

Executive Summary

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

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

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

The activities that required ESMPs for the year 2025 under **Ugyen Wangchuck Institute for Forestry Research and Training** are as follows:

1. Construction of water filtration tank

བཀོད་ཁྱབ་བཅུད་དོན།

འབྲུག་རྒྱལ་ཡོངས་སློང་ཀའི་ཚེ་སློག་མ་དངུལ་འདི་མཐའ་འཁོར་གནས་ལྷངས་དང་མི་ཟླའི་འོས་འབབ་ཅན་གྱི་ལས་འགུལ་གྱི་དབྱེ་ཁག་ ཁ་བ་ (Category B) རང་ལུ་ཚུད་དེ་ཡོད་པ་ཡིན། དེ་ཡང་ལས་འགུལ་འདི་ལས་བརྟེན་ཏེ་སྤང་སྟོབ་ས་ཁོངས་ནང་སྤྱོད་མིའི་མི་སེར་དང་ ཡང་ན་ སྤང་སྟོབ་ས་ཁོངས་ཀྱི་མཐའ་སྐོར་ཏེ་ འཚོ་བ་སྤང་སྟོབ་ས་ཁོངས་ལུ་བརྟེན་སྤྱོད་མིའི་མི་སེར་ ཡང་ན་ གལ་ཅན་གྱི་མཐའ་སྐོར་གནས་ལྷངས་ཀྱི་ས་ཁོངས་ཚུ་ལུ་གཞོན་གཞོན་པ་འབྱུང་ནིའི་ཉེན་ཁ་ ཡོད་པ་ད་ གལ་སྤྱིད་གཞོན་པ་འབྱུང་པ་ཅིན་ གཞོན་ཉེན་ཚུ་དམིགས་གསལ་ས་གནས་ནང་རྒྱང་མ་ཅིག་འབྱུང་ནི་དང་ གཞོན་ཉེན་མར་ཕབ་རྒྱབ་ནི་དང་ཅ་མེད་ ཡང་གཏང་ཚུགས་པ་ཡིན།

དེ་འབད་ལཱ་ལས་ འབྲུག་རྒྱལ་ཡོངས་སློང་ཀའི་ཚེ་སློག་མ་དངུལ་ཐོག་ལུ་ རྒྱབ་སྐྱོར་འབད་ཡོད་པའི་ལས་འགུལ་དང་ལས་ལྷ་ཚུ་ མཐའ་འཁོར་གནས་ལྷངས་དང་ མི་ ཟླ་གཉིས་ལུ་ལུན་བརྟེན་གྱི་པན་པ་ཡོད་པ་བཟོ་བ་གི་མ་ཚད་ འབྲུག་རྒྱལ་ཡོངས་སློང་ཀའི་ཚེ་སློག་མ་དངུལ་གྱི་སྤྱིད་བྱས་ལམ་སྟོན་དང་འབྲེལ་ཐབས་ལུ་ མཐའ་ འཁོར་གནས་ལྷངས་དང་མི་ཟླ་འཛིན་སྐྱོང་འཆར་གཞི་འདི་དགོཔ་ད་ མི་དམངས་སྤོམ་བསྐྱུན་དང་ ཏུས་དང་ཏུས་སུ་མི་དམངས་ལུ་གསང་བ་བཤད་ནི་འདི་ དགོཔ་ཡིན།

ཁྱོན་དབང་ཕྱུག་ནགས་ཚལ་ཞིབ་འཚོལ་ དང་སྤྱོད་བཅར་སྤེལ་ཁང་གི་ རང་བཞིན་གནས་ལྷངས་དང་མི་ཟླ་འཛིན་སྐྱོང་འཆར་གཞི་འདི་ནང་ སློང་ཀ་དང་སྐྱེ་ ལཱ་བར་ལམ་BC་ཚུ་ནང་ལས་ལྷ་ཚུ་འབད་བའི་སྐབས་ ཐབས་ལམ་དང་བཟང་སྤྱོད་ཚུ་གསལ་སྟོན་འབད་ལཱ་ཡིན་མ་ད་ འདི་ཡང་ལས་ལྷ་འི་གདམ་སེལ་ལམ་ ལཱ་གས་དང་འབྲེལ་ཏེ་ཡིན། གདམ་སེལ་འབད་ཡོད་པའི་ལས་ལྷ་གི་ནང་ལས་ མཐའ་འཁོར་གནས་ལྷངས་དང་མི་ཟླ་གཞོན་ཉེན་ཡོད་པའི་ལས་ལྷ་ཚུ་གི་དོན་ལུ་ མཐའ་འཁོར་གནས་ལྷངས་དང་མི་ཟླ་འཛིན་སྐྱོང་འཆར་གཞི་བཟོ་དགོ། འཛིན་སྐྱོང་འཆར་གཞི་འདི་ནང་ ལས་ལྷ་འགོ་མ་བཅུགས་པའི་ཉེ་མ་གཞི་བཅུགས་འབད་ བའི་སྐབས་དང་མཐུག་བསྐྱུལ་ད་ལུ་ མཐའ་འཁོར་གནས་ལྷངས་འཛིན་སྐྱོང་དང་གཞོན་ཉེན་མར་ཕབ་ཀྱི་ཐབས་ལམ་ཚུ་བཅུགས་དགོཔ་ཡིན། དེ་འབད་ལཱ་ལས་ འཛིན་སྐྱོང་འཆར་གཞི་འདི་ནང་ ལས་ལྷ་ མི་ཟླ་ ལཱ་འགན། བརྟེན་དང་སྟན་ལྷ། དེ་ལས་ལྷ་རྟོག་ལམ་ལཱ་གས་ཚུ་གི་སྐོར་ལས་འབྲེལ་བཤད་ཁ་གསལ་ཚུད་དགོཔ་ ཡིན། འཛིན་སྐྱོང་འཆར་གཞི་འདི་ནང་ལུ་ གལ་གཏོགས་འབད་དགོ་པའི་ཁེ་གུད་ཡོད་མི་ཚུ་གི་ཉོག་བཤད་ཚུ་ཚུད་དགོ་པའི་ཁར་ ཁེ་གུད་ཡོད་པའི་མི་ཚུ་གི་དོན་ ལུ་གལ་གཏོགས་འཆར་གཞི་དགོ། གལ་གཏོགས་འཆར་གཞི་འདི་ནང་ ཁེ་གུད་ཡོད་མི་ངོས་འཛིན་འབད་ནི་དང་གལ་གཏོགས་འབད་ནིའི་ལམ་ལཱ་གས་ དེ་ལས་ གལ་གཏོགས་ཀྱི་ཏུས་ཚད་དང་བཅའ་སྤྱིལ་ཚུ་ཚུད་དགོཔ་ཡིན། སློང་ཀ་དང་སྐྱེ་ལཱ་བར་ལམ་ཡིག་ཚང་ཚུ་གི་མཆར་གཞི་ལས་ལྷ་དང་འབྲེལ་ཏེ་ དུན་ཐོ་དང་སྟན་ ལྷ། བསྐྱར་ཞིབ། ཚིས་དབྱུང་འབད་ནི། དེ་ལས་ མཐའ་འཁོར་གནས་ལྷངས་དང་མི་ཟླ་འཛིན་སྐྱོང་འཆར་གཞི་འདི་ལོ་བསྐྱར་བཞིན་ཏུ་ཏུས་མཐུན་བཟོ་དགོཔ་ཡིན།

ཁྱོན་དབང་ཕྱུག་ནགས་ཚལ་ཞིབ་འཚོལ་ དང་སྤྱོད་བཅར་སྤེལ་ཁང་གི་ དོན་ལུ་བྱི་ལོ་ ༡༠༡༥ རང་མཐའ་འཁོར་གནས་ལྷངས་དང་མི་ཟླ་འཛིན་སྐྱོང་འཆར་ གཞི་དགོཔ་ཡོད་པའི་ལས་ལྷ་ཚུ་ཡང་།

༡༥ ཚུ་ཚུས་ཁང་ བཟོ་སྐྱུན་འབད་ནི།

Bhutan for Life
Environmental and Social Management Plan for Ugyen Wangchuck Institute for
Forestry Research and Training (2025)

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); 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 landowners 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

The Ugyen Wangchuck Institute for Forestry Research and Training (UWIFoRT), situated at Lamai Goempa in Bumthang, was established in the year 2004 by the then Ministry of Agriculture with funding supports from the MacArthur Foundation and the Bhutan Trust Fund for Environmental Conservation. The institute was then named the Ugyen Wangchuck Institute of Forestry and Environmental Studies (UWIFES), and its founding goal was to provide world-class training and education in the field of forestry and environmental studies. With the establishment of the institute, the erstwhile Bhutan Forestry Institute at Taba which used to train Forest Guards was dissolved and the Forest Guard training programmes (Certificate in Forestry - 1 year) was undertaken by the institute at Lamai Goempa, Bumthang since June 2008.

Currently, apart from the certificate in forestry, the institute conducts various researches and provide regular professional training to the in-service foresters. There are three centers under the institute, Center for Forest Science and Technology (CFST), Center for Conservation (CoC), and Education and Capacity Building Services (ECBS). Under CFST, there are two sub-centers, Sub-tropical Forestry Center at Gelephu, Sarpang and NWFP Agroforestry sub-center at Darla, Chukkha.



Figure 1 UWIFoRT Campus

There are variety of flora and fauna in and around the UWIFoRT campus. In the forest above the institute there has been record of royal Bengal tiger, leopard, Asiatic golden cat, leopard cat, Himalayan black bear, red fox, red panda, musk deer, serow, otter, and clouded leopard. Some of the common vascular plants found within the campus are *Artimesia vulgaris*, *Stellaria vestita*, *Rumex nepalensis*, *Urtica dioca*, *Primula denticulata*, *Taraxacum officinale*, *Trifolium repens*, *Juniper recurve*, *Cornus capitata*, *Rhododendron falconeri*, *Rhododendron arboreum*, and *Rhododendron thomsonii*.



Figure 2 Tiger and clouded leopard captured in camera trap

3. Planned activities in Year 2025

3.1 Construction of water filtration tank

- **Budget:** Nu. 1,500,000
- **Timeline:** October 2025 to March 2026
- **Location:** Lamai Goempa, Choekhor gewog, Bumthang Dzongkhag.

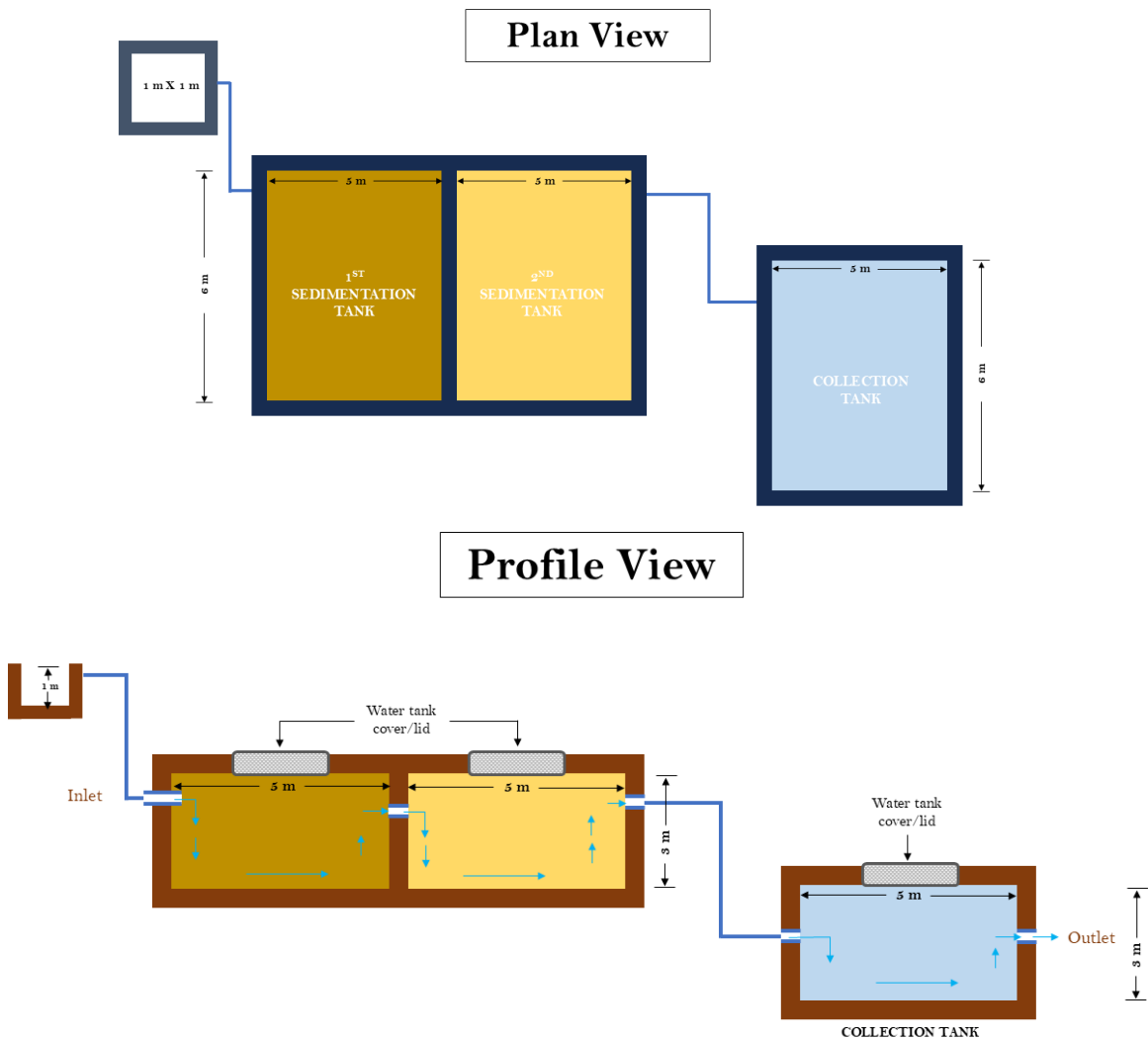


Figure 3 Collection chamber and sedimentation chamber

UWIFoRT is the research and training hub of DoFPS. In an annual basis numerous trainings are being conducted at the institute. Apart from the training, we conduct 1-year professional certificate forestry course. In the campus there are approximately 25 households. The training, certificate course, and households require a constant supply of clean water for drinking and other purposes. As the current water is directly supplied from the stream without proper filtration, there is high probability of people drinking it getting infected by water borne infections.

A flash flood which occurred on August 5, 2024 has critically compromised the existing water tank and plumbing. This has further aggravated the clean water supply at UWIFoRT. The construction of the water filtration tank will help resolve the above issues and supply clean drinking water to the residence, students, and officials who visits UWIFoRT for regular trainings.

Description of the site: The proposed activity will take place at UWIFoRT. The site has no vegetation cover. In the periphery of the proposed site, the vegetation is mostly dominated by blue pined forest. A stream runs by the site. The stream is the source of the drinking water. Beyond the proposed site, there are no settlements or roads.

Current state of the suggested activity site: The proposed site is currently unused. There are no vegetation cover and is connected by an approach farm road.

Precise works that will be undertaken: The main objective of the activity will be to construct collection chamber and sedimentation tank. This will ensure that the stream water is properly filtered, before supplying for consumption. Based on the need, plumbing works and maintenance may also be carried out to supply the clean water to exiting pluming system.

Engagement of temporary workers: Temporary workers will be employed for the activity. The number of workers, duration of employment, and accommodation arrangements will be determined based on project requirements. Local resources such as water may be used during the construction, but efforts will be made to minimize any impact on the local community.

Number of households located in the vicinity: There are approximately 14 households located in the vicinity of the activity site i.e. approximately 2 km away.

Issues related to wildlife presence: The presence of wildlife in the area may be affected by the activity, particularly in terms of disturbance to wildlife. Mitigation measures will be implemented to minimize any adverse impacts on wildlife, including the establishment of buffer zones and the implementation of measures to prevent wildlife disturbances.

Potential environmental impacts

The activity of construction of water filtration tank will have the following impacts:

- Dust pollution from construction works
- Waste produced from construction works
- Disturbance to the natural habitat while using the machinery for excavation

Potential social impacts

There will be minimal social impacts as the construction sites is not near any settlement and the noise from the activity will not be that significant. The construction of the water tank will be done by well trained workers, which will significantly reduce the chances of injury while operating tools and machinery. The occupational health and safety measures will be implemented strictly to ensure the workers health and safety.

4. Environmental and Social Impacts and Mitigation Measures

Table 1. Construction of water filtration tank

Potential impact	Impact scale	Proposed mitigation measures	Responsible party	Costs
<i>Activity 1: Construction of water filtration tank</i>				Nu. 1,500,000
Dust pollution from construction works	Short term Minor	<ul style="list-style-type: none"> • Windbreaks: Erect barriers to reduce the impact of wind on dust dispersion. • Enclosures: Cover materials or areas during activities to contain dust. • Cleaning: Sweep and clean the site regularly to prevent dust buildup. 	Contractor and Activity focal	To be incorporated in activity budget
Waste produced while construction works	Short term Minor	<ul style="list-style-type: none"> • Provide on-site sorting and storage areas. • The accumulated waste should be removed from the site twice in a month. • Provide awareness on proper waste disposal to the workers • Monitor and evaluate waste management practices regularly. 	Activity focal and contractor	To be incorporated in activity budget
Disturbance to the natural habitat while using the machinery for excavation	Short term Minor	<ul style="list-style-type: none"> • Avoid using heavy machinery; • Expedite the excavation process and complete it in the shortest duration. 	Activity focal	NA

5. ESMP Implementation Arrangements

The implementation of project activities will be carried out by the BFL focal person in UWIFoRT.

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 institute will sign with the Contractor(s) for implementation of the planned activity. 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.

Non-compliances will be recorded and the report on any non-compliances will be reported to the ESS consultants immediately, and the ESS consultants will report it to the PCU (M&E Officer). Every 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 UWIFoRT will closely monitor the implementation of the planned activity 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.

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

Table 2. Monitoring of all the activities under this ESMP

Sl. No	Activities	Monitoring team	Timeline		Location	Means of Verification
			Start	End		
1	Construction of water filtration tank	Field focal	October, 2025	March, 2026	Lamai Goempa	Physically visiting the construction site
		ESS focal	October, 2025	March, 2026		Field Visit and report

7. Capacity Need and Budget

Activities under this ESMP will be implemented by the BFL focal and staff of UWIFoRT.

The budget for the construction of the water filtration tank is Nu. 1,500,000.

8. Consultation and Disclosure Mechanisms

The full English version of this ESMP, as well as an executive summary in Bhutanese, shall be disclosed on the BFL and WWF Bhutan website. Hard copies of the ESMP should also be available at the UWIFoRT head office and at the PCU Office. The copies of ESMP will be shared with relevant stakeholders for compliance. The consultation will be done with the community living nearby the project site. The people will be invited to the project sites and will be presented with the opportunity to share their concerns and it will be reported in the BFL focal monitoring report. Any consultation meeting minutes shall be maintained for reference. The official minutes of consultation meeting (along with a list of participants, disaggregated by gender and age) will be submitted to the PCU after the consultation.

9. Stakeholder Engagement Plan

The community that resides in the vicinity of the planned BFL activity will be engaged throughout the implementation of these activities. The community will be helped by allowing the safe and uninterrupted passage of construction materials and labors. The community will also help us in monitoring the waste disposal issues at the project site and beyond.

Community groups shall visit the project sites and share their concerns and it will be reported in the BFL focal monitoring reports. Any consultation meeting minutes shall be maintained for reference. The community will be made aware in a timely manner of any activity carried out at the project site and the ownership for future management will be given to the community.

10. BFL-specific Grievance Mechanism

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

If the stakeholders have any grievances related to the BFL project they can report their grievances via letter, phone call or verbally to nearby gewog or forest offices. The report can also be sent to the BFL PCU office or WWF office. The specific brochure for the GRM is attached in the annexure 2 for any grievance related to implementation of the project activities. Since UWIFoRTs falls with BC8 areas, BC8-DFO, Bumthang GRM brochure will be used to address the issues.

WWF Grievance Mechanism

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

Email: SafeguardsComplaint@wwfus.org

Mailing address:

Project Complaints Officer Safeguards Complaints,

World Wildlife Fund

1250 24th Street NW

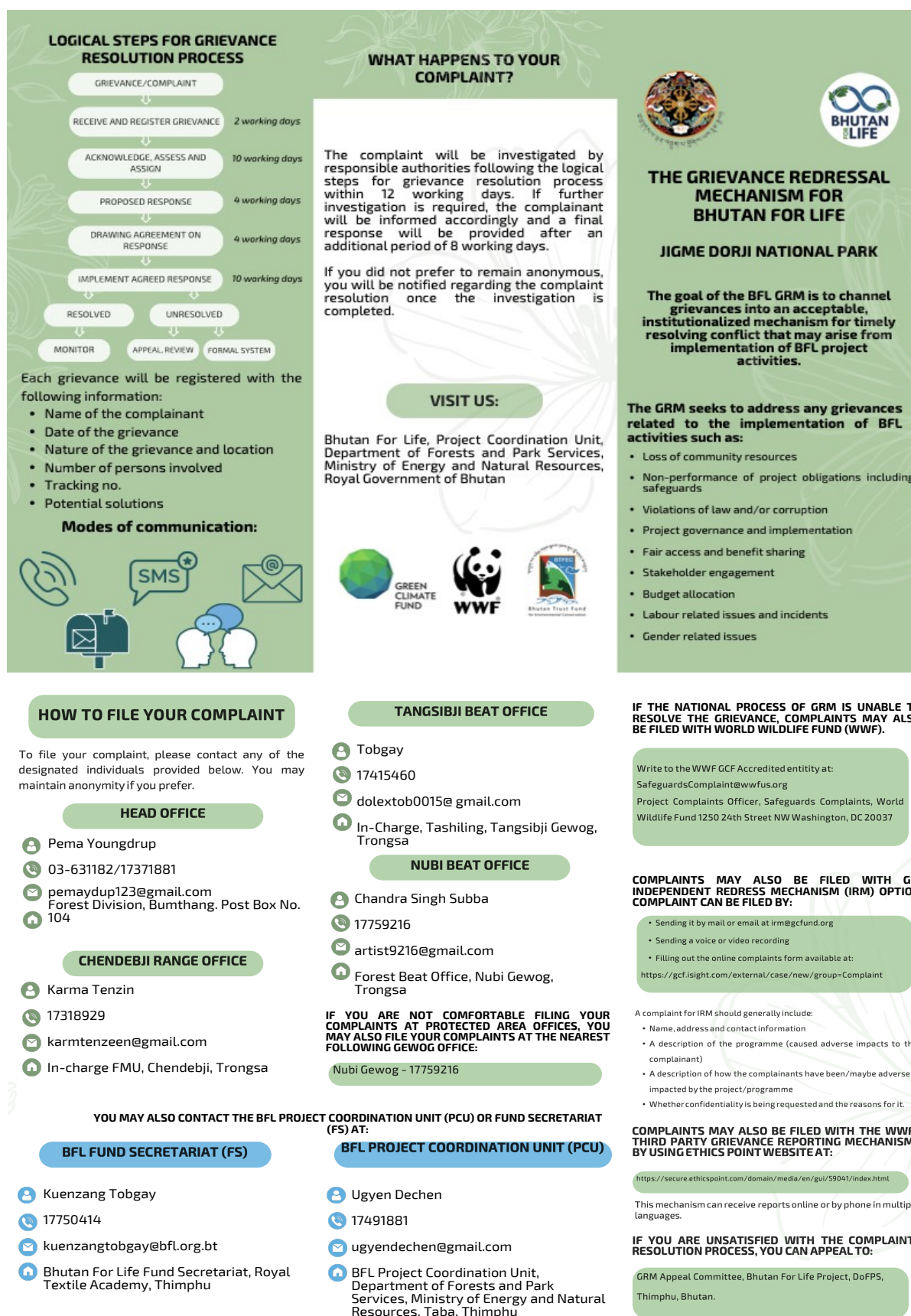
Washington, DC 20037

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

GCF Independent Review Mechanism

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

Annexure 1: BFL Specific GRM brochure



Annexure 2

BFL: Suggested Occupational Health and Safety Standards

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

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

1. General Facility Design and Operation

Integrity of Workplace Structures

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

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

Severe Weather and Facility Shutdown

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

Workspace and Exit

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

Fire Precautions

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

- The workplace shall be provided with adequate means of protection and escape

in case of fire.

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

Lavatories and Showers

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

Potable Water Supply

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

Clean Eating Area

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

Lighting

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

Safe Access

- Passageways for pedestrians and vehicles within and outside buildings should be segregated and provide for easy, safe, and appropriate access.

- Equipment and installations requiring servicing, inspection, and/or cleaning should have unobstructed, unrestricted, and ready access.
- Covers should, if feasible, be installed to protect against falling items.
- Measures to prevent unauthorized access to dangerous areas should be in place.

First Aid

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

Work Uniform

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

Air Supply

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

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

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

3. Physical Hazards

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

Rotating and Moving Equipment

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

Recommended protective measures include:

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

Noise

- No worker should be exposed to a noise level greater than 85 dB(A) for a duration of more than 8 hours per day without hearing protection. In addition, no unprotected ear should be exposed to a peak sound pressure level (instantaneous) of more than 140 dB(C).
- The use of hearing protection should be enforced actively when the equivalent sound level over 8 hours reaches 85 dB(A), the peak sound levels reach 140 dB(C), or the average maximum sound level reaches 110 dB(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-energizing 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 of over glasses or prescription hardened glasses.

Welding / Hot Work

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

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

Working Environment Temperature

Exposure to hot or cold working conditions in indoor or outdoor environments can result in temperature stress-related injury or death. The 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 the 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 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 require 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. Control should include:

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

4. Personal safety equipment for workers

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

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

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

5. Standards for workers' accommodation

1. General living facilities

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

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2. Drainage

- The site is adequately drained.

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3. Heating, air conditioning, ventilation and light

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

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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 apply 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 work site.
- Open defecation in the vicinity of project sites should be prohibited.
- An adequate number of hand wash basins and showers/bathroom facilities are provided.

- Shower facilities are provided with water heating facilities.

9. Cooking and laundry facilities

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

10. Leisure, social, and telecommunications facilities

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

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