

Annex 2: Environmental and Social Assessment and Management Plan

Adaptation to Climate-induced Water Stresses through Integrated Landscape Management in Bhutan

Bhutan Trust Fund for Environmental Conservation

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ESS Assessment and Management Plan

A. Project Information

Table 1: Project information

1. Project Title	Adaptation to Climate-induced Water Stresses through Integrated Landscape Management in Bhutan
2. Project Grant Amount (US\$)	9,998,955
3. Grantor Agency	AF
4. Location (Global/Region/Country)	Bhutan (Dagana, Paro and Tziring districts)
5. Project Start Date	January 2023
6. Project End Date	February 2028
7. Implementing Entity (NIE)	Bhutan Trust Fund for Environmental Conservation (BT FEC)
8. BT FEC Focal Strategic Areas	Mitigating and adapting to climate change

B. Description of Project Locations

Table 2: Project locations by Dzongkhags and gewogs

Dzongkhag	Gewogs
Dagana	Drujeygang, Lajab, Tshangkha,
Paro	Dhopshari, Lungyi, Lamgong, Doteng, Tsento, Wangchang, Shaba
Tsirang	Tsirangtoe, Phuentsenchhu and Semjong

C. Description of National Policy and Legal Framework

C1. Constitution of the Kingdom of Bhutan 2008

Article 5 of the Constitution of Bhutan bestows the stewardship for environmental care as a fundamental duty of all citizens and the Government to preserve the environment, safeguard biodiversity, reduce pollution, prevent ecological degradation and promote ecologically balanced sustainable development while also pursuing sound social and ecological development for all time. It requires the government to maintain the constitutional 60% the total area under forest cover in perpetuity. It accords rights over mineral resources, rivers, lakes and forests to the state and as properties of the State, which shall be regulated by law. It prescribes that;

- All persons are equal before the law and are entitled to equal and effective protection of the law and shall not be discriminated against on the grounds of race, sex, language, religion, politics or other status (15 of Article 7) as a fundamental right.
- The State shall endeavor to preserve, protect and promote the cultural heritage of the country, including monuments, places and objects of artistic or historic interest, Dzongs, Lhakhangs, Goendeys, Ten-sum, Nyes, language, literature, music, visual arts and religion to enrich society and the cultural life of the citizens. (Article 4.1)
- All persons shall have the right to life, liberty and security of person and shall not be deprived of such rights except in accordance with the due process of law. (Article 7.1)
- A Bhutanese citizen shall have the right to equal pay for work of equal value. (Article 7.11)
- A person shall not be deprived of property by acquisition or requisition, except for public purpose and on payment of fair compensation in accordance with the provisions of the law. (Article 7.14)
- A Bhutanese citizen shall have the duty to preserve, protect and respect the environment, culture and heritage of the nation. (Article 8.2)

- The State shall endeavor to take appropriate measures to eliminate all forms of discrimination and exploitation against women including trafficking, prostitution, abuse, violence, harassment and intimidation at work in both public and private spheres. (Article 9.17)
- The State shall endeavor to take appropriate measures to ensure that children are protected against all forms of discrimination and exploitation including trafficking, prostitution, abuse, violence, degrading treatment and economic exploitation. (Article 9.18)

C2. Environmental Assessment Act (EAA) 2000

The Act guides the assessment of potential impact of projects on the environment and prescribes measures to ameliorate potential adverse impacts on environment. An environmental clearance from projects likely to adversely impact the environment is required prior to execution. The National Environment Commission (NEC) or the competent authorities delegated by the NECS are the authorities which implements the Act and issues the environmental clearances. This project will require an environmental clearance which will have to be periodically updated during project implementation. The Regulation for Environmental Clearance of Projects, 2016 outlines procedures and responsibilities for implementing and supplementing the Environmental Assessment Act, 2000 to issue environmental clearances. It ensures that the projects is implemented in compliance with the sustainable development policy of the government so that potential damage to the environment is mitigated and that the local community to benefit from the projects. The regulation mandates establishment of an environmental unit under the project, conduct public consultation, and obtain environmental clearance within the specified period.

C3. National Environmental Protection Act (NEPA) 2007

The NEPA provides measures and standards to protect environmental quality in the country. The NEC or other designated competent authorities and advisory committee members monitor the conformance to the measures and standards aiming at equitable and sustainable development.

C4. Forest and Nature Conservation Act (FNCA) 1995

This FNCA assigns the ownership of all forests in the country to the Government as SRF and any development in forests is prohibited unless permissible by law and fulfilling procedures.

If the project site is located on state reserve forest land, a forestry clearance is mandatory. Developmental activities are restricted within Protected Areas and Biological Corridors. However, the approval may also depend on the type, purpose, and location (core, multiple or buffer area) of the infrastructure, which determines the activity's environmental impact.

C5. Water Act 2011

The Water Act ensures the protection, management and conservation of all water resources in the country for enhanced efficiency, sustainability, equity. The Act bestows the trusteeship of water resources on the Government who is responsible for water protection, conservation and management. It defines drinking water as a basic human need with and that every individual shall have access to safe, affordable and sufficient water. The **Water Act and the Water Regulation of Bhutan 2014**, water use priorities are as defined as a) water for drinking and sanitation, 2) water for agriculture; 3) water for energy; 4) water for industry; 5) water for tourism and recreation, and; 6) water for other uses.

C6. Regulation on Occupational Health, Safety and Welfare (OHSW), 2012

The OHSW, 2012 which has been developed based on labour standards as identified by the International Labour Organization, establishes the standards on occupational health, safety and welfare on premises, instruments, vessels, appliances, apparatus, tools, devices, electrical safety and other hazardous conditions. In line with this regulation, a specific Regulation on Occupational Health and Safety for Construction Industry, 2012 specifies the following key provisions:

- (a) Health and Safety Policy; A construction company with 12 or more construction workers must prepare a written statement of health and safety policy in accordance with relevant provisions.
- (b) Provision of personal protective equipment; Suitable personal protective equipment for protection of eyes, hands, head and feet shall be provided. Equipment commonly issued in Bhutan are helmets,

gloves and work shoes used by labourers at site. Owing to the COVID spread, use of masks is also advised of workers.

- (c) Electrical hazards; Take adequate measures to prevent any worker from coming into physical contact with any electrical equipment or live electrical circuit which may cause electrical hazards. Ensure that all electrical appliances and current carrying equipment used are made of sound material and are properly and adequately earthed, ensure that all temporary electrical installations at a construction work are provided with earth leakage circuit breakers.
- (d) Warning signs; Display and maintain suitable warning signs at conspicuous places at a building or other construction work in Dzongkha and English.
- (e) Traffic management; Barricade and install suitable warning signs and lights if the construction work is being carried on or is located where any vehicular traffic may cause danger to workers.
- (f) Structure stability; Stability and protection against collapse of structures must be ensured and all temporary structures must be properly supported by the use of guys, stays, and other fixings.
- (g) Illumination; Provide sufficient illumination at all times where workers are required to work or pass-through passageways, stairways and landing
- (h) Stacking and storage of material; All building materials must be stored or stacked in a safe and orderly manner to avoid obstruction, ensure stability, and not endanger the worker safety
- (i) Disposal of debris; Barricade and install suitable warning signs and lights to indicate presence of debris generated from construction process. Debris must not be thrown inside or outside from any height of such construction work, must be kept sufficiently moist to avoid dust, must not be allowed to accumulate and disposed of as soon as possible to avoid any hazard, without causing any danger to worker safety.
- (j) Public safety; For building construction work less than 2.3m from a sidewalk or public road, a safe covered walkway must be constructed over the sidewalk for use by pedestrians.
- (k) Access; A safe means of access and egress must be provided and maintained to and from every place where work is undertaken.
- (l) Operation of mechanical equipment¹; Mechanical equipment must be operated by a trained and competent operator, or under the supervision of one
- (m) No person under 18 years of age can operate a machine or be used to signal an operator.
- (n) Sanitation facilities; Safe and reliable water to worker camps must be provided. Sufficient and suitable toilets and washing conveniences must be provided with separate accommodation for females. Provision of water to accompany sanitation facilities is necessary to ensure proper cleansing and disposal of human waste.

C7. Waste Prevention and Management Regulation, 2012

This regulation emanating from the Waste Prevention Act, identifies roles of the Implementing Agency to introduce appropriate waste management system beginning from every organization level concerning collection, segregation, treatment, storage, transportation, recycling and safe disposal of solid, liquid and gaseous wastes. This regulation shall control and prohibit haphazard dumping of waste. This regulation will ensure disposal of waste at designated site and uphold initiatives to segregate, reuse and recycle. It is the Contractor's responsibility to seek the necessary permits for disposal of excavated earth and construction waste. During implementation, the contractor must ensure safe storage of construction waste to avoid public inconvenience, safely transport construction waste without spillage, and ensure that it is disposed only at the site designated by implementing agencies.

C8. Penal Code of Bhutan 2004

Aside from environmental laws and regulations, the 2004 Penal Code of Bhutan also includes a provision on environmental pollution wherein Article 409 states that a defendant shall be guilty of the offense of environmental pollution if such defendant knowingly or recklessly pollutes or contaminates the environment including air, water, and land and makes it noxious to public health and safety.

C9. Bhutan Environmental Standards 2010 (revised 2020)

The Bhutan Environmental Standards sets the minimum standards for: (i) ambient water quality, (ii) industrial effluent discharge standards, (iii) standard for sewerage effluents, (iv) ambient air quality, (v)

¹Mechanical equipment includes any bulldozer, compactor, dumper, excavator, grader, loader, locomotive, lorry, scraper, truck and any mobile machine which is used for the handling of any material on a construction site

industrial emission standards, (vi) workplace emission standards, (vii) vehicle emission standards and, (viii) noise level limits.

The Drinking Water Quality Standards, 2016, was developed in accordance with Section 13 (f) and Section 42 (a) and (b) of the Water Act of Bhutan, 2011, with the aim of ensuring safe drinking water and to protect consumer health. The standard describes the quality parameters set for drinking water and the maximum permissible limit for each of the set parameters, in order to limit the level of contaminants in drinking water.

C10. Land Compensation Rates 2017

The land compensation rates 2017 covers compensation for land and structures falling both within urban and rural areas when acquired by the government. The land compensation rates in rural and urban areas defined by the document area applicable to the proposed projects.

C11. The National Gender Equality Policy (NGEP) 2020 explores gender equality through the lens of three domains i.e., political, social and economic. The policy aims to:

- (i) Provide a coherent strategic framework for the Government's priorities on gender equality;
- (ii) Strengthen accountability and operational strategies to address priority gender issues; and
- (iii) Facilitate deeper collaboration across sectors and stakeholders towards a common vision of gender equality.

The Policy provides a framework within which other legislation, policies, programs and practices ensure equal rights, opportunities and benefits for women and men at the family, community, and workplace and in society.

C12. Child Care & Protection Act of Bhutan 2013

The Child Care & Protection Act of Bhutan aims to institute measures to ensure children are protected against all forms of discrimination and exploitation, to promote conditions conducive in society for children as well as care, protection, guidance, counselling, treatment, development, rehabilitation, adjudication and disposition of matters related to children in conflict with the law favorably and in the best interest of the child. The use of child labour is prohibited in this project and adequate safeguards will be incorporated in the terms of contract to be signed with the contractor awarded the works.

C13. Labour & Employment Act 2007

The Act has been enacted to govern the employment and working conditions for all persons employed and working within the Kingdom of Bhutan. In the context of this project, since labourers and other stakeholders will be working directly in the project activities, terms and conditions of their employment and the work they perform and the specific work conditions they will be working in are governed by the provisions of this Act. Also, children according to this Act will not be employed in project activities which entail working in physical conditions and terrain as well as operating tools and implements which may pose a risk to their physical person (article 9). Workers also cannot be subjected to forced or compulsory labour (article 6). Workers once recruited will not be discriminated in relation to wages and working conditions (article 12) so women cannot be paid wages less than men at the worksites. Also, employers are prohibited from sexual harassment of workers (article 16). If employees need to be recruited for a year or more, they need to be provided with written contracts of employment (article 51 and 61) which will specify the duration, tasks to be done, notice period for termination of contract, wages, working hours, probation period and leave provisions.

C14. Land Act of Bhutan 2007

In this project, most of the pipeline will be aligned on government land as will the structures. However, in the case where pipes have to be aligned across private land, the following provisions of the Act on 'Laying of service facilities' are relevant: -

- The landowner of a piece of land is bound, subject to reasonable compensation being paid to him, to allow the laying through his land of water pipes or irrigation channel, drainage pipes,

telecommunication structures, electricity poles and sub-stations or other similar installations by a Government agency or for the use of the adjoining or neighboring land if, without making use of his land, they could not be laid or could be laid only at an excessive cost. The land owner may require that his interests be taken into consideration. (Clause 275).

- The practice in vogue is that the local government seeks the permission of the landowner and negotiates access across his/her plot of land to the pipeline/channel. In most cases, the owner accords consent and the pipeline/channel is aligned. In some cases where the owner does not agree at all, or the implementing agency themselves may decide to acquire the land by cash compensation or providing government land in exchange for the affected plot.
- In exceptional cases where the installations are to be above ground, such landowner may require that a reasonable portion of his/her land, over which such installations are to be laid, be bought from him/her at a price, which will cover the value of the land and compensation for any damage arising from the sale. (Clause 276)
- In this project most of the pipelines will be buried underground and only in landslide prone areas and stream crossings, the pipeline will be installed above the ground. The practice so far is that after installation of the pipes in trenches and restoration of the excavated soil, the owner may resume use of the land for cultivation if he/she has been using the plot to grow crops.
- Where the circumstances are changed, he may require that the installations be removed to such different part of his land as may be suitable to his interest. The relevant agency shall be responsible to remove the installations. (Clause 277). The practice is that to the extent possible pipelines are aligned along the plot boundaries to permit owners the future development on their land without hindrance.
- The owner of the facilities established under Sections 275 and 276 of this Act shall be responsible to ensure that no damage is caused to the landowner by way of negligence of the management of the facilities. (Clause 278).
- In the event, private land has to be acquired; the government can do so if the land is acquired for public benefit (clause 142). The Land Act stipulates that the government pay fair compensation (clause 144) for the land or provide government land in the same village, town or gewog and dzongkhag (clause 155) of the same value as exchange for the land acquired (clause 147). If there is any property on the land, the government will pay for the immovable property on the acquired land (clause 149). Compensation to be paid will be in accordance with rates fixed by the Property Assessment and Valuation Agency (PAVA) under the Ministry of Finance (clause 151).

C15. National Policy for Persons with Disabilities 2019

The Policy aims to empower persons with disabilities, mainstream disability initiatives in plans, policies and programs in all sectors, improve access to opportunities and services for persons with disabilities, improve the socio-economic condition of persons with disabilities, promote health and living of disabled persons through sports, recreation and cultural participation and to remove stigmatization and discrimination of people towards disabled persons. This project too will encourage and make arrangements to ensure the participation of disabled persons identified during the project preparation phase in discussions and decision-making events in the course of the project implementation.

D. Description of Adaptation Fund's Social and Environmental Standards

As per the Adaptation Fund Environmental and Social Policy (ESP), 15 environmental and social principles form the basis for identifying and managing environmental and social risks. These principles are also integral part of the BTFEC's Risk Management Policy Framework. Project financing from or through BTFEC shall not be considered during the project appraisal without adequate assessment of environmental and social risks and Project Risk Management Plan.

These principles include:

Principle 1: Compliance with the Law which requires that the project shall be in compliance with all applicable domestic and international law.

Principle 2: Access and Equity which requires that the projects shall provide fair and equitable access to benefits in a manner that is inclusive and does not impede access to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, and land rights. The

project should not exacerbate existing inequities, particularly with respect to marginalized or vulnerable groups.

Principle 3: Marginalized and Vulnerable Groups require that the project to avoid imposing any disproportionate adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, indigenous people, tribal groups, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS. In screening any proposed project, the implementing entity is required to assess and consider particular impacts on marginalized and vulnerable groups.

Principle 4: Human Rights requires that the project shall respect and where applicable promote international human rights.

Principle 5: Gender Equality and Women's Empowerment require that the project shall be designed and implemented in such a way that both women and men 1) have equal opportunities to participate as per the Fund gender policy; 2) receive comparable social and economic benefits; and 3) do not suffer disproportionate adverse effects during the development process.

Principle 6: Core Labour Rights require the project to meet the core labour standards as identified by the International Labour Organization.

Principle 7: Indigenous Peoples lays out that the Fund shall not support projects/programs that are inconsistent with the rights and responsibilities set forth in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments relating to indigenous peoples. This principle is not relevant in Bhutan's context as all ethnic groups in Bhutan are represented at Gewog levels and there is no distinct group that are not part being represented within any gewog. Relevant matters such as community consultation and obtaining of local community or individual as may be relevant are standard requirements for any policy or development planning process in Bhutan.

Principle 8: Involuntary Resettlement require that the project shall be designed and implemented in a way that avoids or minimizes the need for involuntary resettlement. When limited involuntary resettlement is unavoidable, due process should be observed so that displaced persons shall be informed of their rights, consulted on their options, and offered technically, economically, and socially feasible resettlement alternatives or fair and adequate compensation.

Principle 9: Protection of Natural Habitats require that the project would not involve unjustified conversion or degradation of critical natural habitats, including those that are (a) legally protected; (b) officially proposed for protection; (c) recognized by authoritative sources for their high conservation value, including as critical habitat; or (d) recognized as protected by traditional or indigenous local communities.

Principle 10: Conservation of Biological Diversity require the project to be designed and implemented in a way that avoids any significant or unjustified reduction or loss of biological diversity or the introduction of known invasive species.

Principle 11: Climate Change require that the project shall not result in any significant or unjustified increase in greenhouse gas emissions or other drivers of climate change.

Principle 12: Pollution Prevention and Resource Efficiency require that the project shall be designed and implemented in a way that meets applicable international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants.

Principle 13: Public Health require project to be designed and implemented in a way that avoids potentially significant negative impacts on public health.

Principle 14: Physical and Cultural Heritage require the project to be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level.

The project should not permanently interfere with existing access and use of such physical and cultural resources.

Principle 15: Lands and Soil Conservation require the project to be designed and implemented in a way that promotes soil conservation and avoids degradation or conversion of productive lands or land that provides valuable ecosystem services.

E. Environmental and Social Impact Assessment

During the participatory assessment of proposed project activities and associated environmental and social safeguards as well as gender issues, a series of local level stakeholder consultations were held from 29th May to 13th June, 2022. Officials from the Gross National Happiness Commission (the NDA); BTFEC (the AE); UNCDF (in capacity of Advisor to BTFEC and as Lead prodoc developer); the Engineering Division of Department of Agriculture (DoA) and National Soil Service Center of DoA participated in these consultations. The Watershed Management Division (WMD) of the Department of Forests and Parks Services (DoFPS) and the Ministry of Works and Human Settlement (MoWHS) were represented by the relevant forestry divisions in the field and by the Dzongkhag Engineering Sectors respectively. Local stakeholders included representatives of local governments, community leaders and men and women from the project areas (See Section at the end for list of participants).

The assessment included:

1. Consultation of key stakeholders, and vulnerable groups, including gender
2. Assessment of project sites and activities in compliance with the Environmental and Social Policy and Gender Policy.

Furthermore, participants at these consultations were subjected to focus group discussions as well as individual opinion on risks as guided by a list of questions related to the 15 AF safeguards principles. The results of these participatory assessments were used to determine project ESS category and to define measures to mitigate or minimize the potential risks.

E1: Principles/Rules of stakeholder participation:

For each consultation, following principles were adopted to ensure free and frank discussion on the project activities, associated safeguards and gender issues.

1. All community stakeholders (participants) understand the project design, activities, location of project activities and social and environmental safeguards principles including gender equity;
2. All activities discussed are part of water flagship program and local priorities related to climate change;
3. Discussions to be held in a free and frank environment;
4. Views, perspectives and interests of each participant is respected;
5. Leave no one behind

E2: Consultation Process:

During each consultation, the following process were followed:

1. Introductory remarks by the local leaders and local administrators of the concerned Dzongkhag.
2. Presentation of the project design; costs; project outcomes and outputs; major stakeholders and the importance of end-to-end interventions including catchment watershed management, climate resilient water infrastructure, social and land management by UNCDF and GNHC
3. Presentation on social and environmental safeguards, need for inclusive approach and 15 safeguards principles of Adaptation Fund as well as relevant national policy and legal framework
4. Focused Group Discussion and individual interview with local participants on project activities as well as checklist of project screening questions for each safeguard principle to provide basis for project categorization
5. Site visit to project activity locations.

Upon briefing on the project activities participants, participants were subjected to focus group discussions as well as individual opinion on risks of project activities as guided by a list of questions related to each of the 15 AF safeguards principles. The risks, impacts and vulnerable groups identified by each small group were discussed at the plenary for contextual understanding and clarity. During the consultations, vulnerable and marginalized groups are described as households characterized by isolated and dotted settlements; communities without motorable access road; households with only elderly members & without household's labour force; household with very few household members; Households with empty or no resident members; women and single parent headed households. These vulnerable groups may not be able contribute actively or participate in the project such as in consultations, community labour contribution and other forms of participation and may not be included as project beneficiaries if the project considers communities to provide unskilled labour for project activities. Therefore, the project implementation will not require community contributions in the form of cash or labour during the project implementation. The O&M of water infrastructure developed by the project will be handled by WUAs which will include contributions from member households for minor maintenance. To ensure that the vulnerable members of the communities are not excluded from availing themselves of benefits, the articles of association of the WUAs will include clauses on community exemptions for such contributions from the vulnerable and marginalized groups. The articles of association of the WUAs will be developed during the project implementation with support from the PMU and dzongkhags concerned and will further stress on providing equal access to all members of the communities.

E3 Environmental and social risk screening and categorization

The results of this participatory assessments were used to determine project ESS category and to define measures to mitigate or minimize the potential risks. The risks and impacts identified by the stakeholder consultations are described in table 4. The risk matrix in table 3 has been used to assess the significance of each risk.

Table 3: Risk Matrix

Risk Matrix:							Key for Impact and Likelihood H = High S = Significant M = Moderate L = Low
Impact	5	M	S	S	H	H	
	4	L	M	S	S	H	
	3	L	M	M	M	S	
	2	L	L	L	M	M	
	1	L	L	L	L	L	
		1	2	3	4	5	
	Likelihood						

Table 4: Risks and impacts identified by the stakeholder consultations and project category

AF Principles	Risk Questions	Assessment	Impact (1 -5)	Likelihood (1-5)	Significance (L/M/S/H)
COMPLIANCE WITH THE LAW (7 questions)	<p>Does the project risk non-compliance with Water Act of Bhutan?</p> <p>Does the project risk non-compliance with National Environment Protection Act?</p> <p>Does the project risk non-compliance with national planning process?</p> <p>Does the project risk noncompliance with Land Act of Bhutan?</p> <p>Does the project risk noncompliance with Local Governance Act?</p> <p>Does the project risk noncompliance with employment and labour standards laws?</p> <p>Does the project risk noncompliance with an applicable domestic or international law?</p>	<p>Most stakeholders, especially those at community and. local levels are aware of relevant legal provisions related to water.</p>	3	1	L
ACCESS AND EQUITY (8 questions)	<p>Will there be risk that poor will not have equal opportunities to be selected as project beneficiaries?</p> <p>Will there be risk that \women will not have equal opportunities to be selected as project beneficiaries?</p> <p>Will there be risk that minority groups will not have equal opportunities to be selected as project beneficiaries?</p> <p>Will there be risk that poor people will not be able to access services supported by the project?</p> <p>Will there be risk that women will not be able to access services supported by the project?</p> <p>Will there be risk that minority groups will not be able to access services supported by the project?</p> <p>Will there be risk that disabled people will not be able to access services supported by the project?</p> <p>Will there be risk that elderly people will not be able to access services supported by the project?</p>	<p>Poor households may not be able to participate or provide financial or labour contributions to the water user groups/association.</p> <p>Similarly, new settlers may face accessibility issues as they have not been members of WUAs in the past. Emergence of commercial activities could marginalize rural households.</p>	3	2	M

AF Principles	Risk Questions	Assessment	Impact (1 -5)	Likelihood (1-5)	Significance (L/M/S/H)
MARGINALIZED AND VULNERABLE GROUPS (5 questions)	<p>Will elderly people experience negative impacts from the project?</p> <p>Will displaced people will experience negative impacts from the project?</p> <p>Will migrant workers will experience negative impacts from the project?</p> <p>Will children will experience negative impacts from the project?</p>	Marginalized and Vulnerable Groups may not be able to participate or provide financial or labour contributions to the water user groups/association. However, there are social norms that to mitigate such risks.	3	1	L
HUMAN RIGHTS (1 question)	Will children will experience negative impacts from the project?	The constitution of Bhutan ensures human rights as a fundamental right to every citizen in Bhutan. Risk on this remains low	3	1	L
GENDER EQUALITY AND WOMEN'S EMPOWERMENT (3 questions)	<p>The project is designed by men who have not taken women's perspectives into consideration</p> <p>The project will result in an increased workload of tasks traditionally done by women</p> <p>Women will not have equal opportunities to participate and express their views on aspect of project implementation</p>	<p>Due to availability to water, there could be increased agriculture activities and farm workload; Fallow lands would be cultivated; and increase in household chores. However, trend in use of more mechanization would offset the workload and overall, there would be positive impact. For instance, ferrying manure to agriculture fields, traditionally done by women are now performed by men driving power tillers.</p> <p>Statistics of current situation show limited participation by women in the executive role of WUAs. Women-headed households may face challenges of project accessing benefits.</p>	3	3	M
CORE LABOUR RIGHTS (7 questions)	<p>Women or vulnerable groups will not have equal opportunities for employment in project activities</p> <p>The project will employ local people in conditions that may not comply with labour laws</p> <p>The project will employ local people in hazardous work that is different from their normal work</p> <p>Temporary labour from outside the project area will stay in inadequate or unhygienic accommodation</p>	<p>Due to difference in physical strength of men and women, contractors may adopt differential work compensation between men and women.</p> <p>Proposed pipeline of alignments passes through stretches of steep slope and difficult terrain in some site which could expose workers to safety risks.</p>	4	2	M

AF Principles	Risk Questions	Assessment	Impact (1 -5)	Likelihood (1-5)	Significance (L/M/S/H)
CORE LABOUR RIGHTS (7 questions)	<p>Temporary labour from outside the project area will have conflicts with the local population</p> <p>Temporary labour from outside the project area will create a risk of spreading transmissible diseases or pandemic diseases</p> <p>Children could be employed in project activities in contravention of the labour laws</p>	<p>Contractors may not fully comply with labor laws and standards in employing workers establishing appropriate working conditions such as inadequate water supply, waste management arrangements, inadequate sanitation arrangements at temporary labor camps which could pose health and hygiene risk to workers. Further, contractors may employ school children under 18 years of age during school holidays.</p> <p>Risks of conflict with local communities due to lack of awareness of local norms by project workers from outside the project area such as sexual harassment and disrespect to local norms may risk conflicts between local communities and project workers from outside the project areas.</p>			
INDIGENOUS PEOPLES (4 questions)	<p>Indigenous people have not been adequately consulted about the project</p> <p>Indigenous people will experience negative impacts on their traditional livelihoods</p> <p>Indigenous people will lose access to land or natural resources</p> <p>Indigenous people will experience negative impacts on their traditional culture and way of life.</p>	<p>Not Applicable. However, the project will ensure that free and prior informed consent are secured for all activities that associated with stakeholders including marginalized and vulnerable groups. The process for securing environmental clearance for every project activity will include FPIC from affected stakeholders or individuals so that no stakeholders or individuals are excluded in the project decisions or their concerns are not addressed in project implementation.</p>	1	1	L
INVOLUNTARY RESETTLEMENT (6 questions)	<p>Will households will have reduced incomes because of loss of land?</p> <p>Will households will suffer negative impacts from having to move their homes?</p> <p>Households will have reduced income because of loss of access to community land or common property resources?</p> <p>Will the project lead to acquisition of land for implementation of the project?</p>	<p>The layout of pipes for irrigation and drinking water passes through some private land.</p> <p>However, loss of land or income is not foreseen as the pipes will be laid underground and project does not include land acquisition.</p> <p>Land disputes are not foreseen. However, risk of disputes due to lack of awareness of project activity</p>	4	1	L

AF Principles	Risk Questions	Assessment	Impact (1 -5)	Likelihood (1-5)	Significance (L/M/S/H)
	Will the project ensure right to compensation for land acquired for the project activities? Will the project lead to land disputes?	locations may arise and minor disputes may arise from water distribution arrangements.			
PROTECTION OF FORESTS AND NATURAL HABITATS (5 questions)	Will the project result in conversion or disturbance of natural forest land to other uses? Will the project cause disturbances to wildlife? Will the project result in illegal harvesting of non-timber forest resources? Will the project result in increased collection of firewood or timber resources? Will the project lead to wild life poaching?	The project activities do not pass through any protected, prohibited or restricted areas. However, clearing works for access route to transport materials along water lines may cause minor site-specific disturbances to local forest but will not involve conversion of forest land use. Also trenching work for underground layout of water pipe lines will involve disturbances forest soils although such disturbances will be temporary and limited to pipe alignment. Workers may harvest non timber forest products but such collection for consumption and not for commercial purposes. Limited firewood collection for use by project workers at site will happen although timber harvesting is not foreseen. Some activities requiring restoration of cleared sites through plantation could potentially have adverse impacts if non-native plants are used for replantation.	3	2	M
CONSERVATION OF BIOLOGICAL DIVERSITY (4 questions)	Will the project damage areas that are important for biodiversity? Will the project cause change in farming practices and reduce biodiversity? Will the project result in drainage of wetlands or natural water bodies? Will the project introduce non-native species that could increase uncontrollably?	The project activities do not pass through any protected, prohibited or restricted areas Increase cultivation of high-income varieties may increase risk of neglecting native varieties. Irrigation and drinking water supply for the project will be drawn from natural streams. Noncompliance to environmental flow standards could pose risk of disturbing local aquatic life	3	3	M
CLIMATE CHANGE (3 questions)	Will climate change cause increased risk of climate disasters and project outputs? Will the project result in increased greenhouse gas emissions?	Heavy rains and resulting local soil erosions could harm project assets. Landslides may be triggered by bursting of water channel Burst of water pipelines during flooding events	3	2	M

AF Principles	Risk Questions	Assessment	Impact (1 -5)	Likelihood (1-5)	Significance (L/M/S/H)
POLLUTION PREVENTION & RESOURCE EFFICIENCY (9 questions)	<p>Will the project cause increased use of agriculture chemicals?</p> <p>Will the project result in a risk from hazardous chemicals?</p> <p>Will the project result in long-term increase in flows of polluted water?</p> <p>Will the project result in generation of significant amounts of non-biodegradable solid waste?</p> <p>Will the project cause short-term environmental damage (e.g. during construction)?</p> <p>Will the project cause un-sustainable increase in extraction of groundwater?</p> <p>Will the project cause un-sustainable extraction or diversion of water from a surface water source?</p> <p>Will the project cause non-sustainable increase in mineral extraction?</p>	<p>With assured irrigation water, intensification of agriculture activities such as increased vegetable cultivation could risk farmers adopting chemical fertilizers leading to soil pollution</p> <p>Use of limited quantities of chemical fertilizers may pollute flow of tail end water in natural landscapes</p> <p>Inappropriate waste at temporary worker camps in project sites may result in risk of limited desecration of natural landscapes</p> <p>Minor excavation works and ground clearance will cause limited disturbances to local soil and vegetation</p> <p>Risk of unsustainable extraction of water is low as drawing of water is guided by e-flow requirements which is requires as per the Water and Regulations as well as specified in the environmental clearance for project activities.</p>	3	2	M
PUBLIC HEALTH (5 questions)	<p>Will the project lead to increase in road traffic related accidents?</p> <p>Will the project will result in increased use of harmful substances (e.g. alcohol)?</p> <p>Will the project cause people to change to less healthy or nutritious diets?</p> <p>Will the project result in increased transmission of diseases?</p> <p>Will temporary labour from outside the project area stay in inadequate or unhygienic accommodations?</p>	<p>Migrant workers with unknown medical and travel history could risk transmission of diseases that are not prevalent in the project areas to local communities and among project workers and staff</p> <p>Contractors may resort to cheaper arrangement of worker camps with inadequate water supply, waste management arrangements, inadequate sanitation arrangements at temporary labour camps which could pose health and hygiene risk to workers</p>	3	2	M

AF Principles	Risk Questions	Assessment	Impact (1 -5)	Likelihood (1-5)	Significance (L/M/S/H)
PHYSICAL AND CULTURAL RESOURCES/HERITAGE (3 questions)	<p>Will the project cause damage to physical cultural heritage sites?</p> <p>Will the project cause loss of non-physical cultural heritage?</p> <p>Will the project lead to disturbances to locally revered sacred sites and landscape?</p>	<p>Project workers from outside may not be aware of local cultural/sacred sites and may cause unintentional damages</p> <p>Alignment pipes and water lines to avoided passing through any local cultural assets</p> <p>Where cultural sites are observed in the project areas, cultural clearance are sought for project activities. The clearance document defines terms and conditions that enable avoidance of any harm on such assets.</p>	3	1	L
LANDS AND SOIL CONSERVATION (5 questions)	<p>Will clearing of trees or other vegetation could cause soil erosion?</p> <p>Will the project lead to changed farming practices that could cause soil degradation or erosion?</p> <p>Will the project result in changed water flows (e.g. from road drainage or river works) that could cause soil erosion?</p> <p>Will the project cause damage to any sensitive landscape?</p> <p>Will the project activities cause disturbances to existing land uses?</p>	<p>Clearing works for access route to transport materials along water lines may cause minor site specific disturbances to soil structure. Also trenching work for underground layout of water pipe lines will involve disturbances forest soils but such disturbance will be temporary and limited to pipe alignment. Site specific soil erosions could be triggered by heavy rainfalls on steep slopes at these sites.</p> <p>Weak pipe joints of water conveyance pipe and may lead to frequent burst of pipes and leakages triggering minor local soil erosions</p>	4	2	M
Following project risk identification through participatory process and screening of the project risks by each activity and output (using 76 risk screening questions that are relevant to 15 AF ESS principle, project overall Project Risk Category has been determined as Category B since the overall significance of project risks is Moderate likely impact from such risks are minor, site specific and manageable.					M

E4 Overview of the environmental and social impacts and risks identified as being relevant to the project

Table 5: Relevant environmental and social impacts and risks relevant to the project

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	✓	<p><i>Low risk:</i> As accredited entity to the AF, BTFEC abides by international and national laws. BTFEC's partners and contracted service providers are equally obliged to do the same. Relevant national and district authorities have been consulted during the proposal development process and will be partners in the project implementation. This facilitates compliance with all relevant laws and regulations. Environmental and social clearances have been obtained for project activities.</p> <p><i>No further assessment required during project implementation</i> However, awareness and sensitization of relevant aspects of laws to be pursued during project implementation</p>
Access and Equity		<p><i>Moderate risk:</i> Poor households may not be able to participate or provide financial or labour contributions to the water user groups/association. Similarly, new settlers may face accessibility issues as they have not been members of WUAs in the past. These households may face challenges of accessing project benefits. Further, emergence of commercial activities could marginalize rural households and may result in unequal benefits to communities from project assets.</p> <p><i>Mitigation measures/Further assessment during project implementation:</i> Articles of Association of WUAs to include clause on: <ul style="list-style-type: none"> - community exemptions for poor households in terms of financial or labour contributions to the water user groups/association. - providing equal access to new settlers Strengthen WUAs to protect rights of member households through training and definition of incentives in the articles of associations</p> <p>Water transmission line to include T-points for all settlements to enable distribution from the main water line to member communities</p>

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Marginalized and Vulnerable Groups		<p><i>Low risk:</i> Marginalized and Vulnerable Groups may not be able to participate or provide financial or labour contributions to the water user groups/association. These households may face challenges of project accessing benefits.</p> <p><i>Precautionary measures:</i> M&E Officer and Safeguards expert to monitor that WUA articles include clause on:</p> <ul style="list-style-type: none"> - community exemptions for poor households in terms of financial or labour contributions to the water user groups/association. - mention on providing equal access to new settlers
Human Rights	✓	<p><i>Low risk:</i> The constitution of Bhutan ensures human rights as a fundamental right to every citizen in Bhutan. It guarantees equal and effective protection of the law and protection against discrimination on grounds of race, sex, language, religion, politics or other status. The standard planning processes of needs assessment, design of projects and implementation are applied uniformly across the country.</p> <p><i>No further assessment required during project implementation</i></p>
Gender Equity and Women's Empowerment		<p><i>Moderate risk:</i> Statistics of current situation show limited participation by women in the executive role of WUAs. Women-headed households may face challenges of project accessing benefits.</p> <p><i>Mitigation measures/further assessment during project implementation:</i> The project will fully mainstream gender, and will ensure that women and men and female and male youth equitably engage in and benefit from project activities such as project asset building and availing benefits from the project. The project's gender action plan is a central element of the exit strategy. A gender assessment has been conducted which shows that women are not represented as much as men in executive of water user groups. The project will ensure that at least 30 percent of executives of WUAs supported by the project comprises of men and 50 percent participants at training conducted through the project will comprise women and youth.</p>
Indigenous Peoples	✓	<p>Not applicable</p> <p>The World Bank's operational manual describes indigenous communities, in general as communities who self-identify and are identified by others as members of a distinct cultural group with an indigenous language, different from the</p>

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		national language or with presence of customary social and political institutions and characterized by primarily subsistence-oriented production. The UN, Department of Economic and Social Affairs define indigenous people as groups with social, cultural, economic and political characteristics that are distinct from those of the dominant societies in which they live. In Bhutan, there are no community groups who self-identify and are identified by others as distinct in terms of culture, language, social and political institutions.
Core Labour Rights		<p><i>Moderate risk:</i> Due to difference in physical strength of men and women, contractors may adopt differential work compensation between men and women.</p> <p>Contractors may not fully comply with labor laws and standards in employing workers establishing appropriate working conditions such as inadequate water supply, waste management arrangements, inadequate sanitation arrangements at temporary labor camps which could pose health and hygiene risk to workers. Further, contractors may employ school children under 18 years of age during school holidays.</p> <p>Proposed pipeline of alignments pass through stretches of steep slope and difficult terrain in some site which could expose workers to safety risks.</p> <p>Risks of conflict with local communities due to lack of awareness of local norms by project workers from outside the project area such as sexual harassment and disrespect to local norms may risk conflicts between local communities and project workers from outside the project areas.</p> <p><i>Mitigation measures/further assessment during project implementation:</i> PMU, project officers, implementing partners and organizations must ensure compliance to national laws and international agreements on labour rights. In particular, the safeguards expert will monitor and that the project activities comply with;</p> <ul style="list-style-type: none"> - equal pay for equal work hours to be maintained for workers in the project activities - awareness are conducted by project/local administration to contractors and local employee on labour regulations and standards - Contract package should include occupational health and safety provisions in their budget. - safety measures are implemented while implementing work and PPE and safety gears are provided and used by workers at project site.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		<ul style="list-style-type: none"> - Contractual arrangements to include proper establishment of amenities in temporary worker camps and provide proper working conditions as per labour regulations - Worker data to be maintained at site with age and identify cards.
Involuntary Resettlement	✓	<p><i>Low risk:</i> The Land Act 2007 and land Compensations Rates 2017 provide clear and mandatory arrangements for compensations. This project will not resettle households or families, neither in physical nor economic terms.</p> <p><i>Precautionary measures:</i></p> <ul style="list-style-type: none"> - Avail clearance from all concerned agencies and consent from all affected individuals and parties
Protection of Forests and Natural Habitats		<p><i>Moderate risk:</i> The local territorial forest officials regularly monitor forest product movement. As a result, the project's activities are not expected to have any adverse impact on the environment or natural habitats. Some activities requiring restoration of cleared sites through plantation could potentially have adverse impacts if non-native plants are used for replantation.</p> <p><i>Mitigation measures/further assessment during project implementation:</i></p> <ul style="list-style-type: none"> - Only native species to be used for any plantation for restoration works in forest areas
Conservation of Biological Diversity		<p><i>Moderate risk:</i> The project activities do not pass through any protected, prohibited or restricted areas. However, some activities of Component 2, such as establishment of irrigation and drinking water involves drawing water from natural streams. This could potentially have adverse impacts on biodiversity if adequate provisions of environmental flows are not maintained. Further, due to availability of irrigation water, increased cultivation of high income varieties may increase risk of neglecting native varieties.</p> <p><i>Mitigation measures/further assessment during project implementation:</i></p> <ul style="list-style-type: none"> - Introduction of alien and invasive crop/plant species. To. be avoided; - 30% of the lean flow from natural streams to be maintained in all natural streams where the project activities will draw surface water as per the Water Regulations and in alignment with the Water Act 2011

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		<ul style="list-style-type: none"> - Design of infrastructure for water scheme should be based on discharge measurements at the source during lean and peak rainfall seasons
Climate Change		<p><i>Moderate risk:</i> The entire project is designed to reduce beneficiaries' exposure and vulnerability to the effects of climate change and increase their adaptive capacity. The project will not generate any significant emissions of greenhouse gases or reduce carbon sinks capacity. Many project activities will be designed to be low-emissions, as well as adaptive – e.g. increase in vegetative cover through SLM activities and watershed management. All project components and activities will be designed to contribute to increasing local capacities to sustainably face climate change. The promotion of: i) watershed management; ii) Institutional and community capacity for water governance and climate information iii) ensuring availability of drinking and irrigation water are expected to ensure a better adaptability changing climatic conditions. However, heavy rains resulting local soil erosions could harm project assets. Landslides may be triggered by bursting of water channel</p> <p><i>Mitigation measures/further assessment during project implementation:</i> Need to ensure use of climate resilient design for all water infrastructure in the project such as;</p> <ul style="list-style-type: none"> - Use pipes for conveyance of water to be securely embedded underground - Executing entities shall ensure the use of appropriate materials and ensure that joints are of appropriate quality. - Project contractual arrangement to include an O&M period during which any events such as burst of pipes and eventual damage to agriculture lands to be restored by the contractor during the liability period
Pollution Prevention and Resource Efficiency		<p><i>Moderate risk:</i> With assured irrigation water, intensification of agriculture activities such as increased vegetable cultivation could risk farmers adopting chemical fertilizers leading to soil pollution.</p> <p>Use of limited quantities of chemical fertilizers may pollute flow of tail end water in natural landscapes.</p> <p>Inappropriate waste at temporary worker camps in project sites may result in risk of limited desecration of natural landscapes.</p> <p>Minor excavation works and ground clearance will cause limited disturbances to local soil and vegetation.</p>

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		<p>Risk of unsustainable extraction of water is low as drawing of water is guided by e-flow requirements which is required by the Water and Regulations as well as specified in the environmental clearance for project activities.</p> <p><i>Mitigation measures/further assessment during project implementation:</i> The safeguards expert to monitor strategically the project activities, on compliance of the terms laid down in the forest clearance and environmental clearance documents and ensure periodic water quality monitoring reports for drinking water are maintained by local health center.</p>
Public Health		<p><i>Moderate risk:</i> Migrant workers with unknown medical and travel history could risk transmission of diseases that are not prevalent in the project areas to local communities and among project workers and staff.</p> <p>Contractors may resort to cheaper arrangement of worker camps with inadequate water supply, waste management arrangements, inadequate sanitation arrangements at temporary labour camps which could pose health and hygiene risk to workers.</p> <p><i>Mitigation measures/further assessment during project implementation:</i> The safeguards expert will monitor that the contractual arrangements include occupational health and safety provisions and that these terms and conditions are complied to by contractors and site engineers. The PMU will ensure that disbursement is not made without proving compliance to these terms and conditions.</p>
Physical and Cultural Heritage	✓	<p><i>Low risk:</i> Project workers from outside may not be aware of local cultural/sacred sites and may cause unintentional damage.</p> <p>Alignment pipes and water lines may pass through any local cultural assets.</p> <p>Where cultural sites are observed in the project areas, cultural clearance are sought for project activities. The clearance document defines terms and conditions that enable avoidance of any harm on such assets.</p> <p><i>Precautionary measures:</i> The safeguards expert will monitor that the terms and conditions specified in cultural clearances are complied by contractors and site engineers. The PMU will ensure that disbursement is not made without proving compliance to these terms and conditions.</p>

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Lands and Soil Conservation		<p><i>Moderate risk:</i> The project includes activities in soil conservation and SLM in the agricultural areas as well as watershed management. This includes ensuring land and soil conservation, as well as protection and enhancement of natural habitats in the project areas. The activities related to establishment of drinking and irrigation water may cause temporary minor soil erosions during the project implementation phase.</p> <p><i>Mitigation measures/further assessment during project implementation:</i></p> <ul style="list-style-type: none"> - Exposed soil to be restored back into the trench after pipe layout and minor clearance sites to be restored by planting native plants. - Ensure proper joining of water pipes - Risks related to leakage of pipes, post implementation phase will be mitigated by regular monitoring of water lines by the Chusup, a member of WUA executive with responsibility for water infrastructure maintenance. The project should train Chusups in all project locations on maintenance of water lines.

E5 Description of project ESS Risks, Impacts and mitigation measures

Risks and impacts according to AF principles and associated project activities are identified and mitigation measures proposed are presented Table 6.

Table 6: Environmental and Social Risks and mitigation measures

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
COMPLIANCE WITH THE LAW	1. Lack of awareness on some provisions of Water Act, Land Act, National Environment Protection Act may cause non-compliance to the provisions of the act by project beneficiaries. Lack of clarity in proportion of water allocations to different types of users at local level could cause conflicts within communities at the local level and may risk noncompliance to the Water Act.	<i>Negative (Social);</i> Community conflicts due to lack of awareness on water sharing rights and proportions	1.1.1 to 1.1.5; 1.2.4; 2.1.1; 2.2.1 to 2.2.3; 3.1.2	2. Awareness to project stakeholders, project staff, local community representatives and project contractors on relevant provisions of Water Act, Land Act, National Environment Protection Act and regulations
ACCESS AND EQUITY	2.1 Poor households may not be able to participate or provide financial or labour contributions to the water user groups/association. New settlers may face accessibility issues as they have not been members of WUAs in the past. 2.2 Emergence of commercial activities could marginalize rural households and may result in unequal benefits to communities from project assets.	<i>Negative (Social)</i> Poor households and new settlers or absentee households may face challenges of accessing project benefits. Conflicts due to lack of clarity on proportions of water allocation	2.2.1; 2.2.2; 2.4.1	2.1 Articles of association of WUAs to include clause on: - community exemptions for poor households in terms of financial or labour contributions to the water user groups/association. - mention on providing equal access to new settlers 2.2 Articles of association of WUAs to include clause defining proportion water to be allocated as well as rates of WUA fees by different categories

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
				such as rural household, commercial buildings or industrial establishment. Strengthen WUAs to protect rights of member households through training of WUA executives
MARGINALIZED AND VULNERABLE GROUPS	3. Marginalized and Vulnerable Groups may not be able to participate or provide financial or labour contributions to the water user groups/association.	<i>Negative (Social)</i> Marginalized and Vulnerable households may face challenges of project accessing benefits.	2.2.1; 2.2.2; 2.4.1	3.1 WUA articles include clause on: - community exemptions for poor households in terms of financial or labour contributions to the water user groups/association. - mention on providing equal access to new settlers 3.2 Water transmission line to include T-points for all settlements to enable distribution from the main water line to member communities
GENDER EQUALITY AND WOMEN'S EMPOWERMENT	4. Statistics of current situation show limited participation by women in the executive role of WUAs. Women-headed households may not be able to fully participate in project activities and may be left out from membership and leadership roles in the WUAs.	<i>Negative (Social)</i> Women-headed households may face challenges in project accessing benefits	2.2.1; 2.2.2; 2.4.1	4.1 Include women in training community members on water governance and management including on book-keeping 4.2 Ensure women to take leadership positions of WUAs

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
		Overall participation of women in development activities may remain weak.		4.3 Encourage female workers at project sites to form a committee of their representatives to discuss their concerns and issues with the management on a weekly basis. 4.4 Provide adequate and separate sanitation facilities for men and women at project sites.
INDIGENOUS PEOPLES	Not applicable. However, the project will ensure that free and prior informed consent are secured for all activities that associated with stakeholders including marginalized and vulnerable groups. The process for securing environmental clearance for every project activity will include FPIC from affected stakeholders or individuals.		1.3.3; 2.1.1; 2.1.2; 2.2.1; 2.2.2	All project activities have valid environmental clearance including required attachments comprising of forest clearance, community clearance, individual clearances.
CORE LABOUR RIGHTS	5.1 Due to difference in physical strength of men and women, contractors may adopt differential work compensation between men and women. Contractors may not fully comply with labor laws and standards in employing workers establishing appropriate working conditions such as inadequate water supply, waste management arrangements, inadequate sanitation arrangements at temporary labor camps which could pose health and hygiene risk to workers. Further, contractors may employ school children under 18 years of age during school holidays. Proposed pipeline of alignments pass through stretches of steep slope and	Negative (social). Project activities may deviate from core labour standards as identified by the International Labour Organization and Labour & Employment Act 2007. Health and Safety of workers may be compromised.	1.3.3; 2.1.1; 2.1.2; 2.2.1; 2.2.2	5.1 Project's contractual arrangement with contractors include clauses on; - equal pay for equal work hours to for workers in the project activities - Occupational health and safety provisions in the budget for contract bidding. - safety measures are implemented while implementing work and PPE and safety gears are provided and used by workers at project site. Maintain PPE Issuance Register at sites.

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
	<p>difficult terrain in some site which could expose workers to safety risks.</p> <p>5.2 Risks of conflict with local communities due to lack of awareness of local norms by project workers from outside the project area such as sexual harassment and disrespect to local norms may risk conflicts between local communities and project workers from outside the project areas.</p>	Project workers may be involved in conflict with local norms.		<ul style="list-style-type: none"> - Provide first aid kits for minor treatment at site throughout the construction phase - Contractual arrangements to include proper establishment of amenities in temporary worker camps and provide proper working conditions as per labour regulations, - Worker data to be maintained at site with age and identify cards. Verify labourers' age by checking their identity cards and date of birth prior to their engagement in the project. - Check salary disbursement sheets for salary amount paid. Interview labourers to verify labour wage amount received - Maintain Grievance Register for proper documentation of the grievance lodged and resolution dispensed. <p>5.2 Awareness to conducted by project/local administration to contractors and local employee on labour regulations and standards</p>
INVOLUNTARY RESETTLEMENT	6. The layout of pipes for irrigation and drinking water passes through some private land. However, loss of land or income is not	<i>Negative (Social)</i>		6. Ensure consent on project activities from all affected individuals and

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
	foreseen as the pipes will be laid underground and project does not include land acquisition. Land disputes are not foreseen. However, risk of minor disputes due to lack of awareness of project activity locations may arise and minor disputes may arise from water distribution arrangements.	Project activities may be delayed	2.1.1; 2.1.2; 2.2.1; 2.2.2	parties including sectoral and agency clearances and monitor terms and conditions specified in these clearances.
PROTECTION OF FORESTS AND NATURAL HABITATS	<p>7.1 The project activities do not pass through any protected, prohibited or restricted areas. However, minor clearing works for access route to transport materials along water lines may cause minor site specific disturbances to local forest but will not involve conversion of forest land use. Workers may harvest non timber forest products but such collection for consumption and not for commercial purposes. Limited firewood collection for use by project workers at site will happen although timber harvesting is not foreseen.</p> <p>7.2 Trenching work for underground layout of water pipe lines will involve minor disturbances to forest soils although such disturbances will be temporary and limited to pipe alignment.</p> <p>7.3 Some activities requiring restoration of cleared sites through plantation could potentially have adverse impacts if non-native plants are used for replantation</p>	<p><i>Negative (Environmental)</i></p> <p>Minor site-specific disturbances to local forest soils.</p> <p>May contribute to local forest degradation</p> <p>Possibility of introducing invasive species into local vegetation.</p>	2.1.1; 2.1.2; 2.2.1; 2.2.2	<p>7.1 Environmental and forestry clearance to be made mandatory for project activities and terms and conditions on the relevant clearances to be monitored.</p> <p>7.2 Ensure proper burying of pipes, refilling of trenches and revegetation of trenched soil</p> <p>Disposed un-restored excavated muck safely in designated sites</p> <p>7.3 Only native species to be used for any plantation in forest areas for restoration works. No introduction of alien crop/plant species to be supported by the project</p> <p>7.4 Stockpile the construction materials away from the aquatic environment that may allow for release into the environment</p>

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
	7.4 Improper stockpiling of construction materials may damage natural landscape conditions.			
CONSERVATION OF BIOLOGICAL DIVERSITY	<p>8.1 The project activities do not pass through any protected, prohibited or restricted areas. Increase cultivation of high income varieties may increase risk of neglecting native crop varieties.</p> <p>8.2 Irrigation and drinking water supply for the project will be drawn from natural streams. Noncompliance to environmental flow standards could pose risk of disturbing local aquatic life</p>	<p><i>Negative (Environmental)</i></p> <p>Native species conservation may be hampered.</p> <p>Reduced environmental flow into natural drainages may negatively impact local biodiversity.</p>	<p>2.1.1; 2.1.2; 2.2.1; 2.2.2; 2.2.4; 3.1.2;</p>	<p>8.1 30% of the lean flow of natural streams at catchment to be maintained as e-flow in all project activities as per the Water Regulations and in alignment with the Water Act 2011. Design of the scheme should be based on discharge measurements at the source during lean and peak rainfall seasons</p> <p>8.2 SLM component to encourage traditional varieties in the wet season when pest outbreaks are common of farmers consider modern varieties during dry months with advantage of the assured irrigation so that traditional crop varieties and not lost</p>
CLIMATE CHANGE	<p>9.1 Heavy rains and resulting local soil erosions could harm project assets. Landslides may be triggered by bursting of water channel</p> <p>9.2 Poor quality infrastructure design and construction may render project assets inefficient</p>	<p><i>Negative (Economical)</i></p> <p>Project assets may be damaged causing economic losses or may not function to optimum capacity</p>	<p>2.1.1; 2.1.2; 2.2.1; 2.2.2; 2.2.3; 2.2.4; 3.1.2</p>	<p>9. Incorporate climate-resilient design of infrastructure and construct structures combining concrete infrastructure along with bio-engineering measures as a means to enhance strength and resilience of infrastructure against landslides and floods such as use of pipes supported by pillars or suspended pipes at stream crossings, reinforcement with concrete protection walls at intakes,</p>

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
				<p>reservoirs, bio-engineering techniques in unstable areas.</p> <p>9.2 Train engineers in climate resilient designs and monitor implementation of construction of climate resilient infrastructure and train WUA office bearers on minor water infrastructure maintenance and use of tools and technologies and efficient management</p> <p>Project contractual arrangement to include an O&M period during which any events such as burst of pipes and eventual damage to agriculture lands to be restored by the contractor during the liability period.</p> <p>Carry out site specific ESIA as per activity design and prepare activity. Specific ESMP</p>
<p>POLLUTION PREVENTION & RESOURCE EFFICIENCY</p>	<p>10.1 With assured irrigation water, intensification of agriculture activities such as increased vegetable cultivation could risk farmers adopting chemical fertilizers leading to soil pollution. Use of limited quantities of chemical fertilizers may pollute flow of tail end water in natural landscapes</p> <p>10.2 Inappropriate waste at temporary worker camps in project sites may result in</p>	<p><i>Negative (Environmental)</i></p> <p>Possibility of pollution of soils and reduced soil fertility of irrigated lands</p> <p>Decertation of landscapes, soil</p>	<p>3.1.2; 3.3.3; 3.1.4</p>	<p>10.1 Sustainable land malmanagement interventions to include tail end and field water management and awareness on;</p> <ul style="list-style-type: none"> - long terms negative impact on loss of soil fertility through application of chemical fertilizers - benefits of sustainable soil fertility management interventions

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
	risk of limited desecration of natural landscapes	pollution and water pollution.		10.2 Contractual arrangements to include proper establishment of amenities in temporary worker camps including proper waste management. - organic wastes to be disposed in pits dug near the camp and keep non-degradable wastes in sacks for transfer to waste collectors.
PUBLIC HEALTH	11. Migrant workers with unknown medical and travel history could risk transmission of diseases that are not prevalent in the project areas to local communities and among project workers and staff	<i>Negative (Social)</i> Cause community health concerns Health and Safety of workers may be compromised.	2.1.1; 2.1.2; 2.2.1; .2.2.2; 2.2.3; 2.2.4	11. Ensure project contractors at site implement health safety protocols from the start include prior medical screening protocols and maintenance of first aid kits at worker camp sites. Locate worker campsites away from local settlements.
PHYSICAL AND CULTURAL RESOURCES/HERITAGE	12.1 Project workers form outside may not be aware of local cultural/sacred sites and may cause unintentional damages 12.2 Alignment pipes and water lines may pass through cultural sites	<i>Negative (Social)</i> Unintentional desecration of local sacred/cultural sites and conflict with local communities.	2.1.1; 2.1.2; 2.2.1; .2.2.2;2.2.3; 2.2.4	12.1 Orient migrant workers on local norms and sacred sites in project locations 12.2 Where cultural sites are observed in the project areas, cultural clearance are sought for project activities. The clearance document defines terms and conditions that enable avoidance of any harm on such assets. Monitor compliance of conditions specified in cultural clearance for project activities. Alignment pipes and water lines through cultural sites to be avoided

AF Principles	Risks	Impacts	Relevant Project activities	Mitigation Measures
LANDS AND SOIL CONSERVATION	13. The activities related to establishment of drinking and irrigation water may cause temporary minor soil erosions during the project implementation phase.	<i>Negative (Environmental)</i> Local mudslide and soil erosions	2.1.1; 2.1.2; 2.1.3; 3.1.2; 3.3.3; 3.1.4	13.1 Exposed soil to be restored back into the trench after pipe layout and minor clearance sites to be restored by planting native plants. 13.2 Contractual arrangements to include proper restoration of exposed soils and access trails. 13.3 Advocate use of integrated pest management practices for preventing and managing pests and promote and use bio-pesticides under the project for managing pests in paddy and vegetables

F. Project Environmental and Social Management Plan (ESMP)

The project level ESMP has been developed through participatory identification of mitigation measures for each identified risk

Table 7: Project Environmental and Social Management Plan (ESMP)

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
1.1: Lack of clarity in proportion of water allocations and community conflicts	1.1 Awareness to project stakeholders, project staff, local community representatives and project contractors on relevant provisions on Water Act, Land Act, National Environment Protection Act and regulations	PMU	During sensitization on the project activities in Q1 of year 1	No. of people benefited / Number of people in the participated in sensitization by stakeholder category and gender	0 (Included in project activities)

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
<p>2.1 Poor households may not be able to participate or provide financial or labour contributions to the water user groups/association. New settlers may face accessibility issues as they have not been members of WUAs in the past.</p> <p>2.2 Emergence of commercial activities could marginalize rural households and may result in unequal benefits to communities from project assets.</p>	<p>2.1 Articles of association of WUAs to include clause on:</p> <ul style="list-style-type: none"> - community exemptions for poor households in terms of financial or labour contributions to the water user groups/association. - mention on providing equal access to new settlers <p>2.2 Articles of association of WUAs to include clause defining proportion water to be allocated as well as rates of WUA fees by different categories such as rural household, commercial buildings or industrial establishment.</p> <p>Strengthen WUAs to protect rights of member households through training of WUA executives</p>	Dzongkhags	Year 2 onwards	<p>All project supported WUAs are registered with concerned gewogs and WUA Articles of association are available in gewog offices</p> <p>All WUA Articles of association defines community exemptions and conditions of exemptions; right of access to water by all and water allocation framework</p>	0 (Included in project activities)
<p>3. Marginalized and Vulnerable Groups may not be able to participate or provide financial or labour contributions to the water user groups/association.</p>	<p>3.1 WUA articles include clause on:</p> <ul style="list-style-type: none"> - community exemptions for poor households in terms of financial or labour contributions to the water user groups/association. - mention on providing equal access to new settlers <p>3.2 Water transmission line to include T-points for all settlements to enable distribution from the main water line to member communities</p>	Dzongkhags	Year 2 onwards	<p>All project supported WUAs are registered with concerned gewogs and WUA Articles of association are available in gewog offices</p> <p>All WUA Articles of association defines community exemptions and conditions of exemptions; right of access to water by all and water allocation framework</p> <p>Every community has a water distribution point</p>	0 (included in project activities)

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
				from the main water conveyance line	
4. Statistics of current situation show limited participation by women in the executive role of WUAs. Women-headed households may be not be able to fully participate in project activities and may be left out from membership and leadership roles in the WUAs.	<p>4.1 Include women in training community members on water governance and management including on book-keeping</p> <p>4.2 Ensure women to take leadership positions of WUAs</p> <p>4.3 Encourage female workers at project sites to form a committee of their representatives to discuss their concerns and issues with the management on a weekly basis.</p> <p>4.4 Provide adequate and separate sanitation facilities for men and women</p>			<p>50% of participants at community level consultation workshop and trainings supported by the project comprise of women and youth</p> <p>30% officer bearers of WUAs supported by the project are women</p> <p>Project sites where women workers are involved have a woman representative</p> <p>All project sites have separate sanitation facilities for men and women</p>	<p>0 (included in project activities)</p>
5.1 Due to difference in physical strength of men and women, contractors may adopt differential work compensation between men and women. Contractors may not fully comply with labor laws and standards in employing workers establishing appropriate working conditions such as inadequate water supply, waste management arrangements, inadequate sanitation	<p>5.1 Project's contractual arrangement with contractors include clauses on;</p> <ul style="list-style-type: none"> - equal pay for equal work hours to for workers in the project activities - Occupational health and safety provisions in the budget for contract bidding. - safety measures are implemented while implementing work and PPE and safety gears are provided and used by workers at project 	<p>PMU on contract clauses</p> <p>Project Site engineers for supervisions</p> <p>SGE for monitoring</p> <p>Contractors to maintain records</p>	<p>Year 1</p> <p>Year 2 onwards</p>	<p>PPE Issuance Register maintained at sites</p> <p>Worker data to be maintained at site with age and identify cards</p> <p>Salary disbursement sheets show equal pay for equal work</p>	<p>0 (included in project activities)</p>

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
<p>arrangements at temporary labor camps which could pose health and hygiene risk to workers. Further, contractors may employ school children under 18 years of age during school holidays. Proposed pipeline of alignments pass through stretches of steep slope and difficult terrain in some site which could expose workers to safety risks.</p> <p>5.2 Risks of conflict with local communities due to lack of awareness of local norms by project workers from outside the project area such as sexual harassment and disrespect to local norms may risk conflicts between local communities and project workers from outside the project areas.</p>	<p>site. Maintain PPE Issuance Register at sites.</p> <ul style="list-style-type: none"> - Provide first aid kits for minor treatment at site throughout the construction phase - Contractual arrangements to include proper establishment of amenities in temporary worker camps and provide proper working conditions as per labour regulations, - Worker data to be maintained at site with age and identify cards. Verify labourers' age by checking their identity cards and date of birth prior to their engagement in the project. - Check salary disbursement sheets for salary amount paid. Interview labourers to verify labour wage amount received - Maintain Grievance Register for proper documentation of the grievance lodged and resolution dispensed. <p>5.2 Awareness to be conducted by project/local administration to contractors and local employee on labour regulations and standards</p>			<p>Physical site conditions show sanitation, waste, first aid, signages facilities</p> <p>Proportion of workers at site who are aware of occupational health and safety provisions and standards</p>	

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
6. Risk of minor disputes due to lack of awareness of project activity locations and minor disputes due to lack of clarity on water distribution arrangements.	6. Ensure consent on project activities from all affected individuals and parties including sectoral and agency clearances and monitor terms and conditions specified in these clearances.	PMU on ensuring and renewing sectoral and agency clearances SGE and M&E officer for compliance monitoring of terms and conditions in the clearance documents	Clearances to be availed prior to start of project implementation Clearance renewals to be based on validity of each clearance document	Environmental clearance, social clearances, sectoral clearance and consent letters from individuals who may be affected (See Section M for initial clearance and consent document)	0 (included in with 7.1)
7.1 The project activities do not pass through any protected, prohibited or restricted areas. However, minor clearing works for access route to transport materials along water lines may cause minor site specific disturbances to local forest but will not involve conversion of forest land use. Workers may harvest non timber forest products but such collection for consumption and not for commercial purposes. Limited firewood collection for use by project workers at site will happen although timber harvesting is not foreseen.	7.1 Environmental and forestry clearance to be made mandatory for project activities and terms and conditions on the relevant clearances to be monitored.	Site engineers for supervision SGE for periodic monitoring	Year 2 onwards	Environmental clearance and forest clearance are renewed without obstacles	10,000

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
<p>7.2 Trenching work for underground layout of water pipe lines will involve minor disturbances to forest soils although such disturbances will be temporary and limited to pipe alignment.</p> <p>7.3 Some activities requiring restoration of cleared sites through plantation could potentially have adverse impacts if non-native plants are used for replantation</p> <p>7.4 Improper stockpiling of construction materials may damage natural landscape conditions.</p>	<p>7.2 Ensure proper burying of pipes, refilling of trenches and revegetation of trenched soil. Disposed un-restored excavated muck safely in designated sites</p> <p>7.3 Only native species to be used for any plantation in forest areas for restoration works. No introduction of alien crop/plant species to be supported by the project</p> <p>7.4 Stockpile the construction materials away from the aquatic environment that may allow for release into the environment</p>				
<p>8.1 The project activities do not pass through any protected, prohibited or restricted areas. Increase cultivation of high income varieties may increase risk of neglecting native crop varieties.</p> <p>8.2 Irrigation and drinking water supply for the project will be drawn from natural streams. Noncompliance to environmental flow standards</p>	<p>8.1 30% of the lean flow of natural streams at catchment to be maintained as e-flow in all project activities as per the Water Regulations and in alignment with the Water Act 2011. Design of the scheme should be based on discharge measurements at the source during lean and peak rainfall seasons</p> <p>8.2 SLM component to encourage traditional varieties in the wet season when pest outbreaks are common of farmers consider modern varieties</p>	<p>PMU for 8.1 and</p> <p>DoA for 8.2</p>	<p>Year 1 for 8.1</p>	<p>Discharge measurement records at water source during lean and peak rainfall seasons for all sites</p> <p>E-flow calculations</p>	<p>0 (included in project activities)</p>

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
could pose risk of disturbing local aquatic life	during dry months with advantage of the assured irrigation so that traditional crop varieties and not lost		Year 2 onwards for 8.2	Record of native crops varieties of major cereals and vegetable crops in irrigation sites and calendar of cultivation	
<p>9.1 Heavy rains and resulting local soil erosions could harm project assets. Landslides may be triggered by bursting of water channel</p> <p>9.2 Poor quality infrastructure design and construction may render project assets inefficient</p>	<p>9. Incorporate climate-resilient design of infrastructure and construct structures combining concrete infrastructure along with bio-engineering measures as a means to enhance strength and resilience of infrastructure against landslides and floods such as use of pipes supported by pillars or suspended pipes at stream crossings, reinforcement with concrete protection walls at intakes, reservoirs, bio-engineering techniques in unstable areas.</p> <p>9.2 Train engineers in climate resilient designs and monitor implementation of construction of climate resilient infrastructure and train WUA office bearers on minor water infrastructure maintenance and use of tools and technologies and efficient management</p> <p>Project contractual arrangement to include an O&M period during which any events such as burst of pipes and eventual damage to agriculture lands to be restored by the contractor during the liability period.</p>	<p>PMU for conducting training on climate resilient technology</p> <p>SGE for activity specific ESIA and ESMP</p>	<p>Prior to construction (year 1)</p>	<p>Infrastructure design are climate resilient</p> <p>No of engineers trained in climate resilient designs</p> <p>No of WUA office bearers trained on minor water infrastructure maintenance and use of tools and technologies and efficient management</p> <p>1 year O&M period included in contractors contract document</p> <p>Site and activity ESIA report and ESMPs</p>	<p>Training costs included in project activity</p> <p>ESIA and ESMP (20,000)</p>

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
	Carry out site specific ESIA as per activity design and prepare activity. Specific ESMP				
10.1 With assured irrigation water, intensification of agriculture activities such as increased vegetable cultivation could risk farmers adopting chemical fertilizers leading to soil pollution. Use of limited quantities of chemical fertilizers may pollute flow of tail end water in natural landscapes	10.1 Sustainable land malmanagement interventions to include tail end and field water management and awareness on; - long terms negative impact on loss of soil fertility through application of chemical fertilizers - benefits of sustainable soil fertility management interventions	DOA for 10.1	Year 2 onwards for 10.1	Tail end water management and SLM training provided to communities	0 (included in project activities)
10.2 Inappropriate waste at temporary worker camps in project sites may result in risk of limited desecration of natural landscapes	10.2 Contractual arrangements to include proper establishment of amenities in temporary worker camps including proper waste management. organic wastes to be disposed in pits dug near the camp and keep non-degradable wastes in sacks for transfer to waste collectors	PMU for 10.2	Year 1 for 10.2	Waste management systems established in project sites	No cost
11. Migrant workers with unknown medical and travel history could risk transmission of diseases that are not prevalent in the project areas to local communities and among project workers and staff	11. Ensure project contractors at site implement health safety protocols from the start include prior medical screening protocols and maintenance of first aid kits at worker camp sites. Locate worker campsites away from local settlements.	PMU Contractors	Throughout project period	Medical screening reports of workers Written statement of health and safety policy Availability of first aid kit at worker campsite Location of migrant worker camp sites	No cost

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
<p>12.1 Project workers from outside may not be aware of local cultural/sacred sites and may cause unintentional damages</p> <p>12.2 Alignment pipes and water lines may pass through cultural sites</p>	<p>12.1 Orient migrant workers on local norms and sacred sites in project locations</p> <p>12.2 Where cultural sites are observed in the project areas, cultural clearance are sought for project activities. The clearance document defines terms and conditions that enable avoidance of any harm on such assets. Monitor compliance of conditions specified in cultural clearance for project activities. Alignment pipes and water lines through cultural sites to be avoided</p>	<p>Contractors</p> <p>PMU for cultural clearance</p> <p>SGE for monitoring</p>	<p>Throughout project period</p>	<p>Awareness of local norms and sacred sites by migrant workers</p> <p>Cultural clearance are renewed without obstacles</p>	<p>No cost</p>
<p>13. The activities related to establishment of drinking and irrigation water may cause temporary minor soil erosions during the project implementation phase.</p>	<p>13.1 Exposed soil to be restored back into the trench after pipe layout and minor clearance sites to be restored by planting native plants.</p> <p>13.2 Contractual arrangements to include proper restoration of exposed soils and access trails.</p> <p>13.3 Advocate use of integrated pest management practices for preventing and managing pests and promote and use bio-pesticides under the project for managing pests in paddy and vegetables</p>	<p>Year 2 onwards</p>	<p>Contractors</p> <p>PMU</p> <p>DoA</p>	<p>Contract documents include clause on proper restoration of exposed soils and access trails used during construction period</p> <p>SLM trainings and sensitization to communities include topics on integrated pest management practices and bio-pesticides</p>	<p>No cost</p>
<p>Absence of valid environmental clearance and its attachments comprising of</p>	<p>Ensure the project has valid environmental clearance and its attachments</p>	<p>ESG Expert and PMU</p>	<p>Throughout the project implementation</p>	<p>Valid environmental clearance and status of compliance to terms and</p>	<p>No cost</p>

Risk	Mitigation Measures	Responsibility	Timing	Key Indicator	Budget (US \$)
forest clearance, community clearance, individual clearances may lead to exclusion of affected community groups of households.	Ensure the terms and conditions reflected in the environmental clearance and its attachments are implemented.			conditions laid out in the clearance documents.	
Total cost for mitigating measures					30,000

G. Monitoring of Project Environmental and Social Management Plan

The compliance to ESMP will be monitored by various entities at different stages of preparation and implementation as follows.

Monitoring at the project level.

The overall responsibility for implementing the ESMP and for monitoring the compliance of the project's environmental safeguard activities lies with the PMU. The Safeguards and Gender Expert (SGE) at the PMU shall oversee implementation of field activities relating to ESMP and coordinate with the project Dzongkhags. The ESMP compliance monitoring will also include grievances that are reported through the Grievance Redress Mechanism (GRM) and on the status of redressal of grievances reported. The grievance data should be analysed and evaluated to make policy and/or process changes to minimize similar grievances in the future. Record of each grievance that has been reported and its resolution must be recorded and reported in the progress reporting of project activities.

Monitoring at the field activity level:

Self-regulatory monitoring should be adopted by the concerned Dzongkhags. The terms and conditions included in the environment clearances for project activities must be taken care of during the implementation of individual field activities. Self-monitoring reports by the Dzongkhag Environment Officers and site engineers should be filed to the PCU on a quarterly basis and should be liable for ad-hoc inspection by the PMU.

The Dzongkhags shall be responsible for supervision of environmental compliance by the service providers for the project activities as and when they are involved or by the concerned communities as the case may be. Environmental and social mitigation measures carried out by these parties should be verified by the Dzongkhag Engineers with support from the Dzongkhag Environment Officers and must be documented. Disbursements of project activity funds by the PMU should be linked to satisfactory compliance to ESMP of specific activities.

Table 8: ESMP Monitoring Plan

Monitoring Activity	Description	Frequency	Roles and Responsibilities	Cost
Update of ESMP	Based on detail design of drinking water/irrigation infrastructure, watershed activities and SLM innovations and baseline the ESMP will be updates.	During the first six months of implementation	PMU/ESG Expert	10,000
Track progress of ESMP implementation	Implementation of this ESMP and or activity specific ESMPs to be monitored periodically reported to each Project Steering Committee on an annual basis.	Quarterly	PMU	None
Check validity of activity specific environmental clearance and its attachments.	Site visits and review of project activities.	Annually.	PMU/ESG Expert.	None.
Baseline survey for identification of vulnerable and marginalized households in project communities.	A baseline survey to identify all vulnerable and marginalized households in project areas to be done so that the WUAs and can exercise consider community exemptions to such. Households in terms of contributions (labour or monetary)	First 3 months of project implementation	PMU	10,000
Annual review of ESMP implementation, GRM.	Meetings and site visits	At least annually	ESG Expert	10,000

Monitoring Activity	Description	Frequency	Roles and Responsibilities	Cost
review and GAP implementation				
Total cost for ESMP Monitoring				30,000

H. Cost for Environment and Social Safeguards

Table 9: Overall cost for Environment and Social Safeguards

No	Cost items	Total amount (US\$)
1	Cost of environmental and Safeguards and Gender Expert (6 months)	35,000
2	Cost of implementation of ESMP (Table 7)	30,000
3	Cost of ESMP Monitoring (Table 8)	30,000
	Total cost of ESS	95 ,000

I Grievance Redress Mechanism (GRM) and Process for the project

Due to the large number of stakeholders, especially the communities living within the project areas, a Grievance Redress Mechanism (GRM) that effectively collects and responds to stakeholders' concerns, suggestions and complaints is necessary as an integral part of the project. It will provide a platform and access for all affected stakeholders to lodge project implementation issues and complaints and ensure unbiased confidentiality, responsiveness and accountability to their complaints. It takes into account the availability of customary dispute settlement mechanisms among the communities as for judicial recourse.

The GRM aims to provide people who suffer adverse impacts from the project activities an opportunity to be heard and be assisted. Any affected party may file a complaint directly or through a representative with concrete evidence of authority to represent them. While anonymous complaints will not be considered, complainants can request confidentiality.

The objective of establishing GRM is to provide an effective and efficient mechanism for settlement of conflicts or grievances and to adopt measures to ensure an expeditious settlement of grievances relating to the project activities leading to effective implementation of the project. The GRM has been proposed based the following seven core principles to be adhered while dealing with grievances for its resolution.

1. ***Fairness:*** Grievances are assessed impartially and handled transparently.
2. ***Objectiveness and independence:*** The GRM operate independently of all interested parties in order to guarantee fair, objective, and impartial treatment to each case.
3. ***Simplicity and accessibility:*** Procedures to file grievances and seek action are simple enough that project beneficiaries can easily understand them.
4. ***Responsiveness and efficiency:*** The GRM is designed to be responsive to the needs of all complainants.
5. ***Speed and proportionality:*** All grievances, simple or complex, are addressed and resolved as quickly as possible in a constructive manner.
6. ***Social inclusion:*** Special attention is given to ensure that poor people and marginalized groups, including those with special needs, are able to access the GRM.
7. ***Accountability:*** Each grievance reported are, resolved or escalated to the next higher level till its resolution and proper records are maintained at each level. Progress reporting of project activities should include a reporting on grievance resolution.

It is in the interest of the project as well as the stakeholders involved for the smooth implementation of its activities. Hence, any issues, conflicts, or grievances arising out of project activities must be adequately addressed.

The GRM for the project will comprise of the following process:

(1) Receipt and Register Grievances

Any grievances related to the project activities can be reported through the concerned Tshogpa, Gewog Administration, or other authorities for its resolution to the Gewog Dzingsel Tshogpa (Gewog Dispute Resolution Committee). The channel for grievances submission can be either personal submission or through mail, e-mail, telephone, project staff or text messaging/SMS. Such submission should be recorded in writing at the Gewog.

Alternatively, any member of the Gewog Administration or officials associated with the project, its vendors/suppliers, other stakeholders and the public at large could also lodge complaints on the website of the BT FEC (<https://www.bhutantrustfund.bt/lodge-complaint>). These complaints could relate to:

- a. Allegations of Fraud, Malpractices or Corruption related to the project activities
- b. Environmental and/or Social damages/harms caused by project activities as may be related to any of the 15 principles of the AF;

It would be preferable that the complainant, provide some contact details so that concerned authorities can contact the person for additional information, if required during investigation. However, where feedback is not required by the complainants, they may choose not to provide such details.

(2) Sorting and Processing

It is anticipated that various types of grievances will be reported wherein different follow-up actions will be required. The grievances can be categorized into four types: (a) comments, suggestions, or queries; (b) complaints relating to non-performance of the project; (c) complaints referring to violations of law and/or corruption while implementing the project activities; (d) complaints against authorities, officials or community members involved in the project management; and (e) any complaints/issues not falling in the above categories. The Gewog Administration will maintain a record of complaints by the above categories as and when such grievances are received.

(3) Acknowledgment and Follow-up

When a complaint is made or the grievance is reported, the Gewog office receiving the complaint or grievances should acknowledge its receipt and should brief the complainant, informer or aggrieved/affected person about the grievance resolution process, provide contact details and, if possible, the name of the contact person who is responsible for handling the grievance.

(4) Verification, Investigation, and Action

The concerned Gewog Administration receiving the grievance should gather adequate information about the grievance reported to determine its validity and resolving the grievance. Grievances that are straightforward (such as queries and suggestions) can be resolved quickly by contacting the complainant. Grievances that cannot be resolved by grievance receiving authorities/office at their level should be referred to a higher level for verification and further investigation. The concerned authorities/offices dealing with investigation should ensure that the investigators are neutral and do not have any stake in the outcome of the investigation. The grievance redressal will be as follows:

- (a) If Gewog Administration receives the grievance from the aggrieved/affected individuals or communities, The Gewog Dzingsel Tshogpa shall try to resolve grievances within 7 working days by negotiating and mediating between the affected parties if the grievance is of such nature that Gewog Dzingsel Tshogpa can resolve it. However, any grievances warranting sanctions for violation of statutes shall not be negotiated by the Tshogpa but rather inform the concerned authorities/offices empowered to impose such sanctions and such report should be copied to the Dzongkhag Administration. In the event, the parties are not satisfied with the decision from

- such arrangements, the parties shall submit appeal to the Dzongkhag Administration directly with copies to the PMU and BTFEC.
- (b) Upon receipt of grievance appeal the Dzongkhag Dzingsel Tshokpa (Dzongkhag Dispute Resolution Committee) shall verify and investigate, if necessary, and render its decision within 15 working days. In the event, the parties are not satisfied with the decision of the Tshokpa, the parties shall submit appeal to BTFEC.
 - (c) Upon receipt of grievance appeal from the Dzongkhag, the BTFEC shall activate the Complaint Management Committee of BTFEC who will pursue face to face resolution or provide a mediated resolution in the case of administrative cases or refer to the Board of BTFEC in the case of major cases. Where the Board is not able to resolve the case, it shall be forwarded to the Anti-Corruption Commission of Bhutan by the BTFEC. The BTFEC shall verify and investigate and render its resolution within 15 working days.
 - (d) In the event, the parties are not satisfied with the decision of the Dzongkhag GRC, the parties can also alternatively submit their grievances to the Court of Law for further adjudication as per court procedures.

(5) Monitoring and Evaluation for GRM

The grievances should be monitored to track and assess the extent to which progress is being made to resolve them. The grievance data can be analyzed and evaluated to make policy and/or process changes to minimize similar grievances in the future. Record of each grievance submitted and its resolution should be considered as part of the progress reporting of the project activities.

J Disclosure of ESMP

The stakeholders of the project and affected communities will be informed about the ESMP requirements and the need for internalizing the environmental and social requirements in the design and implementation of the project activities. The ESMP document will be made available on the website of the GNHC, BTFEC and Dzongkhags of Dagana, Paro and Tsirang. Also, the hard copies will be made available at the PCU at GNHCS and the concerned Dzongkhag and Gewog Administrations. During the implementation of the project, activity-specific mitigation plans including gender actions plans should be disclosed to all stakeholders, including affected communities and Civil Society Organizations (CSOs). Disclosure should occur in a manner that is meaningful and understandable to the affected people for their consent.

Disclosure framework for ESMP related documents

Documents to be disclosed	Frequency	Where
ESMP document	Throughout the project period.	Websites of GNHC, Dzongkhags of Dagana, Paro, Tsirang and hard copy at GNHC, Dzongkhags and Administrations
Quarterly Progress Report by the Dzongkhags	Quarterly	PMU and Dzongkhags
Minutes of Formal Public Consultation Meetings	Within two weeks of meeting	Websites of GNHC, Dzongkhags of Dagana, Paro, Tsirang and hard copy at GNHC,
Semi-annual progress report by the SGE	Semi Annual	Websites of GNHC, Dzongkhags of Dagana, Paro, Tsirang and hard copy at GNHC

K: Terms of Reference for Safeguards and Gender Expert

POST TITLE: Safeguards and Gender Expert
PLACE OF POSTING: Project Management Unit

The job responsibilities will include but not limited to:

- Providing support in internalizing the environmental and social issues in the project's activity planning & design and to address the potential impacts as well as to promote good practices.
- Developing a set of planning and implementation tools and guidelines for training of the officials on environmental and social safeguard. These will be used for training and as reference materials for the field staff during implementation of project activities. The training could include providing basic knowledge and information on the key environmental and social issues associated with the project activities and in relation to the 15 ES principles of AF.
- Supporting the Dzongkhags in preparing their quarterly ESS and gender action plan implementation reports.
- Prepare semi-annual report on ESS and gender action plan implementation to the PMU and annual report to the Project Steering Committee
- Any other related tasks that are proactive in nature to minimize risks arising out of environmental social issues arising from the implementation of project activities.
- Update the project ESMP and GAP during first 6 month of project implementation

Qualifications and Experience:

- Master's degree in Environmental/Planning/Social Science
- The candidate should have at least 8 years of experience out of which two to three years of professional experience in preparation of Environmental Impact Assessments (EIA) and Environmental Management Plan (EMP) and well versed with national and local environmental regulations and compliance requirements including work experience in gender mainstreaming.
- Candidates having experience in projects assisted or funded by the AF shall be given preference
- Ability to interact with and motivate/guide stakeholder to carry out due diligence for environmental, social and gender activities.
- Candidates are expected to possess good written and verbal communication and analytical skills, with ability to work with interdisciplinary team.

L: List of participants at the stakeholder consultations

Consultation on Environment and social safeguards and Gender for project "Adaptation to Climate-Induced Water Stresses through Integrated Landscape Management in Bhutan" at Dagana from 14-15th April, 2021

Sl.No	Name of Participant	Designation	Agency	Email ID	Contact Number	Signature	
						Day 1	Day 2
1	Dorji	ACFO	BTSEC	dosjibhutan@gmail.com	17909870		
2	Uenwas Dor	Kana Lye	Kana	Uenwas20@gmail.com	17641374		
3	Kenelo Wangdi	Rape /m	Parasol	kenwangsdi@gmail.com	9921404		
4	Phul Mayankabou		Kana	-	77322225		
5	Gogzal		"//		17806254		
6	Chador	-	Kana	-	17830556		
7	Takhering Yagun	Adm Asst	Health	tyngam2015ty@gmail.com	1794243		
8	Passang Wangdi	Founder	Dagana	-	16906678		
9	Alina Tamang	-	Dagana	championablaing@gmail.com	17599067		
10	Nima D Tamang	KT	"//	delma.2019@gmail.com	17871023		
11	B.B. Tamang	FOCAL	Dagana	bblamang20107@yahoo.com	17688819		

Sl.No	Name of Participant	Designation	Agency	Email ID	Contact Number	Signature	
						Day 1	Day 2
12	Ganesh Kumar Gurung	LPO	DLS	gkumar@dagangor.bt	77203880		
13	N.B. Barmun	Off. Guide for Dugang	Dugang	nbarmun030@gmail.com	17462695		
14	Nguen Dorji	DRD	DES	ndorji@dagangor.bt	17396525		
15	Phusba	Group	Dago	phusba@dagangor.bt	17119161		
16	Grembo	Farmer	"	-	17659225		
17	Choki	"	"	-	17694005		
18	Songam Jantscho	AMD/Off. DDO	DDA	jantschosongam83@gmail.com	17567280		
19	Nidup Peljin	Consultant	BTFC	ceo@bpvibhutan.com	17111656		
20	Thinley Wangmo	BTFC	"	-	17311977		
21	Tangay Dorji	DEC	Dugang	tdorji@dagangor.bt	17601361		
22	Dorji Gyeltshen	Driver	BPV	Samdeeng89@gmail.com	17491956		

Sl.No	Name of Participant	Designation	Agency	Email ID	Contact Number	Signature	
						Day 1	Day 2
23	Pasang	Driver	BTFC	-	77779821		
24	Pema Wangmo	AA	BTFC	-	17966199		
25	Bichen Dorji	ARO	BTFC	-	17419048		
26	Duba	bashe Dzungda	Dagana	-	-		

Consultation on Environment and social safeguards and Gender for project "Adaptation to Climate-induced Water Stresses through Integrated Landscape Management in Bhutan" at Dagapela on 16th April, 2021

Sl.No	Name of Participant	Designation	Agency	Email ID	Contact Number	Signature
1	Namgap Felden	Lup.	Tashidag	npelden@dagangor.bt	17150511	
2	Dhachel Gurung	Group Leader	Lajab Gurung	dhachel@dagangor.bt	17762445	
3	Tamla	Group	Tsangkha	tamla@dagangor.bt	17532526	
4	Midup Dorji	Tshoppa	"	mdorji@gmail.com	17966493	
5	San Maya Pittachang	"	"	spittachang@gmail.com	17865820	
6	Khandar Singh (Farmer)	Lajab Gurung	Lajab Gurung	-	77717377	
7	Tobden Dorji	Tshoppa	Tashidag	-	17792959	
8	Amritke Dorji	public	Tashidag	-	17393624	
9	Phul Maya Gurung	Public	Lajab Gurung	-	17748182	
10	Sonan Thinley	Engineer	Ds. Adm. Daga	sthinley@dagangor.bt	17726119	
11	Nanggy Wangchuk	Engineer	Ds. Adm.	nwanpachuk@dagangor.bt	17479737	

Sl.No	Name of Participant	Designation	Agency	Email ID	Contact Number	Signature
12	Tandi	Gup	Gesri Gup	landi@degana.gov.in	1778008	
13	Dorji	ACFO	BTFEC	denjishan@degana.gov.in	17507627	
14	Nidup Peljor	Consultant	BTFEC	ceo@bpvibhutan.com	17161656	
15	Karna Tshing	Gup	D/SaaS	karnatshing@degana.gov.in	17758335	
16	Nangyal	"	Khabisa	nangyal@degana.gov.in	17686001	
17	Jantshu	Tshoskpa	D/SaaS	jantshu@degana.gov.in	17419609	
18	Nangyal	"	D/SaaS	nangyal@degana.gov.in	77736840	
19	Bal Bk Rao	T/Saas	T/Saas	balrao@degana.gov.in	17815177	
20	Sark Raj Rai	Gup	Dona	sarkraj@degana.gov.in	17773605	
21	Yeshi	Farmer	Khabisa	-	17792544	
22	Choden	"	"	-	17346722	

Sl.No	Name of Participant	Designation	Agency	Email ID	Contact Number	Signature
23	Kan Kumar	Farmer	Dona	-	77262295	
24	Shim Kumar	Farmer (car)	Rogak	-	17375067	
25	Gangji Maya Rai	Unemployed	Dona	mayarajgangji@gmail.com	97402499	
26	Sonam Jantshu	AMD/Off/DPO	DDA	jantshusonam@gmail.com	17569280	
27	B.B. Tamy	Farmer	Dona	bbtamy2107@gmail.com	17485619	
28	N.B. Binwa	Off. Gadejal	Dona	nblama03@gmail.com	17436268	
29	Bonds Pringy	Farmer	Tshadga	-	17573328	
30	Bonds Mangen	Farmer	Tshadga	-	77338818	
31	Rena Wangmo	Gup	Gesri Gup	renawangmo@degana.gov.in	17500972	
32	Tshanchu Zangpo	Farmer	Gesri Gup	-	77421727	
33	Tshering Dorji	"	"	-	77837253	

Sl.No	Name of Participant	Designation	Agency	Email ID	Contact Number	Signature
34	ICingmo Tabbay	Driver	Goshu	-	17603358	
35	Rinchen Wangdi	GAD	"	rwangdi@degana.gov.in	17341657	
36	Jamyang	DE	Dyagay	jamyang@degana.gov.in	17601361	
37	Shinley Wangdi	IT	BTFEC	-	17311577	
38	Rena Wangmo	AA	BTFEC	-	17966199	
39	Pasang		BTFEC	-		
40	Dorji Gyelchen	Driver BPV	BPV	sandag89@gmail.com	17491956	
41	Pema Decker	NFEI	Gozhi	-	77470515	
42	Rinchen Deme	AFO	BTFEC	-	17419048	
43	Juoni Dorji	Consultant	Gozhi	-	17383670	
44	Sonam Rinchen	Driver	Dyagay	-	17505844	

Sl.No	Name of Participant	Designation	Agency	Email ID	Contact Number	Signature
45	Jander Wangdi	Driver	Geysoling		17505586	
46	Purna Bdr. Shigke	Driver	Webka		17831268	
47	Dorja	Shaba Dzongda	Dzongda			

Environmental, Social and Gender Assessment for Proposed Project to Adaptation Fund on "Adaptation to Climate-induced Water Stresses through Integrated Landscape Management in Bhutan" in Paro Dzongkhags
Tsherin Resort, Paro, (20 April 2021)

Sl.	Name	Agency	Email	Contact No	Signature
1	Penla Zangmo	Dep. Shari Garrow Administration		17686494	
2	Phut Gyeltshen	11		17641170	
3	Gem Tling	Longway Garrow	gemtling1987@gmail.com	1766654	
4	Khangzong Kima	1882	tuangzongkima076@gmail.com	1773461	
5	Nido	Shaba Garrow		17999832	
6	Chencho Zangmo	Shaba Garrow		17685728	

7	Tshering Mangyan	Druckasia	Tshering Mangyan 1991@gmail.com	17410087	
8	Teshi Dorj	Agriculture Dep. Shari	Teshi Dorj teshi1505@gmail.com	17413924	
9	Chundu Tshering	Mangyan	chundu tshering 05@gmail.com	17777363	
10	Pelton	Xilaga Garrow	-	77208591	
11	Khato Dorj	Xilaga Garrow	-	17859645	
12	Uab Tshing	Dogar Garp	uabtshing27@gmail.com	17608309	
13	Chencho Gyeltshen	Shaba "	Gyeltshen E 012@gmail.com	17607281	

	Name	Agency	Email ID	Contact No.	Signature
15	Ringzi	Dogar Gewog		17521055	
15	Kuanga	Dogar Gewog		17607244	
16	Pema Dargyok	CDCL		17889332	
17	Passang Tshering	Langang	-	17608449	
18	Serum Tobgyal	Planning AMCO		7724855	
19	Ngawang Dorji	E.O.		17698864	
20	Passang Tshering	Farmco	-		
21	Nidup Pelw	BTFC/Chhulal	leo@bvtb.bt	17161651	
22	Thinley Wangeli	BTFC	thinley@bvtb.bt		
23	Yeshey Pelden	"	yeshey@bvtb.bt		
24	Singye Dorji	"	singye@bvtb.bt		
25	Phuntsho Chakren	"	phuntsho@bvtb.bt		
26	Rinchen Wangmo	"	rinchen@bvtb.bt		
27	Nani K. Shingelhar	"	nani@bvtb.bt		
28	Dorcho Dargyok	Pemo Dargyok			
29	Dorcho Dargyok	Pemo Dargyok			
30	Dorcho Dargyok	Pemo Dargyok			

Environmental, Social and Gender Assessment for proposed project to Adaptation Fund on "Adaptation to Climate-induced Water Stresses through Integrated Landscape Management in Bhutan" at Sarpang, 15th June 2021

Sl. No	Name	Designation	Name of Agency	Contact No.	Email Address	Signature
1	Phub Phonding	CFU	DTO, DTFB	17936526	phub@dtb.bt	
2	Lachumtso Rai	Sup, Sushu L G		17341040		
3	Tshering Dolkar	GAO, Sershaq Gershag		17813499	tsheringdolkar@gmail.com	
4	Yonten Dorji	GAO, Chhuzanggang		17689197	y.dorji@chhuzanggang.gov.bt	
5	Sangay Tshering	Sup, " Chhuzanggang		77767697	"	
6	Yeshe Wangmo	Panel Representative of gang				
7	Tshering Tempin	male Representative "		17941651		
8	Lungy Dorji	SUGAO	Singye	17776884		
9	Shawab Dorji	"	"	"		
10	Lhasing	WV	S/Singye	17887727	lhasing@chhuzanggang.gov.bt	
11	Blaj Raj Rai		Singye	17404474		
12	Suk Dorji	Sup, S/Singye	S/Singye	17756483	sukdorji@chhuzanggang.gov.bt	

Sl. No	Name	Designation	Name of Agency	Contact No.	Email Address	Signature
27	Tika Ram Gurung	CEO	S/Kha	17928358	tgurung@gmail.com	
28	Kiran Rai	Tshogpa	-11-	17879268	-	
29	Kirany Gurung	"	"	17803585	-	
30	Pema Tshewang	Farmer	Sershang	17727745	-	
31	Pelden Lhamo	"	"	17511635	-	
32	Pema Choed	GFP	D2 Admin	17445873	pchoed@sarpang.gov.bt	
33	Tshering Dorji APO	Sarpang		17546464	tsantien80@gmail.com	
34	Nidup Peljor	Consultant	BTFC	-	-	
35	Sangye Dorji	OC	"	-	-	
36	Dorji	ACPO	"	-	-	
37	Rinchen Wangmo	APSO	"	-	-	
38	Rinchen Dorji	AFO	"	-	-	
39	Pasang	Messenger	"	-	-	
40	Chandra	Driver (Sarpang)				

Sl. No	Name	Designation	Name of Agency	Contact No.	Email Address	Signature
41	Harka Rai	Geotag Driver	Shomphel	17753511	-	
42	Rinchen Dorji	Driver	Changrang Gewog	17715961	-	

Environmental, Social and Gender Assessment for proposed project to Adaptation Fund on "Adaptation to Climate-induced Water Stresses through Integrated Landscape Management in Bhutan" at Tasing from 9-11th June, 2021

Sl. no	Name	Designation	Agency/Gewog	Email Address	Contact Number	Signature		
						Day 1	Day 2	Day 3
1	Pema Sangye Dorji	CEO	BTFC	psangye@btfc.gov.bt	17930185			
2	Nas Bahadur Rai	CEO	Tsingtoed	nrain@tsingtoed.gov.bt	17822554			
3	Dimple Thapa	CFO	Tsingtoed Division	dthapa@norp.gov.bt	16901530			
4	Kama Wangmo	Planning Off	1 Dantling	kamawangmo@tsingtoed.gov.bt	17508179			
5	Tandin Tshering	Khopkha	Tsingtoed		17508357			
6	Tek Bahadur Rai	Tshogpa	Tsingtoed		17404289			
7	Tenzin Wangmo	Tshogpa	Tsingtoed		17261351			
8	Nidup Tenzin	Tshogpa	Seantapra		17965808			
9	Tshering Tenzin	SES III	Agriculture	tsheeringa@gnrc.gov.bt	17675370			
10	Chelun Dorji	RO	Tsingtoed	cedun84@gmail.com	17833877			
11	Gangnam Rai	Manager	Tsingtoed	gangnamrai87@gmail.com	17411599			
12	Nima Dorji	Geography	Tsingtoed	nimadorji21@gmail.com	17792618			
13	Dhendrup Tshering	Asst. Planning Officer	GNRC	dthering@gnrc.gov.bt	17908195			
14	Nidup Peljor	Consultant	BTFC	ceo@bnpb.com	17161656			

Sl. no	Name	Designation	Agency/Gewog	Email Address	Contact Number	Signature		
						Day 1	Day 2	Day 3
15	Soram Chamo	Farmer	Tsiranghe	-	17876203			
16	Tila Maya Subba	CSE	Tsiranghe	tila.maya@gmail.com	17870576			
17	Phuntsho Norbu	Farmer	Tsiranghe	-	17469780			
18	Kintu	CDE	DES/Tsirang	kintu@tsirang.gov.bt	7795251			
19	Dorji Wangdi	Assistant Secretary	Tsirang	dorji.wangdi@tsirang.gov.bt	17807474			
20	Shree	Shree	Shree	-	1724286			
21	Tshering Cham	shopkeeper	Tsiranghe	-	17426472			
22	Wangchuk	Gewog Caretaker	Tsirangtoe	-	17515202			
23	Dabzang Tshering	DTTO	Tsirang	haherng@tsirang.gov.bt	7766774			
24	Dorji Yeltshu	Assistant Secretary	Tsirang	dorji.yeltshu@tsirang.gov.bt	1712857			
25	Nurmay Kalden	Matron	Tsiranghe CS	nurmay.kalden@tsirang.gov.bt	17889802			
26	Yeshe	Principal	"	yeshe@tsirang.gov.bt	17686183			
27	Dawa Cheten	SAHA	Tsirephu	dawachen@tsirephu.gov.bt	17896262			
28	Singye	Driver	Tsirang	-	17908502			
29	Ugyen Chamo	PA	"	-	1781496			

Sl. no	Name	Designation	Agency/Gewog	Email Address	Contact Number	Signature		
						Day 1	Day 2	Day 3
30	Pema	Dzongda	Tsirang	pema@tsirang.gov.bt	17987818			
31	Namgay Dorji	Dzongrab	Tsirang	namgay.dorji@tsirang.gov.bt	17699248			
32	Dorji	ACFO	BTFC	-	7760616			
33	Rinchen Wangmo	ABO	BTFC	rinchen@btfc.gov.bt	-			
34	Rinchen Dawa	AFO	"	-	-			
35	Pasang	Driver	"	pasang@tsirang.gov.bt	-			
36	Dendup Tshering	AFO	Chute	dendup@chute.gov.bt	174005			
37	Daza	NFEI	Phuentechu	daza@phuentechu.gov.bt	77486720			
38	Chamo Choden	CSE (NCS)	Phuentechu	chamo.choden@phuentechu.gov.bt	17802709			
39	Monkumari Pradhan	Farmer	Phuntchu	-	17674360			
40	Budha moti Subba	Farmer	Dragatho	-	17256523			
41	Rinchen Ngazom	farmer	Norkuthang	-	17990200			
42	Hemlal Adhikari	Tshogpa	Tashichang	-	17467337			
43	Sor Dorji	Tshogpa	Tongshing	-	17424457			
44	Krishna Lal	Tshogpa	Puljorling	-	17667313			

Sl. no	Name	Designation	Agency/Gewog	Email Address	Contact Number	Signature		
						Day 1	Day 2	Day 3
45	Dorji Bha Mafelun	Tshogpa	Sungu	-	17779695			
46	Tulci Ram Khende	"	"	-	17585220			
47	Naine Singh Maysa	Driver	"	-	17325761			
48	Tika Maysa	Farmer	"	-	17578338			
49	Budhi Maysa	"	"	-	17427912			
50	Neymo	"	"	-	17942350			
51	Ankur Rodo Pradhan	Tshogpa	"	-	17650998			
52	Kidley Wangdi	Offg: GAO	"	kidley.wangdi@ga.gov.bt	17777306			
53	Pam Son Rin	Tshogpa	P/Ch	-	17474448			
54	Gomprel Subba	Tshogpa	"	-	17382708			
55	Samphe	matron	"	-	172241207			
56	Andip Wangdi	Principal	-	-	17995627			
57	Sangay Wangdi	SES II	-	-	17675212			
58	Chute Gye Holu	GAO	Phuntchu	-	17259721			
59	Rinchen Phuntshu	Driver	Dzongkhag	-	17615201			

Sl. no	Name	Designation	Agency/Gewog	Email Address	Contact Number	Signature		
						Day 1	Day 2	Day 3
60	Haman Subba	Co-ordinator	Phuentenchu Gewog	haman.subba@btg.gov.bt	77494166			
61	Tara Devi Chhetim	Sales executive	FCB, Phuentenchu	tara.chhetim@fcbbhutan.com	17411175			
62	Dawa Tshering Sherga	Driver	Phuentenchu, Gewog	shergadawa@btg.gov.bt	77297554			
63	Pasun Ram Darjee	Care-taker	Phuentenchu, Gewog		17976254			
64	Top Nanz Achung	Group, Samsang	Samsang, Gewog	nachung@btg.gov.bt	17618213			
65	Pem Dor Chelley	AG	Dzongkhag		17692372			
66	Indra Bala Korman	Tech I	Dzongkhag		17599017			
67	Shiva Lal Khasari	Group	Phuentenchu		17732839			
68	Thinley Phuntsho	Driver	Tsirangtoe		17529135			
69	Nim Dorji	COK	Tsirangtoe		17442537			
70	Tenzin Dorji	SF-R-II	Biray Division					

The following clearances and no objection letters have been obtained (documents available at BT FEC secretariat):

- M Environmental clearances and consent letters for the project activities at Thasa
- M1 Clearances for climate-resilient irrigation scheme at Lajab under activity 2.2.2
- M1.1. Environmental Clearance for Thasa irrigation channel, Lagyab Gewog, Dagana
- M1.2. Clearance from Bhutan Power Corporation for Thasa irrigation channel, Lagyab Gewog, Dagana
- M1.3. Cultural Clearance for Thasa irrigation channel, Lagyab Gewog, Dagana
- M1.5. Forestry Clearance from for Thasa irrigation channel, Lagyab Gewog, Dagana
- M1.6. Forestry Clearance from for Thasa irrigation channel, Lagyab Gewog, Dagana
- M2 Clearances for drinking water from Drakay Pangtsho source to Dopshari, Doteng and Shaba gewogs, Paro
- M2.1 Environment Clearance
- M2.2 Clearance from Paro airport
- M3 Clearances for drinking water from Balakha Source to Tsentog, Lamgong, Lungyni and Wangchang gewogs, Paro
- M3.1 Forest Clearance
- M4 Clearances for drinking water scheme of Phuentenchu, Semjong and Tsirangtoe
- M4.1 Environment Clearance
- M5 Clearances for establishment of climate- and disaster-resilient pressurized irrigation system for Ambithang, Drujeygang, Dagana
- M5.1 Forest Clearance
- M5.2 No objection letter from Thuenpa Puenzhi Community Forest Group
- M5.3 No objection letter from Tashi Dhargey Community Forest Group
- M5.4 Individual Consent letter from private land owners
- M6 Climate proofing of existing Budichu-Peteykha irrigation scheme
- M6.1 No Objection. Letter from Namleythang Farm road user groups
- M7.1 Individual consent from Pema Dorji
- M7 Climate proofing of existing Budichu-Peteykha irrigation scheme
- M7.2 Individual consent from Pema Choki
- M7.3 Individual consent from Tshering Wangmo