Bhutan for Life Environmental and Social Management Plan for Jigme Khesar Strict Nature Reserve (2021)

1. Introduction

(A) Project Background

The Bhutan for Life (BFL) project aims to ensure a robust network of protected areas and biological corridors that secures human well-being, biodiversity conservation and increase climate resilience in Bhutan. The project provides a 14-year financial bridge that allows for immediate improvement in the management of Bhutan's protected areas for climate resilience, and the prompt delivery of mitigation, adaptation and biodiversity gains, while the country gradually ratchets 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 and 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;
- 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.

(B) Scope of ESMP

The preparation of this Environmental and Social Management Plan (ESMP) was required in order to manage the environmental and social impacts through and specific mitigation actions required to implement the project 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 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.

(C) 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;
- Ensuring that all stakeholders are engaged in the project activities' preparation and implementation, and their concerns are fully addressed.

(D) Applicable law, policies, and regulation

This ESMP is developed by following the guidelines as set forth in the 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, 1995; Forest and Nature Conservation Rules and Regulations of Bhutan, 2017;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); legislative on occupational and health safety (Labour and Employment Act, 2007; Regulation on occupational Health, Safety and Welfare, 2012; Mines and Mineral Act, 1995; Road Safety and Transport Act, 1999; Civil Service Act of Bhutan, 2010; Food Act of Bhutan 2005; Food Rules and Regulation of Bhutan 2007 ; Bhutan Building Rule 2002; Bhutan Electricity Authority-Safety Regulations 2008; Mines and Minerals Management Regulations 2002; Regulations on Occupational Health and Safety for Construction Industry; Regulation on Workers Compensation 2009; Regulation on Hours of Work 2009; Rules and Regulations for Establishment and Operation of Industrial and Commercial Ventures in Bhutan, 1995) 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).

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; as well as general standards on occupational and community health and safety and on 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. With regard to environmental impacts, there are no direct contradictions between the RGoB laws and regulations and the WWF's SIPP, but the requirements of the latter are 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 ESMF. In case that the WWF's SIPP requirements are more extensive, strict, or detailed than the RGoB legislation and policies, the former will apply to all project activities.

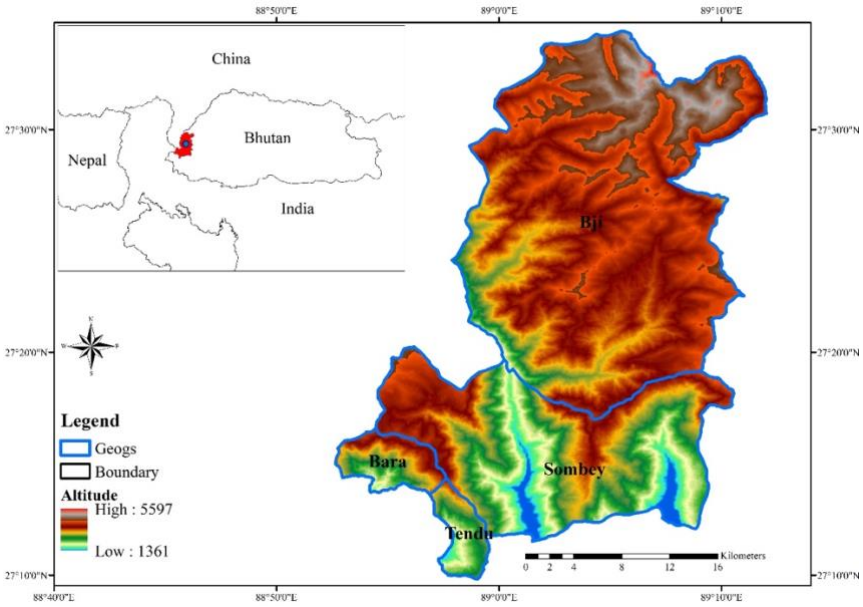
With regard to social impacts, the primary discrepancies between the RGoB laws and regulations and the WWF's SIPP refer to the status of non-title holders and informal land use,

and the commitment to participatory decision-making processes. 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 as part of the development of various safeguards documents and during project activities. RGoB legislation does not include similar requirements. For the purposes 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:

(a) Geological and topographical conditions

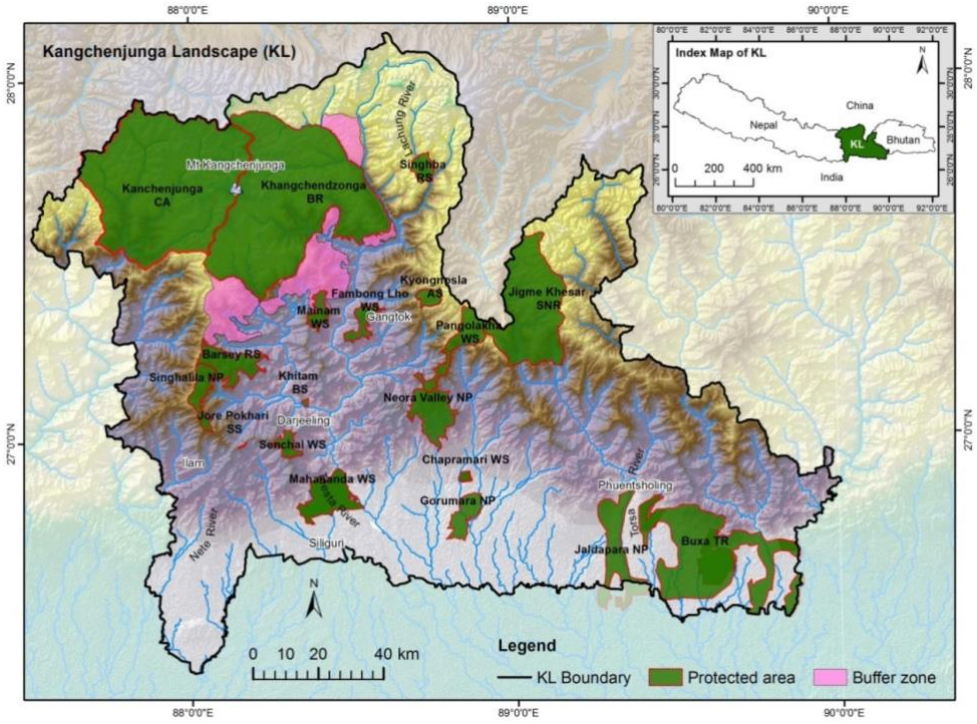
The only Strict Nature Reserve declared by the Royal Government of Bhutan in 1993 came into operation in 2010. It was initially known as the Toorsa Strict Nature Reserve. In October 2014, it was renamed as the Jigme Khesar Strict Nature Reserve (JKSNR) in honor of His Majesty the King Jigme Khesar Namgyel Wangchuck for his extraordinary contributions to the protection and conservation of natural environment. Entire area has a coverage of 784.225 km ^{2}, which can be categorized into different habitat zones from tropical broadleaved forest in the south to alpine in the north.



Map 1 Location map showing the different altitude zones in the reserve area

The Reserve falls in the western part of Bhutan between 27°34' and 27°11' latitude and 89°54' and 89°10' longitude bordering with Indian state of Sikkim to its west and forming a contiguous natural habitat of alpine meadows with Autonomous Tibet region of China in its north. The altitude ranges from 1361masl to over 5597 masl. Geographically, northern part of reserve consists mostly of rugged mountain terrains, rocky peaks, screes, and harbouring numerous sacred alpine lakes and few plains. The southern parts are scoured steeply by streams and rivers forming narrow valleys. Alluvial and colluvial formation are apparent in the narrow valleys of reserve, which consist of soil, silt, clay, sand and gravels brought done by the action of the soil and water erosion.

As shown in map 1, JKSNR covers 4 gewogs; Bjee and Sangbay under Haa and Tendruk and Norgaygang under Samtse Dzongkhag. It has a total of 506 households which includes herders of Esue and Katsho gewog under Haa. It forms a part of the Sacred Himalayan landscape (SHL) building links with three major trans-boundary conservation areas in China, India and Bhutan (**Map 2**). It also falls within Kangchenjunga Landscape linking further to Bhutan Biological Conservation Complex that has the natural connectivity to rest of the Protected Areas of Bhutan. The whole trans-boundary landscape is significant for the conservation of Snow leopards in the region forming part of the Indo-Burman biodiversity hotspot; one of the 10 hotspots of the world.



Map 2 Linkage of Kangchenjunga Landscape (KL) & JKSNR (Source: ICIMOD, Nepal)

The Reserve is currently administered by four sections (Nature Conservation Section; Forest Protection and Enforcement Section; Social Forestry and Extension Section; and Forest Resources Management Section) from the head office. There are two range offices and three outposts under the Reserve. The management is currently manned with 26 technical and 4 nontechnical staff. This level of manpower is adequate to successfully implement the reserve activities within the given time frame.

(b) Climatic conditions

The reserve experiences a cold climatic condition in the alpine zone and warmer in the lower foothills. As shown in figure 1, minimum and maximum temperature was recorded as -11.090 and 08 with mean temperature as 0.667°C. Maximum Relative Humidity recorded was 98%, minimum 39% and mean RH was 77% respectively. The snowfall occurs from November to April. Snowmelt occurs during April and July, providing an abundance of soil water prior to the monsoon period. Maximum rainfall was recorded in June-August.

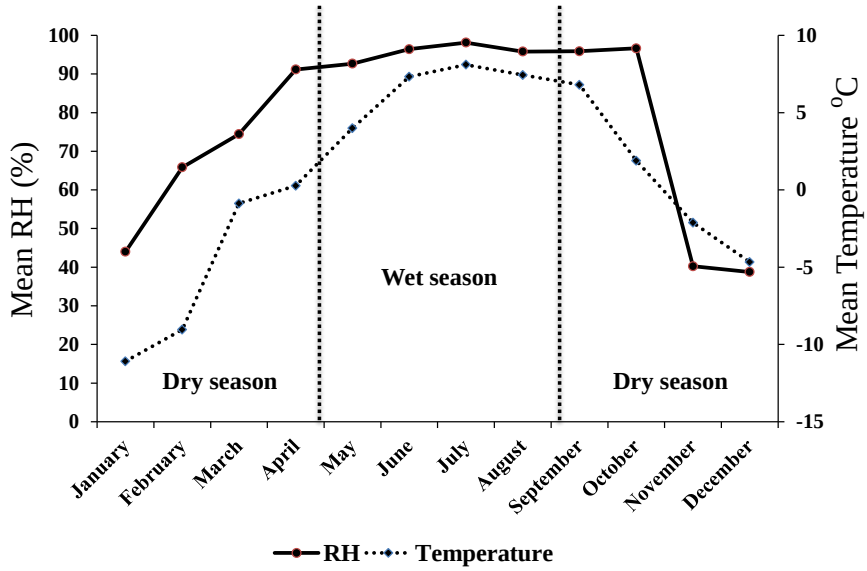


Figure 1 Pluviothermic diagram showing wet and dry months at study sites. Based on mean relative humidity and temperature

(c) Hydrological conditions

The Reserve has several cultural and historical sites such as Nub-Tshonapata lake, Ngatsho, Dungtsho, Ngetotsho, Regotsho, Chunduegang and Chundulhatsho which are legendary lakes attributed with historical, spiritual and traditional beliefs. Story of origin of Nublang (*Bos indicus*, native cattle breed) and Relm (Cymbals) are said to be treasures discovered from Nub-Tshonapata lake by the Terton Sherab Mebar. These lakes are equally important sources for

many streams under Haa Dzongkhag for agriculture, drinking and other domestic purposes. The reserve also source many tributaries for Haa Chhu , Wang Chhu and Amochhu.

(d) Flora and fauna

This is the only protected area in Bhutan without permanent human settlements, except for few migratory yak herding communities. It protects the western most variant of temperate forests in the country ranging from broadleaf forests to alpine meadows in the north. Being virtually uninhabited, the Reserve has one of the most pristine temperate and alpine vegetation in the entire Himalayas. The area is truly a conservation jewel in the Eastern Himalayas, abound by many globally endangered species of mammals and high value medicinal plants, rich plant communities, and endowed with many critical watersheds for two major rivers of Bhutan.

It is home to many endemic and threatened species such as tiger, snow leopard, red panda, alpine musk deer, Bhutan takin, Asiatic black bear, as shown in Figure 2, and endemic plant species such as *Meconopsis superba*, *Bhutanthera himalayana*, as shown in Figure 3, harbors in northern part of reserve.

The Reserve has a record of 473 species of plants including tree & shrub (205), herb & grasses (193) and orchids (75), 39 species of mammals, birds of 203 species (refer Figure 4), 68 species of butterflies and 7 species of fishes. It has 4 endangered species, 7 vulnerable species, 9 near-threatened species, 19 least concern species and 11 species of Schedule I under Forest Nature Conservation Act of Bhutan.

(e) Socio-economic conditions

Administratively JKSNR comprises of four geogs namely Bjee and Sombaykha geog under Haa, and Tendruk and Norgaygang geog under Samtsee dzongkhag. Almost 70% of the reserve area falls under Bjee geog. JKSNR does not have a permanent settlement residing inside the reserve area, however, few seasonal herders of Bjee, Kartsho and Eusu are traditional grazer in the area. At the lower region of the reserve, Sombaykha, Tendruk and Norgaygang depends on subsistence farming.

3. Planned activities in Year 2021

The planned activities in JKSNR that require an ESMP are the following:

1. Restoration of Alpine meadow

Prescribed burning and bio-engineering works shall be carried in the proposed sites at Chala and Nuptshonapatra. These activities will be implemented from March-June months. A budget of Nu. 280000 and Nu. 10000 was allocated to meet the travel expense and safety gears procurement for the workers respectively. To execute the planned activity, the total amount sanctioned was fragmented as; Nu. 140000 in 1st quarter Year 3 (Jan-Mar) followed by Nu. 140000 and Nu. 10000 in 3rd quarter Year 4 (July-Sep). Therefore, this activity will be executed in year 3 & 4 of the BFL project.

The alpine meadow restoration work at Chala Dophu and Nubtshonapatra area were selected as per the recommendation in the technical report on plant composition assessment of alpine meadows for management and development of alpine habitat under JKSNR, DoFPs, Haa 2019. Both the sites are located in alpine zone which are almost two days walk from the nearest settlements.

Alpine meadow is a major vegetation component of this strict nature reserve and it occupies about 40% of the reserve. Alpine habitats have been providing a suitable habitat for co-existence of key wildlife animal and domestic animal since immemorial. These areas are used exclusively for livestock grazing by domestic animals like Yaks *(Bos grunniens)* in co-existence with Musk deer *(Moschus chrysogaster),* Sambar deer *(Rusa unicolor)* and blue sheep *(Pseudois nayaur)* which are the main prey base for snow leopards *(Panthera uncia)* inside the reserve.

Initially the allocated sites were grazed by the herding communities of Bjee and Eusu geogs. However, with onset of a climate change effects and existence of reserve management in the area, majority of a natural pasture in the reserve were encroached by Juniper-Rhododendron Krumsholtz scrubs and are left inaccessible for livestock and wildlife grazing. Subsequently, the remaining portion of the natural pasture faces a threat of over-grazing, patchy rill erosion, and eventually, the quantity and quality of a palatable grasses might be reduced.

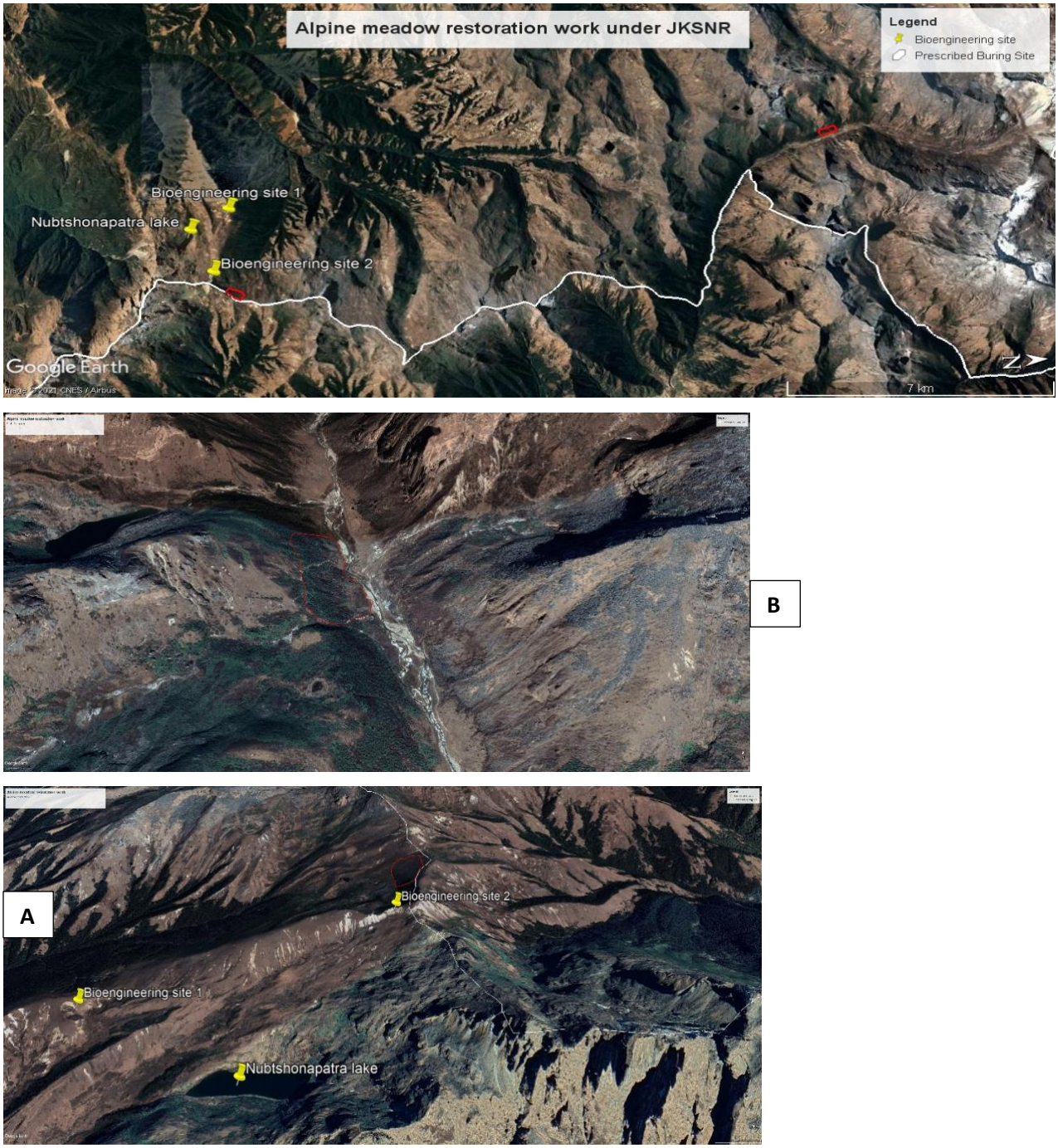


Figure 2 Alpine meadow restoration sites: A. Chala Dophu and B. Nubtshonapatra

Therefore, as a trial-and-error prescription to address the current threat, the management would carry out a prescribed burning at two sites viz. Chala Dophu and Nubtshonapatra area where Rhodo-Juniper Krumsholtz has encroached the meadows, and bio-engineering activities like sowing/implanting grasses, grass layering, live stacking, and few numbers of a check dam development at Nubtshonapatra area (Rill erosion sites) will be carried out.

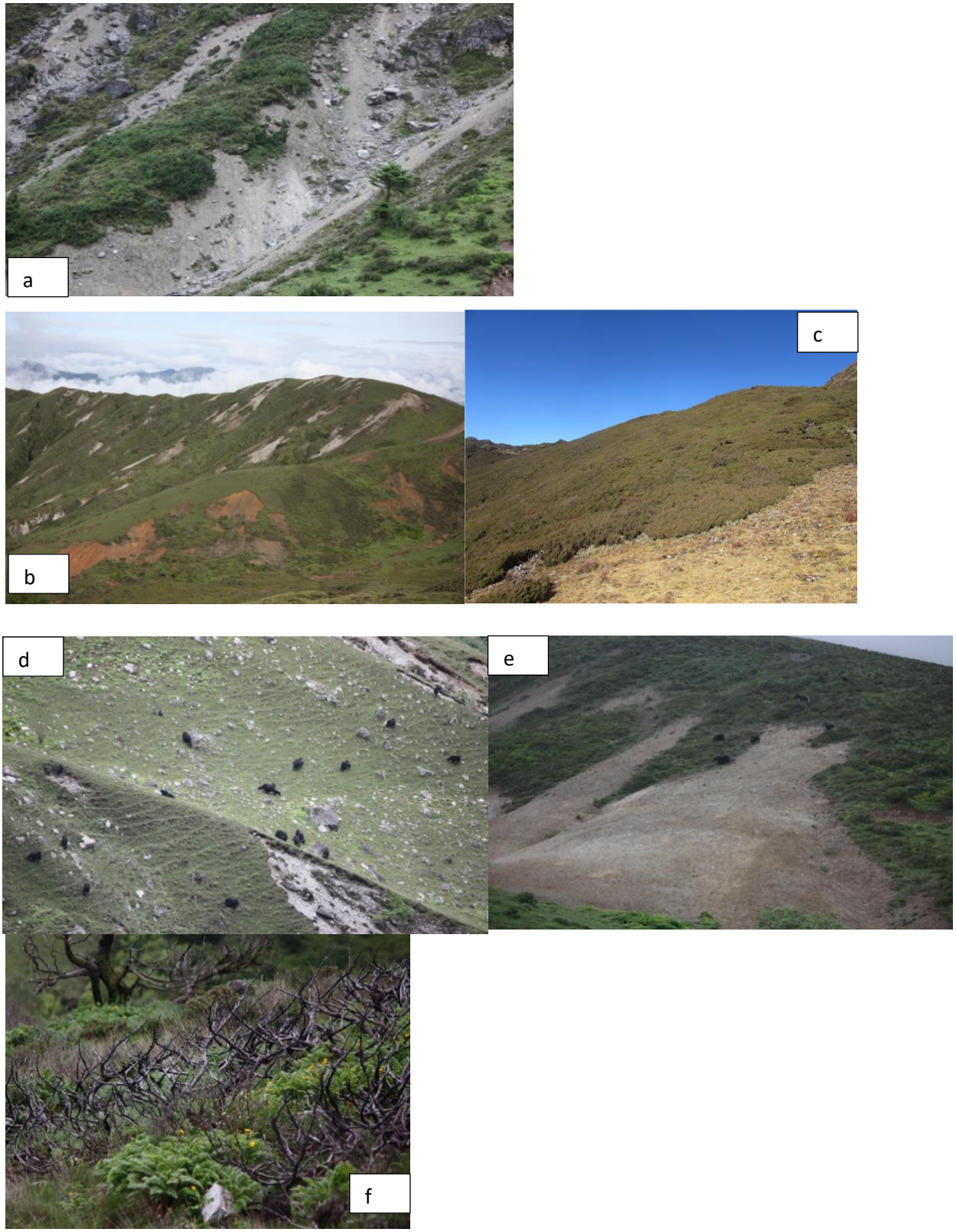


Figure 3 Current status of project site: a-b. *Rill erosion*, c. *Rhodo-Juniper Krumholtz*, d-e. *Yak grazing*, f. *Underground growth after fire*

The project implementation sites fall in the alpine scrub covered with alpine screes and rocky outcrops surrounded by natural pastures. The sites were dominated with various sizes of stones/boulders.

Figure 4 Burning of alpine meadows to reduce alpine scrub forest by the herders

The following activities shall be carried in the identified alpine meadow restoration project sites, Nubtshonapatra and Chala Dophu under the reserve.

1. Prescribed burning: This activity will involve 5-10 workers for a month in site boundary delineation, fire line creation along the boundary, bush clearing/cutting and burning the dried debris. Manual clearing of rhodo-juniper scrubs using power chain saw, knife, axe, spade and shovel will be carried in the project site. The work will be executed in 1st week of April.

2. Bio-engineering works: This activity will engage 5-10 workers for 10-15 days in developing a few small check dams, bush layering, grass slip planting, and

counter bounding works. This activity will be carried at Nubtshonapatra block in the month of May-June.

The workers will be accommodated in a temporary shed that will be environment friendly and safe enough for the workers to live. Solid waste generation such as pet bottles and plastics are expected. However, the proper disposal of wastes will be done in close coordination with the work coordinator and Bjee range office. The sewage sludge from kitchen and toilet are probable to be produced from the laborers working with the project during the activity implementation. The waste will be managed by disposing with the garbage-in and garbage-out policy.

The expected quantity of water to be used will be sourced from the stream that runs next to the project site at a distance of about 100 meters. The quantity of water use would be approximately 5000 liters in full operation. Solar lights will be used. The activity is expected to generate noise from the operation of chain saws, air pollution from burning, damage on nearby forest, and uncontrolled burning might occur. However, safety gears like ear plugs will be provided to the workers and no work shall be done in the odd hours mainly in the night. Activity being site specific and at smaller scale, the expected pollution and damage in nearby forest will be minimized through strict monitoring by range office and BFL focal.

2. Installation of water pipe from permanent water source to the dry up waterholes

Water hole revival/improvement to be carried at Jalamgongma and Zhungzhena under Sombaykha geog in Haa Dzongkhag. These areas provide the prime habitat to many endangered species including tiger, red panda, gaur, Himalayan black bear, goral, sambar deer, serow, dhole and alpine musk deer. Considering the importance of waterholes for wildlife, these waterholes will be improved/revived through planned activity in the month of Jan-March in year 3 and July-Sept in year 4. A budget of Nu. 175000 was allocated to implement the activity. The work will be carried in 2nd quarter of year 3 and year 4.

Figure 4 Location of waterholes

Identified waterholes require interventions such as clearing mud for creating pool and making opening and spaces. Both the waterhole doesn't have a continuous inlet and seems stagnant. Therefore, HDPE pipe will be un-earthed to supply water from nearest water source to the waterhole by digging small trenches. There will be 15 workers who will be involved for fifteen days, and they will be camping near the activity area as it is inside the dense forest. There are no households in the project area or its vicinity.

Figure 5 Current status of the water holes

Expected impacts are waste generation from the workers and the workers' health and safety during the clearing of waterholes.

4. Environmental and Social Impacts and Mitigation Measures

1. Restoration of Alpine meadows

   The potential environmental and social impacts for this activity includes:

   - Generation of waste as a result of camping
   - Workers' health and safety
   - Erosion & air pollution
   - Habitat degradation
   - Planting of non-native plant species

2. Installation of pipeline to a drying waterhole site

   The potential environmental and social impacts for this activity includes:

   - Waste: soil from excavation activities and waste from construction activities
   - Workers' health and safety
   - Erosion due to digging of trenches
   - Increase poaching

However, given the scale of the project, these risks are expected to be minimal, site-specific and those for which mitigation measures can easily be developed through standard and applicable regulations. These impacts are again site-specific, reversible and can be minimized/mitigated by developing appropriate measures. Specifically, to address these concerns, the project will comply with the relevant Acts and Rules and Regulations of the Kingdom of Bhutan. ESMP is prepared as per requirement based on ESMF to ensure adequate mitigation measures.

Therefore, for all the potential adverse impacts of environment and social related to each activity, mitigation measures have been prepared as shown in the table below:

Potential impact	Impact scale	Proposed mitigation measures	Responsible party	Costs
Activity 1: Restoration of Alpine meadow				***US$ 4000***
Waste**:** Generation of waste as a result of camping & bio-engineering works.	Short term Minor	*During:* • Identification of the different waste types at the project site (soil, asphalt, food, etc.); • Ensure that camps are located away from existing stream, river, or water sources, and that no discharge from camps is made into nearby water bodies; • 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; • Collection, transportation and final disposal of all waste should be undertaken regularly on a weekly basis; • Possible hazardous waste (motor oils, vehicle fuels, etc.) should be collected separately and authorized collector and transporter should be sub-contracted to transport and finally dispose; • All construction materials should be covered during the transportation to avoid waste dispersion; • The options for reuse/recycling of the generated waste streams should be taking into consideration (e.g., excavated soil, etc.). • Burning of construction waste should be prohibited. • After construction: • * All waste shall be removed from the project site.	BFL focal person in JKSNR, Contractor, Bjee Range Officer	To be included in contract agreement
Worker's health and safety including COVID Refer to the full OHS guidelines attached where ever relevant)	Short term Minor	• Comply with workers' health and safety guidelines • Ensure regular health screening for the workers pre and during construction activities • Ensure that no underage workers, or children are engaged	BFL focal person in JKSNR,	To be included in contract agreement

		• Ensure decent work conditions, including an appropriate salary, working hours, accommodation and food for workers shall be provided to all workers • 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, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices. • Implement a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns • Strictly abide by COVID prevention protocols (use masks, maintain distance, wash hands regularly etc.)	Contractor, Bjee Range Officer	
Air quality: *Air pollution is likely as a result of burning of debris*	Short term Minor	• Workers should wear protective masks if dust appears; • Burning of wood debris shall be permitted in delineated area. • Fire intensity shall be kept a minimum through monitoring	BFL focal person in JKSNR, Contractor, Bjee Range Officer	To be included in contract agreement
Cutting down of trees and plants that are encroaching on the Alpine meadows negatively affects the ecosystem of the Alpine meadows.	Long term Major	• Assess the impacts of climate change on Alpine meadows and lowland grasslands to identify alternative approaches to the sustainable management of the meadows or grasslands [as part of the BFL climate change component] • Ensure that no accidental damage is caused to local vegetation—major trees that are supposed to be cut shall be clearly marked, and only marked trees will be cut; • Removal of trees needs to be done in an environmentally sustainable way (e.g., removal of branches); • Alternative grazing areas shall be identified • Burning of trees and other plants should be avoided	BFL focal person in JKSNR, Bjee Range officer	To be included in contract agreement

Planting of non-native tree/grass species	Long term Major	• 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	BFL focal person in JKSNR, Bjee Range officer	To be included in contract agreement
Soil erosion, landslides and flooding	Short term Minor	Pre-construction: • Site is prone to soil erosion/landslides shall be avoided, to the extent possible During construction: • Construction should be limited to the non-monsoon season; • Ensure safety during construction with the small stream flowing along the right side of the site. To the extent possible using environmentally friendly materials, and ensure the water does not overflow. • The area of ground clearance should be minimized; • Avoid sensitive alignments, such steep hillsides and ecological sensitive areas; • Balance filling and cutting requirements through proper route choice; • Maintain trail surface and alignment with vegetation and where possible install slope protection • Construction retention wall	BFL focal person in JKSNR, Contractor, Bjee Range Officer	To be included in contract agreement
Activity 2: Installation of water pipe from permanent water source to the dry up waterholes				***US$ 2500***
Waste: S*oil from excavation activities and waste from construction activities*	Short term Minor	• Proper containers/waste bins should be provided at the project site; • Dumping of waste in the waterholes, on the sides of the road, on private land, or in other non-designated places should be strictly prohibited. • Dumping of waste shall be prohibited on fragile slopes, forests, religious or other culturally sensitive areas or areas where livelihood is derived; • Collection, transportation and final disposal of all waste should be carried out on a daily basis and not left in the protected areas • Burning of construction waste should be prohibited. • Use proper waste management guideline	BFL focal person in JKSNR, Contractor, Sombaykha Range Officer	To be included in contract agreement

Workers health and safety including COVID Refer to the full OHS guidelines attached where ever relevant)	Short term Minor	• Comply with workers' health and safety guidelines • Ensure regular health screening for the workers pre and during construction activities • Ensure that no underage workers, or children are engaged • Ensure decent work conditions, including an appropriate salary, working hours, accommodation and food for workers shall be provided to all workers • 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, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices. • Implement a grievance mechanism for workers (and their organizations, where they exist) to raise workplace concerns • Strictly abide by COVID prevention protocols (use masks, maintain distance, wash hands regularly etc.)	BFL focal person in JKSNR, Contractor, Sombaykha Range Officer	To be included in contract agreement
Increase in poaching	Short term Minor	• Construct waterholes in areas where poaching is limited • Park authorities shall carry out increased patrolling during and after the waterhole construction	BFL focal person in JKSNR, Sombaykha Range Officer	Part of Monthly patrol plan
Soil erosion, landslides and flooding	Short term Minor	Pre-construction: • Site is prone to soil erosion/landslides shall be avoided, to the extent possible During construction: • Construction should be limited to the non-monsoon season; • Ensure safety during construction with the small stream flowing along the right side of the site. To the extent possible using environmentally friendly materials, and ensure the water does not overflow. • The area of ground clearance should be minimized;	BFL focal person in JKSNR, Contractor, Sombaykha Range Officer	To be included in contract agreement

		• Avoid sensitive alignments, such steep hillsides and ecological sensitive areas; • Balance filling and cutting requirements through proper route choice; • Maintain trail surface and alignment with vegetation and where possible install slope protection • Construction retention wall		

5. ESMP Implementation arrangements

The implementation of project activities will be carried out by the BFL focal person in JKSNR. The focal person will be responsible for compliance with all procedures outlined in this ESMP, as well as compliance with any requirements to obtain clearances, permits, approvals, or consent documents from relevant authorities and stakeholders.

This ESMP should be part of the contract that the PA will sign with the Contractor(s) for implementation of the planned activities in JKSNR in 2020. The Contractor is obligated to perform all proposed preventive or mitigation environmental and social measures in this plan and to keep the evidence of any documents related to applying these measures (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 start the project activities and prior any specific tasks with high health risks.

The JKSNR Supervising Engineer needs to monitor the implementation of proposed measures by the Contractor and Contractor's subcontractors with visual checking, reviewing the records of evidence that the measures have been applied and ask the Contractor to apply the measures as soon as possible. Non-compliances should be recorded and the Report on any non-compliances should be reported to the ESS officer immediately, and the ESS officer will report it to the PCU (M&E Officer). Each non-compliance should be closed with appropriate measure/s and the evidence should be kept.

Disbursement of project funds to the PA will be contingent upon their full compliance with the safeguard's requirements.

6. ESMP monitoring arrangements

The BFL focal person in JKSNR will closely monitor the implementation of all planned activities and the required mitigation measures, and ensure that they fully comply with this ESMP and with the terms and conditions included in the environment clearances issued by RGoB's national authorities.

JKSNR is also fully responsible for the compliance of all external contractors and service providers working in the JKSNR with the safeguard's requirements outlined in the ESMP.

The monitoring of activities under this ESMP will be carried out in the following manner:

Sl.No	Activities	Monitoring team	Timeline		Location	Means of Verification
			Start	Complete		
1	Restoration of Alpine meadow	Field focal	April 2021	June 2021	Chala & Nubtshonapatra	Site visit & Report
		ESS focal	3rd week May, 2021			Monitoring report
2	Installation of water pipe from permanent water source to dry water holes	Field focal	Jan 2021	June 2021	Jalamgongma, Zhungzhena	Site Visit & Report
		ESS focal	4th week May, 2021			Monitoring report

1. Restoration of Alpine meadow

Monitoring by implementing entities:

a. Field visits at least twice—during the intervention and within three months after the intervention

b. Reports by the implementing entities submitted to ESS officer within a week after each field visit

Monitoring by ESS officer at PCU:

c. Field monitoring by ESS officer –monitoring through photographic/video evidence submitted by the IAs during the implementation as per the given dateline in the table above.

d. Reports by ESS officer to BFL Fund Secretariat – Annual report submitted to the BFL Fund Secretariat in January, 2022.

Bi-annual reports of the Secretariat to WWF US (as part of mid-year and final APRs)

2. Installation of water pipe from permanent water source to dry water holes

Monitoring by implementing entities:

a. Field visits at least twice—during the intervention and then monthly as part of the "SMART patrolling" activity (will be adapted based on field conditions, and also based on the availability of SMART patrolling activities).

b. Reports by the implementing entities submitted to ESS officer once during the intervention and once after the completion of work.

Monitoring by ESS officer at PCU:

c. Field monitoring by ESS officer –monitoring through photographic/video evidence submitted by the IAs during the implementation as per the given dateline in the table above.

d. Reports by ESS officer to BFL Fund Secretariat – Annual report submitted to the BFL Fund Secretariat in January, 2022.

Bi-annual reports of the Secretariat to WWF US (as part of mid-year and final APRs)

3. Capacity Need and Budget

Activities under this ESMP will be implemented by the BFL focal person, supervising engineer, and a contractor that will employ workers as mentioned in the contract agreement.

The budget for each of the activities is:

1. Restoration of alpine meadows- Chala & Nubtshonapatra, Bjee Range US$ 4000
2. Installation of water pipe from permanent water source to a dry water hole- Jalamgongma & Zhungzhena, Sombaykha Range US$ 2500.

4. Consultation and Disclosure Mechanisms

This ESMP has been prepared in a participatory manner, and a community consultation was carried out as follows:

1. Restoration of alpine meadows (Bjee geog) (February 2021)
2. Installation of water pipe from permanent water source to dry waterhole (Sombaykha Geog) (December 2020)

These consultations are carried to inform the local communities regarding the project activities, solicit their opinions, and enable them to question proposed mitigation measures. The main issues that were raised during the consultation meeting include the following:

- Is the office going to replicate the same method in other grazing grounds under the reserve? The participants are informed that, similar activity will be replicated in other grazing grounds after assessing the potential impacts of prescribed burning and bio-engineering works in the pilot sites. The current sites were grazed by the yaks during summer and autumn seasons of a year and it also experience continuous grazing by horses taken by the travelers/local & national tourist and RBA. Therefore, the identified sites are under intense grazing pressure throughout year and might lead to serious degradation in near future If intervention is not made now.

The full English version of this ESMP, as well as an executive summary in Bhutanese, shall be disclosed on the website of MoAF and WWF, Bhutan Program. Hard copies of the ESMP should also be available at the PA Management Office and at the PCU Office.

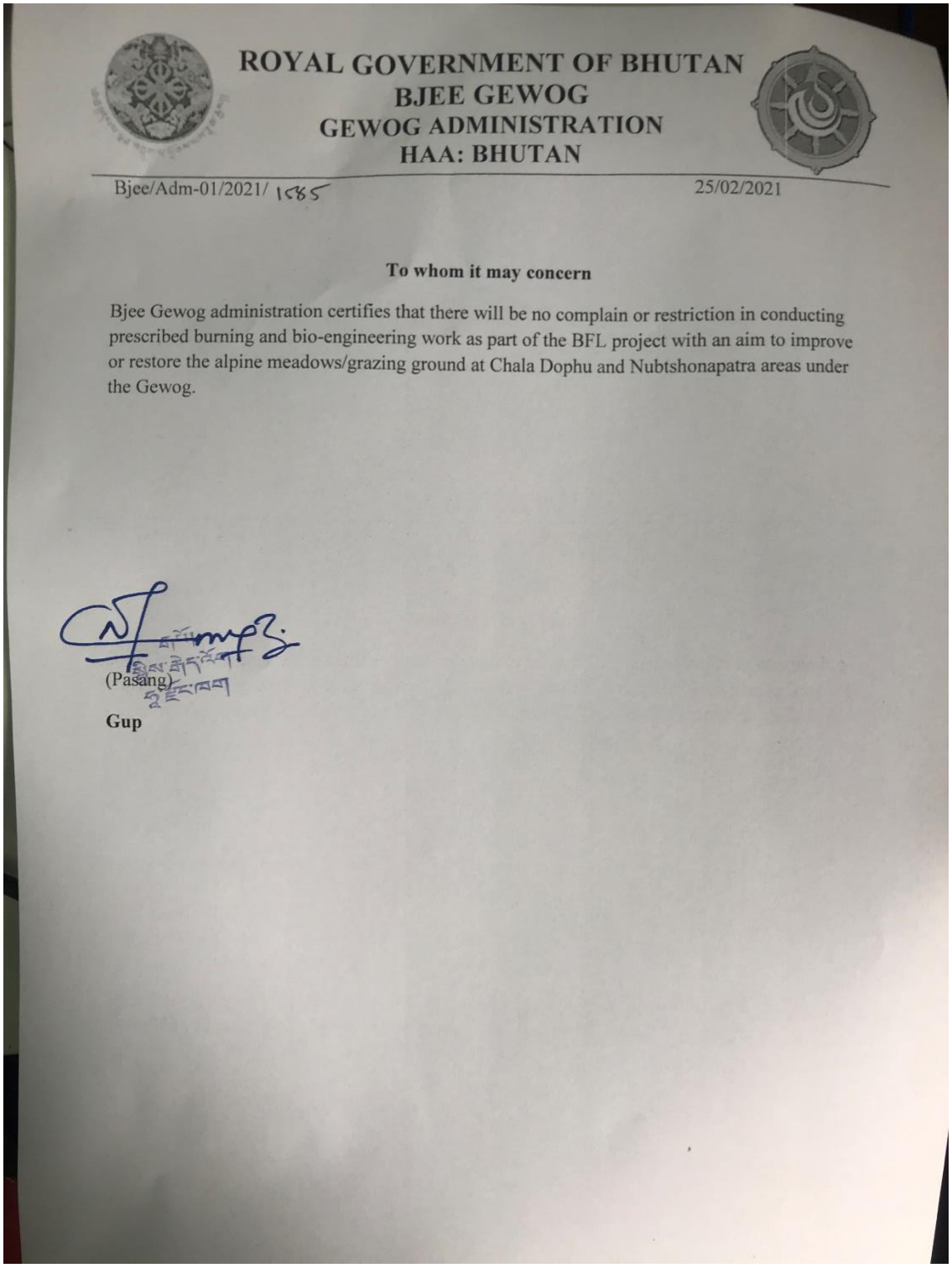
5. Stakeholder engagement plan

The local community that resides in the vicinity of the planned BFL activities in JKSNR will be engaged throughout the implementation of these activities as follows:

1. Restoration of alpine meadows – Nubtsonapata & Chala
    - Dates: February 2021
    - Agenda: Improvement of alpine meadow
    - Location: Gewog Office
2. Installation of water pipe from permanent water source to a dry waterhole
    - Dates: December 2020
    - Agenda: Conservation and management of waterholes
    - Location: Sombeykha range office

The BFL focal person has to submit the official minutes of consultation meetings (along with a list of participants, disaggregated by gender and age) to ESS officer within one week after the completion of the consultation. The ESS officer will submit the consultation reports to the PCU (M&E officer) one week after their receipt. The PCU (M&E officer) will report to the Secretariat on a semi-annual basis. The participant list and the consultation minutes will be attached to this ESMP while submitting the physical progress report at later stage.

Annex 1. Community consultation (Administrative approval for restoration of alpine meadow at Chala Dophu and Nubtshonapatra)



ROYAL GOVERNMENT OF BHUTAN
BJEE GEWOG
GEWOG ADMINISTRATION
HAA: BHUTAN

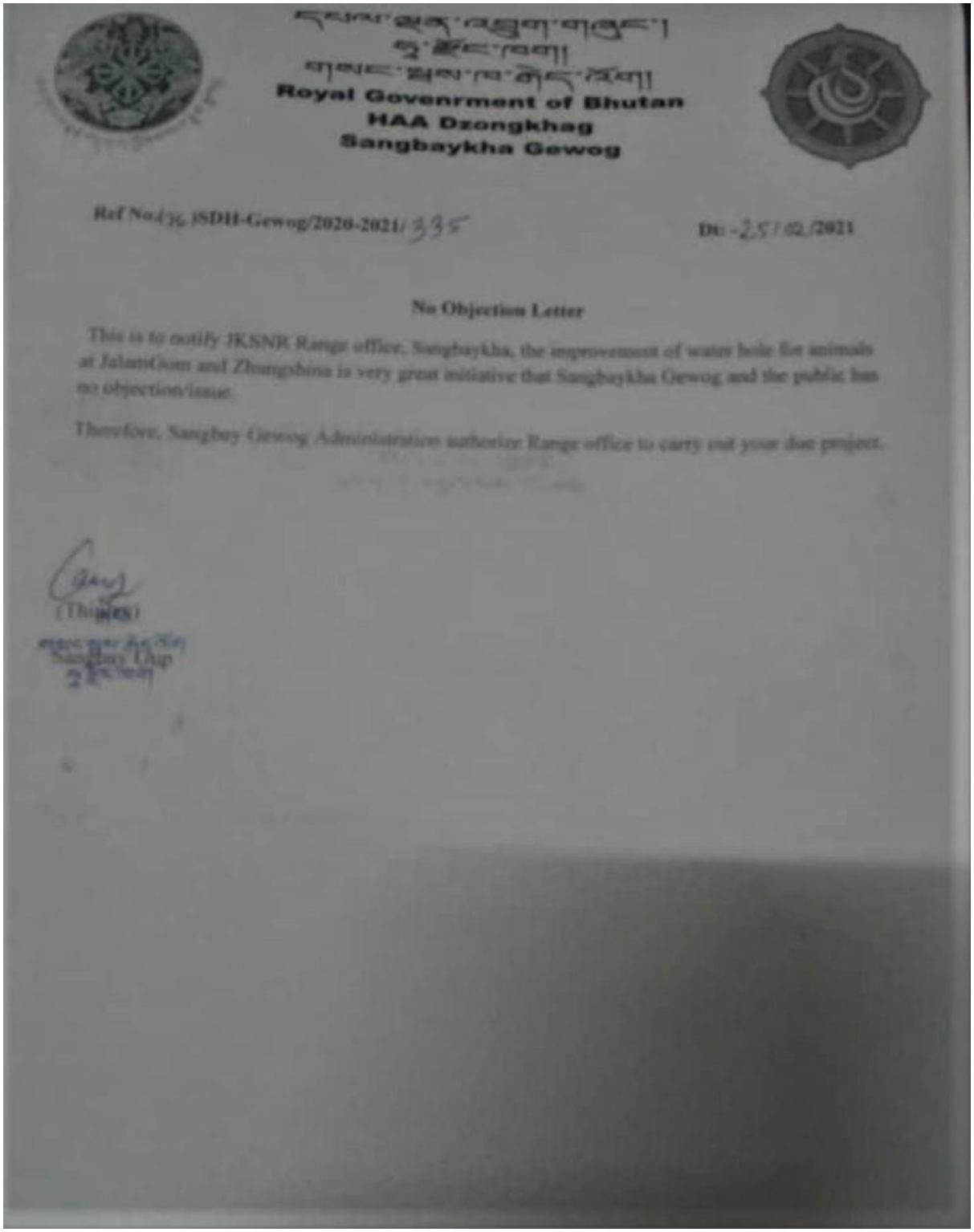
Bjee/Adm-01/2021/ 1585 25/02/2021

To whom it may concern

Bjee Gewog administration certifies that there will be no complain or restriction in conducting prescribed burning and bio-engineering work as part of the BFL project with an aim to improve or restore the alpine meadows/grazing ground at Chala Dophu and Nubtshonapatra areas under the Gewog.

(Pasang)
Gup

Annex 2. Administrative approval for installation of water pipe from a permanent water source to a dry water hole at Jalamgongma and Zhungzhena, Sombaykha geog



Royal Govenrment of Bhutan
HAA Dzongkhag
Sangbaykha Gewog

Ref No:(36)SDH-Gewog/2020-2021/335

Dt: -25/02/2021

No Objection Letter

This is to notify JKSNR Range office, Sangbaykha, the improvement of water hole for animals at JalamGom and Zhungshina is very great initiative that Sangbaykha Gewog and the public has no objection/issue.

Therefore, Sangbay Gewog Administration authorize Range office to carry out your due project.

(Thi[illegible])

Annexure . 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)[1] 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 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 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[2]

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.

[2] Based on Workers' accommodation: processes and standards—A guidance note by IFC and the EBRD (August 2009): https://www.ifc.org/wps/wcm/connect/60593977-91c6-4140-84d3-737d0e203475/workers_accomodation.pdf?MOD=AJPERES&CACHEID=ROOTWORKSPACE-60593977-91c6-4140-84d3-737d0e203475-jqetNIh

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