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# Enhancing Productive and Sustainable Food Systems in Bhutan for Environmental Benefits and Gross National Happiness

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Environmental and Social Management Plan

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# **Enhancing Productive and Sustainable Food Systems in Bhutan for Environmental Benefits and Gross National Happiness (FSP)**

Environmental and Social Management Plan (ESMP)

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## Acronyms

Acronym	Full form
ARDC	Agriculture Research and Development Center
AWP/B	Annual work-plan and budget
BAIL	Bhutan Agro Industries Limited, Thimphu
BAP	Biodiversity Action Plan
BC	Biological Corridor
BDBL	Bhutan Development Bank Limited
BFDA	Bhutan Food and Drug Authority
BFL	Bhutan For Life
BH	Budget Holder
BHU	Basic Health Unit
BLDCL	Bhutan Livestock Development Corporation Ltd
BRECSA	Building Resilient Commercial Smallholder Agriculture
BTFW	Border Town Foreign Workers
BWS	Bumdeling Wildlife Sanctuary
CARLEP	Commercial Agriculture and Resilient Livelihoods Enhancement Programme
CAT	Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment
CBD	Convention on Biological Diversity
CBO	Community-Based Organization
CBSS	Community Based Support System
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CEO	Chief Executing Officer (GEF)
CF	Community Forests
CFO	Chief Forestry Officer
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna

Acronym	Full form
CPF	FAP's Country Program
CRPD	Convention on the Rights of Persons with Disabilities
CSA	Climate Smart Agriculture
CSO	Civil Society Organization
DAMC	Department of Agricultural Marketing and Cooperatives
DAO	<i>Dzongkhag</i> Agriculture Officer
DECC	Department of Environment and Climate Change
DLO	<i>Dzongkhag</i> Livestock Officers
DoA	Department of Agriculture
DoCDD	Department of Culture and Dzongkha Development
DoFPS	Department of Forests and Park Services
DoL	Department of Livestock
DoW	Department of Water
EA	Environmental Assessment
EC	Environmental clearance
EDMOs	Economic Development and Marketing Officers
EN	Endangered
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Safeguards
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FC	Forest Clearance
FGD	Focused Group Discussion
FLO	Funding Liaison Officer
FMCL	Farm Machinery Corporation Ltd
FNCA	Forest and Nature Conservation Act
FNCRR	Forest and Nature Conservation Rules and Regulations
FPIC	Free Prior and Informed Consent
FPMIS	Field Program Management Information System
FPOs	Farm Producer Organizations
FSAPP	Food Security and Agriculture Productivity
FSIP	Food System Integrated Program (of the GEF)
FSIP-GCP	FSIP Global Coordination Project
FYP	Five Year Plan
GAFSP	Global Agriculture and Food Security programme
GAO	Gewog Administrative Officer
GAP	Gender Action Plan
GBV	Gender-Based Violence
GCF	Green Climate Fund
GEB	Global environmental benefits
GEF	Global Environment Facility
GFP	Gender Focal Person
GHG	Greenhouse gas
GNH	Gross National Happiness
GRC	Grievance Redress Committee
GRM	Grievance Redress Mechanism
GTO	FAO GEF Technical Officer
HWC	Human Wildlife Conflict
IALC	Integrated Agriculture and Livestock Census
IBA	Important Bird Area
IEE	Initial Environmental Examination
ILO	International Labour Organization
IUCN	International Union for Conservation of Nature

Acronym	Full form
JWS	Jomotshangkha Wildlife Sanctuary
LFMP	Local Forest Management Plan
LTO	Lead Technical Officer
M&E	Monitoring and Evaluation
METT +	Management Effectiveness Tracking Tool Plus
MoAL	Ministry of Agriculture and Livestock
MoENR	Ministry of Energy and Natural Resources
MoF	Ministry of Finance
MTR	Mid-term review
NBS	Nature-based solutions
NBSAP	National Biodiversity Strategy and Action Plan
NCD	Nature Conservation Division
NDC	Nationally Determined Contribution
NEPA	National Environmental Protection Act
NFSPs	National food System Pathways
NGEP	National Gender Equality Policy
NGO	Non-government Organization
NSB	National Statistics Bureau
NSSC	National Soil Services Centre
NWFP	Non-Wood Forest Product
O&M	Operation and Maintenance
OED	Office of Evaluation Division (FAO)
OHS	Occupational Health and Safety
OHSW	Occupational Health, Safety and Welfare
OIG	Office of the Inspector General FAO
OP	Operational Partner
PA	Protected Area
PAVA	Property Assessment and Valuation Agency
PHC	Primary Health Care
PIR	Project Implementation Review
PIU	Project Implementation Unit
PMU	Project Management Unit
PNP	Phrumsengla National Park
PPE	Personal Protective Equipment
PPG	Project Preparation Grant
PPP	Public Private Partnerships
PPR	Project Progress Report
PSC	Project Steering Committee
RBP	Royal Bhutan Police
RECOP	Regulation for the Environmental Clearance of Projects
RENEW	Respect, Education, Nurture and Empower Women
RGOB	Royal Government of Bhutan
RNR	Renewable Natural Resources
RSTA	Road Safety and Transport Authority
SDG	Sustainable Development Goals
SEP	Stakeholder Engagement Plan
SME	Small and Medium Enterprises
STI	Science, technology, and information
SWS	Sakteng Wildlife Sanctuary
TE	Terminal Evaluation
ToC	Theory of Change
ToR	Terms of Reference
UN	United Nations

Acronym	Full form
UNDAF	United National Development Assistance Framework
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
USD	United States Dollars
VU	Vulnerable

## Units

masl	Metres above sea level
ha	Hectare
NTU	Nephelometric Turbidity
tCO2eq	Metric tons of carbon dioxide equivalent

## Terms

Dzongkha word	Description
Chhu	River/Water
Chiwog	Sub-Block (Basic Electoral Precinct)
Dessup	Guardians of Peace
Dratsang	Monastic Order
Dungkhag	Sub-District
Dzong	Fortress (Administrative Centers of each Dzongkhag)
Dzongda	District Officer
Dzongrab	Deputy District Officer
Dzongkhag	District
Gewog	Administrative Block
Kidu	Welfare accorded by the moral authority of the monarch
Lhakang	Temple
Lhotsamkha	Language of Lhotsampas/Southern Bhutanese (Nepalese Dialect)
Nye	Sacred Site
Thromde	Second Level Administrative Division
Tshogpa	Community Representative

## 1. Executive Summary

The 'Productive and Sustainable Food Systems in Bhutan for Environmental Benefits and Gross National Happiness' is a component of the GEF8 Food Systems Integrated Program (FSIP) aims to achieve transformation to sustainable, regenerative and inclusive food systems that are nature positive, resilient and pollution free.

The Project is rated as 'Moderate Risk' for both environmental and social risks as it has the potential to generate adverse environmental and social impacts. These impacts are, however, limited in scale, not unprecedented, and confined to the project area. Most of the risks and impacts can be identified with a reasonable degree of certainty and addressed by implementing mitigation measures and standard good practices.

The Environmental and Social Management Plan (ESMP) has been developed to manage potential adverse social and environmental impacts of the proposed project, in line with GEF Policy and FAO's Framework.

The project comprises three components, five outcomes and seven outputs. Project activities will be implemented at all levels (national, regional, *dzongkhag* (district), *gewog* (sub-district) and farm level) and focus on interventions to transform the food system from two different aspects: **semi subsistence farmers** and herders to improve food security and implement sustainable land management practices and supporting farmers and SMEs that are focused on **commercial production** to mainstream sustainability into food production and reduce Bhutan's dependency on food imports.

Activities under Component 2 will benefit 23 *gewogs* located within the six *dzongkhags* (Samdrupjongkhar, Pemagatshel, Trashigang, Mongar, Lhuntse and Trashiyangtse) of eastern Bhutan.

The Ministry of Agriculture and Livestock (MoAL) will act as the lead executing agency and will be responsible for the project implementation in full compliance with all terms and conditions of the Operational Partnership Agreement signed with The Food and Agriculture Organization (FAO)<sup>[1]</sup>.

While the country has relevant legislation, standards and guidelines that are applicable to the project, a few gaps remain related to the requirements of GEF Policy on Environmental and Social Safeguards and the FAO's **Framework for Environmental and Social Management (FESM)**.

Assessment of the Environmental and social risks of the project indicates that all ESS standards are triggered. Risks associated with each standard is summarized below.

### ESS 1

- Risk 1. Parts of 9 of the 23 *gewogs* and the whole of Lanchenphu *Gewog* fall within a Wildlife Sanctuary or biological corridor. There is a low risk that project activities may be implemented in core zones and critical habitats inside Protected Areas and Biological Corridors.
- Risk 2. During rangeland management, uncontrolled fires could cause extensive damage to natural ecosystems in Sakteng Wildlife Sanctuary if these activities are not well planned, with preventive measures in place.
- Risk 3. For sites located in remote areas, workers, if not given prior briefing, may carry out illegal activities such as poaching and fishing.
- Risk 4. Safety risks to both porters as well as workers during material transportation and working in forested areas as they may disturb wildlife and potentially be attacked.

### ESS 2.

- Risk 5. The intensification of agriculture production, pasture development, land management and construction of new infrastructure to support productivity (nurseries, market sheds, storage facilities), will require resources such as water, energy, chemicals, construction materials and human resources
- Risk 6. The same activities will result in the generation of construction, agriculture/livestock and domestic waste that may be hazardous or non-hazardous.

### ESS 3

- Risk 7. Risk of accidental collapse or failure of projects structural elements, particularly in eastern Bhutan, which is vulnerable to natural hazards
- Risk 8. Risk that slope cutting during the monsoon season could trigger landslides, particularly in the case of continuous heavy rainfall, especially if slope stabilization structures have not been built.

### ESS 4.

- Risk 9. For contract related works, there is a risk that contractors are unaware of FAO requirements and RGoB's applicable laws, rules and regulations or about environmental and social standards and measures to be applied during construction, especially regarding labour and working conditions and requirements to ensure a safe working environment free from work related risks or diseases.
- Risk 10. Risk of conflicts between workers or grievances regarding working conditions of employment with no mechanism for resolving internal grievances or ensuring appropriate behavior.
- Risk 11. Supported local small businesses could involve third party subcontractors, that may inadvertently fail to comply with labor regulations and/or may inadvertently fail to provide for occupational health and safety standards.

### ESS5.

- Risk 12. Information about project activities and benefits may not be disseminated widely to all sections of the community and in the process vulnerable groups may not be aware of project activities, benefits or opportunities, risks or the mechanisms to submit their views or grievances.
- Risk 13. Executing agencies may not have the capacity to ensure inclusivity of all sections of the community, especially vulnerable persons, or to deal with grievances, or ensure compliance with environmental and social standards.
- Risk 14. Communities living along material transportation routes or near work sites will likely be exposed to noise, increase in dust or particulate matter and air emissions and accidents in case infrastructure sites are not secured or cordoned off to the public.
- Risk 15. There is a risk of accidents and damage to public and private property during material transportation and construction work.
- Risk 16. Risk of disease transmission from non-local workers, from livestock farms and illness due to unsafe processing practices.
- Risk 17. Grievance Redress Mechanisms for workers may not be provided by the contractor

### ESS 6.

- Risk 18. Gender based violence (GBV) or sexual exploitation, abuse, and harassment (SEAH) of women and children or social conflicts between the resident community and workers.
- Risk 19. There is a risk that confidentiality and mechanism for resolution of GBV and SEAH cases is not provisioned in traditional grievance redress mechanisms, and this poses barriers for resolution of GBV and SEAH issues.
- Risk 20. Information on the GRM mechanisms may not be disseminated widely so affected persons may not be able to resolve grievances

### ESS 7

- Risk 21. Affected persons may be displaced from structures to be demolished without adequate consultation or assistance and may not be able to find or afford alternative rental accommodation.

### ESS 8



- Risk 23. The customary tenure and cultural rights of some *Brokpa* communities whose livelihoods are dependent on *Tsamdro* may be affected by project interventions unless proper safeguards are applied and monitored continuously.
- Risk 24. The project interventions may not benefit all members of the community especially vulnerable households who do not own livestock.
- Risk 25. Consultation process may not follow FPIC process.

#### ESS 9

- Risk 26. The project implementors may not consider or follow chance find procedures for valuable cultural heritage sites

To simplify the screening and ESA process during implementation, project activities have been grouped based on the types of activities proposed. Of the six groups, rangeland and grazing restoration is unique compared to the rest of the groups, because it triggers ESS 8 and therefore requires FPIC protocols to be followed. Given the location is within a protected area (Sakteng Wildlife Sanctuary), this activity will require comprehensive consultation and detailed planning to ensure benefits accrue to all community members, strengthen cooperation, and minimize impacts to the SWS through a phased manner.

Unlike the remaining groups of activities, 'Land Development' and 'Construction of new infrastructure' may trigger ESS 9 for which chance find procedures have been included.

'Farming', 'Poultry and Dairy', 'Operation of processing units', will trigger ESS 1-ESS7 while the last group 'Procurement' will trigger ESS2,3 and ESS6. Based on the ESS standards triggered, the ESMP details the mitigation measures for each activity group.

Some activities are not yet fully identified in terms of specific locations and interventions, limiting their assessment for all potential social and environmental risks and impacts. The ESMP outlines principles, guidelines, and procedures for assessing, screening, and managing potential social and environmental impacts as the sites are selected.

The **MoAL** will be responsible for the **implementation and monitoring** of the ESMP, ensuring that environmental and social risks are thoroughly assessed and management measures are in place before any site-specific project activities begin. The ESMP outlines a process that includes risk screening, preparing site-specific ESMPs, obtaining national clearances, FAO review and approval, implementing approved site-specific ESMPs, and conducting compliance monitoring, documentation, and reporting.

The key responsibility for the ESMP will lie with the ESS consultant who will be recruited through the project. However, since the consultant cannot reach all 23 *gewogs*, the primary focus will be on Rangeland Management and infrastructure works.

The DoA, DoL, DAMC staff and Extension Officers will be trained as trainers and in turn required to conduct training for Local Government representatives and staff on Environmental and Social risks and mitigation measures, monitoring and reporting. These trainings will be conducted together with activity specific meetings, or Gender awareness programs and trainings.

The MoAL will work closely with *Dzongkhag*, *Gewog* and Department of Forest and Park Services staff in the respective districts to ensure that environmental and social risks and impacts are avoided, and where avoidance is not possible, reduced, mitigated, and managed to the best possible extent.

## 2. Introduction

The project on 'Productive and Sustainable Food Systems in Bhutan for Environmental Benefits and Gross National Happiness' is a component of the GEF8 Food Systems Integrated Program (FSIP) which aims to achieve transformation to sustainable, regenerative and inclusive food systems that are nature positive, resilient and pollution free. It aims to improve Bhutan's food systems by providing affordable, safe food, eliminating malnutrition, reducing poverty, empowering women and children, reducing drudgery, creating employment,

remaining ecologically benign, and building resilience, aligning with Bhutan's Nationally Determined Contribution (NDC) and the Low Emission Development Strategy (LEDS) for the agrifood sector.

The project will allow the RGOB to address three key systemic challenges: a) economic challenges including poverty, limited employment opportunities in rural areas, and poor access to markets and financial resources; b) socio-political challenges including demographic changes causing rural outmigration, fragmented and small landholdings, low mechanization, limited access to inputs and services, gender inequality, and vulnerability to natural hazards and c) increasing vulnerability to climate change. It has a strong focus on improving rural livelihoods including by generating livelihood benefits through value chains, and markets, prioritizes subsistence farming for improved livelihoods, high-value products for export markets, and enhancing ecosystem services. It also aims to support women- and youth-led farming initiatives, reduce labor inputs, and reduce agro-chemical use in agrifood systems and engage the private sector and build capacities for long-term environmental sustainability. The project comprises of three components as follows:

- Component 1 on supportive enabling conditions for sustainable and healthy food systems focuses on improving the implementation of Bhutan's comprehensive food systems policies, addressing insufficient inter-sector coordination and enabling mechanisms, and managing trade-offs to support sustainable and healthy food systems transformation, particularly at the dzongkhag level.
- Component 2 on transformation of food systems at farm, landscape and value chain levels supports semi-subsistence farmers and herders in improving food security and sustainable land management, while promoting sustainability in commercial production, reducing Bhutan's food import dependency, and biodiversity conservation.
- Component 3 focuses on Adaptive management knowledge sharing by integrating existing and emerging initiatives, platforms, and reporting systems at national, regional, and global levels. The project has 5 outcomes and 7 outputs as shown in Annex 1. Table 1.

Component 2, in particular, aims to transform Bhutan's food system by supporting semi-subsistence farmers and herders to improve food security and implement sustainable land management practices, and mainstreaming sustainability into commercial production, reducing food import dependency. The project targets 23 gewogs in six dzongkhags of eastern Bhutan, containing 23,514 ha of agricultural land, with 64% actively used and the rest fallow or abandoned.

## 1. Policy and Legal Framework

### 1.1. National Legislation

This section presents an overview of all applicable policies, laws, rules and regulations relevant to the project including applicable international obligations

*Table 1. National Laws, Rules and Regulations*

National Laws, Rules and Regulations	Description
<b>Overarching</b>	
Constitution of Bhutan 2008	<p>Article 5 of the Constitution of Bhutan is focused on environmental conservation. It outlines the responsibilities of citizens, the government and the parliament to conserve the country’s biodiversity. Article 1(12) states that all natural resources, including rivers, lakes, forests, and minerals, belong to the state and their use is regulated by law.</p> <p>Article 5.3 of the Constitution states that “The Government shall ensure that, in order to conserve the country’s natural resources and to prevent degradation of the ecosystem, a minimum of 60 percent of Bhutan’s total land shall be maintained under forest cover for all time”</p> <p>The Constitution promotes the direct participation of the people in the development and management of their own social, economic, and environmental wellbeing through the Local Government Act of Bhutan. It promotes the elimination of all forms of discrimination and exploitation against women including trafficking, prostitution, abuse, violence, harassment and intimidation at work in both public and private spheres.</p>
<b>Acts, Rules and Regulations</b>	
<ul style="list-style-type: none"> <li>● National Environment Protection Act (NEPA), 2007</li> <li>● Environmental Assessment Act (EAA), 2000</li> <li>● Regulation for The Environmental Clearance of Projects (RECOP), 2016</li> </ul>	<p>The NEPA empowered the NEC<sup>1</sup> to appoint Competent Authorities to review project proposals and issue Environmental Clearances.</p> <p>The EAA establishes the procedures for assessing the potential impacts of any policy, program, or project</p> <p>The RECOP defines responsibilities and procedures for implementing the EAA, from screening, assessment, public consultation, assessment of alternatives, strengthening of local institutions, requirement for environmental clearances and monitoring as well as appeals and sanctions.</p> <p>Activities are categorized as per their potential environmental and social impacts into green, blue and red categories. For Blue and Red Category projects, project locations need to be specified.</p> <p>The NEPA requires that all activities are planned to minimize the consumption of space, raw materials, energy during the construction, production, distribution and utilization as per the principles of the three Rs (Reduce, reuse and recycle)</p>

<sup>1</sup> With the Civil Service Reform Bill 2022, the NEC has been changed to Department of Environment and Climate Change and will be under the Ministry of Energy and Natural Resources (Source: Rinzin Wangchuk. “Civil Service Reform Bill Proposes Reducing Ministries to 9.” *Kuensel Online*, 2022, kuenselonline.com/civil-service-reform-bill-proposes-reducing-ministries-to-9)

	<p>All Blue and Red Category projects are required as per the EIA 2000 Act and RECOP 2016, to specify resource requirements (water, energy, raw materials, construction materials), as well as specifics on air/gaseous, liquid/effluent, and solid waste generated and their storage and disposal methods, and accordingly mitigation measures for these (including noise and dust) are required to be incorporated within the Environmental Management Plans and budgeted accordingly. Additionally, all Forestry Permits and Environmental Clearances also include terms and conditions to minimize pollution.</p> <p>As per the EA 2000, where project activities impact on private land the project will seek consent from the landowners.</p>
<ul style="list-style-type: none"> <li>● Water Act of Bhutan, 2011</li> <li>● Water Regulation of Bhutan, 2014</li> </ul>	<p>States that water resources including the beds and banks are the property of the state Section 5(c) recognizes that ‘every individual shall have access to safe, affordable, and sufficient water for basic human needs. In terms of priority for water abstraction and use, the Water Act 2011 accords the highest priority for drinking and sanitation followed by agriculture, energy, industry, tourism, recreation and finally, other uses. It requires a permit for water abstraction, with exemptions for domestic use, small scale drinking water supply and irrigation schemes and running small water mills, water grinder or prayer wheels. The Gewog is mandated to issue water permit for small scale domestic use or irrigation schemes only, while the Dzongkhag Administration is also mandated to issue permits for water abstraction for sources located within its jurisdiction. The Water Regulation 2014 requires the preparation of IWRM and each dzongkhag to prepare integrated water use management plan based on the NIWRMP for adoption by the District Council.</p>
<ul style="list-style-type: none"> <li>● Forest and Nature Conservation Act, 2023</li> <li>● Forest and Nature Conservation Rules and Regulations, 2023</li> </ul>	<p>Forest clearance (FC) is mandatory for any activity in government forest land. The issuance of the FC is based on field assessment and criteria as per section 45 of the FNCA 2023. FC is not issued in areas declared as critical watersheds and core zones within protected areas, high forest, declared wetland areas, critical ecological sites or area prone to natural hazards or areas where endangered, rare or threatened species might be adversely impacted.</p> <p>The Act requires compensatory plantation to be carried out for any deforestation or damage caused. Section 104 -105 prohibits the introduction of invasive, alien or exotic species and requires DoFPS to adopt measures to manage the spread of these in accordance with the Biodiversity Act and Rules (section 182). The Act protects traditional rights of communities to use their natural resources for designated periods even within ‘transition zones’ protected areas. Species are categorized into Schedule I, II and III depending on the protection status, this does not necessarily match IUCN Red List status. The collection, possession or trade of Schedule I species (protected species) is totally restricted except for scientific purposes.</p> <p>The collection and trade of species in Schedule II and II is permitted based on submission of proposal and approval/permit from the DoFPS. The Act also promotes the sustainable use of forest through requirements of management plans for sustainable harvesting in Forest Management units, Community Forest and even Private Forest. Collection of forest resources is permitted under the Section 144 of the FNCA but must be regulated through management plan. Section 70 requires compensatory plantation to be carried out for any deforestation or damage caused. Section 67 of the FNCA and section 148 of the FNCR 2023 states that the DoFPS may carry out or outsource plantation, reforestation, afforestation and compensatory afforestation as per the technical guidelines issued by the DoFPS.</p>
<ul style="list-style-type: none"> <li>● The Biodiversity Act of Bhutan, 2022</li> <li>● The Biodiversity Rules and Regulations, 2023</li> </ul>	<p>The Act recognizes and protects traditional knowledge, innovation and practices of local communities associated with biodiversity. It aims to ensure the conservation and sustainable use biodiversity and promote the equitable sharing of benefits derived from the use of genetic resources. This provides for the protection, conservation and safeguarding of biodiversity. This is applicable to all genetically modified organisms; products derived from genetically modified organisms; and all stages of import, export, and direct use of products that have genetically modified content within the country. This is in accordance with the Cartagena Protocol on Biosafety to the Convention on Biological Diversity</p>

Bhutan Building Regulation 2018	This defines the set of rules that specify the minimum acceptable level of safety for building. infrastructures in Bhutan
<ul style="list-style-type: none"> <li>• Biosafety Act of Bhutan 2015</li> <li>• Biosafety Rules and Regulations of Bhutan 2018</li> </ul>	Applies to all GMO, products derived from GMOs, and to all stages of import, export or direct use. It mandates the establishment of a biosafety board and the Bhutan Agriculture and Food Regulatory Authority, promotes the precautionary principle, risk management and communication and details the sanctions, review and appeal process
<ul style="list-style-type: none"> <li>• Land Act of Bhutan, 2007</li> <li>• Rules and Regulations for Lease of Government Reserved Forest Land &amp; Government Land, 2018</li> <li>• Land Exchange Rules and Regulations, 2022</li> </ul>	The Act regulates ownership, sale and lease of land. It provides the acquisition mechanism for land and other property falling under the eminent domain whenever required for a public purpose based on prevailing compensation rates. If the family losing land becomes endangered, the Government will compensate that family with the cost of the land in cash and as well as substitute land. In the case of landless people, the land can be allotted free of cost by the Government as a Kidu. The Land Acquisition and Compensation Rules and Regulations (LACRR), 2022, state that private registered land shall be acquired only if unavoidable and can be acquired only once the substitute land is registered or cash compensation has been paid. After acquisition, if less than 10 decimals of land remain, this may be acquired too or consolidated with adjoining state land. If the process of providing substitute land is delayed, then a lease agreement is permissible until the substitute land is registered.
Livestock Act of Bhutan, 2001	Governs livestock production, health, welfare, and promotion of sustainable management practices
Food Act of Bhutan 2005	Governs and ensures food safety and quality throughout the food supply chain through standards through the establishment of the Bhutan Agriculture and Food Regulatory Authority (BAFRA) that is responsible for enforcing the Act, through control on import and export of food products, ensuring consumer protection, prevention of contamination and through promotion of research and education.
Seed Act of Bhutan 2000	Regulates the import and export of seeds, regulates sale, certification, establishing of laboratories, seed inspectors to prevent introduction of disease and promote the seed industry
Pesticide Act of Bhutan 2000	Establishes a regulatory framework for the management, use, and control of pesticides to ensure public health and environmental protection. It requires all pesticides to be registered and approved by the relevant a before they can be imported, manufactured, sold, distributed, or used in Bhutan. It mandates registration, safety guidelines, labeling, training, and enforcement, with penalties for violations. It sets the guidelines for the safe use, handling, storage, and disposal of pesticides
The Local Government (LG) Act of Bhutan, 2009	Promotes decentralization and devolution of power and authority to the Local Governments with the Dzongkhag Tshogdu <sup>2</sup> and the Gewog Tshogde as the highest decision-making bodies at the dzongkhag and gewog. Chapter 14 of the Act requires all activities undertaken by different sectors of the government to be routed through and coordinated by Local Government office and national agencies to conduct periodic consultations and involve LG prior to and during planning and implementation of national projects.
Civil Liability Act, 2023	The Civil Liability Act ensures accountability across all stakeholders

<sup>2</sup> A Dzongkhag Tshogdu means the District Council Source, while the Gewog Tshogde means the County Committee (Source: Dept. Local Governance & Disaster Management, Ministry of Home Affairs. FAQ. 2021, [www.dlghm.gov.bt/dlg-faq](http://www.dlghm.gov.bt/dlg-faq).)

<ul style="list-style-type: none"> <li>● Waste Prevention and Management Act of Bhutan, 2009</li> <li>● Waste Prevention and Management Regulation, 2012</li> </ul>	<p>Waste is categorized into non-hazardous waste, hazardous waste, medical waste, e-waste and other waste. The Act and Regulation provide the necessary institutional framework for coordination on waste management to reduce generation at source, promote segregation, reuse, and recycling, storage, transportation, environmentally-sound treatment, disposal as well as import and export. The Act promote the Precautionary principle, and the Polluter pays principle.</p>
<ul style="list-style-type: none"> <li>● Labour and Employment Act, 2007</li> <li>● Regulations on Working Conditions, 2022</li> <li>● Regulation on Foreign Workers Management, 2022</li> <li>● Regulation on Occupational Health, Safety and Welfare, 2022</li> <li>● Regulation on Occupational Health and Safety for Construction Industry, 2022</li> </ul>	<p>The Labour and Employment Act of Bhutan 2007 prohibits ‘forced or compulsory’ labour and ‘worst forms of child’ labor, discrimination against employees or job applicants for vacancies in connection with recruitment, dismissal, transfer, training, and demotion, or for wages and working conditions. It also defines and restricts sexual harassment and wrongful dismissal. The Act also touches on Compensation and benefits of employees and Occupational Health and Safety (OHS).</p> <p>Chapter IX relating to OHS details the requirements of employers to provide and maintain a safe working environment for its employees, through hazard identification, instituting management, systems, procedures and identifying roles and responsibilities, for implementation, monitoring and recording and reporting systems.</p> <p>All contractors are required to abide by the Regulation on Occupational Health and Safety for the Construction Industry, 2022. This regulation clearly restricts the employment of persons under the age of 18 for any construction activity (Section 7). It requires contractors to prepare a health and safety (HS) policy, appoint both a HS committee, a Safety Officer, and a Safety Representative, an Emergency Action Plan, provision for Personal Protective Equipment for its workers and detail safety measures for specific types of activities including maintenance of construction machines and equipment, demolition works and blasting. Worker Health and Safety measures include provisions for safe siting, gender friendly worker accommodation (that houses four workers per room), with toilets that is safe against wind, cold, rain and heat safe drinking water, access to medical facilities, first aid, All sites are to be adequately illuminated in compliance with the Electricity Act of Bhutan, 2001.</p> <p>The Regulation requires measures to ensure safety to the neighboring Community and measures to minimize physical environmental impacts such as dust, gas, and fumes with safety signage.</p>
<p>The Domestic Violence Prevention Act of Bhutan, 2013</p>	<p>The Domestic Violence Prevention Act aims to address domestic violence issues and ensure the protection of victims.</p>
<p>Disaster Management Act of Bhutan, 2013</p>	<p>Aims to enhance institutional capacity for disaster management, mainstream disaster risk reduction, and promote integrated, coordinated disaster management with community participation. It requires each Dzongkhag to prepare Dzongkhag Disaster Management Plans as per the Guidelines, including hazard mapping and planning and implementation of disaster interventions, and mitigation measures accordingly.</p>
<p>Cultural Heritage Bill of Bhutan 2016</p>	<p>The Cultural Heritage Bill of Bhutan 2016 requires that any new policy, legislation and administrative practice must endeavor to sustain cultural heritage and the cultural landscape. It requires the Dzongkhags to monitor the state of protection of movable cultural property and heritage site, and the viability of intangible cultural heritage. It requires any entity undertaking development activity that may affect the cultural element to obtain consent of the local community associated with the cultural element prior to seeking a development permit from the Dzongkhag or Dzongkhag Thromde</p> <p>For the use of Intangible Heritage, Prior Informed Consent is required along with acknowledgement for the use of Intangible Heritage</p>

<ul style="list-style-type: none"><li>● Road Safety and Transport Act 1999</li><li>● Road Safety and Transport Regulation 2021</li></ul>	The Act established the e Road Safety and Transport Authority to ensure a safe and efficient public transport system, driver licensing and vehicle registration systems, and establish a system to ensure safe and reliable commercial system. The Regulation details requirements for vehicle registration, licensing and traffic regulation, emission testing, roadworthiness, and vehicle ownership transfer.
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## 1.2. National Standards and Guidelines

There are several policy briefs, standards and guidelines that are applicable to the projects. These are listed in Table 2.

*Table 2. Applicable Policy, Standards and Guidelines*

<b>Sector</b>	<b>Applicable Policy, Standards and Guidelines</b>
Environment	Guide for Environmental Clearance Application Procedure, 2022 for all categories The National Environment Standards 2020 - permissible emission standards for ambient air quality, workplace emission, vehicular emission, and noise limit
Forest	Protected Area (PA) specific Management Conservation Plans to guide planning and implementation of PAs– Forest and Nature Conservation Code of Best Management Practices of Bhutan. 2021
Waste	National Waste Management Strategy 2019
Use of fertilizers and pesticides	Technical Regulations for Organic and Bio-fertilizers 2020 Fertilizer Recommendation Guide 2024 National Fertilizer Strategy and Action Plan 2023-2030
Labor, wages, working conditions	Guideline for the Approval, Employment, and Management of Border Town Foreign Workers (BTFW), 2022 Revised National Workforce Wage Rate, 2015
Infrastructure	Building Code of Bhutan 2018- sets out the technical requirements, standards and design considerations which shall apply to construction of buildings in Bhutan.
Gender	National Policy for Women, 2009 National Gender Equality Policy (NGEP), 2020- ensures equal opportunities for all genders, promoting their full potential and equitable access to social, economic, and political developments
Land and property	Notification on Revision of PAVA Compensation Rates 2022 Land Compensation Rates 2022 Chiwog-wise Land Compensation Rates 2022 Dispute Settlement Guidelines 2018
Access and Benefit Sharing	Access and Benefit Sharing Policy of Bhutan 2015 Access and benefit sharing toolkit 2018
Irrigation	National Irrigation Policy -2012
Food and nutrition	Food and nutrition security policy of Bhutan 2023
Research	Renewable Natural Resources (RNR) Research Policy of Bhutan 2011
Marketing	Renewable Natural Resources (RNR) Marketing Policy of the Kingdom of Bhutan 2018
Human Wildlife Management	Guidelines for Human Wildlife Management

## 1.3. International Agreements and Conventions

Table 3 summarizes relevant international treaties and conventions ratified by Bhutan.

*Table 3. International agreements and conventions*

<b>International Agreements/Conventions</b>	<b>Year</b>
Convention on the Elimination of All Forms of Discrimination against Women (CEDAW)	1981
Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (CAT)	1990
International Plant Protection Convention	1994
UN Convention on Biological Diversity	1995
United Nations Framework Convention on Climate Change (UNFCCC)	1995
UNESCO World Heritage Convention	2001



<b>International Agreements/Conventions</b>	<b>Year</b>
Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris 1972)	2001
The Cartagena Protocol on Biosafety to the UN Convention on Biological Diversity	2002
The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	2002
The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	2002
Kyoto Protocol	2002
International Treaty on Plant Genetic Resource for Food and Agriculture (ITPGRFA)	2003
FAO International Treaty on Plant Genetic Resources for Food and Agriculture	2003
Vienna Convention for the Protection of the Ozone Layer	2004
The Montreal Protocol on Substances that Deplete the Ozone Layer	2004
International Convention on the Elimination of All Forms of Racial Discrimination (ICERD)	2005
Convention on the Rights of Persons with Disabilities (CRPD)	2005
Optional protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict (OP – CRC – AC)	2009
Optional Protocol to the Convention on the Rights of the Child and the sale of children, child prostitution and child pornography (OP – CRC – SC)	2009
South Asian Wildlife Enforcement Network (SAWEN)	2010
RAMSAR Convention on Wetlands	2012
The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity	2013
Paris Agreement	2015
The Kigali Amendment to the Montreal Protocol	2019

### 1.1. Comparison of FAO Environmental and Social Standards and Relevance of Bhutan’s Policy, Legislation, Guidelines and Standards

While national legislation, standards and guidelines are applicable to all FAO’s Environmental and Social Standards ESS 1-ESS9, a few gaps remain in ensuring full compliance with these standards. Therefore, the project will ensure compliance with FAO ESS. These are highlighted in Table 4

Table 4. Gaps between National Legislation and Applicability of ESS standards to the project

FAO Safeguard Standards	Gaps	Applicability to the project
ESS 1 – Biodiversity conservation and sustainable management of natural resources	Adequately covered	Applicable as some of the project sites are located within Protected Areas and Biological Corridors and rural farmlands adjoin forest areas where such species may be found and cause human wildlife conflict due to livestock depredation or crop damage. No additional measures are required as National legislation is adequate.
ESS2 – Resource efficiency and pollution prevention	-Relevant only for activities that require Environmental clearance	Applicable as project activities will require water, energy, construction materials, equipment, vehicles, use of fertilizers, pesticides, herbicides, vehicles, and generate all types of waste (packaging, demolition, construction, farm) Additional measures include <i>compliance with</i> -FAO sustainability principles under the precautionary approach. -Voluntary Guidelines for Sustainable Soil Management (FAO, 2017) -utilize Integrated Pest Management (IPM) - WHO/FAO International Code of Conduct on Pesticide Management <sup>3</sup> FAO International Code of Conduct on Sustainable Use and Management of Fertilizers (the Fertilizer Code) <sup>4</sup> .
ESS3 – Climate change and disaster risk reduction	Adequately covered	Applicable as climate and disaster risks will exist from implementation to operation phases. The government will continue to work with NHCM for regular updates on weather information to the MoAL
ESS4 – Decent Work	National legislation does not cover Primary Suppliers and community workers	Applicable as project activities will involve direct workers, primary supply workers, contract workers and community workers Project will ensure compliance with ESS 4

<sup>3</sup> Food and Agriculture Organization of the United Nations and World Health Organization. *The International Code of Conduct on Pesticide Management*. 2014, [www.fao.org/fileadmin/templates/agphome/documents/Pests\\_Pesticides/Code/CODE\\_2014Sep\\_ENG.pdf](http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/Code/CODE_2014Sep_ENG.pdf).

<sup>4</sup> Food and Agriculture Organization of the United Nations. *The International Code of Conduct for the Sustainable Use and Management of Fertilizers*. 2019, [openknowledge.fao.org/server/api/core/bitstreams/a8edc4fb-1614-426b-b21c-440fff19c46b/content](http://openknowledge.fao.org/server/api/core/bitstreams/a8edc4fb-1614-426b-b21c-440fff19c46b/content).

<b>FAO Safeguard Standards</b>	<b>Gaps</b>	<b>Applicability to the project</b>
ESS5 – Community health, safety and security	National legislation does not cover Community health, safety and security for agriculture sector	Applicable as project activities may pose risks to the community during material transportation, construction, land development or farming activities. Project will ensure compliance with ESS 5
ESS6 – Gender Equality	Adequately covered but despite constitutional rights and legislation gaps remain as a result of barriers due to traditional and cultural norms and individual perceptions	Applicable as project will both positively and negatively involve and impact project households Project will ensure compliance with ESS 6
ESS7 – Land tenure, displacement and resettlement	Legislation does not acknowledge non-title holders	Applicable as aggregation site will require demolition of structures being used by 2 households. Also, other sites have not been finalized so there may be potential for physical and economic displacement. Project will ensure compliance with ESS 7
ESS8 – Indigenous Peoples	The term vulnerable people /unique socio-cultural groups are used FPIC protocols not mandatory	Applicable as two gewogs have the unique 'Brokpa Community' Project will ensure compliance with ESS 8
ESS9 – Cultural Heritage	Confidentiality and restricted access by communities not specifically mentioned in legislation which only requires obtaining the consent of the local community in case any development activity may affect cultural elements	Applicable as project districts have many religious and cultural sites of importance to both the community and individual households. Project will ensure compliance with ESS 9

## 2. Environmental and Social Baseline

### 2.1. Physical Environment

#### 2.1.1. Location

The project sites lie within twenty-three gewogs in the six easternmost dzongkhags (Samdrup Jongkhar, Pema Gatshel, Trashigang, Trashigang, Mongar and Lhuentse) and in small settlements-Khaling and Lingmethang. Together, these dzongkhags together make up 32% (approximately 12,199 sq km) of the total land area of Bhutan. The largest to smallest dzongkhags are Trashigang (7.96% of total land area), Lhuentse (7.43%), Mongar (5.05%), Samdrup Jongkhar (4.89%), Trashiyangtse (3.75%), and Pemagatshel (2.66%).

#### 2.1.2. Topography

The topography of the country is greatly influenced by geological uplift, lithological formations and the flow of the river system. Towards the southern border of the country, there are narrow belts of flatland including in Lachengphu and Decheling *gewogs*. As elevations increase, slopes range from gentle to moderate where agriculture is practiced. Lhuentse and Trashigang have moderate to steep slopes intersected by gorges, Trashigang has gentle slopes and wide river valleys in Bumdeling with steep ridges along the upper elevations. Mongar and Pema Gatshel have gentle slopes where settlements have established and agriculture is practiced, and moderate slopes in higher elevations.

*Table 5. Elevation and topography of project districts*

District	Elevation	Topography
Lhuentse	900 m to 6300 masl	Moderate to steep slopes
Mongar	300-4200masl	Gentle slopes in settlement and agricultural areas with moderate slopes at higher elevations
Pema Gatshel	200 -2700 masl	Gentle slopes in settlement and agricultural areas with moderate slopes at higher elevations
Samdrup Jongkhar	200-4500masl	Flat lands with gentle and moderate slopes in the higher elevations
Trashigang	600-4500 masl	Moderate to steep slopes
Trashigang	800-6000masl	Gentle slopes along the river valley with increasing step spots and ridge on the upper slopes

#### 2.1.3. Climatic conditions and agro-ecological zones

Bhutan experiences four seasons, spring and autumn are very short while summers and winters are long. Spring is usually from March to mid-April, summer lasts until the end of September, autumn is from October to mid-November and winter lasts until the end of February. Climate varies with altitude, relief and vegetation, but many parts of the county experience microclimates where temperature and rainfall vary greatly. SamdrupJongkhar and Pema Gatshel experience sub-tropical with hot and humid summers and mild winters. With increasing altitude, both these districts as well as Mongar and Trashigang experience a warm temperate climate with cool winters and warm summers. The northern parts of the country have an alpine climate enduring long and cold winters with short, cool summers. During the monsoon, thunderstorms are quite common, while during the winter months strong winds prevail depending on location.

Rainfall - There is a wide variation in rainfall in the country, with higher rainfall in the southern foothills and a decreasing rainfall pattern towards central and northern Bhutan. In 2022, the annual rainfall was the highest in Samdrup Jongkhar (almost 5000mm), followed by Pema Gatshel (2031mm). Trashigang and Trashigang received a little over 1000mm (1166mm and 1081mm respectively), while Mongar and Lhuentse received less than 800mm (769 and 645mm respectively). The monthly accumulated rainfall and their long-term average for project sites is provided in Annex 4).

Based on rainfall and altitude, the country is divided into six agro-ecological zones namely alpine, cool temperate, warm temperate, dry subtropical, humid sub-tropical and wet sub-tropical. In the colder alpine regions (3500–7500m) farming is limited to dryland farming with livestock rearing on rangelands and pastures. In the cool temperate regions (2600–3600m), barley- fallow / Potato and Turnip are commonly grown on dryland, while in the warm temperate region paddy, wheat, potato, seasonal fodder, and several kinds of vegetables are grown on terraced dryland and wetlands.

#### **2.1.4. Soils**

According to the studies conducted by the National Services Centre, all six districts have similar soils. Dystric Cambisols are the most dominant soil type found in all districts covering most of the forested areas, Haplic Acrisols are common on ridges and spurs and alpine areas, Eutric Cambisols are found in cultivated areas in warm-temperate and dry sub-tropical Agro-ecological Zones and Anthraquic Cambisols found in irrigated area, while Haplic Lixisols and Haplic Alisols occur in cool temperate areas.

The soil texture in the six districts ranges from Loam (Lhuentse and Pema Gatshel), to Clay Loam (Samdrup Jongkhar, Trashigang and Tashi Yangtse) to Silty Clay Loam in Mongar. the soil in Lhuentse, Mongar and Trashi Yangtse are slightly acidic while soils in Pema Gatshel, Samdrup Jongkhar and Trashigang are very acidic<sup>5</sup> (Annex 4 Table 2 and 3 and Map 1).

### **2.2. Biological Environment**

#### **2.2.1. Forest cover and type**

Forests constitute 86 % of the total carbon stock of Bhutan with 523.87 million tonnes of carbon with a carbon density of 195.73 tonnes ha. Forests are broadly categorized into two broad classes; (Broadleaved Forest and Coniferous Forest) and 10 major Forest types; Subtropical Forest, Warm Broadleaved Forest, Chir Pine Forest, Cool Broadleaved Forest, Evergreen Oak Forest, Blue Pine Forest, Spruce Forest, Hemlock Forest, Fir Forest and Juniper Rhododendron Forest. The second National Forest Inventory in 2023 estimates the national forest cover at 69.71 %. Within the project area, Lhuentse (64.79%) and Trashi Yangtse (69.97%) have the lowest forest cover, as the higher altitudes in these two *dzongkhags* comprise of alpine scrub, snow and glaciers. Trashigang has 79.15% forest cover while Mongar, Pema Gatshel and Samdrup Jongkhar have more than 90% forest cover (Refer Annex 4 Table 4 and Map 2). At the lower altitudes, forest in Samdrup Jongkhar and Pemagatshel are mostly Subtropical and Warm Broadleaved Forest that transitions to cool broadleaf and Chirpine. As such these warm broadleaved forests have lower biomass carbon density compared to other Dzungkhags such as Lhuentse, Trashigang, Trashi Yangtse and Mongar which have fir forest, evergreen oak, and hemlock forest<sup>6</sup>.

#### **2.2.2. Protected Areas and Biological Corridors**

Protected Areas (PA) in Bhutan are comprised of five national parks, four wildlife sanctuaries, one strict nature reserve (covering an area of 43.48%) and eight biological corridors (7.73%). Within the project area there are three protected areas and two biological corridors (BC 6 and BC 7)

The **Sakteng Wildlife Sanctuary (SWS)** covering 740.60 km<sup>2</sup> is known for its rich biodiversity and is the only PA with 41 species of Rhododendrons<sup>7</sup>. The sanctuary includes parts of Merak, Sakteng *gewogs* which are focus of rangeland interventions of the project and supports 5,000 semi-nomadic residents. It was proposed as a mixed World Heritage site in 2013 due to its unique landscape and cultural heritage

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<sup>5</sup> National Soil Services Centre, 2024. Fertilizer Recommendation Guide 2024

<sup>6</sup> Dept of Forest and Park Services, Royal Government of Bhutan. 2016. National Forest Inventory Report. Stocktaking Nations Forest Resources.

<sup>7</sup> The conservation plan reported a total of 858 plants, 39 mammals, 283 birds, 63 butterflies, 5 reptiles, 3 amphibians, and 2 fish species

**Jomotsangkha WS (JWS)**, located in Samdrup Jongkhar Dzongkhag, is 362 km<sup>2</sup>. It connects with Sakteng Wildlife Sanctuary and Royal Manas National Park through biological corridors, forming a key part of Bhutan's protected area network. Despite its small size it is a biodiversity hotspot<sup>8</sup> and home to endangered species including the Royal Bengal Tiger, Asiatic Wild Elephant, Pygmy hog, hispid hare, and all four of Bhutan's hornbill species. The Sanctuary includes Langchenphu gewogs and parts of Serthig, Samrang, Pemathang and Phuntshothang gewogs.

**Bumdeling WS (BWS)**, covering 1520.61 sq.km was designated as a Ramsar site, as it is a winter roosting area for the Black-necked Cranes. It is also listed in the tentative list of the World Heritage Sites<sup>9</sup>, due to its biodiversity as well as religious and cultural sites. It is the only place where the endemic Ludlow's Bhutan Glory butterfly can be found, along with the Snow Leopard and Red Panda<sup>10</sup>. The Sanctuary spreads over 3 gewogs Khoma (Lhuentse), Sherimuhung (Mongar) and Bumdeling (Trashigang).

**Phrumsengla National Park (PNP)** has an area of 905.05 sq. km and is critical as it connects the four protected areas through biological corridors, extending from sub-tropical broadleaved to the alpine ecosystems and is highly diverse<sup>11</sup> including a number of endangered species such as Tigers, Red Panda, Musk Deer and vulnerable birds such as Chestnut-breasted partridge, Rufous-necked hornbill Beautiful nuthatch. The park spread across ten Gewogs (3 in Bumthang, 2 in Zhemgang, 2 in Mongar-Saleng and Tsamang, 3 in Luentse- Jarey, Metsho and Gangzur) including 32 villages and 6000 inhabitants<sup>12</sup>

**Biological Corridor 6** covers an area of 270.80 km<sup>2</sup> and connects the SWS to JWS. It includes parts of 2 gewogs (Merak and Kangpar) under Trashigang, and 4 gewogs (Laurii, Martshala, Serthi and Samrang) under Samdrup Jongkhar. The corridor is managed by Trashigang Territorial Division<sup>13</sup>

**Biological Corridor 7** covers an area of 79 km<sup>2</sup> and connects BWS and PNP and Wangchuk Centennial National Park through its north and south corridors. It includes parts of 5 gewogs (Gangzur, Menbi, Jarey and Minjey and Tsaenkhar) in Lhuentse and 1 gewog (Tsamang) in Mongar.<sup>14</sup> This was created to support the focal species - Tiger, Red Panda, and Musk Deer. Administratively, it is managed by Mongar Forest Division.

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<sup>8</sup> 34 mammals, 311 birds, 331 butterflies, 79 fish, 80 dragonfly and damselfly, 82 herpetofauna and 571 plant species are reported in the conservation plan

<sup>9</sup> Centre, UNESCO World Heritage Convention. "Bumdeling Wildlife Sanctuary." *UNESCO World Heritage Centre*, [whc.unesco.org/en/tentativelists/5700/](http://whc.unesco.org/en/tentativelists/5700/).

<sup>10</sup> 966 plants, 52 mammals, 356 birds, 200 butterflies and 18 species of snakes reported in the conservation plan

<sup>11</sup> 1000 species of plants, 70 species of mammals, 364 species of birds, and 50 species of butterflies, 3 species of amphibians, 12 species of reptiles, 4 species of lizards, 7 species of fish and 55 species of butterflies.

<sup>12</sup> PNP, 2019. Management Plan, June 2019-June 2024

<sup>13</sup> Bhutan for Life, 2019, ESMP for BC 6

<sup>14</sup> Bhutan for Life, 2019, ESMP for BC 7

Table 6. Protected areas and Biodiversity Corridors in the project area

	Dzongkhag	Gewogs	Biodiversity	Settlements
Biological Corridor 6	73.3% Samdrup Jongkhar	parts of Serthig, (17.70%) Samrang, Martshala (17.13%) and Lauri	485 plant species, 38 mammal species, 188 bird species Notable species include Asiatic elephant, guar, musk deer, clouded leopard, blyth's tragopan, Temminck's Tragopan tragopan, satyr tragopan, rufous-necked hornbill and plant species such as <i>Sapria himalayana</i> , <i>Bulbophyllum trongsaense</i> , <i>Illicium griffithii</i> , <i>Taxus wallichiana</i> <i>Aristolochia griffithii</i> , <i>Rhododendron dalhousiae</i> and <i>Merrillioanax alpinus</i>	2,253 households <sup>15</sup> in following gewogs of Trashigang: Merak (Khashiteng Village = 9), Kangpara and gewogs of Samdrup Jongkhar: Martshela (Tshong Tshalu Village = 38), Sethig (Largab Village = 7), Lauri and Samrang.
	26.7% Trashigang	parts of Kangpara (19.87% ) and Merak		
Biological Corridor 7	Lhuentse	Parts of Gangzur, Khoma, Metsho, Menbi, Minjay and Tsenkhar	307 plant species, 28 mammal species, 276 bird species endangered mammals recorded include red panda, Asiatic wild dog, and Tiger.	Only few villages of 7 gewogs Gangzur, Menbi, Menji, Khoma, Tsengkhar under Lhuentse Dzongkhag; and, Tsamang, Tsakaling under Mongar Dzongkhag fall under BC 7
	Mongar	Parts of Tsakaling and Tsamang		
Bumdeling Wildlife Sanctuary	Lhuentse	Parts of Khoma	966 species of plants, 52 species of mammals, 356 species of birds, 200 species of butterflies and 18 species of snakes	217 households in Bumdeling, Trashigang Yangtse; Khoma, Lhuentse; Sherimuhung, Mongar as well as 902 neighbouring households that are serviced by the BWS administration.
	Mongar	Parts of Sherimuhung		
	Trashigang Yangtse	Bumdeling (43%)		
Sakteng Wildlife Sanctuary	Trashigang	Merak (67.3%)	858 plant species, 39 mammal species, 283 bird species, 104 butterfly species, 5 reptile species, 3 amphibian species, and 2 fish species.	772 households in 13 villages of Sakteng, Borangmang, Dak, Thelon, Joenkhar, Tengma, Murbee, Pussa, Thrakthri under Sakteng Gewog; Merak, Gyengu, Kheliphhu and Khashiteng under Merak gewog.
		Sakteng (83%)		
		Lauri (9.4%)		
Jomotsangkha Wildlife Sanctuary	Trashigang	Serthig (19%)	559 plants, 34 mammals, 311 birds, 79 fishes, 82 herpetofauna, 331 butterflies and 128 dragonflies and damselflies. 4 species of hornbill (great hornbill, rufous-necked hornbill, wreathed hornbill and oriental pied hornbill)	457 households in following gewogs and towns: Jomotsangkha Town, Langchenphu, Pemathang, Samrang, Serthi. Benefits 805 neighbouring households as well.
	Samdrup Jongkhar	Langchenphu (100%)		

Source. DOFPS, Conservation Management Plans, SWS, BWS and JWS, BLF ESMP for BC 6 and 6 and DoFPS<sup>16</sup>

<sup>15</sup> Tentative figures as socio-economic survey is yet to be assessed and finalized.

<sup>16</sup> WWF Bhutan & Sakteng Wildlife Sanctuary, 2011. Participatory Zoning for Sakteng Wildlife Sanctuary: Balancing Conservation and Development Goals. [https://wwfasia.awsassets.panda.org/downloads/zoning\\_1.pdf](https://wwfasia.awsassets.panda.org/downloads/zoning_1.pdf)

### 2.2.3. Biodiversity

The National Biodiversity Centre reports more than 11,000 species in the country.<sup>17</sup> These include several vulnerable, endangered, and critically endangered species. Within the project areas, data is not specific to the district or gewog. Notable species reported in the protected areas (SWS, BWS and JWS) include Royal Bengal Tiger, Clouded leopard, Musk Deer, Asiatic Golden Cat, Serow, Wild dog, Goral, Common Leopard, Marbled Cat and Himalayan Black Bear.

- Jomotsangkha WS is unique because it is the habitat for the Asian Elephant, Pangolin and Pygmy Hog, Binturong, Gaur, and Hispid Hare which are not found in higher elevations.
- Sakteng WS is unique because it is the only protected area with 41 species of Rhododendron as well as the national flower of Bhutan, the blue poppy (*Meconopsis gakyidiana*). It is home to 5000 semi-nomadic *Brokpas* that depend on livestock farming as their primary source of livelihood.
- Bumdeling WS is unique because it is a Ramsar site and the winter habitat for the Black-necked crane and Ludlow's Bhutan Glory, the national butterfly of Bhutan, endemic to Trashiyangtse.

### 2.2.4. Management effectiveness of Protected Areas in Bhutan 2022-2023.

The Bhutan Management Effectiveness Tracking Tool Plus (Bhutan METT +) was developed and implemented from 2014-2016 followed by a second assessment in 2021. The results indicated improvement in the overall management effectiveness score for protected areas by 17.19% (78.13%). In terms of the six elements of the IUCN WCPA framework, the lowest scores were attributed to inputs and outputs. In general, Protected areas averaged higher than the Biological Corridors because the latter were only operationalized after 2020.

The METT score for Bumdeling was 86.50% and Sakteng Wildlife Sanctuary 83.89%, while BC 6 and BC 7 scored 76.41% and 73.01 % respectively.<sup>18</sup> In terms of the six management elements (context, planning, input, process, output and outcome), all three Protected Areas (SW-, 74.7%, BWS and JWS - 70.37%) scored lowest on Input because of the high reliance on external funding. In terms of Outputs JWS scored 50% (probably as the newest PA, infrastructures and staff are not as well established as other PAs) compared to SWS and BWS (83.33%). BC 6 only scored 68.33% for process as the boundary demarcation was not clearly known to local communities.

### 2.2.5. Water resources

Water resources are in the form of glaciers, high altitude wetlands, rivers and river basins and ground water reservoirs. There are five major river basins: Amo Chhu, Wang Chhu, Punatsang Chhu, Mangde Chhu and Drangme Chhu<sup>19</sup> in Bhutan. Much of the project is located in the Drangmechhu basin. At the higher altitudes in Lhuentse, the Khomachhu and Kurichhu rivers combine and flow into Mongar as the Kurichhu. The Kholongchhu river flows through Trashy Yangtse, and joins the Gamri flowing in from Trashigang to form the Gongrichhu, flowing through Mongar where it meets the Kurichhu to form the Drangmechhu that flows through Pema Gatshel. The Nyera Amari and the Jomori flows through Trashigang and Samdrup Jongkhkar.

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<sup>17</sup> 5600 species of vascular seed plants, 282 species of non-vascular plants, 350 species of fungi, 100 species of insect fungi, 129 species of mammals, 736 species of birds, 750 species of butterflies, 158 species of amphibians and reptiles and 130 species of fish.

<sup>18</sup> Nature Conservation Division, Dept of Forest and Park Services, Ministry of Energy and Natural Resources, Royal Government of Bhutan, 2023, Management Effectiveness of Protected Areas in Bhutan 2022-2023.

<sup>19</sup> National Environment Commission, Royal Government of Bhutan, 2016. National Integrated Water Resources Management Plan (NIWRMP) 2016. <https://www.adb.org/sites/default/files/project-documents/46463/46463-002-dpta-en.pdf>



Figure 1 Glaciers and rivers of Bhutan



Map source: ADB.n.d. Water: securing Bhutan’s future.<sup>20</sup>

An assessment by the Department of Forest and Park Services noted more than 131 water sources were drying up in Lhuentse and Trashigang.<sup>21</sup> (Refer Annex 4, Table 5 for status of water sources in the districts).

### 2.3. Social Environment

#### 2.3.1. Population

Approximately 167, 618<sup>22</sup> people or 25% of Bhutan’s total population (650,118) live in the six dzongkhags. Over the last 7 years the population has declined by 35,872 persons, the number of gungtongs or empty households has halved compared to 2015 when there were almost 6500 gungtongs.

Table 7. Population in the project target area

Dzongkhag	Area	Population			Gungtongs	
		2023	2015	Difference	2023	2015
Lhuentse	2,854.00	13,806.00	17,618.00	-3812	317	3097
Mongar	1,940.26	36,228.00	44,259.00	-8031	563	401
Pema Gatsel	1,022.00	23,800.00	23,805.00	-5	849	909
Samdrup Jongkhar	1,877.94	34,907.00	40,766.00	-5859	276	299
Trashigang	3,306.00	42,299.00	56,168.00	-13869	1109	1029
Trashhi Yangtse	1,438.80	16,578.00	20,874.00	-4,296	694	740
Bhutan		167,618.00	203,490.00	-35,872	3808	6475

Source: NSB 2017, 2022, 2023. Dzongkhag at a Glance

<sup>20</sup> Yeshey Dorji. *Water: Securing Bhutan’s Future*. Asian Development Bank/National Environment Commission, Royal Government of Bhutan, 2016. <https://www.adb.org/sites/default/files/publication/190540/water-bhutan-future.pdf>. The boundaries shown and the names and designations used on the maps in this document do not imply the expression of any opinion on the part of FAO concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its territories borders or limits.

<sup>21</sup> Watershed Management Division. *Assessment and Mapping of Waste Sources in Bhutan: A Comprehensive Inventory and Status of Water Sources Used by Bhutanese Communities*. Watershed Management Division, Department of Forest & Park Services, Ministry of Agriculture and Forests, Dec. 2021.

<sup>22</sup> National Statistics Bureau, 2023. 2023 Dzongkhags at a Glance.

Trashigang had the highest population followed by Mongar and Samdrup Jongkhar. Despite being the second largest in size, Lhuentse has the lowest population and the lowest population density with 4.1 persons per sq.km while Pema Gatshel has the highest at 15.6 persons per sq.km. Because of the location of the district offices and the Dzong, all Dzongkhag centres have a main town, where most of the larger businesses, hotels or guest houses are found. The towns vary in size and populations ranging from less than 100 people to over 10,000. The average gewog population is 3,500. Only six of the project gewogs have a population greater than 5,000 people.

### **2.3.2. Workforce and livelihoods**

Trashigang and Mongar have the highest economically active population (more than 26,000), followed by Samdrup Jongkhar (22,425), Pema Gatshel and Lhuentse (10,000-16000), while Trashi Yangtse had the least<sup>23</sup>.

Within the towns the main source of livelihood is from employment, business and trade in the form of shops, restaurants and bars, or from work as construction workers. Within the gewogs, aside from the shops at the gewog centre, the rural population is largely dependent on farming and livestock rearing. The men, because of their mobility, often work as construction workers and are away from their homes for considerable periods of time, some returning during cropping season, while the women remain to tend to the family and farm the land.

Cultivation is carried out on dryland areas without irrigation (kamzhing), wetlands with irrigation or rain fed water (chuzhing), and orchards (Ngulthodumra). Farming practices vary with terrain and climatic conditions, terraced paddy cultivation occurs in the southern foothills and dryland cultivation occurs on steep slopes at higher elevations. A typical farmer will also rear livestock for dairy and poultry products for self-consumption and to supplement household income.

Farming communities face several challenges from shortage of irrigation water and human resources, marginal land holdings, high transportation costs for inputs due to the dispersed location of rural households<sup>24</sup>, human wildlife conflict, limited access to agriculture credit and regulated chemical inputs and lack of access to markets. At higher altitudes where cropping is not possible, rural communities raise cattle, yak and sheep and they migrate from one pasture to another depending on the seasonal availability of pasture. Livestock rearing in lower altitudes is more stationary with cattle being maintained for milk production and as draught power.

### **2.3.3. Infrastructure**

#### **2.3.3.1. Road Connectivity**

The Primary National Highway connects the eastern districts to the central and western part of the country. All districts and gewogs are connected by road. Farm roads provide connectivity to larger villages. These differ across districts depending on gewog and dzongkhag priorities, needs and availability of funds. Districts like Mongar have more than 1400km, while others like Samdrup Jongkhar have less than 400 km.

#### **2.3.3.2. Drinking Water and Sanitation**

The provision of drinking water supply is the responsibility of the Thromde if the area falls within the urban areas. For the rural areas, rural drinking water supply schemes are provided for communities, through provision of funds and technical expertise, but mostly with contribution of in-kind labor by the local people.

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<sup>23</sup> National Statistical Bureau, 2022. Labour Force Survey Report 2022

<sup>24</sup> CIAT; World Bank. 2017. Climate-Smart Agriculture in Bhutan. CSA Country Profiles for Asia Series. International Center for Tropical Agriculture (CIAT); The World Bank. Washington, D.C. 26 p.  
<https://climateknowledgeportal.worldbank.org/sites/default/files/2019-06/CSA-in-Bhutan.pdf>

Although it is reported that 99% of the population has access to safe drinking water), access to safe drinking water is still an issue for several Dzongkhags. While 57% of households have piped water inside their dwellings, or within their compound (42.3%), only 83% of the households have 24 hours access to drinking water (BLSS 2022). Water shortage and scarcity occurs at the community level, especially by dispersed communities living on top of the mountains, with limited water sources. One example is Jurmed gewog where water sources are scarce and farmers are dependent on rainwater harvesting. Aside from water shortage, accessibility to water is an issue, due to the rugged mountain terrain and financial costs (NWRIM 2016). In recent times, districts such as Trashigang have received assistance through an ADB funded project for water distribution and rehabilitation of water treatment plants<sup>25</sup>. Almost all households in Bhutan use improved sanitation facilities, either in the form of flush toilets, ventilated improved pits, or pit latrines with a slab.

### **2.3.3.3. Irrigation**

Irrigation schemes comprise of traditional irrigation systems based on earthen canals managed by the community, where water is drawn from second or third order tributary rivers and distributed by gravity across fields, or irrigation channels constructed through government schemes. Within the project area, the number of irrigation channels vary from as low as 29 in Pema Gatshel to as high as 239 in Trashigang<sup>26</sup>. Other types of irrigation on smaller scales include sprinkler irrigation, drip or micro irrigation.

Almost 100% of irrigation water is sourced from surface water in Lhuentse (99.42%), Trashy Yangtse (88.7%) and Trashigang (75.78%). On the other hand, Pema Gatshel (44.22%), Mongar (40.81%) and Samdrup Jongkhar (31.73%) partially rely on municipal water for irrigation. 10% of irrigation water is sourced from both surface and groundwater in Samdrup Jongkhar. In addition to surface irrigation, sprinklers are also used in Pema Gatshel, Samdrup Jongkhar and Mongar.<sup>27</sup>

### **2.3.3.4. Education**

Education is free in the country until college provided the student can qualify for the limited number of undergraduate seats. Those who cannot get into government owned colleges can opt to undergo vocational training or pursue admission in private colleges in and outside the country. Rural areas have ECCDs and Primary School. Upon completion of primary and middle secondary education, rural students leave their villages to attend school at the centrally located schools before pursuing vocational training or college. Those who cannot pass, opt to join the labour market. Within the six districts of the project area, there are 201 formal schools and tertiary and technical institutes (36% of the country) with about 53,473 students (or 12.8% of the country)<sup>28</sup>.

### **2.3.3.5. Health**

The healthcare system is a three-tiered system, with National Referral Hospitals, Regional Referral Hospitals, District Hospitals, Primary Health Centers (PHCs), and Thromde Health Centers. Health services are free throughout the country but they are not equally accessible to all because of geographical conditions and access issues. Rural communities have access to sub-posts, outreach clinics and Primary Health Centers (PHCs) that provide basic services. At the community level, the village health workers act as a bridge between health services and the community providing basic medicines. From the PHC, patients are referred to the district hospitals that can accommodate in-patients but have limited specialized health professionals and infrastructure. Those requiring further

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<sup>25</sup> ADB, 2018. Secondary Towns Urban Development Project -Trashigang

<sup>26</sup> National Statistics Bureau, 2023. Dzongkhags at a Glance 2023

<sup>27</sup> Renewable Natural Statistics Division, MoAF, RGoB. 2019. RNR Census of Bhutan 2019.

[https://www.fao.org/fileadmin/templates/ess/ess\\_test\\_folder/World\\_Census\\_Agriculture/WCA\\_2020/WCA\\_2020\\_new\\_doc/BTH\\_REP\\_ENG\\_2019.pdf](https://www.fao.org/fileadmin/templates/ess/ess_test_folder/World_Census_Agriculture/WCA_2020/WCA_2020_new_doc/BTH_REP_ENG_2019.pdf)

<sup>28</sup> National Statistical Bureau, 2023. Bhutan at a Glance, 2023 and Annual Dzongkhag Statistics 2021 and 2023.

treatment are referred to the Regional Hospital or to the national referral hospital in Thimphu. Where determined necessary by the referral committee, patients are then referred to hospitals outside the country, and the expenses borne by the government. The Eastern Referral Hospital is located in Mongar District, where a new mother and child clinic was also recently established.

#### **2.3.3.6. Poverty and Rural Credit**

As per the Poverty Analysis Report, 2022 (NSB), the poverty rate in 2022 was 12.4%, meaning that 12 out of 100 individuals belong to households whose monthly per capita real expenditure is below Nu. 6,204. All 6 project districts have lower than national poverty rates. Poverty rates ranged from 1.7% in Lhuentse to as high as 24.7% in Samdrup Jongkhar<sup>29</sup>.

The 2017 Population and Housing Census found that the disability prevalence is higher in rural areas compared to urban towns. Within the project area this the disability prevalence rate (DPR) ranged from the lowest at 2.1% in Samdrup Jongkhar and the highest at 3.5% in Trashigang<sup>30</sup>.

Bhutan has a unique social security system called the 'Kidu', wherein citizen wellbeing is taken care of by the King. The Kidu system ensures provision of necessities and livelihood to a citizen when necessary (Kuensel May 1, 2021, the Reality of Kidu). Any citizen can appeal to his Majesty's Kidu Office to seek 'Kidu', which may be granted in the form of land, cash or citizenship. As a result of the Kidu system, many households from the project districts have resettled elsewhere.

Rural credit is mostly accessible to rural farmers from various banks but the one with the most reach is the Bhutan Developmental Bank Limited (BDBL) As per the BLSS 2022, 32.97% of rural households have bank loans.

#### **2.3.4. Language**

Despite its size, Bhutan is linguistically rich with over nineteen different dialects spoken. Furthermore, a majority of Bhutanese are polyglots. The Bhutanese dialects are either only spoken by a small group of communities or inhabitants of a number of gewogs (sub-districts) and dzongkhags (districts). Socio-cultural groups are closely associated with one of the three major ethnic groups: Ngalong, Sharchop or Lhotshampa. Tshangla is commonly spoken by most communities of eastern Bhutan, more so in Trashigang, Mongar and Pema Gatshel. Towards the southern parts of Samdrup Jongkhar, Tshangla and Lhotshamka are both spoken. This is because of resettlement of Lhotsampa speaking people from Chukha, Samtse and Dagana in the early 1960's followed by the resettlement of Sharchop speaking people from Trashigang, Trashigang, Trashigang, Pema Gatshel in the 1980's<sup>31</sup>. Lhotsamkha is not restricted to Samdrup Jongkhar alone but is spread across the southern districts. In Merak and Sakteng gewogs, Brokpakha/Jobkha is spoken.

#### **2.3.5. Indigenous People**

Unlike the other 21 project gewogs, where the dialect is the only differentiating factor, the Merakpa<sup>32</sup> and Saktengpa<sup>33</sup> (commonly referred to as "Brokpa" meaning highland pastoralists) are socio-culturally unique. Their attire, language (Brokpakha/Jobkha) and cultural traditions and practices are distinct from the rest of the country. The unique attire is very different from the Gho and Kira that the majority of Bhutanese wear and is made from sheep wool, yak hair and animal skin. Both sexes wear the same black hats made from yak hair with fine long twisted tufts but the manner in which it is worn differs. Women wear embroidered jackets (Zhugnthen Todung) over a maroon or white colored long

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<sup>29</sup> National Statistics Bureau, 2022. Bhutan Poverty Analysis Report 2022.

<sup>30</sup> National Statistics Bureau 2017. Population and Housing Census of Bhutan 2017.

<sup>31</sup> Key informant interview with Langchenphu Gup, September 2024.

<sup>32</sup> Inhabitants of Merak

<sup>33</sup> Inhabitants of Sakteng

sleeve shirt (Todung), a long loose striped garment (Shingkha) and a black woolen cloth around the waist (Miydyo), while the men wear plain black or red ones (Chuba), with Kango and pishop (pants).

Both communities have strong religious beliefs, customs and traditions such as the Tshogchang ceremony to welcome guests, rituals to appease Aum Jomo their protective deity, yak cham and the naked dance to name a few. There are also areas where no development activities are allowed near the Ter-lu stupa and people have very strong beliefs and taboos. Most of the community are highland semi-nomadic communities that move between three types of grazing pastures or *Tsamdros* (winter, summer and autumn). More information on these communities is provided in Annex 7.

### 2.3.6. Religion, Heritage and Culture

Within the country, there are Buddhists that practices Drukpa Kargyupa and Nyingma Buddhism, of which the latter is more common in the project area. There are also Hindus and to a lesser extent Christians. The Government accords very high importance to Cultural Diversity, including it as two of the nine domains of the GNH indices. Cultural Diversity includes the promotion of the national language, cultural participation, artistic skills and Driglam Namzha (etiquette/traditions that define national character). Cultural Heritage includes both tangible (Dzongs, monasteries, temples, religious objects, manuscripts, and statues), and Intangible (Driglam Namzha, national dress, language, arts and crafts, food, traditional games, and festivals)<sup>34</sup>.

All Districts have a Dzong (fortress or monastery), which serves as the Dzongkhag Administration and Monastic centre for the Dzongkhag, and numerous religious sites scattered throughout, wherever rural settlements are located.

### 2.3.7. Natural Hazards and Disasters

Given its location and geological conditions, Bhutan is prone to earthquakes and storms caused by regional cyclones. More than 70%<sup>35</sup> of the country's settlements are located along the river valleys, making these susceptible to Glacial Lake Outburst Floods (GLOF), and flashfloods caused by incessant or heavy monsoon rain. For instance, in 2009, cyclone Aila caused floods in many parts of the country, causing a loss of Nu. 722 million and the loss of 13 lives<sup>36</sup>

Due to the rugged and steep terrain, landslides are triggered by incessant rains as well as other anthropogenic hazards such as forest clearance, infrastructure development and road construction on steep slopes. Additionally, the agriculture sector and communities are vulnerable to pests, diseases and fire.

Disasters have impacted many rural houses and government infrastructure including during the 2022 flashfloods in Mongar<sup>37</sup>, and the 2023 flood in Lhuentse<sup>38</sup> and Trashigang<sup>39</sup>. These events cause great anxiety as farmers lose productive land each year to floods and landslides<sup>40</sup>. Fires also wreak havoc on property and are mostly caused by electrical short circuits or carelessness.

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<sup>34</sup> Gross National Happiness Commission. 2013 Eleventh Five Year Plan Document.

<sup>35</sup> National Center for Hydrology and Meteorology, Royal Government of Bhutan. *Campendium of Climate and Hydrological Extremes in Bhutan since 1968 from Kuensel*. [www.nchm.gov.bt/attachment/ckfinder/userfiles/files/campendium.pdf](http://www.nchm.gov.bt/attachment/ckfinder/userfiles/files/campendium.pdf).

<sup>36</sup> Tanden Zangmo. "Rebuilding Homes and Lives after a Disaster." *The Bhutanese*, 9 Dec. 2016, [thebhanese.bt/rebuilding-homes-and-lives-after-a-disaster/](http://thebhanese.bt/rebuilding-homes-and-lives-after-a-disaster/).

<sup>37</sup> Tshering Namgyal. "Flash Flood Kills Five, Injures Two and Damages Four Houses." *Kuensel Online*, 2022, [kuenselonline.com/flash-flood-kills-five-injures-two-and-damages-four-houses/](http://kuenselonline.com/flash-flood-kills-five-injures-two-and-damages-four-houses/).

<sup>38</sup> Dema, Tshering. "Survivors of the Lhuentse Flash Flood Share What Happened That Night." *The Bhutanese*, 8 May 2023, [thebhanese.bt/survivors-of-the-lhuentse-flash-flood-share-what-happened-that-night/](http://thebhanese.bt/survivors-of-the-lhuentse-flash-flood-share-what-happened-that-night/).

<sup>39</sup> Younten Tshedup. "Flash Flood Causes Drinking Water Shortage in Trashigang Town." *Kuensel Online*, 18 July 2018, [kuenselonline.com/flash-flood-causes-drinking-water-shortage-in-trashigang-town/](http://kuenselonline.com/flash-flood-causes-drinking-water-shortage-in-trashigang-town/).

<sup>40</sup> Kinley Wangchuk. "Residents Fear Losing Their Farmland to Flood- Samdrup Jongkhar." *BBS*, 11 June 2022, [www.bbs.bt/news/?p=170573](http://www.bbs.bt/news/?p=170573).

### 3. Risk Classification and Management

#### 3.1. Project Categorization

##### 3.1.1. Project Category

The Project is rated as 'Moderate Risk' for both environmental and social risks as it has the potential to generate adverse environmental and social impacts. These impacts are, however, limited in scale, not unprecedented, and confined to the project area. Most of the risks and impacts can be identified with a reasonable degree of certainty and addressed by implementing mitigation measures and standard good practices.

##### 3.1.2. Potential Environmental and Social Risks and Impacts

In relation to **environmental risk**, 10 of the 23 targeted *gewogs* are located within protected areas (PAs) and biological corridors (BCs). Within the PAs and BCs, the project's activities will be limited to multiple-use areas, transition zones and buffer areas. While the project's target sites within PAs and BCs is subject to strict regulation by national environmental and forestry regulations and also guided by FAOs ES standards, there could, nevertheless, potentially be negative impacts on ecosystems and species if safeguards are not followed due to tree felling, reduction of habitats, disturbance to wildlife species, poaching, or fire and pollution from inadequate waste disposal.

However, the positive impact of the project is expected to outweigh the environmental risk of the project, provided the project is implemented in compliance with the ESMP, as the project's activities will reduce the pressure on natural forests and rangelands through improved livestock breeds resulting in reduction in overgrazing (as farmers tend to stall feed better breeds to reduce the risk of depredation by wildlife) and reduced human-wildlife conflict, while helping to improve the management of terrestrial protected areas.

Construction work planned under the project requires resource materials and the use of vehicles for transportation of people and materials. Additionally, the use of farm machinery will contribute to air pollution, dust and noise, while construction waste and the possible use of fertilizers and pesticides from large scale commercial farming can potentially pollute and negatively impact downstream aquatic habitats.

While the project will provide many positive benefits to the rural farming community, from employment generation to additional income sources through enhanced marketing, the **social risk** of the Project remains 'Moderate' because of the infrastructure activities. While sites for infrastructure development are mostly located in settlement areas to ensure accessibility by farmers, infrastructure work necessitates worker/labour recruitment, with associated risks related to decent work, occupational health and safety risks. There are risks to community health and safety, especially in terms of disease transmission and misunderstanding or conflicts between the community and workers from outside the region/community.

Depending on the site selection, there may be impacts on private, institutional or communal lands (e.g. community forest) resulting in economic displacement and loss of income/opportunities, requiring engagement and consent of affected persons and communities. Construction activities, land development and terracing activities may result in damage to private property or neighboring plots or cultural heritage causing social grievances.

The *gewog* selection process during the project design phase involved extensive consultations with various stakeholders from national and local governments, private sector entities, and civil society organizations. The resources and time available for project design did not allow for extensive

consultations with *gewog*-based project beneficiaries and potential affected persons. To address this situation, further consultations will be carried out during the implementation phase.

Although the project site selection process has considered the need for building resilience of the most vulnerable populations, including poor, marginalized, and subsistence farmers, the concept of inclusivity of vulnerable persons is still relatively new in Bhutan. Project staff and partners may not have the knowledge and skills to ensure project activities are Inclusive, gender responsive and equitable across all sections of the targeted population. For this reason, the project has incorporated training of project staff and partners.

### 3.2. Environmental and Social Standards

#### 3.2.1. ESS1 Biodiversity Conservation and Sustainable Management of Natural Resources - Triggered

Ten of the project *gewogs* fall within Protected Areas (PAs) and Biological Corridors (BCs). Four *gewogs* are inside Wildlife Sanctuaries (WSs) (Merak and Sakteng in Sakteng WS, Bumdeling inside BWS, Lachengphu inside JWS), parts of four *gewogs* are within BCs 6 and 7 (Tsaenkhar, Minjey, Martshala and Serthig), and parts of one *gewog* (Lauri) fall within both WSs and BC 6.

Table 8. *Gewogs located within Protected Areas and Biological Corridors*

Dzongkhag	Gewogs	Wildlife Sanctuary or Biological Corridor
Lhuentse	Tsaenkhar and Minjey	Biological Corridor 7
Samdrup Jongkhar	Martshala and Serthig	Biological Corridor 6
Samdrup Jongkhar	Lauri	Biological Corridor 6 and Sakteng Wildlife Sanctuary
Samdrup Jongkhar	Langchenphu (wholly)	Jomotsangkha Wildlife Sanctuary
Trashigang	Kangpar	Biological Corridor 6
	Merak and Sakteng	Sakteng Wildlife Sanctuary
Trashi Yangtse	Bumdeling	Bumdeling Wildlife Sanctuary

The management goal of Bhutan’s PAs is to enhance biodiversity conservation, sustainable management of natural resources, and improvement of livelihoods of local communities through adoption of climate smart and disaster resilient interventions, while promoting and permitting traditional ways of life and traditional knowledge.

Bhutan has had, and is currently executing, projects with similar activities to the GEF 8 project. For instance, the Bhutan for Life Conservation Plan includes several development activities within all the PAs. In 2022, 58 activities within all 10 PAs and 8 BCs, were screened and ESMPs prepared for implementation and compliance by Department of Forest and Park Service staff, which were further evaluated by an independent Environmental and Social Safeguard Consultant<sup>41</sup>. Similarly, the UNDP funded Advancing Climate Resilience of the Water Sector in Bhutan (ACREWAS Project) involves infrastructure development activities such as installation of climate-smart infrastructure, storage and distribution of water for domestic use and irrigation for four schemes in three *dzongkhags*. Three of these schemes fall within PAs or BCs, and targeted assessments were carried out and ESMPs with specific management plans prepared for implementation<sup>42</sup>.

National legislation does not require natural habitats to be avoided, but the Forestry Act and Regulations restrict development activity within the ‘core zone’ of a PA. The permit process requires the Department of Forest and Park Service to conduct site inspection/assessment to determine whether the site falls in a) declared critical watershed, b) core zone of protected areas, c) high forest,

<sup>41</sup> Bhutan for Life Project, 2022. Independent Evaluation of Environmental and Social Safeguards 2022

<sup>42</sup> UNDP, Project Document, Advancing Climate Resilience of the Water Sector in Bhutan (ACREWAS Project)

d) declared wetland, e) critical ecological sites, f) landslide prone areas, g) heritage sites or critical landmarks, h) distance to the bank of water courses/streams, i) water recharge areas, j) distance from Monasteries and Dzongs (minimum 500m where there are no settlements), k) whether the activity is for the native inhabitants or for national development<sup>43</sup>

The site inspection and assessment process carried out by the Department of Forest and Park Service ensures that critical habitat, core areas within PAs and BCs, wildlife migratory routes, recognized natural wetlands and water sources are avoided.

Within the PAs, settlements and farmlands fall within multiple-use, transition or buffer zones. The project site selection process will ensure that no activity will be carried out in critical habitat.

Where project sites fall within multiple use or buffer zones where farming and developmental activities are permitted, and where the impacts may not be significant, activities are promoted by the PA management to reduce impacts on natural ecosystems and species.<sup>44</sup>

Project activities including rangeland management, restoration and pasture development will be undertaken on communal and private *Tsamdro* (grazing land) where grazing has been carried out for generations and are not pristine habitats.

Sustainable land development activities will be implemented only on private land within and near PAs or BCs. Land development will take place on agricultural wetland and dryland that has been left fallow for many years for various reasons (damage by floods, abandoned due to migration or human wildlife conflicts or lack of human resources, draught power or mechanization, or inadequate water supply). While most private lands are located within the settlement areas and villages, in some cases, fallow land adjoining forest areas have transformed into scrub forest and will need to be cleared before terracing. In other areas, natural vegetation will be temporarily impacted if there is a need to march the machines such as excavators from the road head to the private land.

Commercial farming will be promoted only on land that was already previously cultivated but require additional inputs for upscaling and enhancing production through provision of greenhouses, water storage facilities, or machinery.

Some of the sites for new infrastructure construction for aggregation centres, processing plants and market outlets will be identified and located near farmland and in accessible areas so that farmers can easily transport both agricultural and livestock products. Therefore, it is not envisaged that natural habitats will be impacted by these interventions.

Expansion and upscaling of processing centres and aggregation centres will be undertaken within the premises of existing structures.

Some activities could potentially entail small scale regrowth forest clearance and removal of vegetation, depending on the site. The presence of non-local workers in forested areas could potentially result in poaching and illegal collection of species, but measures will be incorporated in the ESMP to mitigate this risk.

Fire is used as a tool for burning vegetation and clearing debris. There is the risk that during rangeland management, uncontrolled fires could damage natural ecosystems. This has been discussed at length

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<sup>43</sup> DOFPS, Annexure VIII, Inspection Report for Forestry Clearance. Forest and Nature Conservation Regulations 2023.

<sup>44</sup> For instance, BWS encompasses 1119 households within three gewogs and has been implementing Integrated Conservation and Development Programs (ICDP) to seek community support in species conservation and resource management. These ICD programmes include provision of agriculture inputs, machineries, subsidized energy and heating systems, solar lighting, alternatives to timber roofing, electric fencing to reduce crop damage by wildlife, supply of farm machinery, yak breeding bulls, maintaining irrigation channels, trails and religious sites in the interest of uplifting rural communities and reducing pressure on natural resources.



during the project formulation phase and mechanisms to ensure controlled /prescribed burning and fire suppression measures are included in the ESMP.

To ensure that activities are aligned with PA management objectives, no sites will be selected within core zones, critical water sources, or landslide risk areas and the required forest clearance will be sought prior to implementation of the activity. In some cases, such as rangeland management, the guidelines and prescriptions of the WS will be followed and WS staff will take the lead in planning, designing and phasing of activities in collaboration with DoL, local government and the communities.

### **3.2.2. ESS 2: Resource Efficiency and Pollution Prevention -Triggered**

The intensification of agriculture production, pasture development, land management and construction of new infrastructure to support productivity (nurseries, market sheds, storage facilities), will require resources such as water, energy, chemicals, construction materials and human resources therefore resulting in the generation of construction, agriculture/livestock and domestic waste that may be hazardous or non-hazardous.

There is a possibility, although limited, that the Project may result in an increase in the use of fertilizers and pesticides. Depending on the site-specific characteristics (climate, terrain, vegetation, proximity to rivers and streams and presence of downstream communities utilizing the same water source), intensified agricultural activities have the potential to cause pollution and nutrient loading of streams with resulting impacts on biodiversity and human health.

Construction activities and excavation works require materials, water, and electricity and will generate waste and pollutants (air, noise, dust) from material transportation, use of farm machinery for land development and excavation work as well as from site offices and worker accommodation.

ESS2 will be triggered by new infrastructure work, repair and maintenance of existing structures and commercial farming (agriculture and livestock) and to a lesser extent from procurement of machinery. The environmental impact of commercial operations especially large-scale broiler and layer farms will depend on farm size, production system, diet composition, type of bedding, packaging and management system. Solid and liquid waste will be produced at all stages of the poultry rearing process, including housing, feeding, and watering and there is the risk of contaminants from poultry waste polluting neighboring rivers or streams depending on location.

Poultry rearing can be a major source of odor nuisance or health risk from emission of odorous compounds for neighboring residents if adequate distances are not maintained.

There are standards for construction and operation of farms that include location, proximity, access, design, storage, waste management, safety, visitors, visitor, stray and disease management, welfare and pollution.<sup>45</sup> Pest management is guided by the National Plant Protection Center under MoAL and is implemented through the national extension system through the integrated pest management approach. Fertilizer usage is guided by the National Soil Services Centre, MoAL that provides district wise fertilizer recommendation based on soil fertility information. Pesticide usage and management is governed by the Pesticide Act of Bhutan 2000 and Pesticide Rules and Regulation 2019 and guidelines that cover the manufacture, supply, pest control, transportation and storage and disposal of obsolete pesticides.

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<sup>45</sup> Bhutan Food and Drug Authority. *Standards of Construction and Operation of Designated Farm*. [www.bfda.gov.bt/wp-content/uploads/2024/08/Standards-of-construction-and-operation-of-designated-farm-1.pdf](http://www.bfda.gov.bt/wp-content/uploads/2024/08/Standards-of-construction-and-operation-of-designated-farm-1.pdf).

### 3.2.3. ESS 3: Climate Change and Disaster Risk Reduction -Triggered

The **climate change and disaster risk reduction** standard is applicable to any new infrastructure constructed under this project as there is always the risk of accidental collapse or failure of projects structural elements, particularly in eastern Bhutan, which is vulnerable to natural hazards.

There is also a risk that slope cutting during the monsoon season could trigger landslides, particularly in the case of continuous heavy rainfall, especially if slope stabilization structures have not been built. The impact of climate change and disaster risks on project infrastructure will be managed and mitigated by integrating climate-resilient design features, selecting durable materials, and ensuring high-quality construction, supported by consistent supervision and expert guidance. During the operation phase, routine inspections and maintenance of infrastructure to identify and repair any vulnerabilities caused by weather will reduce this risk.

### 3.2.4. ESS 4: Decent Work -Triggered

Activities that involve new infrastructure construction or repair and maintenance will be contracted through the procurement process and may involve the recruitment of workers from outside the area or foreign workers. For contract related works, there is a risk that contractors are unaware of FAO requirements and RGoB's applicable laws, rules and regulations or about environmental and social standards and measures to be applied during construction, especially regarding labour and working conditions and requirements to ensure a safe working environment free from work related risks or diseases.

Risks associated with worker recruitment include:

- Recruitment of children under the age of 18, discrimination in terms of wages, working hours, overtime hours, incentives or facilities, gender, opportunities, denial of freedom of association and collective bargaining.
- Inadequate living conditions where workers are not provided adequate weather free accommodation that is gender friendly with safe drinking water, electricity and sanitation facilities and may face risk of diseases or risk of Gender based violence (GBV) or sexual exploitation, abuse, and harassment (SEAH). Worker facilities must be suited to the specific site especially as the sites vary from hot humid climates in the southern elevations to cold conditions at the upper elevations.
- Inadequate work conditions where workers face health and safety risks from work situations such as working in forested areas (risk of encountering and being attacked by wildlife), risk of not knowing how to operate new machinery or recruitment, lack of personal protective equipment suited to the nature of the work.
- Safety risks to both porters as well as workers during material transportation and working in forested areas as they may disturb wildlife and potentially be attacked.
- Risk of conflicts between workers or grievances regarding working conditions of employment with no mechanism for resolving internal grievances or ensuring appropriate behavior.

Agriculture is recognized as a hazardous sector in terms of worker safety and health<sup>46</sup>. Activities such as forest clearance, land development, terracing, bioengineering, habitat enrichment (salt lick, water holes management in spring sheds), installation of livestock shed roofs, or farmwork will likely involve short term hire of community workers. Some of the risk in cropping and livestock work include:

- Risk of accident and injury when using farm machinery and tools and exposure to noise and tools
- Exposure to dust, pesticides, herbicides, fertilizers and other veterinarian products
- Risk of disease transmission from animals
- Repetitive work and exposure to varying climatic conditions
- Risk of contact with snakes or wild animals if working near the forest
- Risk of child labour

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<sup>46</sup> International Labour Organization.2011. Safety and Health in Agriculture. ILO code of practice

- Risk of fire during rangeland restoration

In addition, community workers face risks that are quite like those faced by contract workers in terms of discrimination, age, gender, wages, and risk of conflict with other workers. Chapter 9 of the Pesticides Rules and Regulations includes awareness, use of PPE, first aid, training of pesticide operators and disposal of used packages and obsolete pesticides. However, Bhutan is not a member of the International Labour Organization and while the Labour and Employment Act 2007 and the Regulation on Occupational Health, Safety and Welfare (OHSW) 2022 cover OSH recruitment, employment and occupational health and safety in general, the Act and Regulation clearly states that these are not applicable to farming.

**There is a clear need for OSH guidelines** to prevent and minimize health and safety risks for all those engaged in agriculture and to ensure safety in the use of machines, agrochemicals, land development works and rangeland restoration.

### **3.2.5. ESS 5: Community Health, Safety and Security -Triggered**

While the project will promote the employment of local labor, work may be also contracted out, wherein workers are brought into the project site from outside (both local and foreign). These workers may harbor diseases if not identified at the point of entry in Bhutan which could be spread to communities.

Where the work sites can be easily accessed by the community, there is a risk of inconvenience if materials are stored along access routes/pathways, or risk of accidents if materials are improperly stored or excavated sites/trenches are left open. Where material transportation routes pass through rural community access roads that are either narrow, unpaved or on steep slopes, there is a risk of accidents to commuters due to material transportation trucks and project vehicles. There is also the risk of Gender based violence (GBV) or sexual exploitation, abuse, and harassment (SEAH) of women and children or social conflicts between the resident community and workers. There is also the risk of accidents and damage to public and private property.

Communities living along material transportation routes or near work sites will likely be exposed to noise, increase in dust or particulate matter and air emissions and accidents in case infrastructure sites are not secured or cordoned off to the public.

There is a risk that project information is not disseminated widely to all sections of the community and in the process vulnerable groups are not aware about project activities, benefits or opportunities, risks or the mechanisms to submit their view or grievances. There is also a risk that implementing agencies do not have the capacity to ensure inclusivity of all sections of the community, especially vulnerable persons, or to deal with grievances, or ensure compliance with environmental and social standards.

The risk of transmission of diseases and foul odor is a concern with broiler and dairy farms if not adequately located at a safe distance from settlement areas and contaminants from animal waste can pollute the environment and affect human health.

### **3.2.6. ESS 6. Gender - Triggered**

The project aims to scale up gender-responsive and climate-smart agriculture technologies and optimize Agri-food chains that are gender responsive. It will work on strengthening gender mainstreaming in its interventions to allow both women and men to benefit from the project. As a result of these interventions, the project will promote improvements to the enabling conditions for decision-making in the agrifood sector, strengthen the development of sub-national policies and agreements for food systems, transform food systems at farm, landscape, and value chain levels and promote adaptive management and knowledge sharing.

The Project's Gender analysis noted that the project may exacerbate existing gender inequalities, disrupt power relations in households resulting in increased gender-based violence (GBV) and sexual

exploitation, abuse, and harassment (SEAH) and that there may be potential GBV risks from engagement in the agri-food value chain system ranging from production, postharvest, marketing, finance, input and service provision to wage labour.

The GAP recognizes that women are more actively involved in decision-making at the private and micro level while men are more proactive in making decisions in the public domain and that while men are more open and comfortable to share their views and opinions in group meetings, women are generally shy and hesitant to speak up or to raise gender-related issues. Confidentiality is not often provisioned in traditional grievance redress mechanisms, and this poses barriers for resolution of GBV and SEAH issues.

Gender-based disparities are more evident in terms of representation in local government (no women *mangmi* or *tsogpa*) and the high rate of divorce and widowed persons in Sakteng *Gewog*<sup>47</sup>, require targeted activities to promote opportunities for women participation and empowerment. The GAP reinforces the Project's efforts in enhancing women's empowerment and gender equity by integrating concerns and mitigation actions throughout project activities.

### **3.2.7. ESS 7: Land Tenure, Displacement and Resettlement - Triggered**

Land tenure, displacement and resettlement is relevant for activities pertaining to demolition or renovation of existing structures or construction of new infrastructure such as processing plants and aggregation centres, wherein persons/households renting government owned structures will need to move out (physical displacement). As some of the sites have not yet been finalized, there is a risk that target sites may impact private, community or institutional land resulting in land tenure changes, physical or economic displacement.

### **3.2.8. ESS 8: Indigenous Peoples - Triggered**

FAO recognizes that several local, national and regional terms are used to describe Indigenous Peoples, including tribes, ethnic minorities, natives, indigenous nationalities, First Nations, aboriginals, indigenous communities, hill peoples and highland peoples. Bhutan prefers to refer to these as disadvantaged and vulnerable groups or 'socio-cultural groups (Annex 6, Refer RGOB notification). Within the six *dzongkhags*, rangeland management activities are proposed in two project *gewogs*, Merak and Sakteng which are home to about 5,000 culturally unique, semi-nomadic *Brokpa* communities. This community lies within Sakteng WS in Trashigang *dzongkhag*. The SWS recognizes the uniqueness of the community with the preservation and promotion of culture and tradition being an objective of SWS's management.

According to the SWS Conservation Plan, 85% of households in 13 villages rely on livestock farming, with 85% relying on subsistence farming. The major problems and issues faced by the local community are insufficient *tsamdrol* (pastureland), livestock and crop depredation, degradation of pastureland and water resources and loss of culture and tradition. Due to their pastoral lifestyle and their dependence on non-wood forest resources as well as the rangeland for pasture, these communities will directly benefit from the project since their main source of income is from the sale of livestock produce such as butter, cheese, fermented cheese (*yoshu*), meat and wool to nearby towns.

Under Component 2, activity 2.1.1.1., the project will implement rangeland restoration and enhance sustainable fodder resources to mitigate land degradation and strengthen the climate resilience of livestock systems. This includes designing and implementing management interventions to enhance the sustainability and productivity of rangeland resources, facilitating water supply for rehabilitation and restoration of rangelands, and supporting the existing Yak Dairy Product processing enterprise at Merak/Sakteng – in terms of expansion of the existing infrastructure and processing equipment.

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<sup>47</sup> As per the NSB gewog data for the two gewogs: Merak -total households in 2019 was 375 with 24 persons divorced and 38 widowed; Sakteng total households in 2019 was 396 with 455 persons divorced and 844 widowed (844).

Detailed description of the Brokpa community is presented in Annex 7. Based on the findings, ESS8 is applicable to the *Brokpa* communities. Accordingly, the FAO Environmental and Social Standard (ESS) 8 (Indigenous Peoples and Cultural Heritage) and Minimum Standard 5 (Indigenous Peoples) of the GEF Policy on Environmental and Social Safeguards apply to the project. The customary tenure and cultural rights of such unique communities whose livelihoods are dependent on forest resources may be affected by project interventions unless proper safeguards are applied and monitored continuously. Accordingly, Indigenous Peoples Plan (IPP) need to be developed to guide the planning and implementation of project activities to avoid negative impacts on the Indigenous Peoples living in and around the project area.

A full FPIC process will be developed during the project implementation stage including appropriate grievance mechanisms

### **3.2.9. ESS 9. Cultural Heritage - Triggered**

All the project *gewogs* have religious and cultural sites that are important to the community or individual households. It is generally believed by Bhutanese that disturbing sacred sites can cause misfortune to families or even to entire villages and therefore care must be taken to avoid disturbing these sacred sites. The communities have traditional religious practices and customs and knowledge on harvesting of non-wood forest products. The site selection criteria will ensure that project activities will not be implemented within sites of religious or cultural significance, and the ESMP will include measures to respect traditional practices in each project site. Additionally, chance find<sup>48</sup> procedures will be instituted to ensure that any religious, cultural or archaeological artifacts discovered are not damaged, but documented and preserved as per the recommendation of the relevant Department (Department of Culture and Dzongkha Development, Ministry of Home Affairs).

Table 9 describes the potential environmental and social risks that may be caused by the project.

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<sup>48</sup> Chance Find means previously unknown Cultural Heritage encountered in connection with the identification, design or implementation of a project or program

Table 9. Social and Environmental Risks and Impacts

ESS	Description of E&S Risk and Impact	Nature, duration of Risks/ Impacts	Magnitude	Likelihood	Potential affected groups	Project Components and activities that cause risks and impacts
ESS1	<b>Biodiversity Conservation and Sustainable Management of Natural Resources</b>					
	<p>Adverse impacts to habitats (modified, natural, and critical) and/or ecosystems and ecosystem services, which includes legally protected areas (PAs), proposed PAs, or recognized as such by authoritative sources or local communities</p> <ul style="list-style-type: none"> <li>- Risk of forest fires due to non-compliance of guidelines and instruction by community members</li> <li>- Inadequate implementation of E&amp;S safeguards tools due to lack of capacity amongst the implementing partners (IPs)</li> <li>- Risk of encroachment into critical habitat areas</li> <li>-Risk of fishing and poaching by workers</li> </ul>	<p>Risks likely to be constrained to 11 sites within PAs and BCs and particularly the multiple use, transition and buffer zones and primarily in years 1 to 3- but depending on how activities are phased out</p>	Moderate	Likely	<p>Communities within and around PAs Gewog and Dzongkhag administration and National Government Protected Area Management and Department of Forest and Park Services</p>	<p>Component 2</p> <ul style="list-style-type: none"> <li>2.1.1.1a. Design and implement management interventions to enhance the sustainability and productivity of rangeland resources</li> <li>2.1.1.1b. Facilitate the implementation of rehabilitation and restoration of rangelands</li> <li>2.1.1.1d. Undertake land development activities to support the implementation of an agro-silvopastoral approach</li> <li>2.1.1.7. Support sustainable land development and efficient utilization of agriculture land (terrace development and consolidation, bioengineering, orchard basin development, etc.)</li> <li>2.1.1.9c. Sustainable land development</li> <li>2.1.1.9f. Sustainable land development for smart Quinoa and potato farm at Langchenphu</li> </ul>
ESS2	<b>Resource Efficiency and Pollution Prevention</b>					
	<p>Project activities will require raw materials, water, electricity, fuel and will generate various types of waste</p> <ul style="list-style-type: none"> <li>- Project activities will encourage farmers to increase the application of fertilisers, herbicides or pesticides that may have a negative effect on the environment or human health</li> </ul>	<p>Project activities will require water supply, electricity, fuel for operating machinery, fertilizers, pesticides, construction raw materials and generate both solid and liquid waste from processing units, grading, packaging, broiler farms, wastewater from washing, poultry waste/manure, as well as unrepairable and old machinery and equipment and demolition</p>	Moderate	Likely	<p>Communities living within target areas Gewog and Dzongkhag administration and National Government Private sector</p>	<p>Component 2</p> <ul style="list-style-type: none"> <li>2.2.3a. Demonstrate modalities of private sector engagement - Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage for Potato, Quinoa &amp; Maize at Langchenphu</li> <li>2.2.2.3b. Demonstrate modalities of private sector engagement - Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage for dairy and eggs at <i>Deothang</i></li> </ul>

ESS	Description of E&S Risk and Impact	Nature, duration of Risks/ Impacts	Magnitude	Likelihood	Potential affected groups	Project Components and activities that cause risks and impacts
		and construction waste that will need to be disposed of				2.2.2.5a. Establishment of milk collection centres with chilling facilities established at strategic locations (Nos)- Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling and Ramjar gewogs  2.2.2.6. Establishment of 2 market outlets with high standard display shelves- 2 Eastern Dzongkhags – location TBD
<b>ESS3</b>	<b>Climate Change and Disaster Risk Reduction</b>					
	Infrastructure developed under the project can be damaged by natural hazards - crops are vulnerable to extreme weather conditions	Eastern Bhutan is vulnerable to natural hazards and disasters, the risk of damage to infrastructure and crops will continue	Moderate	Likely	Communities living within target areas Gewog and Dzongkhag administration and National Government NGOs Private sector	2.2.2.3a. Demonstrate modalities of private sector engagement - Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage for Potato, Quinoa & Maize at Langchenphu  2.2.2.3b. Demonstrate modalities of private sector engagement - Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage for dairy and eggs at <i>Deothang</i>  2.2.2.5a. Establishment of milk collection centres with chilling facilities established at strategic locations (Nos)- Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling and Ramjar gewogs  2.2.2.6. Establishment of 2 market outlets with high standard display shelves- 2 Eastern Dzongkhags – location TBD
<b>ESS4</b>	<b>Decent Work</b>					

ESS	Description of E&S Risk and Impact	Nature, duration of Risks/ Impacts	Magnitude	Likelihood	Potential affected groups	Project Components and activities that cause risks and impacts
	Support for employment or livelihoods may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)	All agriculture activities plus activities that involve new infrastructure, repair and maintenance, greenhouse construction, and smart irrigation may involve the recruitment of workers from outside the area or foreign workers as such works are often tendered out to contractors The project involves some construction and infrastructure work and support for large-scale broiler and layer farms The risk will occur during the construction phase	Low	Unlikely	Communities living within target areas Gewog and Dzongkhag administration and National Government NGOs Private sector Primary suppliers Non-local workers	Component 2  2.1.1.1. Implement rangeland restoration and enhance sustainable fodder resources to mitigate land degradation and strengthen the climate resilience of livestock farming systems 2.1.1.1a: Design and implement management interventions to enhance the sustainability of rangeland resources 2.1.1.1b: Facilitate the implementation of rehabilitation and restoration of rangelands within community and private pasture lands with local rangeland management committees 2.1.1.1d. Undertake land development activities to support the implementation of a climate-smart, biodiversity friendly agro-silvopastoral approach 2.1.1.8a: Construction of Milk collection centres with chilling facilities at strategic locations (Nos) 2.2.2.1a: Revive and upscale the existing cereal processing plant at Lingmithang (for processing of Quinoa, Maize and Buckwheat from all Six Eastern Dzongkhags)- Support with additional equipment for additional product line- Lingmethang, Mongar 2.2.2.1b: Yak Dairy Product processing enterprise at Merak/Sakteng - Support with infrastructure and processing equipment 2.2.2.1c: Revive and upscale juice processing plant at Shumar, Pemagatshel - Additional equipment support for additional product line 2.2.2.2a: Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage (for Agricultural and Livestock (eggs) products- Langchenphu and Deothang, Samdrup Jongkhar 2.2.2.2b: Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage (for Agricultural and Livestock (eggs) products- Lingmethang, Mongar



ESS	Description of E&S Risk and Impact	Nature, duration of Risks/ Impacts	Magnitude	Likelihood	Potential affected groups	Project Components and activities that cause risks and impacts
						<p>2.2.2.4: Establishment of 6 market outlets in the 6 Eastern Dzongkhags (with high standard display shelves)- 2 Eastern Districts</p> <p>2.1.1.3b: Reduce GHG emission through climate smart dairy farming intervention (Fiber Reinforced Plastic digesters and improved dairy housing)</p> <p>2.1.1.8a: Construction of milk collection centres with chilling facilities established at strategic locations (Nos) in 10 gewogs (Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar gewogs)</p>
<b>ESS5</b>	<b>Community Health, Safety and Security</b>					
	Material transportation, use of machinery, land development activities, construction work, operation of poultry farms, or decommissioning, use of agrochemicals, inflow of migrant workers without proper health screening, or accidental collapse or failure of project structural components pose health and safety risks to local communities.	During the construction and operation periods	Moderate	Likely	Communities living within target areas	<p>Component 2</p> <p>2.1.1.1. Restore Rangeland and improve fodder resources to reduce land degradation and enable climate resilience of livestock farming</p> <p>2.1.1.1a: Develop management interventions to improve rangeland resources</p> <p>2.1.1.1b: Support rehabilitation/restoration activities</p> <p>2.1.1.8a: Construction of milk collection centres with chilling facilities established at strategic locations (Nos)</p> <p>2.2.2.1a: Revive and upscale the existing cereal processing plant at Lingmithang (for processing of Quinoa, Maize and Buckwheat from all 6 Eastern Dzongkhags)- Support with additional equipment for additional product line- Lingmethang, Mongar</p> <p>2.2.2.1b: Yak Dairy Product processing enterprise at Merak/Sakteng - Support with infrastructure and processing equipment</p> <p>2.2.2.1c: Revive and upscale juice processing plant at Shumar, Pemagatshel - Additional equipment support for additional product line</p> <p>2.2.2.2a: Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage (for Agricultural and Livestock (eggs)</p>

ESS	Description of E&S Risk and Impact	Nature, duration of Risks/ Impacts	Magnitude	Likelihood	Potential affected groups	Project Components and activities that cause risks and impacts
						<p>products- Langchenphu and Deothang, Samdrup Jongkhar</p> <p>2.2.2.2b: Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage (for Agricultural and Livestock (eggs) products- Lingmethang, Mongar</p> <p>2.2.2.4: Establishment of 6 market outlets in the 6 Eastern Dzongkhags (with high standard display shelves)- 2 Eastern Districts</p> <p>2.1.1.3b: Reduce GHG emission through climate smart dairy farming intervention (Fiber Reinforced Plastic digesters and improved dairy housing)</p> <p>2.1.1.8a: Construction of milk collection centres with chilling facilities established at strategic locations (Nos) in 10 gewogs (Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar Gewogs)</p>
<b>ESS6</b>	<b>Gender</b>					
	<p>-The project could potentially limit the ability of women to use, develop and protect natural resources, considering different roles and positions of women and men in accessing environmental goods and services</p> <p>-Limited understanding of the local cultural context and dynamics in relation to gender</p> <p>- Lack of coordination and cooperation on data sharing among concerned ministries, local government authorities and civil societies related to gender equity</p> <p>- Risk of discrimination in terms of benefits, opportunities, employment, membership and wages</p> <p>-Risk of GBV/SEAH against women due to influx of workers</p>	During project implementation period	Moderate	Likely	Women, girls, youth, vulnerable groups Gewog and Dzongkhag administration National Government agencies	

ESS	Description of E&S Risk and Impact	Nature, duration of Risks/ Impacts	Magnitude	Likelihood	Potential affected groups	Project Components and activities that cause risks and impacts
ESS7	<b>Land Tenure, Displacement and Resettlement</b>					
	Potential to involve temporary or permanent and full or partial physical displacement	Unused government structures and land used as rentals, will entail physical displacement of tenants Sites that will be selected in the future may cause loss of crops or structures in case there are non-title holders using the land	Moderate	Likely	Local communities Gewog and Dzongkhag administration National Government agencies NGOs Private sector	Component 2 2.2.2.2a: Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage (for Agricultural and Livestock (eggs) products- Langchenphu and Deothang, Samdrup Jongkhar 2.1.1.8a: Construction of milk collection centres with chilling facilities established at strategic locations (Nos) in 10 gewogs
	Damage to private property or pasture could exacerbate conflicts among project-affected communities and individuals	During project implementation	Low	Likely	As above	As above
	There is a possibility that benefits from the project will not be distributed equally and fairly amongst the local community, which may create conflict	During project implementation	Moderate	Likely	As above	As above
ESS8	<b>Indigenous Peoples</b>					
	The project, designed in consultation and following FPIC procedures, aims to benefit socio-cultural groups, but may not benefit marginalized community members who do not have livestock, tsamdro or any source of income	During project implementation	Moderate	Likely	Vulnerable groups	Component 2 2.1.1. Restore Rangeland and improve fodder resources to reduce land degradation and enable climate resilience of livestock farming 2.1.1.1a: Develop management interventions to improve rangeland resources 2.1.1.1b: Support rehabilitation/restoration activities 2.2.2.1b: Yak Dairy Product processing enterprise at Merak/Sakteng - Support with infrastructure and processing equipment 2.1.1.3b: Reduce GHG emission through climate smart dairy farming intervention (Fiber Reinforced Plastic digesters and improved dairy housing)
ESS9	<b>Cultural Heritage</b>					

ESS	Description of E&S Risk and Impact	Nature, duration of Risks/ Impacts	Magnitude	Likelihood	Potential affected groups	Project Components and activities that cause risks and impacts
	<p>-Risk of disturbing sacred sites, traditional religious practices and customs and sites of cultural importance</p> <p>-Cultural practices may be disturbed depending on the timing of project activities</p>	<p>All the project <i>gewogs</i> have religious and cultural sites that are important to the community or individual households</p> <p>Risks can be avoided by careful site selection criteria and use of chance find procedures</p>	Moderate	Likely	<p>Local communities</p> <p>Gewog and Dzongkhag administration</p> <p>National Government agencies</p> <p>NGOs</p> <p>Private sector</p>	<p>Component 2</p> <p>2.1.1.1. Restore Rangeland and improve fodder resources to reduce land degradation and enable climate resilience of livestock farming</p> <p>2.1.1.1a: Develop management interventions to improve rangeland resources</p> <p>2.1.1.1b: Support rehabilitation/restoration activities</p> <p>2.1.1.8a: Construction of milk collection centres with chilling facilities established at strategic locations (Nos)</p> <p>2.2.2.1a: Revive and upscale the existing cereal processing plant at Lingmithang (for processing of Quinoa, Maize and Buckwheat from all 6 Eastern Dzongkhags)- Support with additional equipment for additional product line- Lingmethang, Mongar</p> <p>2.2.2.1b: Yak Dairy Product processing enterprise at Merak/Sakteng - Support with infrastructure and processing equipment</p> <p>2.2.2.1c: Revive and upscale juice processing plant at Shumar, Pemagatshel - Additional equipment support for additional product line</p> <p>2.2.2.2a: Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage (for Agricultural and Livestock (eggs) products- Langchenphu and Deothang, Samdrup Jongkhar</p> <p>2.2.2.2b: Establish Integrated Aggregation Centre with washing, sorting, grading, packaging and storage (for Agricultural and Livestock (eggs) products- Lingmethang, Mongar</p> <p>2.2.2.4: Establishment of 6 market outlets in the 6 Eastern Dzongkhags (with high standard display shelves)- 2 Eastern Districts</p> <p>2.1.1.3b: Reduce GHG emission through climate smart dairy farming intervention (Fiber Reinforced Plastic digesters and improved dairy housing)</p>

ESS	Description of E&S Risk and Impact	Nature, duration of Risks/ Impacts	Magnitude	Likelihood	Potential affected groups	Project Components and activities that cause risks and impacts
						2.1.1.8a: Construction of milk collection centres with chilling facilities established at strategic locations (Nos) in 10 gewogs (Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar gewogs)

## 4. Environmental and Social Management Measures

This Environmental and Social Management Plan (ESMP) has been prepared to assist in managing the potential adverse social and environmental impacts associated with activities of the proposed project activities primarily under Component 2 of the project, in line with the requirements of GEF Policy on Environmental and Social Safeguards and the FAO's Framework for Environmental and Social Management (FESM).

The ESMP outlines principles, guidelines, and procedures for assessing, screening, and managing potential social and environmental impacts as the sites are selected. It forms the basis upon which the MOAL will develop site/commodity specific Environmental and Social Management Plans, as necessary, to ensure that significant adverse environmental and social impact mitigation and management measures are implemented and monitored as required. It identifies the steps for detailed assessment of the project's potential social and environmental risks, and for preparing and approving the required management plans for avoiding, and where avoidance is not possible, reducing, mitigating, and managing the identified adverse impacts of this project.

### 4.1. Grouping of Project Activities

The Environmental and Social Management measures are relevant for *Component 2: Transformation of food systems at farm, landscape and value chain levels* and its activities and sub activities. Since many of the activities are similar in nature, they have been grouped together because the environmental and social measures will largely be the same, with differences only due to the site location and the area of influence. The six groups include a) Grazing restoration and fodder development, b) Land development, c) C. Eco-innovate farm/agritech farm, citrus farms, d) Livestock farms - poultry and dairy, e) Infrastructure development- activities involving NEW infrastructure as well as expansion or repair work, f) operation of processing units and g) procurement of machinery, greenhouses, equipment and vehicles.

Table 10. Grouping of activities for Impact Assessment and ESMP

Group	Activity	Location
A. Grazing restoration and fodder development	2.1.1.1. Implement rangeland restoration and enhance sustainable fodder resources to mitigate land degradation and strengthen the climate resilience of livestock farming systems 2.1.1.1a: Design and implement management interventions to enhance the sustainability of rangeland resources 2.1.1.1b: Facilitate the implementation of rehabilitation and restoration of rangelands within community and private pasture lands with local rangeland management committees	Merak and Sakteng <i>gewogs</i>
B. Land Development	2.1.1.1d. Undertake land development activities to support the implementation of a climate-smart, biodiversity friendly agro-silvopastoral approach	Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar <i>gewogs</i>
	2.1.1.7. Support sustainable land development through efficient utilization of agriculture land (terrace development and consolidation, bioengineering, orchard basin development)	10-50 acres at Langchenphu , Kangpar, Nanong, Drepong, Ramjar and Tshengkhar <i>gewogs</i> .
	2.1.1.9c. Sustainable land development	15-20 acres each at Kangpar, Ramjar, Serthig, Nanong and Narang <i>gewogs</i>
C. Eco-innovate farm/AgriTech farm, citrus farms	2.1.1.6. Support innovative solutions through development of integrated and resilient farms (Eco-innovate farms) -Integrated and innovation youth farm. <ul style="list-style-type: none"> <li>2.1.1.6a. Procure materials that support human wildlife conflict mitigation measures</li> <li>2.1.1.6b. Installation of Commercial Greenhouse (48 m X 16m)</li> <li>2.1.1.6c. Installation of Smart irrigation</li> </ul>	Khaling
	2.1.1.9. Scale up gender-responsive and climate-smart agriculture technologies (AgriTech Farms) including protected agriculture, Integrated Pest Management (IPM), and Integrated Insect Pest and Nematode Management (IIPNM), to enhance sustainability and resilience in farming systems <ul style="list-style-type: none"> <li>2.1.1.19a. Support the establishment of green houses with automated irrigation</li> <li>2.1.1.9d. Support smart irrigation facilities and IPM &amp; IIPNM</li> </ul>	20 acres each at Kangpar, Ramjar, Serthig, Nanong and Narang <i>gewogs</i> .
D. Livestock farms - poultry and dairy	2.1.1.5. Support commercial layer farms (3,000 birds capacity) for cage-free egg production and layer farm for food security 2.1.1.5a. Establish commercial layer farms for production of cage free eggs through supply of construction materials and farm automation	Decheling, Drepong, Kangpar, Khamdang, Lumang, Bumdeling, Ramjar
	2.1.1.5c. Establish large scale broiler farm through supply of construction materials and farm automation at Langchenphu	Langchenphu
	2.1.1.3b. Support climate smart dairy farming interventions (Fiber Reinforced Plastic digesters and improved dairy housing) that reduce GHG emissions	Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar, Merak and Sakteng <i>gewogs</i>

Group	Activity	Location
E1. Infrastructure development-Activities involving NEW infrastructure construction	2.2.2.3a. Establish Integrated Aggregation Center for Potato, Quinoa and maize in Langchenphu with private sector engagement	Langchenphu
	2.2.2.3b. Establish Integrated Aggregation Center for dairy and eggs in Deothang with private sector engagement	Deothang
	2.2.2.3c. Expand Integrated Aggregation Center in Lingmithang, Mongar with private sector engagement	Lingmithang
	2.2.2.5a. Demonstrate modalities of private sector engagement -establishment of Milk collection centres with chilling facilities established at strategic locations (Nos)	Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling and Ramjar <i>gewogs</i>
	2.2.2.6. Establishment of 2 market outlets with high standard display shelves	2 Eastern Dzongkhags -location TBD. Activities related to 2.2.2.6 shall not commence until a specific ESMP is prepared
E2. Infrastructure development-Activities involving repair or expansion work on existing structures	2.2.2.1a. Demonstrate modalities of private sector engagement - Yak Dairy Product processing enterprise at Merak/Sakteng and supply entities with infrastructure and processing equipment	Merak/Sakteng
	2.2.2.1b. Demonstrate modalities of private sector engagement - Revive and upscale the juice processing plant at Shumar, Pemagatshel and supply additional equipment to support an additional product line	Shumar, Pemagatshel
	2.2.2.5c. Strengthen chicken value chain through installation of blast freezer and cold storage facilities to enhance value chain of Langchenphu broiler farm	Langchenphu
	2.1.1.3b. Support climate smart dairy farming interventions (Fiber Reinforced Plastic digesters and improved dairy housing) that reduce GHG emissions	Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar, Merak, Sakteng
F. Operation of Processing Units	2.2.2.1a. Demonstrate modalities of private sector engagement - Yak Dairy Product processing enterprise at Merak/Sakteng and supply entities with infrastructure and processing equipment	Merak/Sakteng
	2.2.2.1b. Demonstrate modalities of private sector engagement - Revive and upscale the juice processing plant and supply additional equipment to support an additional product line	Shumar, Pema Gatshel
G. Procurement of machinery, greenhouses, equipment and vehicles	2.1.1.3d. Procure equipment/consumables and sample collection for quality-based milk grading system 2.1.1.6d. Purchase farm machinery (Ford Tractor) and handover to Youth Group 2.1.1.9a. Support for Greenhouse with automation facilities for irrigation 2.1.1.9b. Supply of labour-saving technologies (mini-tiller, weeder, grass cutter) 2.1.1.9d. Support smart irrigation facilities and IPM & IIMPN- Kangpar, Ramjar, Serthig, Nanong, Narang 2.2.1.2a. Purchase Milk Refrigerated vans and hand over to 2 Gyalsung Academies of Pemathang and Bondeyma 2.2.1.5b. Purchase refrigerated van and hand over to Samjong (youth) Cooperative at S/Jongkhar	Numerous sites as shown in the activities



Group	Activity	Location
	<p>2.1.1.6d. Farm machinery support (Ford Tractor) at Khaling</p> <p>2.2.2.1a. Demonstrate modalities of private sector engagement - Yak Dairy Product processing enterprise at Merak/Sakteng and supply entities with infrastructure and processing equipment</p> <p>2.2.2.1b. Demonstrate modalities of private sector engagement - Revive and upscale the juice processing plant at Shumar, Pemagatshel and supply additional equipment to support an additional product line</p> <p>2.2.2.3a. Establish Integrated Aggregation Center for Potato, Quinoa and maize in Langchenphu with private sector engagement</p> <p>2.2.2.3b. Establish Integrated Aggregation Center for dairy and eggs in Deothang with private sector engagement</p> <p>2.2.2.3c. Expand Integrated Aggregation Center in Lingmithang, Mongar with private sector engagement</p> <p>2.2.2.3d. Demonstrate modalities of private sector engagement - food value chain logistics- with refrigerated transport system- 3 refrigerated vans for Each Dzongkhag</p> <p>2.2.2.4b. Procure and hand over Total Mixed Ration (TMR) blending machines for low-cost feed formulation (Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar, Merak, Sakteng)</p> <p>2.2.2.5a. Demonstrate modalities of private sector engagement -establishment of Milk collection centres with chilling facilities established at strategic locations (Nos)-at Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar</p> <p>2.2.2.5b. Procure bulk milk chillers and milk quality testing equipment (Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar)</p> <p>2.2.2.5c. Strengthen chicken value chains through installation of blast freezer and cold storage facilities to enhance value chain of Langchenphu broiler farm</p> <p>2.2.2.5d. Procurement of Yak Fiber processing equipment at Merak and Sakteng</p> <p>2.2.2.5f. Procurement of egg sorting and grading equipment and other accessories</p> <p>3.1.1.2c. Supply office and data management equipment to field staff - 23 gewogs</p>	

## 4.2. Relevant of Environmental and Social Standards for Each Group of Activities

### 4.2.1. Description of Activities by Group

Since the location of several activities will be identified during implementation, an ESMP has been prepared to ensure that the activities will not create adverse environmental and social impacts in the project gewogs and that any unavoidable or residual impacts are mitigated in line with the FAO's Framework for Environmental and Social Management Guidance Note 2023.

#### A. Grazing Restoration and Fodder Development

Project supported pastureland restoration and fodder development interventions will only be implemented in Merak and Sakteng *gewogs* which are both located inside Sakteng WS (ESS 1). Compared to the other 21 project *gewogs*, Merak and Sakteng are socio-culturally unique and they trigger FAO's ESS 8 Indigenous People or Vulnerable Group (as per RGoB notification) due to the following:

- The two *gewogs* have a very high number of households directly dependent on highland cattle (Yaks) for their livelihood and in turn on the availability of Pasture/Native Rangeland or *Tsamdro* which is critical for the livestock it supports.
- They retain close ties to the land through customary seasonal usage of *Guendrog* (Winter grazing land), *Tendrog* (Transit pastureland) and *Yardrog* (Summer grazing lands).

Although ESS8 is relevant to the *Brokpa* communities due to their distinct customs, culture, and language, the project's interventions will not affect their customary land tenure or cultural rights, nor will the community be disadvantaged because of their identity. On the contrary, the interventions will significantly benefit the community, as the restoration of *Tsamdro* has long been a critical issue raised at both the *gewog* and *dzongkhag Tshogdues* but could not be addressed due to insufficient funding<sup>49</sup>. A separate Indigenous Peoples Plan (IPP) has not been prepared as it is considered that sufficient details on safeguards for the *Brokpa* people are contained in the ESMP and the Stakeholder Engagement Plan. A separate IPP would be repetitious and not align with RGoB's views on vulnerable groups.

Insufficiency and degradation of *Tsamdro* have been acknowledged by the SWS management and rehabilitation of degraded grazing land to enhance fodder production and promote its sustainability is a key objective within the SWS Conservation Plan<sup>50</sup>. To address this issue, the SWS management, supported by the Bhutan for Life Project, developed guidelines and conducted training for rangeland management, but implementation has been restricted to just 60 hectares due to limited funding.

The interventions proposed by the DoL offer an opportunity for the project to build upon this existing work and promote rangeland improvement while enhancing biodiversity conservation. For instance, reducing harmful fires and improving pasture will help alleviate pressure on biodiversity-rich areas, supporting both ecological health and sustainable land use. If successful, this program can be expanded in other highland areas where similar challenges are being faced by other pastoral communities.

The approach for this activity was proposed by the community during consultations in Merak and Sakteng in September 2024, as part of the field visit to assess whether ESS 8 was triggered. Several community members emphasized that the activity should benefit all *Tsamdro* users. However, recognizing the risks and concerns of the SWS management, they suggested that training and demonstrations be conducted on communal *Tsamdro*, followed by the restoration of 1 acre (0.4 ha)

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<sup>49</sup> KII with Merak and Sakteng Gup and community consultations, Merak and Sakteng, September 2024

<sup>50</sup> SWS Conservation Plan

of *Tsamdro* by each beneficiary household. This approach would motivate the community, ensure broader participation, and expedite the restoration process.

Restoration of *Tsamdro* largely will entail lopping of branches of juniper species and removal of unpalatable species, burning of wooden debris and distribution and planting of improved fodder species. This is labor intensive, with risk of injury and exposure to wildlife in remote areas (ESS 4).

A risk associated with restoration is the potential for the spread of fire when disposing of piles of debris. This risk is compounded by the lack of adequate firefighting facilities and human resources in both *gewogs*, posing environmental threats to the PA. Forest fires are recognized as one of the most pressing threats to forest ecosystem services in Bhutan (Sears et al., 2017 and World Bank, 2019<sup>51</sup>). However, if the intervention is implemented cautiously and in a phased manner, it presents an opportunity to prevent or at least reduce uncontrolled fires by pastoralists, raise awareness on controlled burning techniques, and provide necessary equipment and resources to mitigate the risk of damaging large forest areas due to accidental fires.

Some remote *Tsamdro* may face constraints such as the lack of mobile phone connectivity and water for firefighting<sup>52</sup>, posing risks to communities and their *Tsamdro* (ESS7), cultural sites (ESS 9) and adjoining forest even after clearing vegetation.

As part of the previous restoration work, the SWS management has already developed guidelines, established a grazing committee and piloted restoration activities. Rather than reinvent the wheel, this approach should be reviewed by the Project, improved upon with agreements with individual households that include conditions and sanctions for non-compliance (such as forfeiting rights to clear additional *Tsamdro* in the future or imposing fines). Subcommittees or groups tasked with the responsibility of undertaking controlled burning and compliance monitoring may encourage community participation and accountability while reducing the burden of monitoring on the PA. This would be useful especially given the dispersed nature of the large tracts of pastureland and the limited human resources within the *gewog* and SWS to avoid encroachment, misuse or violations.

During the site visit and consultations, not all communities could participate in the discussions regarding project interventions, especially far-flung communities, persons stationed at their *Tsamdro* attending to livestock, or away attending to other business or chores. Also, gender-based violence and gender disparities are more evident in terms of representation in local government (no women *mangmi* or *tsogpa*) and the high rate of divorce and widowed persons in Sakteng *Gewog*<sup>53</sup>, (ESS 6) requiring more activities to promote opportunities for women empowerment and participation.

Lack of clear-cut demarcation of the *tsamdros*<sup>54</sup> and complex sharing mechanism of seasonal grazing lands with overlapping users<sup>55</sup> generate disputes and conflicts between *Tsamdro* grazers.

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<sup>51</sup> Sears, R. R., S. Phuntso, T. Dorji, K. Choden, N. Norbu, and H. Baral. 2017. "Forest Ecosystem Services and the Pillars of Bhutan's Gross National Happiness." CIFOR Occasional Paper 178, Center for International Forestry Research, Bogor, Indonesia in World Bank 2019. Bhutan Forest Note Pathways for Sustainable Forest Management and Socio-equitable Economic Development

<sup>52</sup> Community consultation, Merak and Sakteng, September 2024

<sup>53</sup> As per the NSB gewog data for the two gewogs: Merak -total households in 2019 was 375 with 24 persons divorced and 38 widowed; Sakteng total households in 2019 was 396 with 455 persons divorced and 844 widowed 844.

<sup>54</sup> Tshering Wangdi. "Police Investigates *Tsamdro* Dispute." *Kuensel Online*, 31 Oct. 2015, [kuenselonline.com/police-investigates-tsamdro-dispute/](http://kuenselonline.com/police-investigates-tsamdro-dispute/).

<sup>55</sup> Wangdi, Sonam, and Nawang Norbu. "Good Fences Are Key to Sustainable Pasture Management and Harmonious Pastoral Society of Merak and Sakteng in Bhutan." *Pastoralism*, vol. 8, no. 1, 31 Jan. 2018, <https://doi.org/10.1186/s13570-017-0106-0>.

Based on the findings, ESS8 is applicable to the *Brokpa* community, the FAO Environmental and Social Standard (ESS) 8 (Indigenous Peoples and Cultural Heritage) and Minimum Standard 5 (Indigenous Peoples) of the GEF Policy on Environmental and Social Safeguards apply to the project.

A full FPIC process will be developed and implemented during project implementation, including any specific grievance mechanisms that may be required to meet the needs of *Brokpa* people.

## **B. Sustainable Land Management/Land Development**

SLM interventions have been emphasized as a priority and supported by donors such as the Global Environment Facility (GEF), World Bank and Bhutan Trust Fund for Environmental Conservation (BT FEC). They have also been prioritized in Bhutan's Strategic Program for Climate Resilience which was prepared through support from the Climate Investment Funds' (CIF) Pilot Program for Climate Resilience (PPCR) and also implemented under the Commercial Agriculture and Resilient Livelihoods Enhancement (CARLEP) Program.

The project aims to expand SLM and land development activities in previously unbenefited areas and areas where government funding is insufficient for widespread community adoption.

Land development for agriculture aims to ensure effective and sustainable use of agriculture land; make farming an attractive source of livelihood; food and nutrition security; minimize the risk of land conversion, enhance socio-economic development through commercial farming; reduce rural-urban migration, promote youth employment, reduce land degradation, conserve biodiversity, and increase resilience to climate change while contributing towards achieving commitments set by global agreements.

Land development will be carried out on both wetland areas and fallow dryland areas. It will involve use of machinery, vegetation clearance, slope cutting, stabilization, bench terracing, and construction of contour stone bunds, check dams, removal of surface stones, orchard basin and alley cropping depending on site specific requirements. Based on past experiences and lessons learnt, the Ministry has already developed the Sustainable Land Management Guidelines<sup>56</sup> which provides a step-by-step guidance for SLM implementation from seeking the required clearances, institutional responsibilities, cost sharing to best practices. LD methods have proven to be effective in mitigating soil erosion and increasing soil fertility<sup>57</sup> among others.

To inculcate a sense of ownership and reduce the financial burden on the project, land development will be implemented on cost sharing mechanism, wherein technical knowledge, capacity building, seeking required clearances and provision of machinery support will be provided by the project while the beneficiary will provide in kind contribution as community workers for construction of check dams, terracing or bioengineering.

These activities will trigger ESS 1 since there are no access routes around agricultural land and government reserve forest land will be traversed during machine deployment. Also, there is the risk of noise, dust, air pollution and waste from clearance activities (ESS2), and risk of damage to newly cut slopes in case of extreme weather conditions (ESS 3). Land development is labor intensive, and workers may be overworked, fatigued, exposed to various weather conditions, with possible risk of accidents and injury (ESS4) to workers as well as community members (ESS 5). Neighboring land or property may be impacted, and farmers may be required to sacrifice a certain portion of their productive land (ESS7), possibility of grievances from non-benefitting households (ESS7), or possibility of chance finds or damage to cultural sites during implementation (ESS8).

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<sup>56</sup> National Soil Services Center, Dept of Agriculture, MoAF, RGOB, 2021. Sustainable Land Management: Guidelines and Best Practices. [https://www.nssc.gov.bt/wp-content/uploads/2022/09/Sustainable-Land-Management\\_Guidelines-and-Best-Practices\\_2021.pdf](https://www.nssc.gov.bt/wp-content/uploads/2022/09/Sustainable-Land-Management_Guidelines-and-Best-Practices_2021.pdf)

<sup>57</sup> ALD guidelines

The LD process, as per the guidelines, requires the creation of a committee that will conduct a feasibility study of the proposed sites, determine the impacts on forest and secure forest clearance, private property, cultural sites and seek alternatives to prevent adverse impacts on government and private property and cultural sites.

### **C. Farming Practices**

To enhance the development of integrated and resilient farms (Eco-innovate farms), activity aims to promote the youth farm at Khaling, which covers an area of 10 acres through interventions that involve installation of greenhouses, provision of machinery and installation of smart irrigation. All other farm assistance will be targeted for subsistence farmers.

While the Project will not directly finance the purchase of fertilizers and pesticides, it may indirectly increase the application of these leading to eventual water and soil pollution as farmers seek to improve crop yields. Pesticide storage and handling areas expose farmers to hazardous chemicals, posing health and environmental risks. Obsolete pesticide stocks can cause corroded containers, lost labels, and contamination of drinking water, food, or air. Chemical pesticides persist in soil contaminating humans and aquatic communities.

The procurement and distribution of fertilizers is both centralized and regulated with a cautious and efficient system through the National Seed Centre that distributes it to Agriculture Sales and Service Representatives (ASSRs) only. However, since distribution records are not maintained in detail, the input is not clear. Also, farmers lack good knowledge and understanding of best practices resulting in mismanagement through overuse or underuse of fertilizers, especially as current nutrient recommendation are at the Dzongkhag level and not based on site specific soil testing or fertilizer use trails<sup>58</sup>. The same applies to pesticides.

The NPPC has been promoting IPM since the early 1990s<sup>59</sup> and is responsible for carrying out research and development activities for the development of IPM measures on particular pests. The District Agriculture Officer (DAO) and in turn the extension officers are responsible for the implementation of IPM in the field.

Use of bio pesticides and botanicals are being promoted as an alternative to synthetic pesticides to manage pests in the crops but has been limited due to limited awareness among the farmers on the availability of safe and environmentally friendly biopesticide.<sup>60</sup>

These activities will trigger ESS1 (if there are incidences where wildlife may be encountered necessitating self-defense; ESS2 (inputs such as water, fuel for machinery, green houses, fertilizers, pesticides, herbicides, dust and waste generation); ESS 3 (as crops are vulnerable to extreme weather conditions); ESS4 (agriculture related Occupational Health and Safety concerns); ESS 5 (in case of conflicts between neighbors); ESS 6 (risk of discrimination, minimal participation or benefit by vulnerable female headed households), ESS 7 (conflicts in case of encroachment or damage to adjoining lands from damaged water pipes or existing irrigation channels)

### **D. Poultry and Dairy Farms**

Under this group of activities, the project will support commercial layer farms (3,000 bird capacity) for cage-free eggs production and large-scale broiler farms. Poultry farming in Bhutan operates at

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<sup>58</sup> Dept of Agriculture, MoAF, RGoB, 2022. National Fertilizer Strategy and Action Plan (2023-2030).

[https://www.nssc.gov.bt/wp-content/uploads/2022/09/National-Fertilizer-Strategy-and-Action-Plan\\_2023-2030.pdf](https://www.nssc.gov.bt/wp-content/uploads/2022/09/National-Fertilizer-Strategy-and-Action-Plan_2023-2030.pdf)

<sup>59</sup> National Plant Protection Centre, Dept of Agriculture, MoAF, RGoB, 2023. Vision Document 2040: National Plant Protection Program

<sup>60</sup> National Plant Protection Centre Dept of Agriculture, MoAF, RGoB, 2022. Annual Report 2021-2022.

different scales, ranging from backyard and subsistence to semi-commercial and large-scale commercial farming. The definition of each poultry farming category in the Bhutanese context is as follows: (1) Subsistence farming refers to farms with a stocking capacity of ≤500 birds. (2) Semi-commercial farming refers to farms with a stocking capacity ranging between 501 to 1000 birds. (3) Commercial farming means those farms with a stocking capacity of > 1001 birds<sup>61</sup>.

The establishment of commercial farms are categorized as 'Blue' category activities (Annex 3, Table 1) for which Environmental Clearance must be sought from the respective District Environmental Committee for which site-specific details on each farm must be provided.

There are several guidelines<sup>62</sup> that project beneficiaries must comply with in relation to the establishment, maintenance and operation of farms to minimize environmental and social problems, which address concerns triggered by ESS 1 to 6.

These activities will trigger ESS 1 to 6. ESS1 if sites selected entail land lease and clearance of vegetation, ESS2 because of the inputs required for livestock and dairy farming such as infrastructure, water, electricity, feed, medicines and associated waste such as rejected animal feed, used bedding, carcasses, packaging materials and associated noise, air, odor generation, ESS 3 due to risk of damage to the infrastructure due to natural hazards and disasters, ESS 4 due to health risks working in close proximity, labour and employment risks, ESS 5 due to impacts on water supply, noise, air pollution and risks of diseases, ESS 6 due to risk of discrimination, ESS 7 due to risks of diseases, odor and complaints from neighboring households if adequate distances are not maintained.

#### **E. Infrastructure Work**

This involves the following types of activities

- Demolition of existing structures at selected sites and construction of new structures- e.g. aggregation center at existing site in Langchenphu, Samdrup Jongkhar
- Construction of new infrastructure on new sites- such as milk processing, aggregation centers, processing plants, market shed/outlets, for which sites are yet to be selected
- Renovation or expansion of existing structures on existing sites, that may or may not need additional land- e.g. Support with expansion of existing infrastructure and processing equipment at Merak/Sakteng
- Distribution of materials to individual farmers or livestock owners (e.g. for improved dairy housing) involving household or community workers for installation work.

For public infrastructure, the work will most likely be contracted out through the procurement process or to the community through the local government. As with all infrastructure projects, there are potential risks and impacts associated with forest clearance in case the site is in government reserve land (ESS1), requirement for raw materials, water, energy, construction related impacts on air, water quality and noise, waste generation (ESS2). There is also the risk of damage to infrastructure during natural hazards or disasters (ESS 3), risks associated with worker recruitment, labor management, Occupational Health and Safety concerns (ESS 4), potential risks on community health and safety and conflicts due to influx of workers from outside the community (ESS 5). Sites selected may need to be leased from the government due to change in land use and involve displacement of persons living (as

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<sup>61</sup> Janga Bdr. Gaylal, and Jambay Dorjee. "A Review of Poultry Development Modality in Bhutan." *Bhutan Journal of Animal Science*, vol. 8, no. 1, 2024, pp. 25–37, [ojs.moal.gov.bt/index.php/bjas/article/view/211](https://ojs.moal.gov.bt/index.php/bjas/article/view/211).

<sup>62</sup> Rules and Regulations for Lease of Government Reserve Forest Land and Government Land 2009, Livestock Rules and Regulations 2017, Standards of construction and operation of designated farms, In-country livestock biosecurity guidelines 2015

there are only 2 household/tenants atLangchenphphu) renting existing structures that will be demolished (ESS 7), and potential impacts on cultural sites (ESS 9).

#### F. Operation and Maintenance of Processing Units

Juice processing plants require large amounts of water for cleaning, processing and product preparation as well as raw materials (fruits, chemicals/additives) and generate both solid waste and wastewater, which require proper management based on the production capacity of the plant, especially if rural waste management systems are not in place.

Depending on the current availability, and projected demand, consent for water sharing with the community may be required. The plant will require a constant source of electricity for operations and while jobs may be created there are health and safety concerns related to working conditions (ESS4), and risk of food contamination (ESS5), and gender issues due to discrimination in terms of employments, wages, working hours or harassment (ESS6), or issues or conflicts with respect to workloads, benefit sharing within in the enterprise or membership (ESS 7), and issues with maintenance and operation of facilities and equipment (group H below).

#### G. Procurement of Machinery, Equipment and Vehicles

The key concerns with the procurement and supply of greenhouses, automation systems, farm machinery, farm equipment, and refrigerated vans relate to three Environmental and Social Standards (ESS):

**ESS 2:** Resource efficiency and pollution prevention-**Disposal of non-functional or end-of-life equipment/machinery** to prevent pollution from hazardous waste

**ESS 4:** Decent Work- **Worker knowledge on use of machinery to ensure safety** during operation and maintenance or malfunction

**ESS 5:** Community Health, Safety and Security to address risks such as **accidents** during the use of refrigerated vans or injuries from use of machines by non-trained workers

These concerns are closely tied to **sustainability, ownership, and responsibility** for operation, maintenance, and waste disposal, highlighting the need for **accountability** from both the **implementors** and **private beneficiaries**.

In summary, activity groups for Group A will trigger all standards, Groups B to G will trigger ESS 1 to ESS 7, activity H will trigger ESS2, 3 and 6. ESS8 will be triggered by grazing restoration and rangeland management, while ESS 9 may be triggered by Activity Group A, Group B and new construction involving excavation work.

Summarizing section 5.2.1. Table 11 indicates the ESS standards triggered by each group of activities

Table 11. the 6 groups and the ES standards triggered

Activity Group	ESS1	ESS2	ESS3	ESS4	ESS5	ESS6	ESS7	ESS8	ESS9
A. Rangeland and grazing restoration and fodder development	✓	✓	✓	✓	✓	✓	✓	✓	✓
B. Land Development	✓	✓	✓	✓	✓	✓	✓		✓
C. Eco-innovate farm/AgriTech farm, citrus farms	✓	✓	✓	✓	✓	✓	✓		
D. Farming activities Establishment of green houses Human wildlife interventions	✓	✓	✓	✓	✓	✓	✓		
E. Activities involving NEW infrastructure construction	✓	✓	✓	✓	✓	✓	✓		✓
F. Activities involving repair or expansion work on EXISTING structures and sites	✓	✓	✓	✓	✓	✓	✓		
G. Processing Units	✓	✓	✓	✓	✓	✓	✓		
H. Procurement of machinery, equipment and vehicles		✓	✓			✓			

### **4.3. General Guidance for Implementation**

The ESMP has been prepared to provide guidance during the implementation stage and covers all activities from site selection to evaluation through a six-step process.

#### **4.3.1. STEP 1: Screening Project Activities Based on Location and Risk Rating**

Project activities will be screened, and re-screened where and when determined as necessary, by the Project Manager (PM), the Project Steering Committee (PSC) or FAO. Any new activity must be screened as per the exclusion checklist in Annex 2. Activities that contravene the checklist, are not listed in the ProDoc, or have not been approved by the PSC cannot be undertaken. This especially applies to activities in PA core zones, critical habitats, and within migratory routes of threatened species, and to activities involving involuntary land acquisition. In this regard, alternative sites must be selected to mitigate environmental and social impacts.

#### **4.3.2. STEP 2: Updating the Environmental and Social Management Plan (ESMP)**

The ESMP provides a set of avoidance, mitigation, monitoring and institutional measures, as well as actions needed to implement these measures to achieve the desired social and environmental sustainability outcomes. During the inception phase, or within 6 months of project start up, all project sites should be selected, including selection of alternative sites based on screening.

Given the baseline environmental and social site conditions, the ESMP must be reviewed and revised whenever any new risks as per all nine Environmental and Social Standards are identified. The revised ESMP may require preparation of a Biodiversity Action Plan, or a Resettlement Action Plan depending on site specific needs or updating the SEP to ensure that any new stakeholder or affected person has been included. This process will be carried out by the ESS consultant in close collaboration with IA and in consultation with the community.

#### **4.3.3. STEP 3. Seek National Clearances**

##### **Process for and seeking national clearances**

- Environmental clearance (for category B activities),
- Forest clearances for any activity on government reserve forest land, involving vegetation clearances, or in PAs and BCs.
- Community clearance if water sources are to be shared or if community land or forest is to be impacted
- Local Government Clearance from the *Gewog* or *Dzongkhag* as appropriate
- Land Use Certificate for lease land
- Approval to dispose of demolition and construction waste

#### **4.3.4. STEP 4. Clearance and Disclosure of E & S Documents**

The updated ESMP must be submitted for review to FAO and GEF and once approved, it must be disclosed as per the disclosure plan.

#### **4.3.5. STEP 5. Implementation of ESMP**

Implementation of the ESMP will entail

- compliance with national legislation, guidelines and standards
- preparation of project summary, translation and dissemination to local communities
- conducting need assessments based on identification of vulnerable persons,
- drawing up cost sharing agreements with beneficiary communities
- creation of committees and sub-committees as required
- preparation of workplans for phase wise implementation of activities
- dissemination of information on project activities, implementation schedule, risks and impacts, ESMP and GRM



- Instituting the GRM at all levels through formal notification nominating GRM committee members with clear terms of reference, ensuring it is disclosed through consultations and local dissemination channels such as social chat groups and must be implemented
- and capacity building for ESMP implementation for contractors, PMU, IA and GRM for all committees.

#### **4.3.6. STEP 6. Compliance Monitoring, Documentation and Reporting**

To ensure compliance with the national laws and regulations as well as some specific requirements of the Environmental and Social Standards and the FESM, a qualified national consultant will guide the contractor and supervising officer in conducting monthly monitoring and reporting as it will not be possible for the consultant to reach all sites on a monthly basis. Compliance monitoring will be carried out as follows:

*Table 12 Compliance monitoring*

<b>Responsible Party</b>	<b>Frequency</b>	<b>Report submission</b>
Contractor	Monthly especially where the construction period is less than 9 months	To be submitted with monthly progress report
Supervising Officer	Every 2 months	To be submitted with monthly progress report
ESS Consultant	Quarterly	To be submitted with quarterly ES report

The MoAL and the FAO country office will be responsible for monitoring and evaluating implementation of the ESMP including responding to grievances and/or complaints of affected people or project staff and workers.

All training, consultation and grievances must be documented and included in the project progress report.

Table 13. Environmental and Social Management Plan (Risk, Impacts and Mitigation Measures)

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
<b>A.Rangeland and Grazing Restoration and Fodder Development</b>					
ESS1	Impact on critical habitats, core areas, forest ecosystems and biodiversity.	<ul style="list-style-type: none"> <li>• Prepare a detailed implementation plan in collaboration with SWS, local government and local committees through the FPIC process and ensure that the plan aligns with the SWS Conservation goals and objectives.</li> <li>• Ensure that the site selection process is followed by omitting sites of concern (critical habitats, core areas, wildlife migratory routes), through collaborative and participatory mapping process with all stakeholders.</li> <li>• Seek Clearance from DoFPS to implement activity based on Implementation Plan.</li> <li>• Revise ESMP based on consultations and detailed planning process.</li> </ul>	Design and planning		Costed under IPP plan
	Risk of limited monitoring by SWS due to lack of human resources.	<ul style="list-style-type: none"> <li>• Strengthen existing grazing committee and expand this to include additional relevant members (LG, Livestock Extension Officer and Sakteng/Merak Range, and highland development staff as required to strengthen guidance, supervision and monitoring.</li> <li>• Create sub committees within each selected pastoral area with clear terms of reference that will be responsible for compliance with guidelines, ensuring that controlled burning is carried out, fire breaks are created, and clearance is limited to the allowable areas.</li> </ul>	Implementation	2000 USD	
	Lack of knowledge restoration activities.	<ul style="list-style-type: none"> <li>• Conduct training for all Tsamdro owners on removal of vegetation and forest fire prevention and suppression in a phased manner on communal Tsamdro land (as demonstration) prior to permitting each household to conduct the same in their respective areas.</li> </ul>	Implementation	0	Included under activity cost
	Risk of forest fires beyond the target area resulting in loss of forest habitat and damage to wildlife species.	<ul style="list-style-type: none"> <li>• Ensure all sites are clearly demarcated prior to commencement of activities.</li> <li>• Prepare and sign comprehensive agreements with private Tsamdro owners to ensure that they are fully liable for control of fires within their Tsamdro with specific sanctions for non-compliance.</li> </ul>	Implementation	15000 USD	For all sites

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
	Risk that livestock owners may increase their livestock herds resulting in further rangeland degradation.	<ul style="list-style-type: none"> <li>Conduct awareness for livestock owners on benefits of better breeds and reduced herds during consultations.</li> </ul>	Implementation	0	Can be included as a topic during consultative meetings
ESS2	Lack of equipment or water for controlling forest fires could result in loss of hundreds of acres of forestland.	<ul style="list-style-type: none"> <li>Provide assistance for water supply and storage in critical areas where water is not readily available</li> <li>Provide assistance for firefighting (e.g. portable fire extinguishers) or collaborate to use drones.</li> </ul>	Implementation	0	Budgeted under fire risk mitigation
	Introduced fodder species, if invasive species become widespread and overtake natural ecosystems or require more water.	<ul style="list-style-type: none"> <li>Do not introduce new fodder species unless these have been proven to be non-invasive.</li> <li>Conduct small-scale trials on nutritious, local, water-efficient, and climate-resilient alternative fodder species to reduce risk of spread of invasive species and minimize environmental disruption before widespread implementation.</li> </ul>	Implementation	Nil	Should be part of activity cost
ESS 3	Clearance of vegetation in the upper watershed areas will impact water availability.	<ul style="list-style-type: none"> <li>Do not select Tsamdro in the upper watershed areas and enforce this to prevent excessive deforestation.</li> </ul>	Planning	Nil	Should be part of activity cost
ESS 4	Risk of injury or accidents during restoration work. -Exposure to air emissions and fine particulate matter during burning and moping of fires.	<ul style="list-style-type: none"> <li>Provision for First Aid from BHU</li> <li>LG to coordinate ambulance to the nearest hospital for health emergencies</li> <li>LV to coordinate for emergency evacuation with helicopter services in case of need.</li> </ul>	Implementation	Nil	Should be part of activity cost
ESS 5	Risk of forest fires impacting neighbouring Tsamdro and temporary sheds.	See mitigation for forest fires above.	Implementation	0	
ESS6	Risk that women stationed at the Tsamdro are not able participate in meetings and are not confident to speak up or participate in meetings and hence their views and concerns are not incorporated into project design and implementation.	<ul style="list-style-type: none"> <li>Organize and schedule meetings to allow adequate time for women at the Tsamdro to participate in meetings.</li> <li>Encourage women participation in sub-committee.</li> <li>Conduct separate consultations with women and encourage them to voice their concerns.</li> </ul>	Planning and implementation	Nil	Should be part of GAP implementation

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
ESS 7	Conflict between neighbouring Tsamdro owners in case of damage to shelters.	<ul style="list-style-type: none"> <li>Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> </ul>	Implementation	Nil	Budgeted under ESS8
	The project may not benefit marginalized households without cattle, Tsamdro or income.	<ul style="list-style-type: none"> <li>Provide alternative options to allow non-Tsamdro owners to benefit from project activities e.g. from engaging them in restoring communal Tsamdro or engaging them to assist in training and compliance monitoring (on payment basis and if interested only).</li> </ul>	Planning	Nil	Should be part of activity cost
ESS 8	Risk that not all beneficiaries are consulted or aware of the project interventions, plans or participation in trainings or are unable to voice their concerns.	<ul style="list-style-type: none"> <li>Prepare a detailed IPP plan with the detailed implementation plan</li> <li>Comply with FPIC procedures<sup>63</sup> to undertake meaningful, effective and informed stakeholder engagement and participation in project activities, with no coercion or intimidation. To build and maintain a constructive relationship with all communities and to avoid or mitigate any potential risks promptly.</li> <li>Conduct meetings prior to and after activities in each area to seek feedback and incorporate lessons from each location to the next.</li> <li>Update and implement the SEP based on agreed timelines for rangeland restoration in specific locations.</li> <li>Prepare a timeline and schedule for implementation of activities ensuring that no community is left out.</li> <li>Actively encourage 'development with identity'</li> <li>Ensure that all Tsamdro owners are familiar with the GRM process and that it is accessible to all.</li> <li>Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> </ul>	Planning and implementation	5000 USD	Only to be used for consultations refreshment/lunch, travel budget for SWS, DOL and LG representative (not for local people travel as meetings must be held at specific sites and not at the gewog centre)
ESS 9	Risk of damage to Cultural Heritage in the event of uncontrollable fires.	<ul style="list-style-type: none"> <li>Ensure that Tsamdro owners are aware of the risk of uncontrolled fire damaging significant cultural heritage in their vicinity and inform them of the liabilities for any damage to cultural heritage.</li> </ul>	Implementation	Nil	Should be part of activity cost

<sup>63</sup> Free, prior and informed consent (FPIC) is a specific right granted to Indigenous Peoples recognized in the United Nations' Declaration on the Rights of Indigenous Peoples (UNDRIP), which aligns with their universal right to self-determination. FPIC allows Indigenous Peoples to provide or withhold/withdraw consent, at any point, regarding projects impacting their territories. FPIC allows Indigenous Peoples to engage in negotiations to shape the design, implementation, monitoring and evaluation of projects (FAO, 2023).

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
		<ul style="list-style-type: none"> <li>Follow mitigation measures for fire prevention and suppression as above.</li> </ul>			
<b>B. Land Development</b>					
ESS 1	<p>Land that has been uncultivated for a long time will need to be cleared of all vegetation.</p> <p>Impact on vegetation during machine marching.</p>	<ul style="list-style-type: none"> <li>During the site selection process, ensure that sites inside the core zones, Ramsar sites or specific sites set aside by the PA management inside Protected Areas are avoided.</li> <li>Seek forestry permit to clear vegetation and for machinery to be marched to the selected site.</li> </ul>	<p>Site selection</p> <p>Machine marching to selected site</p>	Nil	Should be part of activity cost
ESS 2	Potential increase in utilization of fertilizers, herbicides and pesticides to enhance production.	<ul style="list-style-type: none"> <li>Conduct soil tests in key areas to determine fertilizer needs and provide farmers with site-specific recommendations.</li> <li>Collaborate with NPPC to raise awareness among farmers on the dangers of pesticide exposure, safe handling, application, storage, disposal, and poisoning symptoms.</li> <li>Follow FAO and WHO guidelines on good pesticide practices and personal protection during pesticide handling (2001 and 2020 codes).</li> <li>Promote ISFM through integrated farming, agroforestry, and the use of bio-fertilizers.</li> <li>Adopt relevant sections of the FAO Fertilizer Code to ensure sustainable fertilizer use.</li> <li>Encourage biofertilizer enterprises in the project area.</li> <li>Follow Bhutan's Pesticide Act 2000 and Pesticide Rules and Regulation 2019 for pest control, transportation, and disposal of pesticides.</li> <li>Designate areas for safe collection and disposal of used containers and leftover pesticides in consultation with DECC.</li> <li>Encourage farmers to track and record their fertilizer and pesticide usage and disposal to improve data collection.</li> </ul>	Implementation	Nil	Should be part of activity cost
ESS 3	Areas with steep slopes, poorly designed or maintained terraces can increase the risk of landslides.	<ul style="list-style-type: none"> <li>Avoid land management on steep slopes.</li> <li>Carry out bioengineering work to stabilize slopes and/or plant fodder species.</li> </ul>	Planning and implementation	Nil	Should be part of activity cost

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
ESS 4	Occupational risks related to working with machines on slopes.	<ul style="list-style-type: none"> <li>Use only qualified machine operators that are licensed and ensure that these follow operating protocols and are not overworked.</li> </ul>	Planning and implementation	Nil	Should be part of activity cost
ESS 5	Risk of damage to lower or neighbouring land during machine marching through other private land and government forest to reach the selected land parcel. Risk of social conflicts between adjoining landowners while implementing activities on the boundaries of private land.	<ul style="list-style-type: none"> <li>Conduct feasibility assessment prior to marching machines, consult and seek consent of neighbouring landowners to avoid conflict or complaints later.</li> <li>Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> </ul>	Planning and implementation	Nil	Should be part of activity cost
ESS 6	<p>Women may be hesitant to speak up during consultations or to raise gender-related issues.</p> <p>The arrival of project workers may increase the risk of GBV, sexual exploitation, and harassment.</p>	<ul style="list-style-type: none"> <li>Support and encourage women to take on leadership roles within community organizations</li> <li>Gender consultant and gender focal officers should collaborate to sensitize DAO, DLO, Extension Officers, contractors and Local government on national policies promoting gender equality and empowerment of women, women's participation and seek their support promote zero tolerance for gender-based violence and collaborate with existing NGOs like RENEW and Tarayana to enhance local support services to mitigate GBV risks.</li> <li>Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> </ul>	Implementation	Nil	Should be part of GAP implementation
ESS 7	<p>LD work may result in loss of land and beneficiaries are required to share certain portion of the total cost, in cash or kind.</p> <p>Risk that vulnerable households may not be able to contribute in cash or kind (due to lack of adequate physically able members).</p>	<ul style="list-style-type: none"> <li>Provide prior information and conduct consultation with landowners on the risks, impacts and benefits of LD, and sign agreements including voluntary consent from landowners on loss of land due to LD and cost sharing.</li> <li>Review and revise the criteria for selection of beneficiaries that can avail the full support scheme.</li> <li>Conduct detailed assessment to identify households or individuals that can be eligible for full support scheme in consultation with LG.</li> </ul>	Planning and Implementation	Nil	Should be part of activity cost

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
	Risk of accidents due to rolling boulders during land development activities.	<ul style="list-style-type: none"> <li>Provision for emergency transportation to the nearest health care centre in case of accidents or injury with the assistance of the LG.</li> </ul>	Planning and Implementation	Nil	Should be part of activity cost
ESS 9	Excavation work may impact religious and cultures sites or lead to new discoveries.	<ul style="list-style-type: none"> <li>Map all religious and cultures sites in consultation with the community and plan work to avoid these sites.</li> <li>Follow chance find procedures.</li> </ul>	Planning and Implementation	Nil	Should be part of activity cost
<b>C. Eco-innovate Farm/AgriTech Farm, Citrus Farms</b>					
ESS 1	Trees along farm boundaries may need to be cut to install fencing. Risk of human wildlife conflict.	<ul style="list-style-type: none"> <li>Seek Forest Clearance to clear vegetation.</li> <li>Inform farmers to immediately inform the nearest Range Office in case HWC.</li> </ul>	Planning and Implementation	Nil	Should be part of activity cost
	Difficulties for rural farmers in accessing inputs including seeds, fertilizers, spawns, weedicides, non-toxic chemicals machinery spare parts, farm tools, spray equipment and basic greenhouse, electric fencing and irrigation material.	<ul style="list-style-type: none"> <li>Collaborate with the relevant stakeholders such as Department of Trade to promote one stop shops for agricultural produce in various dzongkhags or promote sale of products in annual fares during festivals/Tsechus in different dzongkhags to allow farmers the opportunity to budget for purchasing all their requirements at once.</li> </ul>	Planning and Implementation	Nil	Should be part of activity cost
ESS 2	Requirement for a constant and reliable water supply for crops as well as efficient irrigation systems to cover large areas.	<ul style="list-style-type: none"> <li>If streams are to be tapped, seek required approvals from the community, gewog or dzongkhag as required.</li> </ul>	Planning and Implementation	Nil	Should be part of activity cost
	Fertilizers can be used indiscriminately without proper knowledge of soil/plant requirements. The use of fertilizers, herbicides and pesticides to enhance production can potentially pollute and negatively impact the environment in case obsolete supplies are not disposed of appropriately.	<ul style="list-style-type: none"> <li>Conduct soil tests in key areas to determine fertilizer needs and provide farmers with site-specific recommendations.</li> <li>Collaborate with NPPC to raise awareness among farmers on the dangers of pesticide exposure, safe handling, application, storage, disposal, and poisoning symptoms.</li> <li>Follow FAO and WHO guidelines on good pesticide practices and personal protection during pesticide handling (2001 and 2020 codes).</li> <li>Promote ISFM through integrated farming, agroforestry, and the use of bio-fertilizers.</li> </ul>	Planning and Implementation	Nil	Should be part of activity cost

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
		<ul style="list-style-type: none"> <li>Adopt relevant sections of the FAO Fertilizer Code to ensure sustainable fertilizer use.</li> <li>Encourage biofertilizer enterprises in the project area.</li> <li>Follow Bhutan's Pesticide Act 2000 and Pesticide Rules and Regulation 2019 for pest control, transportation, and disposal of pesticides.</li> <li>Designate areas for safe collection and disposal of used containers and leftover pesticides in consultation with DECC.</li> <li>Encourage farmers to track and record their fertilizer and pesticide usage and disposal to improve data collection.</li> </ul>			
	Khaling Farm- The lack of adequate storage facilities for fertilizers, pesticides, equipment, and crop storage increases the risk of damage or spoilage, threatening workers' livelihoods and farm productivity.	<ul style="list-style-type: none"> <li>Provision for storage facilities for fertilizers, pesticides, and machinery, as well as post-harvest measures, to prevent damage and loss of harvested crops due to weather and pests.</li> </ul>	Planning and Implementation	Nil	Should be part of activity cost
ESS 3	Risk that extreme weather conditions such as windstorms or heavy rain may damage greenhouses and other farm infrastructure such as storage sheds.	<ul style="list-style-type: none"> <li>Integrate climate-resilient design features, and incorporate climate suitable and durable materials for infrastructure work.</li> </ul>	Planning	Nil	Should be part of activity cost
ESS 4	Risk that farmers (e.g. youth farm Khaling) lack the knowledge and experience to manage the farm (procurement, budgeting and accounting), safe use of machines, management of temporary hired workers.	<p>Provide guidance and training on</p> <ul style="list-style-type: none"> <li>Procurement, planning and budgeting for Operation and Maintenance</li> <li>Labour and employment rights for community workers or hired help</li> <li>Health and safety requirements such as use of appropriate PPE for various activities including use of machinery</li> <li>Operation and maintenance of machinery to minimize breakdown and maintenance cost</li> </ul>	Implementation		
	During peak cropping seasons, when additional help is required, there is the risk of underage employment, discrimination,	<ul style="list-style-type: none"> <li>Follow the principle of equal opportunity and fair treatment and avoid any discrimination during hiring and allow freedom to associate and bargain collectively</li> </ul>	Implementation	Nil	Should be part of activity cost



ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
	<p>payment issues and denial of freedom of association and collective bargaining.</p> <p>Workers may also face significant challenges if there is a lack of safe drinking water, sanitary facilities, and resting area especially for hired workers especially due to lack of shelter during extreme weather events.</p> <p>Risk of conflicts between workers or grievances regarding working conditions of employment with no mechanism for resolving internal grievances or ensuring appropriate behaviour.</p>	<ul style="list-style-type: none"> <li>• Prepare agreements with workers that provides clear information on the work to be carried out, number of days/hours and wage rate as agreed between the employer and worker.</li> <li>• Promote circular migration models that encourage men and youth to return to the farm during peak seasons and promote gender friendly labour-saving devices.</li> <li>• Provide resting and eating areas as well as sanitation facilities, for use by hired workers and farmers (e.g. Khaling farm).</li> <li>• Require farmer groups to institute a GRM mechanism to resolve all grievances between employers, employees and workers.</li> </ul>			
ESS 5	<p>Increasing reliance on female labour (feminization) may increase the physical burden on women, leaving them with limited time for other responsibilities</p> <p>Risk of harassment or SEAH by members of producer groups, or managers where processing or aggregation services are provided</p> <p>Risk of transactional sex requested in exchange for work opportunities</p> <p>Women may be hesitant to speak up during consultations or to raise gender-related issues.</p>	<ul style="list-style-type: none"> <li>• Ensure female-headed households have an equal opportunity to benefit from this activity. -Strengthen agricultural extension services that specifically target women with customized advice, support, and technology dissemination.</li> <li>• Gender consultant and gender focal officers should collaborate to sensitize DAO, DLO, Extension Officers, contractors and Local government on national policies promoting gender equality and empowerment of women, women's participation and seek their support promote zero tolerance for gender-based violence and collaborate with existing NGOs like RENEW and Tarayana to enhance local support services to mitigate GBV risks.</li> <li>• Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> </ul>	Implementation	Nil	Should be part of activity cost

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
ESS 6	Risk of gender discrimination in terms of membership, work allocation, wages, or sexual harassment or difficulty due to lack of appropriate sanitary facilities.	<ul style="list-style-type: none"> <li>Promote gender equality through equal pay for equal work, prohibit sexual harassment, and ensure equal opportunity for interested females to join the youth group as members.</li> </ul>	Implementation	Nil	Should be part of GAP implementation
ESS 7	The absence of a clear written agreement or memorandum of understanding (MoU) within a youth group, coupled with the lack of a long-term plan and no mechanism for members to join or exit the group, significantly increases the risk of conflicts.	<ul style="list-style-type: none"> <li>Guide and assist the Youth group to prepare formal written agreements or memorandums of understanding (MoUs) that clearly outline the group's objectives, roles, and responsibilities. This should include a long-term plan for the group's activities and a transparent mechanism for adding or exiting members. The agreement should be regularly reviewed and updated to ensure it remains relevant and inclusive as the group evolves.</li> </ul>	Implementation	Nil	Should be part of activity cost
	Risk that landowners may want to take their land back once the farm becomes successful.	<ul style="list-style-type: none"> <li>Secure land use agreement for long term lease from landowners (e.g. Khaling farm).</li> <li>Develop a long-term plan for eventually purchasing the land to enhance ownership.</li> </ul>	Implementation	Nil	Should be part of activity cost
<b>D. Large Scale Broiler and Layer Farms and Dairy Farms</b>					
ESS 1	Requirement for environmental clearance for commercial farms. Land for new farms may be leased from government land or require clearance of existing fallow land that has revegetated.	<ul style="list-style-type: none"> <li>Process for Environmental Clearance for establishment of the farm.</li> <li>Process for Forest Clearance if there is a change in land use.</li> <li>Process for Land Use Certificate in case of lease land.</li> </ul>	Implementation	Nil	Should be part of activity cost
ESS 2	Requirement for construction materials, water supply and electricity. Wastewater from farms can carry contaminants like nutrients and pathogens into local water bodies, negatively affecting water quality and aquatic life, especially if near streams. Farms also generate waste, including excreta, poultry	<ul style="list-style-type: none"> <li>Where new farms are being established, work with beneficiaries to design their farms to minimize environmental, social and health impacts.</li> <li>Provide guidance on the need to facilitate drainage and safe disposal of waste material.</li> </ul>	Implementation	Nil	Should be part of activity cost

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
	carcasses, feathers, rejected feed, and bedding waste.				
ESS 3	Risk that the farm is not designed appropriately as per the climatic conditions. Risk of damage to infrastructure due to disasters. Risk of disease outbreaks.	<ul style="list-style-type: none"> <li>• Provide guidance to farmers on the design and construction of the farm depending on its potential size, location and climatic conditions.</li> <li>• Guide farmers to comply with the standards of construction and operation of designated farm.<sup>64</sup></li> <li>• Ensure quality of any infrastructure is maintained through regular supervision and expert guidance.</li> <li>• During the operation phase, ensure that routine inspections and maintenance of infrastructure are carried out to identify and repair any vulnerabilities caused by extreme weather conditions.</li> <li>• Maintain farm biosecurity and implement the best poultry management practices.</li> <li>• Assist farmers to prepare and implement contingency plan that includes preventive measures for the outbreak of highly pathogenic avian influenza [HPAI] and emergency response plans that is important to respond to the outbreak.</li> </ul>	Implementation		
ESS 4	Health and safety risks associated with working with poultry, including exposure to high levels of dust, ammonia, and biological hazards for farm workers.  -Risk of conflicts between workers or grievances regarding working conditions with no mechanism for resolving internal grievances or ensuring appropriate behaviour.	<ul style="list-style-type: none"> <li>• Ensure that farmers are regularly tested for diseases and use appropriate PPE to minimize health and safety risks.</li> <li>• Management and disease control at the farm must comply with BFDA standards for operation of farms</li> <li>• Require households employing workers to provide a mechanism to resolve grievances</li> </ul>	Implementation	Nil	Should be part of activity cost
ESS 5	Risk to the health of farm workers, disease outbreak and transmission	<ul style="list-style-type: none"> <li>• Promote good food hygiene practices and enforce strict on-farm biosecurity measures. Train farmers on the Bhutan Standard for Food</li> </ul>	Implementation	Nil	Should be part of activity cost

<sup>64</sup> Bhutan Food and Drug Authority. *Standards of Construction and Operation of Designated Farm*. [www.bfda.gov.bt/wp-content/uploads/2024/08/Standards-of-construction-and-operation-of-designated-farm-1.pdf](http://www.bfda.gov.bt/wp-content/uploads/2024/08/Standards-of-construction-and-operation-of-designated-farm-1.pdf).

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
	due to close proximity to human settlements. Risk of unhygienic conditions compromising food safety. Risk of conflict with neighbours due to foul smell generated by the poultry farm.	<p>Hygiene, based on international codes like CAC/RCP 1-1969 and the Codex Code of Hygiene for Egg and Egg Products (CAC/RAP 15-1976).</p> <ul style="list-style-type: none"> <li>● Improve surveillance systems and response measures for zoonotic diseases and poultry disease surveillance.</li> <li>● Establish facilities considering distance from neighbours, odour control, and wind direction (at least 50 meters from residences).</li> <li>● Promote composting to reduce odours or maintain vegetative buffer zones to minimize odour and dust.</li> <li>● Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> </ul>			
ESS 6	Risk of discrimination during beneficiary selection, employment or training opportunities and SEAH risk to workers in the farm. Risk of transactional sex requested in exchange for work opportunities	<ul style="list-style-type: none"> <li>● Promote gender equality through equal opportunities, equal pay for equal work, prohibit sexual harassment and discrimination</li> <li>● Gender consultant and gender focal officers should collaborate to sensitize DAO, DLO, Extension Officers, contractors and Local government on national policies promoting gender equality and empowerment of women, women's participation and seek their support promote zero tolerance for gender-based violence and collaborate with existing NGOs like RENEW and Tarayana to enhance local support services to mitigate GBV risks.</li> <li>● Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> </ul>	Implementation	Nil	Should be part of GAP implementation
ESS 7	Risks of diseases being spread or disturbances due to noise from the farm to nearby communities.	<ul style="list-style-type: none"> <li>● Guide farmers to compost the manure to reduce odour emissions or construct vegetative buffer zone around the boundary of the pen to prevent fugitive dust emissions.</li> </ul>	Implementation	Nil	Should be part of activity cost
<b>E. Activities Involving Infrastructure Construction</b>					
ESS 1	Depending on their location, there may be a need to lease land from government reserve forest and clear vegetation.	<ul style="list-style-type: none"> <li>● Follow site selection process to minimize impacts on critical ecosystems, habitats and species.</li> <li>● Seek Forestry Clearance if the site falls on government reserve forest.</li> <li>● Secure Land Lease Certificate.</li> <li>● Include ESMP into bidding document for contractor compliance.</li> </ul>	Implementation	Nil	Should be part of activity cost

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
	Risk of poaching/fishing by workers if sites are located near forested areas or near rivers.				
ESS 2	Requirement for multiple resources-water, energy, chemicals, construction materials. -Will result in the generation of both demolition and construction waste as well as air, noise, dust and water pollution that may affect streams and downstream communities.	<ul style="list-style-type: none"> <li>Provision for adequate water supply and electricity with required consents and clearances from the community in case of water sharing, and from BPC for electricity.</li> <li>Incorporate design to ensure the efficient usage of resources (energy, water, and raw materials) consistent with Good International Industry Practice.</li> <li>Manage all waste in accordance with the Waste Prevention and Management Regulations of 2016.</li> <li>Seek approval from Dungkhag and dispose demolition and construction waste at approved site.</li> <li>Reuse excavated soil for levelling and filling to minimize disposal requirements.</li> <li>Suppress dust through regular water sprinkling.</li> </ul>	Implementation	Nil	Should be part of activity cost
ESS 3	Risk of damage to infrastructure due to natural hazards such as earthquakes.	<ul style="list-style-type: none"> <li>Ensure quality of any infrastructure is maintained through regular supervision and expert guidance.</li> <li>During the operation phase, ensure that routine inspections and maintenance of infrastructure are carried out to identify and repair any vulnerabilities caused by extreme weather conditions.</li> </ul>	Implementation	Nil	Should be part of activity cost
ESS 4	-Potential employment of underage workers, discrimination in wages, working hours, irregular payments, and health and safety concerns such as inadequate accommodation, unclean sanitation facilities, unsafe working conditions, and lack of occupational health and safety (OHS) measures.	<ul style="list-style-type: none"> <li>Ensure compliance with national legislation on recruitment, worker management, health and safety, as well as the Labour Management Plan.</li> <li>Ensure that the bidding and contract documents include specific provisions requiring Contractors to comply with the all-applicable labour and employment act, regulations and guidelines<sup>65</sup></li> <li>Provision for worker accommodation and OHS in the BOQ</li> <li>Conduct pre-bid meeting with the</li> <li>Contractors and orientation on the ESMP after contractor selection.</li> </ul>	Implementation	Nil	Should be part of activity cost

<sup>65</sup> Labour and Employment Act, 2007; Regulations on Working Conditions, 2022; Regulation on Foreign Workers Management, 2022; Regulation on Occupational Health, Safety and Welfare, 2022; Regulation on Occupational Health and Safety for Construction Industry, 2022; Guideline for the Approval, Employment, and Management of Border Town Foreign Workers (BTFW), 2022

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
		<ul style="list-style-type: none"> <li>Contractor must undertake following measures for worker welfare and safety:</li> <li>Provide weather appropriate and resilient temporary accommodation with safe drinking water, electricity, and separate sanitation facilities for females. Camps must be self-contained, regularly cleaned, and waste managed as per gewog/thromde or district practices.</li> <li>Designate an Environmental Health and Safety Focal Person responsible for maintaining safe working conditions and environments for all workers.</li> <li>Provide workers with appropriate PPE, maintain a well-stocked First Aid kit and provide emergency transportation in case of accident or serious illness to the nearest healthcare facility.</li> </ul>			
	-Risk of conflicts between workers or grievances regarding working conditions of employment with no mechanism for resolving internal grievances or ensuring appropriate behaviour.	Institute worker GRM to address and resolve all worker related GRM	Implementation	Nil	Should be part of activity cost
ESS 5	The influx of foreign or non-local workers could lead to social conflicts, communicable diseases, and GBV risk, as well as disturbance to nearby residents	<ul style="list-style-type: none"> <li>Ensure foreign workers are screened for communicable diseases such as HIV/AIDs, Malaria and Dengue prior to arrival at the site.</li> <li>Brief all workers on required social behaviour and impose sanctions for inappropriate conduct.</li> <li>Prepare and abide by Code of Conduct for workers.</li> </ul>	Implementation	Nil	Should be part of activity cost
ESS 6	Risk of sexual harassment and GBV due to influx of non-local workers at the site. Lack of equal opportunities for women in the construction sector	<ul style="list-style-type: none"> <li>Project must organize GBV awareness and prevention training for all workers, emphasizing respect with zero tolerance for GBV, and also informing workers on relevant national laws and regulations and consequences/sanctions for engaging in such behavior.</li> <li>In case of GBV and Sexual harassment, collaborate with existing NGOs like RENEW to enhance local support services and further mitigate GBV risks.</li> </ul>	Implementation	Nil	Should be part of GAP implementation

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
	or discrimination in terms of facilities, wages of benefits.	<ul style="list-style-type: none"> <li>The Contractor must be briefed to clearly establish a clear zero-tolerance policy for GBV or sexual harassment and prepare and implement a code of conduct for all employees and workers.</li> <li>Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> <li>The contractor should be briefed on the GAP objectives and encouraged to provide equal work opportunities for women, equal pay for equal work and cautioned against discrimination of any kind against women.</li> </ul>			
ESS 7	Risk of damage to community and private property during material transportation, demolition or construction. Where construction activities are in settlement areas, there is always the risk of conflict between workers and the community for various reasons such as water supply	<ul style="list-style-type: none"> <li>The contract document must specify that the contractor is liable for repairing any damage to government or private property at the contractor's own cost.</li> <li>To ensure that all grievances are addressed, disseminate information to the community and follow the Grievance Redress Mechanism.</li> </ul>	Implementation	Nil	Under contractors' liability
ESS 7	Risk of economic and physical displacement in case there are structures, crops and non-title holders living and using the land.	<ul style="list-style-type: none"> <li>Avoid physical displacement and economic displacement and forced evictions by considering alternative sites.</li> <li>Implement an action plan to ensure that the two households renting the government structures are not adversely affected or made worse off by the project. This includes undertaking the following activities; <ul style="list-style-type: none"> <li>a) The project will ensure that there is no forced eviction and that six months prior notice (before construction commences) is provided to the 2 households in writing to find alternative housing.</li> <li>b) the project will collaborate with the Dungkhag to assist the families to find alternative housing,</li> <li>c) In case the tenants are not able to find alternative housing, for 6 months, the project will provide them temporary accommodation until a suitable and affordable rental is found</li> </ul> </li> </ul>	Implementation	2000 USD	Additional cost for preparation and implementation of the RAP (so far only 1 case was determined)

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
		d) The project will provide transportation or a shifting/moving allowance for the family to move their belongings to the new rental place.			
ESS 9	Excavation during construction may uncover unexpected artifacts, which could be misappropriated or damaged, posing a threat to cultural heritage.	<ul style="list-style-type: none"> <li>Follow Chance Find Procedures (see appendix)</li> </ul>	Implementation	Nil	Should be part of the activity
<b>F. Operation of Processing Units</b>					
ESS 2	<p>Resource requirements for processing units vary depending on the processing unit but will include:</p> <ul style="list-style-type: none"> <li>Water</li> <li>Energy</li> <li>Agricultural produce. e.g fruits for the juice processing unit, milk for yak products</li> <li>Packaging materials</li> </ul> <p>Both solid and liquid waste will be generated from rejected products from sorting, grading and other production processes.</p>	<ul style="list-style-type: none"> <li>Use energy efficient machines and water saving practices.</li> <li>Minimize storage time to reduce wastage.</li> <li>Segregate waste into biodegradable and non-biodegradable and store accordingly, provide appropriate waste storage receptacles that are covered.</li> <li>Collaborate with local farmers to dispose of organic waste as feed, or for composting.</li> <li>Follow gewog waste disposal requirements.</li> <li>Train workers in efficient processing and waste segregation.</li> <li>Install grids to reduce or avoid the introduction of solid materials into the wastewater drainage system.</li> <li>Ensure compliance with effluent discharge standards as per National Environment Standards 2020.</li> </ul>	Implementation	Nil	Should be part of the activity
ESS 3	Risk of accidental collapse or failure of structural elements due to natural hazards	<ul style="list-style-type: none"> <li>Ensure quality of any infrastructure is maintained through regular supervision and expert guidance.</li> <li>During the operation phase, ensure that routine inspections and maintenance of infrastructure are carried out to identify and repair any vulnerabilities caused by extreme weather conditions.</li> </ul>	Implementation	Nil	Should be part of the activity
ESS 4	-Worker may lack the knowledge to operate new machinery and may injure themselves	<ul style="list-style-type: none"> <li>Provide training for all new recruits on machine operation and maintenance</li> <li>Provide work appropriate PPE to all workers</li> </ul>	Implementation	Nil	Should be part of the activity



ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
	<p>-Risk of accidents if appropriate personal protective equipment is not provided</p> <p>-Risk of conflicts between workers or grievances regarding working conditions of employment with no mechanism for resolving internal grievances or ensuring appropriate behavior.</p>	<ul style="list-style-type: none"> <li>Ensure contractor has a worker GRM to resolve worker related grievances.</li> </ul>			
ESS 5	Risk of contamination from improper processing and hygiene practices.	<ul style="list-style-type: none"> <li>Adopt good processing practices and comply with the following: <ul style="list-style-type: none"> <li>-Good Manufacturing Practices (GMP) &amp; Good Hygiene Practices (GHP).</li> <li>-Food Rules and Regulations of Bhutan 2007 and – Food Safety Standards. BAFRA GHP/GMP Criteria for Licensing Food Business 2017.</li> <li>Bhutan Mandatory Standard for Milk 2017 that covers Hygiene Practice, use of food additives, contaminants, packaging and labelling.</li> <li>-Guidelines for Fresh &amp; Processed Food<sup>66</sup></li> <li>-Bhutan General Standard for Food Hygiene.</li> <li>- Production, processing and handling of milk must follow the Hygiene Practice established for Code of Hygiene Practice for Milk and Milk Products (CAC/RCP 57-2004).</li> </ul> </li> <li>Food additives should be as per Bhutan Mandatory Standard for Food Additives.</li> <li>Ensure facility maintenance to minimize contamination through regular cleaning and maintenance.</li> <li>-Provide guidance and train farmers in Bhutan Standard for Food Hygiene which is based on the Recommended International Code of Practice- General Principles of Food Hygiene (CAC/RCP 1-1969) and Codex Code of Hygiene for Egg and Egg Products (CAC/RAP 15-1976).</li> <li>Ensure compliance with: <ul style="list-style-type: none"> <li>-Bhutan Standard for Labeling of Prepackaged Foods.</li> <li>-Bhutan Mandatory Standard for Mycotoxins.</li> </ul> </li> </ul>	Implementation	Nil	Should be part of the activity

<sup>66</sup> Dept of Trade, Ministry of Economic Affairs, RGoB, 2022. Grown in Bhutan: Guidelines for Fresh & Processed Food. <https://www.moice.gov.bt/wp-content/uploads/2023/03/Finalised-Grown-in-Bhutan-Guidelines.pdf>

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
		<ul style="list-style-type: none"> <li>Conduct regular checks to ensure compliance with the Codes and Technical regulations.</li> <li>Segregate work and welfare facilities to maintain worker personal hygiene.</li> <li>Provide workers with PPE that is appropriate for the processing activity.</li> </ul>			
ESS 6	<ul style="list-style-type: none"> <li>Risk of harassment or SEAH by members of producer groups, or managers where processing or aggregation services are provided</li> <li>Risk of transactional sex requested in exchange for work opportunities</li> </ul>	<ul style="list-style-type: none"> <li>Gender consultant and gender focal officers should collaborate to sensitize DAO, DLO, Extension Officers, contractors and Local government on national policies promoting gender equality and empowerment of women, women's participation and seek their support promote zero tolerance for gender-based violence and collaborate with existing NGOs like RENEW and Tarayana to enhance local support services to mitigate GBV risks.</li> <li>Ensure the GRM is disclosed, conduct consultation on the GRM process, nominate GRM committee members and implement GRM.</li> </ul>	Implementation	Nil	Should be included under Gender Action Plan implementation
<b>G. Procurement of Machinery, Equipment and Vehicles</b>					
ESS 2	<p>If equipment and machinery are not used according to the required specifications, they may break down earlier than anticipated. Breakdown of machinery and lack of parts, technical know-how, or financial resources to repair these. Lack of ownership of equipment and machinery. Waste generation from used, rejected machines and equipment resulting in waste piling up in Dzongkhags.</p>	<ul style="list-style-type: none"> <li>Encourage beneficiaries to take ownership of machinery maintenance through cost sharing agreement.</li> <li>Partner with suppliers/supply agents to set up mobile repair services that travel to remote areas, ensuring on-site machinery repairs.</li> <li>Carry out regular maintenance of machinery to reduce wear and tear.</li> <li>Establish linkages with workshops or suppliers for regular maintenance work.</li> <li>Distribute equipment and machinery on need and cost sharing basis and sign an agreement with the beneficiary to ensure ownership for the machinery or equipment.</li> <li>Annually record the condition of all machinery and establish a system for collecting unused or defunct equipment. These items should be handed over to the appropriate government agency, such as the Department of National Properties, or auctioned off to the private sector for refurbishment and reuse.</li> </ul>	Implementation	Nil	Consultations, collaboration, linkage and Training should be part of the assistance process

ESS	Risk and Impacts	Mitigation	Timeline	Estimated Cost of Mitigation Measures	Remarks
ESS 4	Lack of knowledge on use, maintenance and repair of machinery and equipment.	<ul style="list-style-type: none"> <li>Equip users with maintenance skill through training workshops or demonstrations, enabling farmers to perform minor repairs, reducing equipment downtime.</li> </ul>	Implementation	Nil	
ESS 6	Women who are willing may not be able to use the machines if these are not gender friendly	<ul style="list-style-type: none"> <li>Consult women farmers to understand their perspectives and needs and priorities and (if interested) to operate such machines, explore machines with safety features that accommodate women with functions such as adjustable controls.</li> <li>Provide gender-inclusive training programs that address the specific needs of women, ensuring they feel confident and capable in operating the machines.</li> </ul>	Implementation	Nil	

Table 14. Responsibilities for implementation, monitoring and mitigation costs

Group	Activity	Implementation arrangement	Timeline	Monitoring arrangement	Estimated cost of mitigation measures	Remarks
A. Grazing restoration and fodder development	<p>2.1.1.1. Implement rangeland restoration and enhance sustainable fodder resources to mitigate land degradation and strengthen the climate resilience of livestock farming systems</p> <p>2.1.1.1a: Design and implement management interventions to enhance the sustainability of rangeland resources</p> <p>2.1.1.1b: Facilitate the implementation of rehabilitation and restoration of rangelands within community and private pasture lands with local rangeland management committees</p>	Department of Livestock	<p>Design and planning of project activities</p> <p>Implementation</p>	MoAL	20,000 USD	<p>5000 USD- for consultation, meetings, travel cost for DOL, SWS and LG (sub committees) including working lunch for participants during meetings to prepare IPP plan (FPIC) and during project implementation</p> <p>15,000 for assistance for firefighting equipment, pipes/hose materials to be used for all sites (phase wise) and medical aid in case of emergencies.</p>
B. Land Development	2.1.1.1d. Undertake land development activities to support the implementation of a climate-smart,	Department of Livestock	<p>Design and planning of project activities</p> <p>Implementation</p>	MoAL	0	Any training or meeting for ESS will be clubbed with project activity meeting.

	<p>biodiversity friendly agro-silvopastoral approach- Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar gewogs</p> <p>2.1.1.7. Support sustainable land development through efficient utilization of agriculture land (terrace development and consolidation, bioengineering, orchard basin development)- 10-50 acres at Langchenphu , Kangpar, Nanong, Drepong, Ramjar and Tshengkhar gewogs.</p> <p>2.1.1.9c. Sustainable land development- -20 acres each at Kangpar, Ramjar, Serthig, Nanong and Narang gewogs</p>					
C. Eco-innovate farm/AgriTech farm, citrus farms	2.1.1.6. Support innovative solutions through development of integrated and resilient farms (Eco-innovate farms) - Integrated and	Department of Agriculture	Design and planning of project activities  Implementation	MoAL	0	Any training or meeting for ESS will be clubbed with project activity meeting.

	<p>innovation youth farm. - Khaling</p> <p>2.1.1.9. Scale up gender-responsive and climate-smart agriculture technologies (AgriTech Farms) including protected agriculture, Integrated Pest Management (IPM), and Integrated Insect Pest and Nematode Management (IIPNM), to enhance sustainability and resilience in farming systems</p> <p>2.1.1.19a. Support the establishment of green houses with automated irrigation</p> <p>2.1.1.9d. Support smart irrigation facilities and IPM &amp; IIPNM-20 acres each at Kangpar, Ramjar, Serthig, Nanong and Narang Gewogs.</p>					
	<p>2.1.1.5. Support commercial layer farms (3,000 birds' capacity) for cage-free egg production and layer farm for food security</p>	<p>Department of Livestock</p>	<p>Design and planning of project activities</p> <p>Implementation</p>	<p>MoAL</p>	<p>0</p>	<p>Any training or meeting for ESS will be clubbed with project activity meeting.</p>

	<p>2.1.1.5a. Establish commercial layer farms for production of cage free eggs through supply of construction materials and farm automation- Decheling, Drepong, Kangpar, Khamdang, Lumang, Bumdeling, Ramjar</p> <p>2.1.1.5c. Establish large scale broiler farm through supply of construction materials and farm automation at Langchenphu</p> <p>2.1.1.3b. Support climate smart dairy farming interventions (Fiber Reinforced Plastic digesters and improved dairy housing) that reduce GHG emissions- Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar, Merak and Sakteng <i>gewogs</i></p>					
Infrastructure development- Activities involving NEW infrastructure construction	<p>2.2.2.3a. Establish Integrated Aggregation Center for Potato, Quinoa and maize in Langchenphu with private sector engagement</p> <p>2.2.2.3b. Establish Integrated Aggregation</p>	Department of Agriculture and Marketing and Co-operatives	Pre-construction, Construction and Operation phase	MoAL	0	Any training or meeting for ESS will be clubbed with project activity meeting.

	<p>Center for dairy and eggs in Deothang with private sector engagement</p> <p>2.2.2.3c. Expand Integrated Aggregation Center in Lingmithang, Mongar with private sector engagement</p> <p>2.2.2.6. Establishment of 2 market outlets with high standard display shelves -2 Eastern Dzongkhags -location TBD</p>					
	<p>2.2.2.5a. Demonstrate modalities of private sector engagement - establishment of Milk collection centres with chilling facilities established at strategic locations (Nos) Minje, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling and Ramjar gewogs</p>	Department of Livestock	Pre-construction, Construction and Operation phase	MoAL	0	Any training or meeting for ESS will be clubbed with project activity meeting.
Infrastructure development- Activities involving repair or expansion work on existing structures	<p>2.2.2.1a. Demonstrate modalities of private sector engagement - Yak Dairy Product processing enterprise at Merak/Sakteng and supply entities with infrastructure and processing equipment</p>	Department of Livestock	Construction and Operation phase	MoAL	0	Should be included in supervision cost.



	<p>2.2.2.5c. Strengthen chicken value chain through installation of blast freezer and cold storage facilities to enhance value chain of angchenphu broiler farm</p> <p>2.1.1.3b. Support climate smart dairy farming interventions (Fiber Reinforced Plastic digesters and improved dairy housing) that reduce GHG emissions- Minjey, Silambi, Jurmey, Decheling, Martshala, Yangnyar, Khamdang, Bumdeling, Ramjar, Merak, Sakteng</p>					
	<p>2.2.2.1b. Demonstrate modalities of private sector engagement - Revive and upscale the juice processing plant at Shumar, Pemagatshel and supply additional equipment to support an additional product line</p>	<p>Department of Agriculture and Marketing and Co-operatives</p>	<p>Construction and Operation phase</p>	<p>MoAL</p>	<p>0</p>	<p>Should be included in supervision cost.</p>
<p>F. Operation of Processing Units</p>	<p>2.2.2.1a. Demonstrate modalities of private sector engagement - Yak Dairy Product processing enterprise at Merak/Sakteng and supply entities with</p>	<p>Department of Livestock</p>	<p>Operation phase</p>	<p>MoAL</p>	<p>0</p>	<p>Part of O &amp; M cost</p>

	infrastructure and processing equipment					
	2.2.2.1b. Demonstrate modalities of private sector engagement - Revive and upscale the juice processing plant and supply additional Equipment to support an additional product line	Department of Agriculture and Marketing and Co-operatives	Operation phase	MoAL	0	Part of O & M cost
Procurement	Several activities	Department of Agriculture and Marketing and Co-operatives Department of Agriculture Department of Livestock	Installation and Operation phase	MoAL	Operation phase	Part of O & M cost

#### 4.4. Monitoring Plan

Monitoring and evaluation (M&E) of the ESMP will align with the project monitoring framework. Progress and issues related to the implementation of the ESMP will be documented in the project's quarterly reports and annual Project Implementation Reports (PIRs). Once individual ESMPs are prepared and associated management plans are developed, these will be submitted to the PMU for and to the FOA (if required). Once approved, individual ESMP compliance will be monitored by the DAO, DLOs, DAMC depending on the activity under implementation.

The objective of monitoring will be to assess the effectiveness of activities, evaluate whether interventions have mitigated negative impacts, and determine if additional interventions or extended monitoring are necessary in certain areas.

Brief quarterly reports and an annual environment and social progress report will be prepared and submitted as part of the overall project progress report. Quarterly reports will document ESMP activities carried out, environmental and social issues in project sites, flag challenges and corrective measures.

The ESMP implementation will be reviewed each year (or as appropriate) to evaluate the project's compliance with ESMP procedures, draw lessons, and enhance future performance based on both project compliance with the ESMP as well as GRM mechanism.

Any severe and serious environmental, social or safety incident (an incident that has *significant adverse effect on the environment, community, workers* e.g. serious concerns regarding project activities from the DoFPS, fatalities, injuries involving medical treatment, GBV/SEA, forced or child labor or criminal case), must be reported within 48 hours to the PMU and in turn to the FAO. This must be followed by a detailed investigation report detailing the cause, extent and corrective action taken.

The ESS consultant will prepare an environmental and social safeguard monitoring template to help field-level implementers document progress, challenges, and other relevant details.

### 5. Institutional and Implementation Arrangements

#### 5.1. Introduction

As the lead executing agency, the Ministry of Agriculture and Livestock (MoAL) will have the overall responsibility for ESMP implementation, which includes updating the ESMP based on site specific characteristics, recruitment of an Environmental and Social Safeguards (ESS) Consultant, supervision, monitoring and reporting and ensuring compliance with ESMPs.

The MoAL will ensure compliance with all relevant national laws, regulations, standards and guidelines as well as FAO's Framework for Environment and Social Management and GEF policy requirements. This includes ensuring that required institutional/management support, human and financial resources are allocated for environmental and social safeguard activities in terms of supervision, compliance monitoring and submission of required reports.

An ESS consultant will be recruited for the implementation of the ESMP, revising the overall and individual ESMPs, providing capacity building for Taskforce members, District Environment, Agriculture and Livestock Officers in conducting screening, compilation of site-specific baseline information and revision of individual ESMPs and conducting compliance monitoring,

The PSC will provide strategic guidance to the PMU and implementing partners. It will oversee ESMP implementation, ensure compliance with regulations, and FAO and GEF standards; make decisions for necessary measures, establish and support GRM to address grievances; and provide strategic guidance for program implementation.

## 5.2. Roles and Responsibilities of Project Stakeholders

### The Project Management Unit will be responsible for the following:

- Recruitment and hire of the ESS consultant with guidance from the PSC and FAO
- Review ESS consultant reports, especially where there are actions requiring corrective actions that need to be discussed with PSC and FAO.
- Disclosure of the SEP to seek stakeholders' views and allow for changes according to their needs, cultural norms. Ensure that FPIC for the brokpa community is designed in way that it aligns with the arrangements and planning of the SEP
- Collaborate with Dzongkhags to ensure timely project implementation of activities and provision of inputs, compliance with ESMP, coordinate expert inputs for revision or updates to the individual ESMPs, project compliance monitoring and timely submission of reports as per schedules and formats. Plan and organize capacity building training on the ESMP, GRM, SEP, chance find procedures, compliance monitoring and reporting for all implementing agencies.
- Institute the GRM procedure through official notification to all relevant stakeholders and local government. Review status of grievances each month and actions taken to address grievances
- Screening helps to determine whether potential displacement risks related to land acquisition and use will be a major project issue. Wherever possible, avoid physical or economic displacement as much as possible through alternative site selection. In case this is unavoidable, ensure that due processes are followed in compliance with ESS 7 by the ESS consultant and that appropriate measures are followed to avoid social adverse impacts.

### FAO

FAO will provide technical guidance to ensure compliance to FAO and GEF environmental and social management standards and ensure that compliance with the ESMP. Within each *Dzongkhag*, the DAO, DLO will be the key focal persons in charge of ensuring compliance with the ESMP while DAMC will be responsible for its own activities.

### Implementing Agencies (District Livestock, Agriculture, DAMC, BFDA)

- Coordinate the implementation of project activities in line with the ESMP.
- Ensure clear communication and transparency about project activities to the community, and ensure equitable sharing of project benefits to prevent any issues or grievances during implementation.
- Conduct needs assessment for machinery and equipment distribution for livestock or farm equipment, follow cost sharing mechanisms, and sign contract agreements with beneficiaries
- Conduct site screening and collect baseline information for sites once the locations are finalized and submit these to the ESS consultant for revision of the individual ESMPs.
- Consult closely with Protected Area staff and Forestry Officers to ensure that project activities are excluded from within critical habitats, core zones and along wildlife migratory routes as determined by the DoFPS.
- Process for and seek Environmental, Forest and Community Clearance wherever relevant
- Implement the Stakeholder Engagement Plan and coordinate and conduct consultative meetings with local communities and relevant stakeholders in a meaningful and effective and culturally appropriate manner, ensuring that adequate time is given to allow communities to participate in and collaborate in project implementation. Ensure that vulnerable members of the community are also provided with an opportunity to attend meetings.
- For Merak and Sakteng, ensure that the FPIC procedures are followed and that the communities are informed regularly about project progress through regular meetings wherein they are given the opportunities to ask questions, raise concerns about activities and encourage their participation in the monitoring and evaluation of project activities in their gewogs.

- Ensure effective and timely implementation of the project activities and effective and efficient utilization of resources.
- Ensure that the costs of the individual ESMPs, especially for infrastructure development and construction activities, are included in the BOQ and contract documents
- Conduct pre-bid meetings to brief the Contractor on ESMP requirements especially compliance with National laws, rules and regulations and standards and to ensure adequate budget for worker accommodation and occupational health and safety for workers.
- Coordinate contractor briefing on the approved site specific ESMP
- Report any unanticipated incidents or chance finds to the PMU immediately for further action or corrective measures and budget allocation.

#### **Gewog Administration**

- Ensure equitable sharing of benefits in selected communities
- Institute and disseminate information on the GRM to the community and resolve any grievances by following the GRM process
- Participate in member of committees for the restoration of rangelands
- Engage in participatory monitoring and evaluation of project activities
- Provide gewog clearance for infrastructure work, as required

#### **Partner implementing agencies**

##### **Department of Forest and Park Services, MoENR**

The DoFPS through its Protected area management in JWS, BWS and SWS as well as Trashigang, Mongar, Pema Gatshel, Samdrup Jongkhar Forestry Divisions are responsible for ensuring that project activities will not endanger, degrade or destroy critical habitats, water sources, core zones or areas identified as critical for migratory species. Through their field knowledge of each site, these offices spread across the eastern dzongkhags play a critical role in site selection, and in the case of rangeland management, avoiding potential negative environmental impacts and social conflict through design and phasing of activities by area. The process of seeking forest clearance for land development activities and site clearance for new infrastructures (if located on government reserve forest) will ensure that DOFPS is aware of and has a say over sites selected.

##### **Dzongkhag Environment Committee and the Department of Environment and Climate Change, MoENR**

Through the categorization of project activities, the Dzongkhag Environment Committee will be responsible for reviewing applications for EC for 'Blue category' activities requiring national environment clearance. This includes establishment of medium and large-scale poultry farms.

##### **Contractor**

Contractors will be required to undertake the following:

- Participate in pre-bid meetings and briefing/orientation on safeguard measures and ensure that adequate budget is allocated for implementation of the ESMP with a clear understanding that any deviation from these conditions will result in a failure in compliance.
- Designate a full-time Environment, Health and Safety Officer (or equivalent) responsible for compliance and reporting on the ESMP and the GRM.
- Ensure compliance with National laws, rules and regulations and standards and to ensure adequate budget for worker accommodation and occupational health and safety for workers.
- Ensure that any infrastructure work is carried out in an environmentally friendly manner, minimizing environmental and social impact, ensuring the health and safety of all workers and minimizing damage to public and private property by providing prior information to the community on the work schedule to minimize social issues during construction

- Comply with labor management plan, develop and enforce workers code of practice for workers and immediately resolve any conflicts between workers, or between workers and the community through the GRM.
- Report any unanticipated incidents or chance finds to the PMU immediately for further action or corrective measures or guidance.

### **Private sector engagement**

Private sector includes smallholders and small and medium enterprises (SEMs) including farmers, aggregators, transporters, and processors. Private sector entities involved with the project will be required to ensure the following:

- Comply with National laws, rules and regulations and standards and avoid undue wastage of resources and minimize air, water, dust and noise pollution in accordance with National environmental Standards 2020
- Comply with Road Act and Road safety regulations to avoid accidents
- Ensure that any waste generated is segregated, transported safely and disposed of at approved disposal sites
- Avoid discrimination of any kind whether related to age, gender, employment or wages
- Follow the GRM process
- Ensure that any machinery or equipment or vehicle provided is maintained regularly to reduce repair cost, and any non-functional machinery or equipment is immediately secured and reported to the DAO/DLO so that the supplier can be notified and repair works can be immediately carried out (especially if it is within the warranty period).
- Immediately check and repair any damaged infrastructure after natural hazards and disasters.

### **ESS consultant**

The ESS consultant will have the overall responsibility of ensuring that project activities are implemented in accordance with the requirements of the ESMP. The consultant will work in close consultation and collaboration with the PMU staff and other technical consultants and specialists engaged for various project activities. Further, the consultant shall collaborate closely with the FAO Country Office and key counterparts in the Government Implementing Partners.

Under supervision of the Project Manager (PM) and guidance of FAO, ESS national expert shall be responsible for the key activities

- Ensure project compliance with GEF and FAO FESM and National laws, rules, regulations, standards and guidelines during implementation.
- Update the ESMP based on site specific details provided by the DAOs, DLOs, and other implementing partners as well as site visits
- Ensure that during the site selection process, core zones, critical habitats and migratory routes in Protected Areas and Biological Corridors are excluded in close consultation with the DoFPS.
- Assist the PMU in establishing project GRM and implementation of the SEP
- Provide guidance to the project on stakeholder engagement activities including the identification and engagement of affected persons and vulnerable communities.
- Ensure that bidding documents include budget for the ESMP, especially worker accommodation and Occupational health and safety measures
- Assess contractors' capacity to implement ESMP and individual ESMPs. If contractors do not have the capacity and experience to implement the ESMP, conduct orientation on contractor obligations under the ESMP, Worker GRM and self-monitoring and reporting.
- Conduct site visits to
  - Assess site specific conditions to determine potential environmental and social risk and impacts of the proposed activity and revise the ESMP to suit each particular site.

- Identify, assess, and manage potential environmental and social risks throughout project implementation. Assess the level of compliance with the ESMP, and individual ESMPs by the project as well as the contractors and issue corrective actions with timeframes for implementation. If required, propose mitigation measures to address environmental and social impacts.
- Collect data on social and environmental parameters to gauge risks and impacts and assess the level of OHS compliance by contractors,
- Determine if there are any worker or community/stakeholder grievances and measures taken to address these through the GRM
- Consult with contractors, Local Government and relevant stakeholders to determine their roles and responsibilities and compliance with the ESMP and the GRM
- Assist the DLOs and DAOs in ensuring compliance with Forest and Environmental clearances wherever applicable, preparation of agreements or terms of reference for sub-committees (rangeland management) to promote and ensure community participation and involvement in monitoring and evaluation of activities and their impacts.
- Review and if required revise project-specific templates for use by the Implementing Officers to improve reporting
- Facilitate open communication and information sharing with stakeholders regarding environmental and social safeguards.
- Design, plan and conduct capacity-building for project staff, contractors, and relevant stakeholders on the ESMP, SEP and FPIC procedures, GRM, Chance Find procedures and compliance monitoring, documentation and reporting.
- Prepare semi-annual reports on ESS implementation for the PMU. Assist the PMU in preparing quarterly ESS implementation reports and preparation of annual reports on ESS compliance to the PSC.
- For activities that will result in physical displacement, prepare and implement an Action Plan based on an assessment of the households who will be physically or economically displaced by the project – including determination of their socio-economic conditions and vulnerability factors. Ensure that affected persons are adequately informed of the project’s potential adverse displacement impacts and that proposed mitigation measures including options for moving to alternative sites. Ensure that no forced evictions are carried out and that due process standards are followed to ensure full and fair compensation and rehabilitation as per ESS 7.

## 6. Budget for ESMP Implementation

Table 15 provides a summary of the budget for ESMP implementation.

*Table 15. Budget for ESMP implementation*

Activity	Location	Responsibility	Timeline	Total Estimated cost	Remarks
Recruitment of Environmental & Social Safeguards staff/consultant	Mongar	PMU	9 months spread over project duration	0	Budgeted under Administrative cost
Updating the ESMP and SEP - Site visits, stakeholder and community consultations, need assessment and finalization of sites during inception phase	All dzongkhags	DAO, DOL, DAMC and ESS Consultant	First 6 months	0	Budgeted under activity cost
<b>Rangeland Management</b>					
Preparation of IPP and DIP as well as FPIC procedures	Merak and Sakteng	ESS Consultant	Year 2	0	Budgeted under Consultant cost
Implementation of IPP and detailed implementation plan	Merak and Sakteng	SWS, DOL, LG and Consultant	Year 3, 4	5,000 USD	Consultation, meetings, travel cost for DOL, SWS and LG (sub committees) including working lunch for participants during meetings to prepare IPP plan (FPIC) and during project implementation
Provide assistance for firefighting	Merak and Sakteng	SWS, DOL, LG	Year 3, 4	15,000 USD	e.g. bushfire backpack, firefighting equipment, hose, pipes etc.
Mitigation measures for affected households for Aggregation centre, Langchenphu	Langchenphu	MoAL	Prior to implementation of activity	2,000 USD	For assistance to provide or pay for transportation to shift all their belongings to the new rental. If there is no accommodation, the project will assist them by providing them temporary accommodation until a suitable and affordable rental is found.
<b>Capacity Building and Trainings</b>					
2-day training Training of Trainers on ESMP, GRM, SEL, RAP, LMP, Chance Find Procedures, SEP and GAP	Mongar	ESS consultant	Within 6 months	2000 USD	For District Agriculture, Livestock, Environment, Forest Officers



Activity	Location	Responsibility	Timeline	Total Estimated cost	Remarks
Training for Local Government and extension staff in 6 Districts on ESMP, compliance monitoring and GRM	Lhuentse Pema Gatshel, Samdrup Jongkhar Trashigang, Trashi Yangtse	By Trained DAO, DLO, EO, Extension staff	Within 6 months	2000 USD	Cost sharing with Gender training
Contractor training and orientation on ESMP compliance, OHS, LMP, Waste Management and GRM	Mongar	ESS consultant	As and when contract is signed	0	Contractor to bear the cost for his own transportation and lodging
<b>Disclosure</b>					
Translation and printing cost of project summary for distribution to gewogs	Mongar	PMU to hire translator	Within 6 months	1000 USD	Includes translation and printing charges for distribution to all gewogs
<b>Monitoring and Evaluation</b>					
Site visits for compliance review by DAO/DLO	Dzongkhags	DAO/DLO	Club with activity plan	0	Should be clubbed with other activities
Annual review of ESMP implementation	Mongar/Thimphu	ESS and PMU	Annually	0	Budgeted under cost of payment for ESS staff/consultant
Mid-term review of ESMP implementation	Mongar/Thimphu	ESS and PMU	Project mid-term review	0	Budgeted under cost of payment for ESS staff/consultant
Project completion report – final evaluation of EMF implementation	Mongar/Thimphu	ESS and PMU	Project Completion	0	Budgeted under cost of payment for ESS staff/consultant
Total estimated cost				25,000 USD	

## 7. Stakeholder Engagement

The Stakeholder Engagement Plan has been prepared for the project covering project stakeholders from affected persons, project interested individuals, groups, or organizations to vulnerable groups. It summarizes stakeholder engagement activities during the project formulation since October 2022 to the final national validation workshop in September 2024. The stakeholder engagement plan is **targeted** for specific stakeholders and adapted to suit the objectives of the engagement and details the timeline, resources and reporting requirements during project implementation.

## 8. Grievance Redress Mechanism

The project **Grievance Redress Mechanism (GRM)** will ensure that all project related grievances are received, reviewed and resolved in a transparent and timely manner through three GRM committees from the local, district to the national levels. The contractor GRM and mechanisms to ensure GBV and SEAH cases are resolved are mandatory to ensure that all stakeholders involved with the project directly or indirectly have a clear GRM process that is accessible to all.

## 9. Disclosure of Information

As a 'Moderate Risk' project FAO will release the information as early as possible, and no later than 30 days before the start of the implementation of the project. The full English version of the ESMP as well as an executive summary in Dzongkhag, shall be disclosed/uploaded on the website of MoAL and FAO. Hard copies of the ESMP would be made available at the respective Gewog Office where the activity is being implemented for easy access by the community and at the PMU Office.

As the project triggers ESS8 on Indigenous People, comprehensive information on likely potential impacts must be provided to the community. Sufficient time must be given to the community to enable them to deliberate internally (with support if required from the project). Advance notice of any meeting must be provided to allow all community members the choice of participation. Information must be disclosed in accordance with their traditions, customs, language (using translators if required), environment, and in relatable formats. As it is possible that many of the members of the community may be either at their grazing grounds or traveling between grazing grounds with their livestock, prior planning on how to disseminate information to these households and appropriate meeting locations will be required to ensure comprehensive disclosure. If desired by the community members, minutes of the meeting will be disclosed via the local representative and shared with community members through social chat groups and further dissemination by the recipients to their family and friends.

Consultations conducted prior to and during each activity will be photo documented with participant list and record of discussions and emailed back to the Gup, who will share this with the community.

In compliance with FAO requirements, the personal data<sup>67</sup> of beneficiaries or stakeholders cannot be disclosed without their prior informed consent when disclosing a project's ESS documents, failing which can result in considerable legal and reputational risk to FAO. Therefore, unless consent for publication has been provided, all personal data of beneficiaries and stakeholders must be removed from the disclosure documentation.

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<sup>67</sup> For Bhutan, personal data collected during consultations and which cannot be disclosed with consent includes the names, email addresses, phone numbers, job titles, country identity card-

### **Appendix 1. Chance Find Procedures**

This procedure is applicable to all activities conducted by the contractor that have the potential to uncover heritage item/site as well as for land development activities if carried out on previously undisturbed land. The procedure outlines the roles and responsibilities of all stakeholders and the response times required from IA, PMU and the relevant Department.

*Chance Finds*” refers to instances where material cultural heritage is discovered unexpectedly during the process of implementation

Contractual Requirements. For all construction related work, the Chance Find Procedures must be included in the bidding documents and contracts for civil works and this must be explained to the contractor during the pre-bid meeting.

In case of discovery of a *Chance Find*, the following steps shall be undertaken by the contractor and PMU:

1. Upon detection of the chance find, the contractor/landowner must immediately STOP all activity in the vicinity of the find, delineate and secure the area (to prevent further disturbance or removal). No construction is to be carried out by the Contractor until notified by the PIU.
2. The contractor/land owner must photo document the finding and immediately notify the supervisor onsite and the PMU.
3. The PMU in turn must inform the Dzongkhag Cultural Officer and through the Dzongkhag, the Department of Department of Culture and Dzongkhag Development, Ministry of Home Affairs of the discovery immediately to avoid delay in the construction work.
4. The Department of Culture and Dzongkhag Development (DoCDD) may provide their assessment from the photo documentation or conduct in-person site assessment to assess the chance find in detail. The DoCDD will then provide written instruction/recommendation on the way forward in terms of the significance, conservation, removal or restoration or salvage of the chance find.
5. Construction work may only resume when permission is granted by the PMU. Therefore, the PMU will immediately relay the recommendations of the DoCDD and instruct the Contractor on the way forward based on the assessment by the DoCDD.
6. The PMU must ensure that there are no delays in the verification process or in notifying the contractor of the procedures to be followed.
7. For significant finds as determined by DoCDD, the PMU may need to seek an alternative site to avoid further damage to the chance find.
8. The PMU must ensure that all Chance Find are documented, including copies of communication with decision making authorities, conclusions and recommendations/guidance, implementation reports are to be recorded and maintained by the PMU.
9. In case of delays caused by the Chance Find, the contractor must apply for time extension for the delay in work in consultation with the PMU.