Bhutan for Life

Environmental and Social Management Plan for

Biological Corridor 3 (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 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 RGoBLaws 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); and other relevant laws (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'sRegulations 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

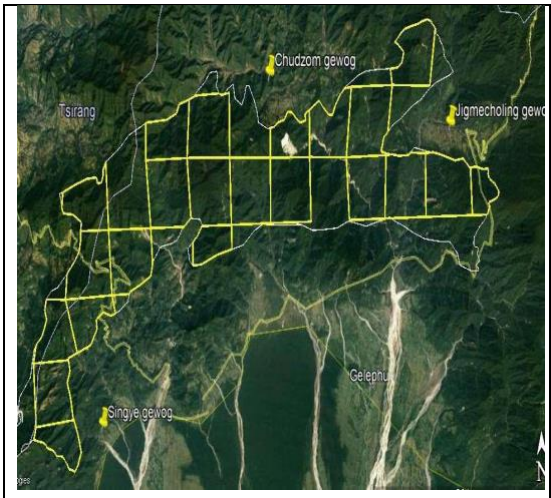
requirements. For the purposes of the BFL project, the provisions of the WWF's SIPP shall prevail over the RGoB legislation in all cases of discrepancy.

The occupational health and safety of workers in construction will be in compliance with Labour and Employment Act-2007, Regulation on Occupational Health, Safety and Welfare, 2012 and any other national documents. The list of the OHS requirements shall be attached along the Bill of Quantities (BoQ) along with an appropriate item description to allow the bidder to quote reasonably against the item, and to enable strict compliance and ease the monitoring during the project implementation time

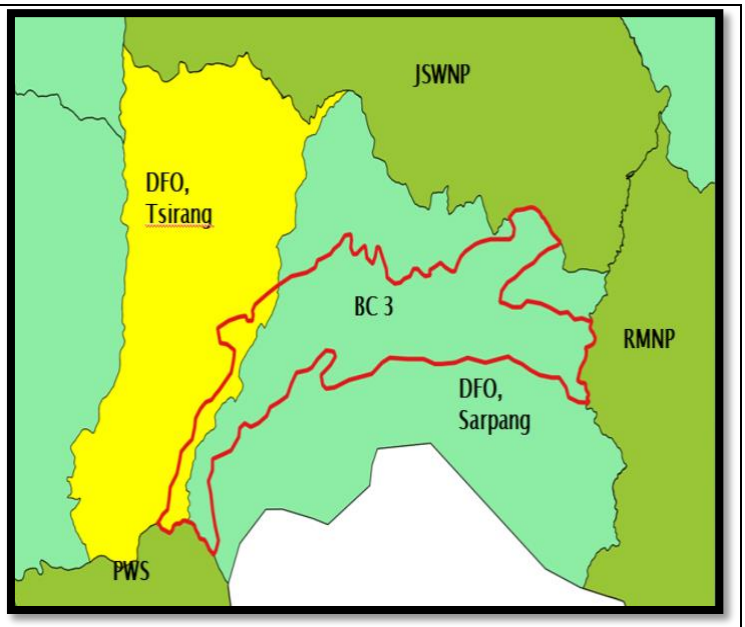
2. Environmental and Socio-Economic Conditions:

Geographical Location

BC-3 has a total area of 376.60 km² with elevation range of 440-2300masl and it is exactly located between JSWNP-RMNP with North-east to Pibsoo Wildlife Sanctuary in the south-west under Sarpang district. About 90% of BC (03) falls within Sarpang Forest Division and rest 10% of the area fall under Tsirang Forest Division.



BC 3 area



BC 3 area

The climatic condition in lower elevation adjoining Phibsoo wildlife sanctuary is hot and humid in summer while the climatic condition in the northern part of BC 3, adjoining Jigme Singye National Park, is cool and moderate.

Hydrological conditions

In general, Tsirang receive monsoon rainfall only by 2nd week of June every year. The rainfall is fed by South West monsoon from Bay of Bangal. However, BC 3 does receive seasonal rain in spring (April- May) from westerly disturbance with lightning and thunder. These seasonal rains provide favorable condition for the vegetation growth and food for wildlife. The moisture loaded wind from South get cooler and provide maximum rainfall in Darachu, Patshaling and DunglagangGeog, while rest of the Geogs in Tsirang receive less rainfall as they fall in rain shadow area. BC 3 receive maximum rain in July month averaging more than 1000 mm and least rain fall in winter month (less than 150 mm). The springs and small rivers in Tsirang are fed by summer rain, usually flow of water in all tributaries increases with the arrival of monsoon and recede during lean season (winter months)

Flora and fauna

76.48 % of the areain BC-3 is covered with Broadleaved type of forest with only 4.20% of Chir pine forest and6.71 % of mixed conifer forests found at the outer reaches of the Dzongkhag (LCMP, 2010.) The other significant vegetation is the shrubs at 3.30%, which make up the higher altitude mountain slopes to the north of the Dzongkhag.

Total of 180 species from 18 NFI grids were recorded in BC-3. It is dominated by barking deer (n = 99), followed by wild pigs (n= 80), samber deer and elephant (n = 70) each. This shows that barking deer, wild pigs and samber deer had wide ranges of habitat uses within the different elevation and habitat types. Some of the critically endangered bird species in BC 3 are White Bellied Heron and Rofus Necked Hornbill.

Social

BC-03 covers 2 Dzongkhag (Sarpang and Tsirang) encompassing 7 Gewogs [Senge, Chudzom, Gelephu, Samtenling, Dekiling, Shershong and Gakidling] under Sarpang and 2 gewogs [Patshaling and Dunglagang (23 household of TsakaIing chiwog under PatshalingGeog resides within 2km distance)] under Tsirang. 1664 households and 106households of Sarpang and Tsirang respectively depend on BC-3

3. Planned activities in Y2020 and 2021 for Tsirang Dzongkhag

Activities that are planned in BC 3 in 2020 and 2021are:

1. Improvement of salt licks and waterholes
2. Implement restoration to enhance quality and resilience of lowland grassland

***Improvement of salt licks and waterholes*:** The site for this activity is located within the BC 3 at Alubari, Sikaridara and Mukterchok under Tsakaling chiwog in Patshaling Gewog under Tsirang Dzongkhag. The chosen location is crucial wildlife habitat and is in the forest land with water scarcity. The capital investment is $2380.95 for 2020 and $684.44 for 2021. There are about 23 household in Tsakaling chiwog who resides nearby project sites (within 2km distance) andlive in proximity to the project implementation site. They depend on livestock and agriculture, but their livelihood will not be affected. The activity will involve restoration/improvement of 5 waterholes and salt licks each. The improvement of salt licks involves transportation of salt (*Sodium chloride*) to the site, removal of debris and adding of salt to existing salt licks in 2020 and 2021 (salt lick created in 2019). The improvement of waterholes includes removal of mud and debris from the existing water holes, cleaning of water holes and repair of water leakages as part of maintenance work in 2020 and 2021 (water holes created in 2019). There will be 20 workers employed for a month who will camp at the site for a month.

Implement restoration to enhance quality and resilience of lowland grassland: This site is selected because it is crucial foraging wildlife habitat and is in the forest land. The site is at Katley-kalikhola of Patsaling Gewog in Tsirang Dzongkhag, but it is away from the

community (about 2 hour walk). There are 23 households of Tsakaling village in Patshaling Gewog who are depended on livestock and agriculture. The activity will involve manually clearing bushes and planting bamboo, banana and Napier (cattle fodder grass). The capital investment is $2562.86 for 2020. It is expected that this activity will help to mitigate human wildlife conflict and 20 workers will be involved on rotation basis, workers usually walk to site in the morning and come back home in the evening. However, if required, temporary tarpaulin shed will be provided.

4. Environmental and Social Impacts and Mitigation Measures

Some of the potential environmental and social impacts could be the following:

Improvement of water holes and salt licks

1. Restoration of waterholes
    - Waste: soil from excavation activities and waste from construction activities
    - Workers' health and safety
    - Increase poaching because it becomes gathering spot for animals
2. Improvement of salt licks
    - Increase poaching
3. Restoration of lowland grasslands
    - Risk of snake bites and insect bites to the workers
    - Occupational and health safety of the workers.

Therefore, for all the potential adverse impacts of environment and social related to each activity, mitigation measures have been prepared as shown in Table 1.

Activity 1: Improvement of water holes and salt licks

Potential impact	Impact scale	Proposed mitigation measures	Responsible party	Cost
Restoration of waterholes	**(Sarpang and Tsirang)**			
Waste: soil from digging activities and waste from construction activities (mostly solid waste)	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. • Solid waste mostly soil and boulders should be used for construction of wall/bund for waterhole to be possible extend	BFL focal person (BC 3) Contractor	To be part of worker agreement. From the activity cost.
Workers' health and safety Refer to the full OHS guidelines attached where ever relevant)	Short term Minor	• Comply with the 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 national wage rate, working hours, accommodation and food for workers shall be provided to all workers • Ensure that workers are employed on the principle of	BFL focal person (BC 3) Contractor	To be part of worker agreement. From the activity cost.

		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. • 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		
Increase 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 • Installation of camera traps to monitor	BFL focal person (BC 3) Contractor	To be part of regular monitoring.
Improvement of salt licks				
Increase poaching	Short term Minor	• Waterholes shall be constructed in areas where poaching is limited • Increased patrolling of park authorities should be carried out during and after the waterhole construction • Installation of camera traps to monitor	BFL focal person (BC 3)	To be part of regular monitoring. 5 camera traps for each of two offices (US$ 639)
		Consultation for both activity for both location	BFL focal person (BC 3)	33 HHs= US$101

				41 HHs= US$125
Restoration of lowland grasslands		***US$ 2000***		
Workers' health and safety (Refer to the full OHS guidelines attached where ever relevant)	Short term Minor	• Comply with the workers' health and safety guidelines • Ensure regular health screening for the workers pre and during the activity • 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. • Ensure that workers are aware of the project's grievance redress mechanism and can use it to raise workplace concerns • Provide workers with proper briefing and fast aids for insect and snake attack. Application of insect repellent will be encouraged.	BFL focal person (BC 3) Contractor	To be part of worker agreement. From the activity cost.
Workers' health and safety during COVID (related hygiene measures)	Short-term; Minor	Strictly abide by following COVID prevention protocols: • use face masks, • maintain proper distance, • wash hands regularly and	-BFL focal in BC3 -covid focal in office (if any)	To be part of worker agreement. From the activity cost

		sanitize it, • use Druk Trace app where ever available		

5. ESMP Implementation arrangements

The implementation of project activities will be carried out by the BFL focal person in BC 3. 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 BC 3 in 2020 and 2021. 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 BC 3 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 safeguards requirements.

6. ESMP monitoring arrangements

The BFL focal person in BC 3 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. BC 3 PA is also fully responsible for the compliance of all

external contractors and service providers working in the BC 3 with the safeguard's requirements outlined in the ESMP.

The monitoring of activities under this BC 3 will be carried out in the following manner:

Sl. No	Activities	Monitoring team	Timeline		Location	Means of Verification
			Start	Complete		
1	Waterhole and salt licks management:	Field focal	July15 2021	August 15 2021	Alubari, Sikaridara and Mukterchok	Weekly field visit & monthly progress report
		ESS officer	1st week August			Monitoring report
2	Restoration of lowland grasslands	Field focal	July15 2021	August 15 2021	Katley-kalikhola	Weekly field visit & monthly progress report
		ESS officer	1st week August			Monitoring report

1. Waterhole management:

- Monitoring by implementing entities:
    - 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).
    - 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:
    - 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.
    - 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. Restoration of lowland grasslands (habitat management):

- Monitoring by implementing entities:
    - Field visits at least twice—during the intervention and within three months after the intervention
    - Reports by the implementing entities submitted to ESS officer within a week after each field visit
- Monitoring by ESS officer at PCU:
    - 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.

- 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)

7. Capacity Need and Budget

Activities under this ESMP will be implemented by the BFL focal person, supervising engineer, and a contractor. The budget for improvement of salt licks, snags, and waterholes and wetlands, enrichment planting is $4761.90*2 for 2020 and 1$ 1209 for 2021. The budget for restoration of the lowland grassland is $2000.

A separate budget of US$ 226 will cover the implementation of the ESMP mitigation measures.

8. Consultation and Disclosure Mechanisms

This ESMP has been prepared in a participatory manner, and a community consultation was carried out on 31/7/2020 in Tsakaling, Patshaling Geog, Tsirang to inform local communities regarding the planned 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:

The detailed minutes of the consultation meeting are attached to this ESMP, along with a full list of participants (disaggregated by gender and age).

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.

9. Stakeholder engagement plan

The local community that resides in the vicinity of the planned BFL activities in BC 3 will be engaged throughout the implementation of these activities.

- For activities that have no direct impact on communities (improvement of lowland grassland and waterhole rehabilitation)–consultation meetings have to be organized once a year (can be combined with consultations for other BFL or non-BFL activities).

- July 2020 at Gup office for water holes and salt licks for Sarpang

- November 2019, and July 2020 at the Community for water holes and salt licks for Tsirang.
- Consultation lowland grassland (Tsirang)- July 2020
- 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.

Annex 1. Community consultation minutes Date:14th November, 2019.

Tsakaling under Patsaling gewog is one of the villages which is experiencing human wildlife conflict mainly due to arrival of elephant. Keeping that in the mind, diverting animals away from human settlement is the only way to minimize conflict between human and wildlife. Therefore, this small village is focused as a pilot area to provide awareness among many communities. During the awareness program, conservation and coexistence of wildlife and human was discussed. As of now, there are very little destructions made by any of the wild animals like elephant and other herbivores either on the properties (crops) or human life but, it is never guaranteed and foreseen that they will not be affecting in the future.

So, we discussed about the disturbances and fragmentation of wildlife habitat due to rapid raise in human population over the few decades. Likewise, we also discussed and disseminated the roles and responsibilities of communities in conservation. As the elephants are already approaching their settlements, we discussed with them about the solutions to divert them away. Since salt and water are main reasons for the animals to visit the settlement it was decided that ***salt lick site development, improvement of waterholes and enrichment plantations (lowland grassland) can be the immediate solutions for the issue. Therefore, is was agreed that the activities will be carried out on pilot basis in the area.*** The communities welcomed the arrangement and agreed to implement the suggested solutions that were

proposed and discussed with them.

Moreover, some level of awareness was also given regarding prey and predator dynamics in the ecosystem. They were explained how the co-existence of wildlife and their dependency on each other is very important in the ecosystem to function well. The team also convinced them why population of wild pig is rapidly increasing keeping the food chain as an example. The consultation meeting was ended successfully with maximum female participants.

Report compiled and submitted by

Annexure II: Minutes of the Consultation meeting at Tsakaling for BFL activities (31st July 2020)

List of Participants:

1. Dimple Thapa, CFO
2. K N Ghimeray, BFL Focal
3. T. B. Chhettri, Accounts Officer
4. ShachaDorji, RO Tsirang
5. Gempa, RO, Mendrelgang
6. R K Ghalley FR I
7. LaidaDrukpa FR I
8. JigmeZangpo Sr. Fr
9. PemaGyeltshen, ChiwogTshogpa
10. Communuties of Tsakaling

The Chief Forestry Officer welcomed all the participants and shared her gratitude for sparing their time to attend the consultation meeting. CFO stated the importance of the location of the village being near to Biological corridor, and its role in serving as a route for wild animals trespassing between RMNP and JSWNP. CFO also mentioned about the area coverage in percentage for the BC 3 stating that 90 % of the BC 3 falls under Sarpang Division and 10% of BC falls within the jurisdiction of Tsirang Division.

The CFO and the team briefed the participants that Tsirang Forest Division in collaboration with local community are implementing number of BFL activities. As a part of Human wildlife conflict mitigation measures, the activities implemented near to Tsakaling villages are:

1. Construction and improvement of waterholes at Alubari, Sikaridara, and Mukterchock
2. Construction and improvement of salt licks at Alubari, Sikaridara, and Mukterchock

3. Enrichment planting at Alubari
4. Grassland plantation at Katleychu

All of these above activities are targeted to keep away wild animals from settlement to reduce human wildlife conflict as the wild animal come to settlement area basically looking for either fodder, salt or water. With this short introduction, following points were discussed.

I. Review of past activities and its feedback from community

In previous year 2019, 5 nos of Salt lick, 5 nos of water hole and 1 acre of enrichment plantation was carried out as shared by CFO with the communities. Similarly during 2020, around 1.5 acres grassland were created at Katleychu. CFO informed the floor that BFL project is for 14 years and she also mentioned that Bhutan for Life aims at generating sustainable finances and continuity of activities even without the aid of the project. CFO asked the communities to share their experience after initiation of BFL activities in the past year. To this the communities were grateful for the activities. They informed that earlier the village was experiencing human wildlife conflict mainly due to arrival of elephant near to settlement and now they know that diverting animals away from human settlement is only way to minimize conflict between human and wildlife. The Division has focused these area as a pilot sites for improvement of salt licks, snags, waterholes and wetland enrichment site in earlier plan period by consulting with communities of Tsakaling to keep away the wild animals. The communities responded that this type of idea of diverting wild animals from community is first of its kind and found it useful.

Communities offered their gratitude for the activities implemented in previous years too stating that with the construction of salt licks and water holes, the frequency of elephants visiting near to their settlement has reduced. The communities also mentioned that a herd of elephant who used to come up to their water source every year has stopped visiting this year with implementation of BFL activities. The communities are in favor of constructing more number of salt licks and water holes in near future as well.

II. Way Forward

With the discussion on past activities and its impact, the team from the Division head office together with the communities decided to follow up with the improvement of existing Salt licks, water holes, enrichment planting and Lowland grassland plantation during the year

2021 and 2022. The communities responded that this type of idea of diverting wild animals from their community is a successful type of measure and they decided to give us their support. CFO mentioned about the continuity of activities in near future even without aid of project to which the community mentioned that they would also continue with the same activities on their own so that they can save the crops and reduce risk to their life from wild animals. With this the floor decided to carry on with improvement water hole and salt licks with planting lowland grasses.

The consultation meeting decided to carry out improvement activities Salt lick, snags, grassland plantation and waterholes. The communities agreed to provide labor force and render their assistance in carrying out the activities. The Division also created awareness on waste management and also to manage the waste while carrying out the project activities. The communities also raised their concerns of not having proper place for dumping the wastes after collection from the construction sites. To this the CFO instructed Chiwog Tshogpa to initiate collecting of the waste as and when the Municipal waste van arrives. With these few discussions, CFO ended the consultation meeting by sharing her vote of thanks to the participants.

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. <u>Information Provision on</u> 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.

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