate ongoing conservation and community engagement efforts to ensure the well-being of both the residents and the ecosystem.

The climate in JKSNR varies greatly with altitude ranging from 1,361 to 5,597 meter above sea level. At lower elevations (subtropical), the climate is warmer and humid, with an average annual

temperature ranging from 15°C to 25°C. In higher regions (temperate and alpine), temperatures are much cooler, and winters can be harsh with heavy snowfall in the higher areas like Tergola-pass.

Hydrologically, JKSNR serves as a crucial watershed, acting as the source for numerous rivers and streams that are vital for the livelihoods of residents within and around the reserve. The Toorsa or Amochu is the main river originating from Tibet's Chumbi Valley fed by alpine lakes and joined by numerous streams supports a wide array of flora and fauna maintaining the ecological balance of the region.

The sanctuary hosts a variety of plant species, including endemic poppy, the White Poppy (*Meconopsis grandis*) rare orchids, medicinal plants, and shrubs. The vegetation primarily composed of coniferous forest in the higher elevations and cool temperate and warm broadleaved tree species in the lower regions. The dominant tree species such as *Pinus Wallichina*, different Oak species, *Michelia Champaka*, *Juglans regia*, *Phoebe attenuata* various species of rhododendrons found in lower regions while tree species such as *Abies densa*, *Picea spinulosa*, and *Tsuga dumosa*, with hardwood trees like *Betula alnoides* and *Acer cambellii* are abundant in the higher altitude areas.

The sanctuary is home to a range of wildlife, including some endangered species like the Bengal tiger, clouded leopard, snow leopard, and Himalayan black bear. It also supports large herbivores like the sambar, musk deer, and the red panda. The area is a critical habitat for several bird species, including, Rufous Necked Hornbills pheasants and other mountain birds.

Proposed project site condition (Tanga plantation-25.25 hectares)

The current project site (Tanga plantation) falls under Gakiling gewog (Block)) one of the six gewogs located at the southern part of Haa Dzongkhag under Sambay Dungkhag (Sub-district) with a total area of 339.44 Sq.km. The elevation ranges from 700-3956 meter above sea level consisting of five Chewogs (Sub-block) namely Sektana, Thangdokha, Ngatsena, Rangtse and Dorithasa comprising of 212 households with total population of 2,074 (PHPB, 2017).

The location of plantation site lies above Tanga village settlement (GPS location: 27.060183-degree Northing and 89.153328-degree Easting) at an altitude of 1,860 consisting of mainly cool broadleaved forest with mixed conifer vegetation. The site is highly degraded due to cattle grazing and extraction of timber resources by the local public demanding revival of the area with high economic value tree species plantation. The area is covered with bushes, shrubs dominated with profuse *Symplocos racemosa* regeneration and other unwanted trees like vibernam plant and fern species. Therefore, the JKSNR management in collaboration with the Gakiling Forest Range initiated planting of around 28 thousand seedlings of economically valuable tree species namely, *Michelia champaka*, *Phoebe attenuata*, *Juglans regia*, *Betula alnoides* and *Cupressus coneyana* during the financial year 2024-25. However, since there is no assured fund provision for the maintenance of those plantations in the subsequent years, the maintenance fund has been proposed from the BFL project starting 1st year maintenance from the financial year 2025-26 and beyond to ensure survival of the planted seedlings in the area.

3. Planned activities for January 2025 - June 2026

During the financial year 2024-25 a total of 87.25 hectares reforestation plantation has been created with fund support from the RGoB under three different locations, however due to lack of fund for the follow-up maintenance, the fund for the maintenance has been proposed from the BFL project which will be implemented during the 7th and 8th year (FY-2025-26) of the project period and beyond. The maintenance work for the above plantation sites shall continue to be implemented on annual basis till 2030 (5 subsequent years) for which the fund has been proposed from the BFL project.

The plantation maintenance site falls under two different climatic and vegetation zones of conifer forest in Paro (Sangachokhor) at an altitude of about 2,550 masl and warm broadleaved forests under JKSNR (Tanga) at an altitude of 1,200 masl respectively. The main activities for the maintenance include weeding, cleaning, mulching replacement of dead seedlings and repairing of fencing works. While the actual implementation of the maintenance works will be carried out through Green Bhutan Corporation Limited (GBCL) under the supervision of the JKSNR Park Management, the FRPMD plantation section will facilitate in the timely release of the budgets and provide technical support and guidance to the field implementors. The details of the activities as tabulated below:

The detail activities with budget allocations as tabulated below:

Sl.No	Planned Activity	Budget allocation (Nu in millions)	Remarks
1	Maintenance of 87 hectares plantation: a. Below road, Sangchokhor-Paro 25 Ha. b. Opposite to Sangachokhor-Paro 37 Ha. c. Tanga Gakiling-JKSNR 25.25 Ha.	4.320	Implementation of plantation maintenance activities will be carried out during FY-2025-26 and beyond for the next five years

Since the plantation creation and maintenance activities are time bound work, the activities will be implemented as per the seasonal calendar below:

Calendar for Plantation Activities													
Sl. No.	Activities	Jan	Feb	March	April	May	Jun	July	Aug	Sept	Oct	Nov	Dec
I	PREPARATORY WORKS												
a	Finalization of fund												
b	Site selection, Survey and estimation												
c	Verification of estimates and accord Technical Sanctions												
d	Release of plantation budget												
e	Purchase/collection of fencing posts												
II	PLANTATION WORKS												
a	Clearing of plantation sites												
b	Fencing works					Fencing works should be complete before starting of the seedling plantation							
c	Stacking and planting pit digging						Pit digging should be done well in advance for weathering purposes						
d	Procurement and transportation of seedlings						Seedlings procured and transported to planting site 7 hardening for 2-4 weeks						
e	Planting of seedlings							Planting should start with the onset of monsoon					
III	Plantation maintenance												
a	1 st weeding in the same year of creation											Timing for weeding depends on site	
b	2 nd weeding in the same year of creation												
c	1 st weeding in the 2 nd year of creation											condition and growth of weeds	
d	2 nd weeding in the 2 nd year of creation												
e	3 rd weeding in the 2 nd year of creation												

The FRPMD will be facilitate in the implementation of plantation maintenance activities under BFL fund

in the above two Dzongkhags (Park and BC) during the 7th year of the project implementation period. The activity under taken will be 1st year maintenance of the already existing plantation with a total area of 87.25 hectares. The plantation maintenance sites fall under different climatic conditions and vegetation zones, maintenance works shall be carried out within all four quarter of the 7th and 8th year of the project I,e: FY-2025-2026.

4. Potential social and environmental impacts

4.1. Maintenance of plantation

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

i. Environment Impacts:

- Generation of plastic wastes and unwanted/damaged fences
- Introduction of invasive species

ii. Social Impacts

- Worker's health and safety
- Restriction of grazing access

5. Mitigation Measures for Environmental and Social Impacts

The proposed activities are of very small scale and there will be no adverse social and environmental impacts which require mitigation measures. Therefore, separate fund for mitigation measures is not proposed. However minor impacts to the environment and society along with the mitigating measures are listed below in the table

Potential impact	Impact scale	Proposed mitigation measures	Responsible party	Cost (Nu. In m)
Activity 1: Maintenance of 87.25 hectares of plantation (Opposite Sangachokhor, Paro- 37 hectares), (Sangachokhor, below road-25 hectares) and (Tanga, Gakiling- 25.25 hectares)				

1. Waste generation of waste from the poly pot used for seedling	Short term (Minor)	<p>During Plantation:</p> <ul style="list-style-type: none"> • Proper containers/waste bins should be provided at the project site; • Dumping of waste on the sides of the road, on private land, or in other non- designated places should be prohibited; • Dumping waste shall be prohibited on fragile slopes, forests, religious or other culturally sensitive areas or areas where livelihood is derived; • Burning of waste should be prohibited. <p>After Plantation All waste shall be removed from the project site.</p> <ul style="list-style-type: none"> • Collection, transportation and final disposal of all waste should be undertaken immediately after the plantation; • All plantation materials should be covered during the transportation to • avoid waste dispersion 	<p>GBCL, Community contractors & Division/Park plantation focal persons</p> <p>Plantation workers under supervision and guidance of GBCL site managers and plantation focals</p>	To be part of workers agreement
2. Risks of introducing invasive species	Long term (Minor)	<ul style="list-style-type: none"> • Assess appropriateness of species in terms of biodiversity, water efficiency, forest fire, local needs, cultural sensitivity, survival, etc.; • Ensure that only native species are planted; • Regular weeding and control measures need to be carried out; • Biological control measures (broadcasting desired species) need to be emphasized; and • Invasive species if grown at the site shall be uprooted and burned properly (without seed 	<p>GBCL, Community contractors & Division/Park plantation focal persons</p>	To be part of workers agreement

3. Workers' health and safety	Short term (Minor)	<ul style="list-style-type: none"> • Comply with the workers' health and safety guidelines; • Ensure regular health screening for the workers pre and during maintenance of the plantation; • Ensure that no underage workers, or children are engaged; • Ensure decent work conditions, including an appropriate wage and salary, working hours, accommodation and food for workers shall be arranged to all workers by the community contractors; • Ensure that workers are employed on the principle of equal opportunity and fair treatment, and there is no discrimination with respect to any aspects of the employment relationship, such as recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment; and • Provide workers with an incident report book and ensure that they are aware of the project's grievance redress mechanism and can use it to raise workplace concerns. 	GBCL, Community contractors & Division/Park plantation focal persons	To be part of worker agreement.
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Soil erosion, landslides and flooding	Short term Minor	<p>Pre-plantation:</p> <p>Sites may lead to minor soil erosion or landslides in the initial years. However, shall be dealt with extra care, minimal digging and disturbance to the soil need to be ensured.</p> <p>During Plantation:</p> <ul style="list-style-type: none"> • Plantation should be limited to the non-monsoon season; • Bioengineering structures or vegetative cuttings shall be used, to the extent possible using environmentally friendly materials. • Plantation of bamboo trees or other plants and species that support land retention; 		
Community access to grazing is restricted during the plantation and until the plantation is established. Grazing if present will be restricted.	Short term Minor	<ul style="list-style-type: none"> • Proper awareness and consultation with the local community • A Livelihood Restauration Plan (LRP) or a similar plan exists to detail proper livelihoods alternatives (or grazing area alternatives) to compensate local communities during grazing restrictions. • Allocation of alternative grazing area as per consultations with local community (refer to the plan detailing the alternative grazing will be developed after consultation with community) • Communities have assured cooperation and support in terms of 	Implementing agency (BFL plantation focal person of the respective Divisions/Parks and GBCL field managers at plantation site) shall be responsible in managing any issues related to the activity	

Conflict between plantation workers and local communities	Short term Minor	<ul style="list-style-type: none"> • Plantation works shall be given to the local community where ever possible • In areas where there is no skilled labor available Local communities shall be made aware of the engagement of temporary workers in plantation sites. • Strict monitoring shall be carried out to ensure conflicts are minimized 	Implementing agency (BFL plantation focal person of the respective Divisions/Parks and GBCL field managers at plantation site) shall be responsible in managing any issues related to the activity	
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6. ESMP Implementation arrangements

The implementation of the plantation maintenance activities in all the three different sites under Paro and JKSNR will be carried out by the implementing agency; Green Bhutan Corporation Limited (GBCL), a State-owned Enterprise (SOE) based on the MOU signed between GBCL and the Department of Forest and Park Services (DoFPS) in collaboration and under the regular supervision of the plantation focal person from the respective Field Divisions/Parks. However, the BFL plantation focal person in FRPMD shall facilitate in terms of providing technical support, guidance and processing of budget releases on time for the implementation of activity in the field. The field implementers and plantation focal persons shall be responsible for compliance of all the procedures outlined in the ESMP. Therefore, the ESMP shall be part of the contract agreement signed between the DoFPS and GBCL for implementation of the planned activities prescribed in the ESMP for the FY 2025-26.

It will be mandatory requirement for GBCL to perform in fulfilling all proposed preventive or mitigation environmental and social measures in this plan and keep the evidence of any documents related to applying these measures. The plantation focal persons of the respective Divisions/Parks should monitor the implementation of proposed measures. Non-compliance should be recorded and reported to the ESS consultants immediately, and the ESS consultants will report it to the PCU (M&E).

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

7. ESMP monitoring arrangements

The BFL plantation focal persons of the respective Divisions/Parks will closely monitor the implementation of plantation maintenance works at their specific sites to ensure that they fully comply with this ESMP and is as per the technical and administrative approval accorded by the DoFPS. The overall monitoring will be carried out by the ESS officer in the PCU to ensure that there are no deviations from ESMP prescriptions. The monitoring of activities under this ESMP

will be carried out in the following manner.

Sl. No	Dzongkhag /Division/ Park	Monitoring team	Timeline		Location	Means of Verification
			Start	Complete		
1	Paro	Field focal	March 2026	June 2026	Sangchokhor, Paro	Field visit/reports
		PCU	May 2026	May 2026		Field visit/reports
		BFLFS	July 2026	July 2026		Reports
2	JKSNR	Field focal	March	June 2026	Tanga, Gakiling	Field visit/reports
		PCU	May 2026	May 2026		Reports
		BFLFS	July 2026	July 2026		Reports

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 December, 2025 and July 2026; and
- Bi-annual reports of the Secretariat to WWF US (as part of mid-year and final Annual Performance Reports).

8. Capacity Needs and Budget

The activities under this ESMP will be implemented by the BFL focal person, Division/Park plantation focal persons, Green Bhutan Corporation Limited and contractors that will employ workers as mentioned in the contract agreement. Therefore, no specific training or skill developments are required.

9. Consultation and Disclosure Mechanisms

Since the current activity (maintenance of plantation) is just the continuation of work already been consulted with the local community and convinced the local public and incorporated their views and recommendations in deciding the choice of species to be planted, types of protection measures (fencing materials) to be used and alternatives to cattle grazing options. Separate public consultation shall not be required for carrying out maintenance of the newly created plantation sites in the subsequent years as it has been done during the initial creation process.

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 AE. The hard copies of the ESMP would be made available at the FRPMD, GBCL and at the PCU Office.

10. Stakeholder engagement plan

The separate stakeholder engagement plan as such shall not be required as the maintenance of the plantations shall be implemented through authorized agency (GBCL). However, the actual field work shall be mostly executed through engagement of community contractors and local laborers in the process.

11. Grievance 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 Redress Mechanism (GRM), and the GCF Independent Review Mechanism (see attached GRMs pamphlet in the ESMP Annexure 1). Since Plantation maintenance of 87 Ha is planned at Sangchokhor under BC1- Paro 25 & 37 Ha. and Tanga Gakiling under KSNR 25.25 Ha. GRM of JKSNR will be used.

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 Sie specific GRM brochure



HOW TO FILE YOUR COMPLAINT

To file your complaint, please contact any of the designated individuals provided below. You may maintain anonymity if you prefer.

BFL FOCAL OFFICER

- Phuntsho
- 17514889
- phuntshow125@gmail.com
- Jigme Khesar Strict Nature Reserve, Haa

BJI RANGE OFFICE

- Tashi Tshering
- 17560578
- tashitsheringjimmy@gmail.com
- Jigme Khesar Strict Nature Reserve, Haa

YOU MAY ALSO CONTACT THE BFL PROJECT COORDINATION UNIT (PCU) OR FUND SECRETARIAT (FS) AT:

BFL FUND SECRETARIAT (FS)

- Kuenzang Tobgay
- 17750414
- kuenzangtobgay@bfl.org.bt
- Bhutan For Life Fund Secretariat, Royal Textile Academy, Thimphu

GAKILING RANGE OFFICE

- Dophu
- 17734800
- dophu271984@gmail.com
- Gakiling Range Office, Sombaykha Dungkhag

SOMBAYKHA RANGE OFFICE

- Ngawang Jamtsho
- 17418122
- jamstock55@gmail.com
- Sombaykha Range Office, Sombaykha Dungkhag

IF YOU ARE NOT COMFORTABLE FILING YOUR COMPLAINTS AT PROTECTED AREA OFFICES, YOU MAY ALSO FILE YOUR COMPLAINTS AT THE NEAREST FOLLOWING GEWOG OFFICES:

1. Bji Gewog – 17682055
2. Gakiling Gewog – 77238333/17304877
3. Sombaykha Gewog – 77985518

BFL PROJECT COORDINATION UNIT (PCU)

- Ugyen Dechen
- 17491881
- bflprojectofficer@gmail.com
- BFL Project Coordination Unit, Department of Forests and Park Services, Ministry of Energy and Natural Resources, Thimphu

IF THE NATIONAL PROCESS OF GRM IS UNABLE TO RESOLVE THE GRIEVANCE, COMPLAINTS MAY ALSO BE FILED WITH WORLD WILDLIFE FUND (WWF).

Write to the WWF GCF Accredited entity at:

SafeguardsComplaint@wwfus.org
Project Complaints Officer, Safeguards Complaints, World Wildlife Fund 1250 24th Street NW Washington, DC 20037

COMPLAINTS MAY ALSO BE FILED WITH GCF INDEPENDENT REDRESS MECHANISM (IRM) OPTION. COMPLAINT CAN BE FILED BY:

- Sending it by mail or email at irm@gcfund.org
- Sending a voice or video recording
- Filling out the online complaints form available at: <https://gcf.isight.com/external/case/new/group=Complaint>

A complaint for IRM should generally include:

- Name, address and contact information
- A description of the programme (caused adverse impacts to the complainant)
- A description of how the complainants have been/maybe adversely impacted by the project/programme
- Whether confidentiality is being requested and the reasons for it.

COMPLAINTS MAY ALSO BE FILED WITH THE WWF THIRD PARTY GRIEVANCE REPORTING MECHANISM BY USING ETHICS POINT WEBSITE AT:

<https://secure.ethicspoint.com/domain/media/en/gui/59041/index.html>

This mechanism can receive reports online or by phone in multiple languages.

IF YOU ARE UNSATISFIED WITH THE COMPLAINT RESOLUTION PROCESS, YOU CAN APPEAL TO:

GRM Appeal Committee, Bhutan For Life Project, DoFPS, Thimphu, Bhutan.

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 shall 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. *Legionella pneumophila*) 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 tagging-out (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 passers-by, 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 over glasses 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 in 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 be 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.

6. 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 species