IFAD
Investing in rural people

Kingdom of Bhutan

Building Resilient Commercial Smallholder Agriculture (BRECSA)

Project Design Report

Main report and appendices

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Asia and the Pacific Division
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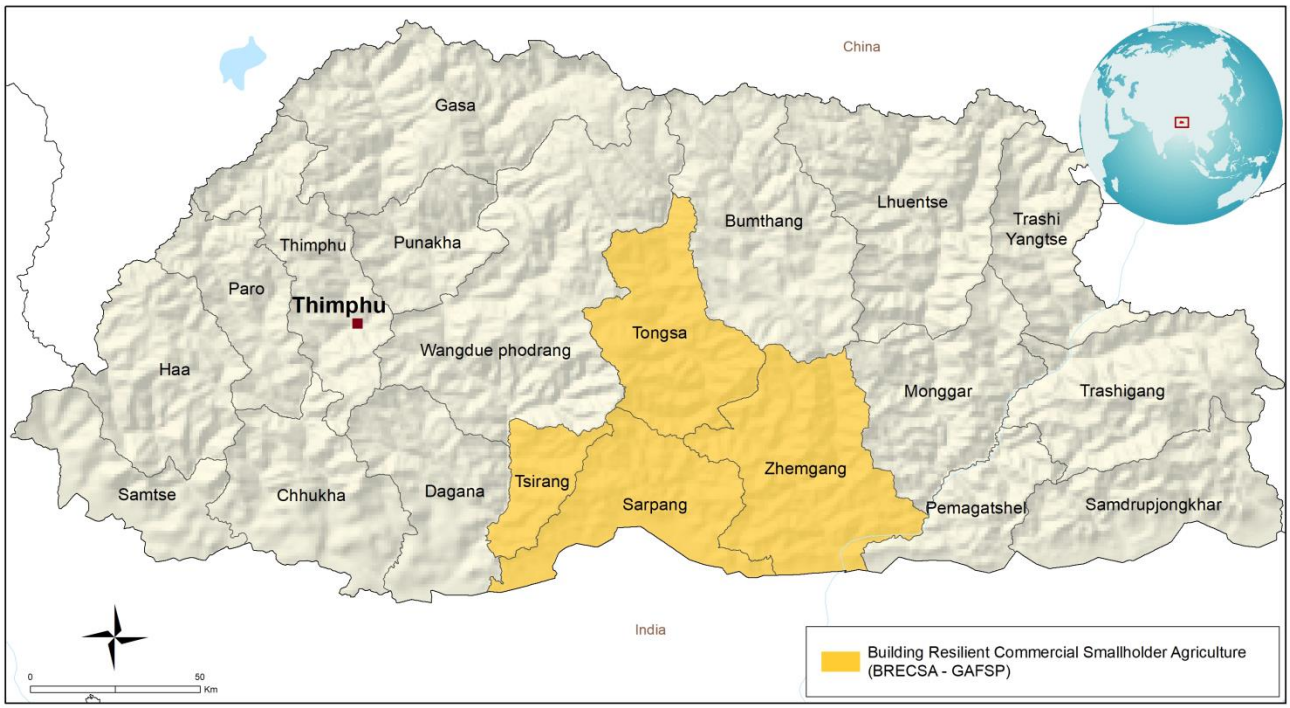
Map of Project Area



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The designations employed and the presentation of the material in this map do not imply the expression of any opinion whatsoever on the part of IFAD concerning the delimitation of the frontiers or boundaries, or the authorities thereof.

Map compiled by IFAD | 27-06-2022

Currency equivalents

Currency Unit	=	Bhutanese Ngultrum (BTN)
US$1.0	=	74,02 BTN

Weights and measures

1 kilogram	=	1000 g
1 000 kg	=	2.204 lb.
1 kilometer (km)	=	0.62 mile
1 meter	=	1.09 yards
1 square meter	=	10.76 square feet
1 acre	=	0.405 hectare
1 hectare	=	2.47 acres

Abbreviations and acronyms

ADB	Asian Development Bank
ARP	Agriculture Resilience Plan
ARDC	Agriculture Research Development Center
ASAP	Adaptation for Smallholder Agriculture Programme (IFAD)
BAFRA	Bhutan Agriculture and Food Regulatory Authority
BCC	Behaviour Change Communication
CAHW	Community Animal Health Worker
CARLEP	Commercial Agriculture & Resilient Livelihoods Enhancement Programme
CLEAR	Consolidated Livelihood Exercise for Analyzing Resilience
CSN	Country Strategy Note
DAMC	Department of Agricultural Marketing and Cooperatives
DoL	Department of Livestock
DVPA	Domestic Violence Prevention Act
ECP	Economic Contingency Plan
EI	Empowerment Indicator
EU	European Union
FAO	Food and Agriculture Organization
FCBL	Food Corporation of Bhutan Ltd
FEBL	Financial Education and Business Literacy
FG/FC	Farmer Group / Farmer Cooperative
FNS	Food and Nutrition Security Policy
FSAPP	Food Security and Agriculture Productivity Project
FY	Fiscal Year
FYP	Five Year Plan
GDP	Gross Domestic Product
GLOF	Glacial Lake Outburst Floods
GGG	Global Gender Gaps
GNH	Gross National Happiness
GNHC	Gross National Happiness Commission
HVC	High Value Crop
IEC	Information, Education, Communication
IFAD	International Fund for Agriculture Development
LED	Low Emission Development

LUC	Land Use Certificate
ITC	International Trade Centre
MCC	Milk Chilling Centers
MCH	Maternal and Child Health
MDD-W	Minimum Dietary Diversity for Women (MDD-W)
MoAF	Ministry of Agriculture & Forests
MoLHR	Ministry of Labour and Human Resources
MoF	Ministry of Finance
NCWC	National Commission for Women and Children
NGEP	National Gender Equality Policy
NNSAP	National Nutrition Strategy and Action Plan
NWFP	Non-wood Forest Products
UNDP	United Nations Development Programme
UNRC	United Nations Resident Coordinator
UNRCO	United Nations Resident Coordinator's Officer
PBAS	Performance-Based Allocation System
PMU	Project Management Unit
PPD	Policy and Planning Division
RAMCO	Regional Agricultural Marketing Cooperatives Office
REMP	Renewable Energy Master Plan
RgoB	Royal Government of Bhutan
RLDC	Regional Livestock Development Center
RNR	Renewable Natural Resources
SBC	Social Behaviour Change
SDG	Sustainable Development Goal
SJ	Sanam Jabjorpa (community supporters for ARP implementation)
SME	Small and Medium Enterprise
SO	Strategic Objective
TA	Technical Assistance
VAW	Violence Against Women
WB	World Bank
WFP	World Food Programme
YELP	Youth Engagement and Livelihood Program

Executive Summary

The Ministry of Agriculture and Forestry (MoAF) of the Royal Government of Bhutan (RGoB) requested IFAD and WFP to prepare a Concept Note for submission to the Sixth Call of the Global Agriculture and Food Security Program (GAFSP). On 6 December 2021, GAFSP approved a USD 13 million grant for the *Building Resilient Commercial Smallholder Agriculture* (BRECSA) concept note. IFAD is co-financing the project with USD 8.935 million as a fully blended project. IFAD is the Supervising Entity for Investment and the Lead Implementing Partner Agency, while WFP is the Supervising Entity for Technical Assistance and Implementation Support.

National Context:

Bhutan is a landlocked country with a land area of 38,394 km^2 and an estimated population of 787,501 in 2022. Bhutan´s main economic growth is driven by the industrial sector, mainly hydropower, which contributed to 17.77% of the GDP[1] in 2020. The agriculture sector however is currently the primary contributor to the economy and its contribution to GDP has increased from 14.78% in 2010 to 19.23% in 2020. Bhutan's economy was hit hard by the COVID-19 pandemic and experienced a GDP decrease in 2020 to USD 3,130 per capita[2] as compared to USD 3,419 in 2019. The dependency on food imports led to major food insecurity in the country as COVID-19 lockdown restrictions disrupted international supply chains, mainly affecting fresh produce distribution. As a result, in the aftermath of the COVID-19 pandemic, a key priority for the Government is rapid, yet sustainable economic recovery. To achieve that, the challenge remains for Bhutan to expand its economic base, support the development of a robust private sector capable of diversifying the economy and creating jobs, as well as make growth more inclusive, especially for unemployed youth and women.

Poverty: Bhutan has achieved impressive gains in reducing poverty, although progress on shared prosperity has recently slowed. The official national poverty rate declined significantly during 2007-17, from 23.2 percent to 8.2 percent. There is a substantial spatial variation in poverty within the country with poverty being almost exclusively rural. Poverty rates vary widely by district (Dzongkhag). While most districts have made steady progress in reducing poverty, as of 2017, it was still above 35 percent in Dagana and Zhemgang. Some of the districts with relatively high poverty rates are also geographically remote, making access to services and markets difficult. Most of the poor live in rural areas, are less educated, and work in agriculture.

Agriculture: The agriculture sector, comprising of farming, livestock and forestry, continues to be a major player in the country's economy. Subsistence farming is an integral part of the Bhutanese economy, with 69 percent of the total population living in rural areas and dependent on agriculture. The sector employs 51 percent of the population. Bhutan relies on import of over 50% of its total food consumption, especially cereals, fish and vegetables. It produces 61% of staple cereals consumed, and 47% of rice (WFP, Dec 2020). The average landholding in Bhutan is 3.7 acres (about 1.5 hectares). In 2019, agricultural landholdings in Bhutan covered a total area of approximately 250,000 acres (100,000 ha), of which about three quarters were cultivated and a quarter (or 66,000 acres) were under fallow. The main reasons for the high percentage of land under fallow are poor access to irrigation (34 percent), crop damage due to wildlife (25 percent), and labour shortages (19 percent).

Nutrition: Although 98 percent of households in Bhutan are food secure, dietary diversity within Bhutanese households is inadequate. Child malnutrition and mineral deficiencies persist, and the country faces an increase in obesity and chronic diseases among its population. Targeting food

[1] National Accounts Statistics 2021.

2 National Accounts Statistics 2021.

security alone is insufficient for improving nutritional status. In order to improve nutritional outcomes, there is a need to improve access to, and availability of, nutritious food to enhance dietary diversity through combining the income pathway with (i) diversified food production (nutrition sensitive value chain), (ii) enhanced nutrition awareness and food habits, and (iii) intensified linkages between local farmers and schools.

Climate Change: The principal climate risks for the project include: (i) higher intensity and variability of rainfall patterns leading to increased risk of floods, particularly riverine flooding caused by heavy monsoon rains and glacial melt; (ii) periodic droughts due to decrease of precipitation in dry season; (iii) increased incidences of new and existing pests and diseases; (iv) productivity and quality declines due to temperature and heavy rains; (v) and disruption of agri-value chains due to damaged roads and infrastructure caused by extreme climate events. Along with these, the predicted temperature increment has also some positive impacts on value chains including: i) creating opportunities of new vegetable and crop varieties in higher altitude; ii) increasing yields and an extension of the production seasons of vegetable and crops; and iii) favourable conditions for bees to collect more raw materials in extended production seasons resulting in increased honey production. The use of the Consolidated Livelihood Exercise for Analyzing Resilience (CLEAR) tool and Agriculture Resilience Plans (ARP) will enable the project to factor in climate resilience in value chain selection, production and marketing interventions. BRECSA will also contribute to Bhutan´s Nationally Determined Contribution (NDC) commitments (details in the SECAP Annex).

Women: Bhutan is ranked 130 out of 153 countries in the Global Gender Gap Report. Women in Bhutan perform 71 percent of unpaid domestic care work, which is 2.5 times more than men and their contribution as a share of GDP is 11 percent, while men's contribution is 5 percent. The unemployment rate in Bhutan stood at 3.4% in 2018, with 4.2% women unemployed against 2.7% men. The 2020 labour force survey of Bhutan highlights that 58.8 percent of women work in agriculture, forestry, and fishery, and that their work burdens are particularly heavy with the addition of household and community work requirements as well as the outmigration of men. Rural women are directly affected by the challenges associated with this sector in terms of low productivity, limited technology adoption, labour shortages, and poor market access. The low literacy of Bhutanese women, particularly in rural areas, further limits their access to information and markets. The proportion of female managers in cottage and small industries in all sectors is also considerably lower, suggesting constraints on their entrepreneurial activities.

Youth: Interest of Bhutanese youth in agriculture remains low. Agriculture is widely seen as laborious and precarious, and unremunerative when compared to other employment opportunities. They are more attracted to modernization and new practices, use of technology, and opportunities with quick return and relatively high earnings. The COVID-19 pandemic has however brought about new prospects for agriculture in Bhutan and changed some perceptions of the sector. The scarcity of urban employment opportunities left young people with no choice but to consider alternatives. With scarce opportunities in other sectors, agriculture has become one of the most viable employment options and an increasingly attractive choice for many young people regardless of their educational status.

Rationale and project targeting: BRECSA directly addresses systemic barriers in the agriculture sector, post-COVID-19 challenges and priorities identified in Bhutan's Renewable Natural Resources (RNR) Strategy 2030, the Food Self-sufficiency Policy, RNR Marketing Policy 2018, RNR Marketing Strategy 2021, the Food Systems Summit Pathways recommendations, Transformation of Agriculture through Crop Prioritisation 2022 (A strategy document for 2022-2027) and Bhutan's COVID-19 Economic Recovery Plan. BRECSA addresses the following common IFAD, WFP and GAFSP cross-cutting priorities: (i) gender and empowerment of women and girls (SDG5); (ii) climate resilience (SDG13); (iii) improved nutritional outcomes by achieving national food and nutrition security (SDG2); (iv) alleviating poverty (SDG1); (v) Create Decent Work and Economic Growth (8); and (vi) Reduce Inequality (SDG10). BRECSA also prioritises youth engagement and vulnerable populations, such as households with differently abled persons and women-headed

households. Sixty percent of BRECSA beneficiaries are women, including a minimum of five percent women-headed households and thirty percent are youth. Six hundred differently abled women, men and youth, constituting 25 percent of the population of differently abled persons in the target Dzongkhags will benefit from BRECSA interventions. Moreover, IFAD's Empowerment Indicator will be included in the baseline survey to measure Intrinsic agency, Instrumental agency and Collective agency to identify development obstacles and ensure empowerment and inclusion of women in the agricultural sector.

Project Goal and Objectives: The goal of BRECSA is to catalyze a 30% increase in resilient commercial agricultural production and improve food and nutrition security in the 4 target Dzongkhags by 2030. The development objective is to transform smallholder agriculture into inclusive and resilient agri-food systems that are increasingly profitable and food and nutrition secure. BRECSA will target subsistence, semi-commercial and commercial farmer households. The total direct beneficiaries of BRECSA interventions are 12,074 farmer households (47088 beneficiaries), out of which 60% will be women and 30% youth.

Geographic areas of intervention: The project will be implemented in the central and south-central Dzongkhags (Districts) of Sarpang, Trongsa, Tsirang and Zhemgang. The four project Dzongkhags are administratively further divided into Gewogs (Wards) and villages. There is a total of 37 Gewogs and 539 villages in the project target Dzongkhags. BRECSA will target all Gewogs within these 4 Dzongkhags. Zhemgang, Sarpang and Trongsa are among the poorer Dzongkhags of Bhutan. The Dzongkhag of Tsirang, contiguous to the three poorer Dzongkhags, has been selected for its high potential for the commercialization of agriculture

Value chain selection: The selection of value chains is based on agroecologically suitable commodities which have a comparative commercial advantage, market potential and private sector interest. The selection also took into consideration the additional benefit to youth and women, and household nutrition. The priority list of commodities includes: dairy, poultry, vegetables, mushrooms, ginger and turmeric. Flexibility will be needed to allow additional value chains (honey, oilseeds, green tea and other non-wood forest products (NWFPs)) to be included post the conclusion of the CLEAR analysis and formulation of ARPs, as new opportunities may arise and adjustments may be required due to changing market dynamics. This targeted value chain approach, coupled with the development of cluster hubs, will promote the emergence of new private sector operators and strengthen existing ones.

Project components: The project will be structured around three inter-connected technical components: Component 1: Resilient production systems; Component 2: Strengthened value chain coordination and market linkages; Component 3: Innovative and competitive agri-food sector. A fourth component will cover Project Management, Monitoring and Evaluation, and Knowledge Management.

Component 1: Resilient production Systems

Sub-component 1.1 - Consolidated Livelihood Exercise for Analyzing Resilience (CLEAR):

The "CLEAR" tool will be deployed to map out the spatial and temporal impacts of climate change and their anticipated impacts on women and men smallholder farmers and rural communities with risks and impacts disaggregated by gender. This exercise will inform how food security is affected by climate risks. The CLEAR diagnostics will enable climate resilient spatial and temporal planning for placing commodities in their appropriate agroecological zone. Furthermore, it will facilitate identification of specific climate-resilient infrastructure needs as a response to anticipated climate impacts and selected commodity value chains. The resulting analysis and recommendations of CLEAR will guide the formulation of Gewog and Dzongkhag level ARPs.

Sub-component 1.2 - Gewog and Dzongkhag Agriculture Resilience Plans (ARPs):

Drawing on the analyses of the CLEAR exercise, ARPs will be developed for all Gewogs in the 4 target Dzongkhags. The Gewog level ARPs will be aggregated to develop a Dzongkhag level ARP.

The ARPs will be developed in a participatory manner bringing together smallholder farmers, aggregators, traders, processors, potential investors, other value chain actors and relevant Gewog and Dzongkhag personnel, ensuring fifty percent participation of women. Among other strategic elements, the ARPs will enable downscaling the CLEAR analysis to identify the geographic and site-specific exposure and vulnerability to anticipated climate impacts and to articulate the targeted support required for the 3 household groups (subsistence, semi-commercial and commercial). The ARPs will include identification of resilient crop varieties, spatial and temporal planning of cropping zones per selected crop, identification of agroecological practices, identification of suitable post-harvest management, logistics and climate-resilient infrastructure needs and value addition facilities, and other climate change adaptation measures (erosion control, flood / land-slide protection, water-saving technologies, water harvesting and storage facilities etc.) as per the specificities of each Gewog. The ARPs will provide the required information for developing tailored packages of agroecological production inputs, technologies and practices that meet the needs of the 3 household groups. The ARP priorities will be integrated into the Gewog and Dzongkhag annual work plan and budget and the activities relevant to BRECSA will be funded through the project together with RGoB, beneficiary and private sector co-financing. It is expected that ARP priorities not funded by BRECSA will be picked up by the regular RGoB budget. Furthermore, it is anticipated that PPD will present unfunded ARP priorities to other interested donors and NGOs working in the target Dzongkhags for financing.

Sub-component 1.3 – Support to vulnerable groups to improve income and nutrition status:

Within the ARPs, a specific intervention package will be articulated for the subsistence group. Under this sub-component, the principle of 'leaving no one behind' will be followed. In this regard, customized support will be provided to vulnerable households - including women-headed households and households of persons with disabilities. Livelihood Investment Plans will be developed and implemented through a process that enables participants to engage in critical self-reflection and setting of self-defined goals and strategies. The project will improve the nutritional status of these households by promoting nutrition-sensitive agriculture interventions such as, home gardens, small-scale poultry production, selected on-farm and off-farm activities, and awareness raising on food-based nutrition. The project will also contribute to graduating these households from subsistence to semi-subsistence by providing them with necessary production and post-harvest support, capacity building, inclusion in cooperatives and market linkages.

Sub-component 1.4 - Investment in commercial farming systems:

Under this sub-component, the creation of "Hubs" as production zones for the different BRECSA prime commodities will be undertaken. The Hubs will be centered along main arteries and economic corridors and will be designed using permaculture farming principles for promoting climate resilient agroecological farming. Neighbouring farmers will be organised into a network of Farmer Groups or Cooperatives (FG/FCs) and linked to the Hubs. BRECSA will support the establishment of at least 4 youth-led Hubs per Dzongkhag (16 in total). Each Hub will have a maximum of 10 youth, ideally an equal mix of male and female. For operationalising the above-described Hub and network model, a number of technical assistance (TA) activities will be undertaken to capacitate the different actors engaged in commodity production. The TA will cover permaculture, financial education and business literacy (FEBL), as well as strengthen the institutional capacities of farmer groups and cooperatives. The project will invest in enhancing productivity of the following value chains, dairy, poultry, high value commodities (vegetables, ginger, turmeric, mushrooms, honey, etc.). To support sustainable and climate-resilient farming systems, BRECSA will also invest in land and soil management, as well as in climate-resilient productive infrastructure, including irrigation, fencing and greenhouses, among others.

Component 2: Strengthened Value Chain Coordination and Market Linkages

Sub-component 2.1 - Enhancing efficiency of value chain operations:

This sub-component will apply an integrated value chain approach, defining interventions in all value chain functions from input supply, production, aggregation and storage, processing, to defining marketing channels, and export. BRECSA will support agricultural commercialization within the established Hubs through funding of aggregation facilities, and on-site small-scale processing facilities equipped with washing, grading, packing and storage. The Hubs will be supported with training and serve as a Farmer Field School for the adjacent network of farmers for building knowledge on agroecological farming. Based on demand, the Hubs will serve as an input distributor for provision of seed and vegetative planting material, bio-inputs, and minor tools to the farmer network. The Hubs will also serve as an aggregation point for the farmer network to deliver their produce based on a guaranteed minimum price and profit sharing. Additional processing and marketing facilities will also be supported and strategically located based on the CLEAR analysis and Dzongkhag ARPs. All construction related to processing and marketing facilities will be preceeded with a feasibility study, detailed supply chain and economic and financial analysis, and business plan.

Sub-Component 2.2 - Business linkages and multi-stakeholder platforms:

BRECSA will facilitate the establishment and functioning of sub-sector specific multi-stakeholder platforms (MSPs) to support business development and commercialisation at Thimphu and Dzongkhag levels. These MSPs will bring together all relevant stakeholders that engage in the agricultural sector including representatives of women and youth. The MSPs, in partnership with relevant departments and agencies, will work to establish market linkages for farm produce for both the domestic and export markets. MSPs will also engage in investment planning to attract potential financiers into the sector. Based on the initial value chain analysis and defined investment strategies, a Strategic Investment Plan (SIP) will be prepared for each selected commodity. The SIP will provide a framework for inviting farmers and their groups, entrepreneurs, the government, development projects, private investors and service providers to co-invest in the project area, thus facilitating access to markets, knowledge, technology and capital for smallholder rural farmers.

Component 3 – Innovative and competitive agri-food sector:

Sub-component 3.1 - Access to financial services:

This sub-component will enhance access to and usage of agricultural financial services and value chain financing for smallholder farmers, farmer groups, cooperatives, aggregators, traders, processors and other value chain actors. The project will coordinate with financial institutions to establish working relationships, generate understanding of the project's approach for routing 'matching grants' based on a tri-partite arrangement between the project, financial institution and FG/FCs. Furthermore, BRECSA will support farm households, FG/FCs and enterprises to improve their financial literacy, entrepreneurial skills and business knowledge to improve their financial habits, financial discipline and investment decisions.

Sub-component 3.2 - Digital technologies to support marketing:

The project will assess existing farmer-support digital tools, their shortcomings and current needs of farmers for developing a user-friendly tool/platform. The tool could tackle issues related to: (1) production and pricing in different locations, (2) commodity demand in different markets, (3) transportation (to link farmers and traders with transport service providers for transporting produce), and (4) any other functionalities under the above four areas identified during the assessment.

Sub-component 3.3 - Policy dialogue:

This sub-component will undertake policy dialogue to support the promotion of Brand Bhutan's organic and high-value agri-food products in regional and international markets. To this end, the Project will support the Bhutan Agriculture and Food Regulatory Authority (BAFRA) in the

development of a geographic indication (GI), as well as, provide needed investments for regulation, standardization and certification. BRECSA will also work with the Department of Agriculture Marketing and Cooperatives (DAMC) to revise the rules and regulations of the Cooperative Act and marketing guidelines and strategies that foster agri-food commercialization.

Environment and social category and Climate risk classification: The proposed environmental and social category for BRECSA is moderate, based on the SECAP screening tool. The Project will not impact on any sensitive areas or result in loss of natural habitat and biodiversity. As per the SECAP screening tool, the climate risk category of the project is determined as moderate.

Project management and coordination:
The MoAF - and through the Policy and Planning Division (PPD) - will be the executing agency of the project and the formal counterpart to IFAD and WFP. It will provide overall implementation support and oversight, policy guidance and direction, second technical staff from the MoAF pool of civil servants for implementation, and provide technical backstopping through line departments and agencies in the field. A Project Management Unit (PMU) will be established at the Agriculture Research and Development Center (ARDC) Smartening in Sarpang. The PMU is the primary implementation arm of the project for delivery of all Gewog and Dzongkhag level activities. The PMU will be led by a Project Director (PD) who will lead and oversee the overall implementation of the project at the Gewog and Dzongkhag levels, including WFP technical assistance activities, and support the policy aspects of the project. He/she will manage the PMU team for delivery against performance indicators. The PD will report to the PPD.

Project costs

Project costs by component and financier - (Thousands of United States dollars)

	RGOB Contribution		GAFSP grant (WFP)		GAFSP grant (IFAD)		IFAD loan		Financial Institutions		Beneficiaries		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
1. Resilient Production Systems	271.6	1.8	1,975.2	12.9	6,753.2	44.2	906.2	5.9	-	-	5,361.3	35.1	15,267.5	50.8
2. Strengthened Value Chain Coordination and Market Linkages	244.6	3.5	326.2	4.6	2,583.0	36.6	3,416.8	48.5	-	-	480.0	6.8	7,050.5	23.5
3. Innovation and Competitive Agri-food Sector	137.4	3.5	132.7	3.4	1,063.8	27.4	1,374.6	35.4	704.8	18.1	469.9	12.1	3,883.1	12.9
4. Project Management, Monitoring and Evaluation, and Knowledge Management	459.8	11.9	166.0	4.3	-	-	3,237.4	83.8	-	-	-	-	3,863.2	12.8
Total project costs	1,113.4	3.7	2,600.0	8.6	10,400.0	34.6	8,935.0	29.7	704.8	2.3	6,311.2	21.0	30,064.4	100.0

1. Context

A. National context and rationale for IFAD involvement

a. National Context

1. Bhutan is a landlocked country with a land area of 38,394 km^2 and an estimated population of 787,501 in 2022. Bhutan has been a constitutional monarchy since 2008 and is famous for its unique philosophy - Gross National Happiness (GNH) - that guides its development strategy and enables it to balance economic development with the preservation of its natural environment and cultural traditions. Bhutan´s main economic growth is driven by the industrial sector, mainly hydropower, which contributed to 17.77% of the GDP[3] in

[3] National Accounts Statistics 2021.

2020. The agriculture sector however is currently the primary contributor to the economy and its contribution to GDP has increased from 14.78% in 2010 to 19.23% in 2020.

2. Bhutan's economy was hit hard by the COVID-19 pandemic and experienced a GDP decrease in 2020 to USD 3,130 per capita[4] as compared to USD 3,419 in 2019. The economy contracted by 1.2 percent in FY20/21. Services sector output fell by 3.6 percent, as the tourism industry remained closed. The hydro sector supported industrial sector growth, while construction and manufacturing were adversely affected by labor shortages and high input prices. On the demand side, private consumption contracted due to domestic COVID-19 containment measures and lower incomes. Average inflation increased from 3.0 percent in FY19/20 to 8.2 percent in FY20/21. In the aftermath of the COVID-19 pandemic, a key priority for the Government is rapid, yet sustainable economic recovery. To achieve that, the challenge remains for Bhutan to expand its economic base, support the development of a robust private sector capable of diversifying the economy and creating jobs, as well as make growth more inclusive, especially for unemployed youth and women.[5]

3. Being a landlocked country that is import dependent, the war in Ukraine has also taken its toll on Bhutan. The main impacts can already be observed, especially in terms of fuel prices and the consequent impact on tourism and transport of goods. Prices of other main commodities have also increased. Bhutan, for example, imports almost all its cooking oil from India, while India in turn imports 90 per cent of its sunflower from Ukraine and Russia. The disruption in trade and speculation of shortage is driving prices higher, which is having major repercussions on the poor and vulnerable.

4. BRECSA is informed by the analysis undertaken during the preparation of Bhutan's Pathways for the UN Food Systems Summit 2021, the RNR Strategy 2040 and its latest revision – RNR Strategy 2030 (final draft), specifically with regard to engagement of the private sector. The main reasons for low engagement of the private sector include inefficient supply chains, lack of linkages between value chain segments, lack of access to finance especially for value chain actors such as aggregators, transporters, processors, and traders. These are key areas that BRECSA is focusing on. In particular, market development, youth and private sector engagement, establishment of regional processing hubs for value addition of farm produce, and import substitution of processed products will be undertaken to support the implementation of the RNR Strategy 2030.

5. **Poverty:** Bhutan has achieved impressive gains in reducing poverty, although progress on shared prosperity has recently slowed. The official national poverty rate declined significantly during 2007-17, from 23.2 percent to 8.2 percent. Extreme poverty ($1.90 per day) has been almost eradicated. However, growth in per capita consumption of the bottom 40 percent slowed in the five-year period ending in 2017 (2012-17), falling to 1.6 percent annually during that period, down from 6.5 percent annually during the previous period of 2007-12. At the same time, per capita consumption for the entire population grew 2.3 percent in 2012-17. While most districts have made steady progress in reducing poverty, as of 2017, it was still above 35 percent in Dagana and Zhemgang. Some of the districts with relatively high poverty rates are also geographically remote, making access to services and markets difficult. Most of the poor live in rural areas, are less educated, and work in agriculture. In 2017 the urban poverty rate was only 1.6 percent, in stark contrast to the 17.4 percent rate in rural areas, where over 90 percent of the poor live. Almost 80 percent of the poor, compared to 60 percent of those not poor, have no education. About two-thirds of the heads

4 National Accounts Statistics 2021.
5 The World Bank in Bhutan: Bhutan At A Glance https://www.worldbank.org/en/country/bhutan/overview#1

of poor households work in agriculture, compared to only about a third of non-poor household heads.[6]

6. **Agriculture:** The agriculture sector, comprising of farming, livestock and forestry, continues to be a major player in the country's economy. Subsistence farming is an integral part of the Bhutanese economy, with 69 percent of the total population living in rural areas and dependent on agriculture. The sector employs 51 percent of the population[7]. Availability of arable land in Bhutan is a key constraint to agricultural development. Of the total land area of the country, 71 percent is under forest cover, around 8% is agricultural land (with only about three percent being cultivated), seven percent is under year-round snow and glaciers, and meadows and pastures occupy four percent. The remaining land is barren, rocky or scrubland[8]. Bhutan relies on import of over 50% of its total food consumption, especially cereals, fish and vegetables. It produces 61% of staple cereals consumed, and 47% of rice (WFP, Dec 2020). The dependency on food imports led to major food insecurity in the country as COVID-19 lockdown restrictions disrupted international supply chains, mainly affecting fresh produce distribution[9]. The Food Corporation of Bhutan Limited (FCBL) imports certain food grains and essential food items, operates wholesale and storage facilities, and distributes food nationally. In remote areas where private shops are unavailable, FCBL also operates farm shops that sell essential items. However, the bulk of food commodities produced nationally and those that are imported, are distributed and sold by private commercial operators, albeit in an ad hoc manner.

7. In relation to agricultural inputs, the government's main role is facilitation and provision of subsidies and incentives. The actual distribution, selling and supplying of most inputs are done by private enterprises. There are no government operated network of supply depots. Smallholder farms still face difficulties in getting adequate access to farm machinery, seeds, fertilizers and other farm inputs. The draft RNR Strategy 2030 proposes establishing a dedicated one-stop 'agri-solution outlet' in every district engaging interested private entities. Such outlets would provide all farm related inputs and machinery.

8. The key challenge for Bhutanese small-holder farmers are the limited yields resulting from water shortage, crop damage by wild animals, low level of mechanization, labour shortages, limited post-harvest and processing facilities and inefficient linkages to markets. As a response to COVID-19, the Royal Government of Bhutan (RGoB) elaborated the Economic Contingency Plan (ECP 2020), which prioritized the need to increase national food self-sufficiency. This led to an increase in production of a few agriculture commodities and livestock products thus demonstrating the potential for scaling up.

9. The average landholding in Bhutan is 3.7 acres (about 1.5 hectares). In 2019, agricultural landholdings in Bhutan covered a total area of approximately 250,000 acres (100,000 ha), of which about three quarters were cultivated and a quarter (or 66,000 acres) were under fallow. The main reasons for the high percentage of land under fallow were poor access to irrigation (34 percent), crop damage due to wildlife (25 percent), and labour shortages

[6] World Bank, Country Partnership Framework for the Kingdom of Bhutan for the period 2021–24.
7 National Statistics Bureau, Labour Force Survey, Bhutan,2019.
8 12th Five Year Plan 2018-2023
[9] RGoB, UNDP, 2020. Rapid Socio-Economic Impact Assessment of COVID-19 on Bhutan's Tourism Sector

(19 percent)[10]. Low soil fertility, conversion to other land uses, rotation practices and distance between the land and the home were also cited.

b. Special aspects relating to IFAD's corporate mainstreaming priorities

10. **Nutrition**: Bhutan is at the crossroad of a triple burden of malnutrition with undernutrition, micronutrient deficiencies, and overweight/obesity. Although 98 percent of households in Bhutan are food secure, dietary diversity within Bhutanese households is inadequate. Child malnutrition and mineral deficiencies persist, and the country faces an increase in obesity and chronic diseases among its population. This indicates that food security is not enough for a healthy nutritional status. The traditional Bhutanese diet mainly consists of cereals (predominantly rice) and the consumption of fruits and vegetables is low. Overall food demand in Bhutan is expected to increase by 46 percent by 2025, compared to 2007. The demand will increase the most rapidly for food taken outside the home, such as packed and processed food and sugary drinks, resulting in an additional increase in overweight and obesity. Thus, targeting food security alone is insufficient for improving nutritional status. In order to improve nutritional outcomes, there is a need to improve access to - and availability of – nutritious foods to enhance dietary diversity through combining the income pathway with (i) diversified food production (nutrition sensitive value chain), (ii) enhanced nutrition awareness and food habits, and (iii) intensified linkages between local farmers and schools.

11. **Climate Change:** With a fragile mountainous ecosystem and high reliance on climate sensitive sectors such as hydropower and agriculture, Bhutan's economy is particularly vulnerable to the adverse impacts of climate change[11]. Moreover, the country is also exposed to hazards such as flash floods, including glacial lake outburst floods (GLOFs), forest fires, storms, and landslides[12]. The impact of flooding on human health and livelihoods is expected to grow and could amount to 4% of GDP by the 2030s (ADB). Major crops are mostly rainfed or dependent on rain charged spring waters and streams. A more erratic rainfall pattern in the dry season has been directly impacting both availability and amount of irrigation water. Smallholders are facing seasonal water shortage and the drying out of water sources is posing a further threat to agriculture and livestock[13]. Other impacts of climate change include extreme conditions such as long spells of dry season, unusually heavy monsoon rains, extreme hailstorm events, and outbreak of pest and disease incidences. The shift of agroecological zones altitudinally however provides new opportunities. Most villages across Bhutan are highly vulnerable to climate impacts, and have low adaptive capacity attributed to their limited resource base and precarious socio-economic status[14].

12. **Women**: According to the Global Gender Gap Report 2021, Bhutan is ranked 130 out of 153 countries (previously ranked 122 in 2018). Bhutan scored highly in key areas such as educational attainment, however with few women in parliament and ministerial positions, Bhutan ranked low in political empowerment. In general, traditional beliefs have not restricted women's involvement in agriculture, household decision-making, and property inheritance, but their activities outside the community are less tolerated, especially in rural areas. However, social perceptions and behavior related to gender-specific roles vary along regional

10 Food and Agriculture Organization of the United Nations and the French Agricultural Research Centre for International Development and the European Union Rome, Montpellier and Brussels, 2022, FOOD SYSTEMS PROFILE - BHUTAN Catalysing the sustainable and inclusive transformation of food systems.
11 Bhutan's Second Nationally Determined Contribution
12 Climate Risk Country Profile: Bhutan (2021): The World Bank Group and the Asian Development Bank
13 Bhutan's third national communication, Vulnerability and adaptation assessment report
14 GNHC . (2017). Strategic Program for Climate Resilience under the Pilot Program for Climate Resilience. Climate-Resilient and Low-Carbon Sustainable Development Toward Maximizing the Royal Government of Bhutan's Gross National Happiness. Gross National Happiness Commission, RGoB

lines, with the patrilineal system dominant in southern areas. Powerful gender norms still dictate that child care and most household chores are women's responsibility. Women in Bhutan perform 71 percent of unpaid domestic care work, which is 2.5 times more than men and their contribution as a share of GDP is 11 percent, while men's contribution is 5 percent.[15]

13. The unemployment rate in Bhutan stood at 3.4% in 2018, with 4.2% women unemployed against 2.7% men. Overall, women's earnings average only about 75 percent of men's, with some differences attributable to gaps in education and occupational segregation. Women have much lower participation in regular paid employment (18.4% as compared to 33.0% for men) and a more substantial engagement in the agricultural sector.[16] The 2020 labour force survey of Bhutan highlights that 58.8 percent of women work in agriculture, and that their work burdens are particularly heavy with the addition of household and community work requirements. Rural women are directly affected by the challenges associated with this sector in terms of low productivity, limited technology adoption, labour shortages, and poor market access.

14. There is a rising trend of feminization of agriculture in Bhutan resulting from outmigration of men and male youth seeking off-farm employment. Work burdens are particularly heavy for women given their responsibilities as the primary caregiver of the household, manager of the farm, and engagement in community support work. The loss of soil fertility and forest degradation have increased the time for fuelwood collection by women[17]. Furthermore, impact of climate change on production places women in a precarious economic position. This translates into vulnerable livelihoods and high drudgery for women farmers. The low literacy of Bhutanese women, particularly in rural areas, further limits their access to information and markets. BRECSA seeks to address these specific challenges experienced by women through a number of interventions, such as access to to small machinery and tools for agricultural and post-harvest processing, financial education and business literacy, and membership in cooperatives, to name a few.

15. **Youth:** Young people in Bhutan are widely considered as the backbone for future prosperity of the country. Bhutan´s population is predominantly young, with 60% below the age of 25 years[18]. The literacy rate of youth between 15-24 years is estimated at 93% with the rate being lower for rural youth at 91% than it is for urban youth at 97%. The overall youth unemployment rate in 2021 was 20.9% and out of the total unemployed youth, about 38.6% were males and 61.4% were females. Youth unemployment is almost double in urban areas (28.6%) compared to rural areas (15.8%).[19] The most prominent causes of unemployment among Bhutanese youth is the mismatch of supply and demand of skills, followed by the youths' preference for office jobs over physical and manual labour, limited absorption capacity in the job market, and lack of family support while unemployed. Age, gender, skills, migration, disability, educational attainment, sector preference, and youths' location in relation to the Dzongkhag he/she resides are all significant factors in explaining the difference in youth unemployment in Bhutan[20]. Educated youth prefer to migrate to urban areas and civil service jobs are highly prized. It is difficult to attract educated youth to take up conventional farming, as conventional farming is seen as a labour intensive and a physically demanding job without secure and promising prospects[21]. Some of the reasons cited by young people for not taking up agriculture-related employment are crop loss, lack of resources,

15 ADB, Accounting for Unpaid Work in Bhutan, 2019
16 Labour Force Survey, Bhutan 2020.
17 UNDP, Gender Assessment Bhutan, 2019.
18 Young People – UNFPA, Bhutan.
19 Labour Force Survey, 2021
20 Determinants of Youth Unemployment, National Statistics Bureau, June 2020.
21 Dentrup, T. (2018). Agriculture transformation in Bhutan: From peasants to entrepreneurial farmers. Asian Journal of Agricultural Extension, Economics & Sociology, 1-8.

parental pressure and relatively less access to technical and financial support. The views of young people, especially those who have dropped out of the education stream as well as those who are unemployed in rural areas, suggests that with adequate technical and financial support, mechanization of agriculture, regular mentoring, easing access to finance and developing profitable, sustainable models of farming, agriculture can be made attractive to young entrepreneurs. [22] An initial Youth Engagement Strategy was developed at design stage and will be further refined during start-up. One of the key aims of BRECSA is to increase youth engagement in both on- and off-farm employment.

22 Tshering Pelzom and Om Katel, Youth Perception of Agriculture and potential for employment in the context of rural development in Bhutan, Development Environment and Foresight, 2017, Vol. 3, No. 2, 92—107, ISSN: 2336-6621

Table 1. Mainstreaming theme eligibility criteria

	☒ **Gender transformational**	☒ **Nutrition sensitive**	☒ **Youth sensitive**	☐ **Climate finance**
Situation analysis	☒ National gender policies, strategies and actors ☒ Gender roles and exclusion/discrimination ☒ Key livelihood problems and opportunities, by gender	☒ National nutrition policies, strategies and actors ☒ Key nutrition problems and underlying causes, by group ☒ Nutritionally vulnerable beneficiaries, by group	☒ National youth policies, strategies and actors ☒ Main youth groups ☒ Challenges and opportunities by youth group	
Theory of change	☒ Gender policy objectives (empowerment, voice, workload) ☒ Gender transformative pathways ☒ Policy engagement on GEWE[23]	☒ Nutrition pathways ☒ Causal linkage between problems, outcomes and impacts	☒ Pathways to youth socioeconomic empowerment ☒ Youth employment included in project objectives/activities	

Logframe indicators	☒ Outreach disaggregated by sex
	☒ Women are >40% of outreach beneficiaries
	• IFAD empowerment index (IE2.1)
		☒ Outreach disaggregated by sex, youth, indigenous peoples (if appropriate)
		• Output level Cis
		  ○ CI 1.1.8 Mandatory
		• Outcome level Cis (at least one of below)
		  ○ CI 1.2.8
		  ○ CI 1.2.9
			☒ Outreach disaggregated by sex and youth	

Human and financial resources	☒ Staff with gender TORs ☒ Funds for gender activities ☒ Funds for IFAD empowerment index in M&E budget	☒ Staff or partner with nutrition TORs ☒ Funds for nutrition activities	☒ Staff with youth TORs ☒ Funds for youth activities	

[23] Gender Equality and Women's Empowerment

c. Rationale for IFAD involvement

16. BRECSA directly addresses systemic barriers in the agriculture sector, post-COVID recovery, and priorities identified in Bhutan's RNR Strategy 2030, the Food Self-sufficiency Policy, the Food Systems Summit Pathways document and Bhutan's COVID-19 Economic Recovery Plan. These policies call for Bhutan to "Build Back Better" in ways that contribute to economic and social recovery while also meeting the Country's Nationally Determined Contributions under the United Nations Framework Convention on Climate Change (UNFCCC).

17. The RGoB and IFAD have a partnership of over 40 years, which includes investments in 8 projects for a total cost of US$ 114.48 million, with over US$ 70 million of IFAD financing, benefiting around 122,000 households. IFAD is the most important development partner of the Royal Government of Bhutan (RGoB) in the Eastern Region. IFAD has worked with smallholder farming communities in some of the most remote areas of the country and has a comparative advantage in helping them to address some of their key challenges and constraints relevant to poverty reduction and agricultural development. The main priorities that IFAD will address through the implementation of BRECSA include: enhancing agricultural productivity and creating an enabling environment for smallholder commercialization; promoting youth involvement in the agricultural sector by facilitating access to land and finance; development of youth agri-businesses; fostering opportunities for vulnerable households to improve livelihoods and food and nutritional security; addressing the impacts of climate change; enhancing governance structures of farmers and their groups and transform them into business entities capable of driving this transformation; as well as challenges related to promoting internal and export marketing.

18. IFAD will adopt an inclusive value chain development approach to address the gap between producers, traders and consumers that pose a challenge to the sustainability and resilience of Bhutan's food and farming systems. The project will focus on creating a competitive agri-business sector through enhancing productivity, access to markets, and fostering private sector enterprises, especially to promote the inclusion of women and youth.

19. BRECSA promotes agroecological approaches and technologies to reduce food and nutritional insecurity and vulnerability of rural communities to the anticipated impacts of climate change. Through the CLEAR tool and a participatory identification of current and anticipated climate change impacts on local livelihoods, production systems, and markets, the project will enable government, farmers, and private sector actors to develop tailored solutions that respond to farm level needs and market-access related blockages. The project prioritizes investments in productive climate-resilient infrastructure that contributes to inclusive food system transformation. Inadequate rural infrastructure leaves communities isolated, holds back food value chain development, contributes to post-harvest food losses, and is associated with poverty and poor nutrition.

B. Lessons Learned

20. BRECSA builds on lessons learned from the existing CARLEP project funded by IFAD, as well as learning from the GAFSP-funded Food Security and Accelerated Poverty Reduction Project (FSAPP). CARLEP has further deepened support to the commercialisation of agriculture through the enhancement of agroecological production systems and engagement of private sector. CARLEP has further deepened support to the commercialisation of agriculture through the enhancement of agroecological production systems, engagement of private sector, establishment and strengthening of farmer groups, agricultural diversification, and increases in vegetable, milk and dairy production. Some lessons learned from IFAD and other development partner projects are:

a. Targeting interventions: It is important to focus on interventions and programs that cover whole communities and larger number of households. Providing support to only selected individual households within a small community may adversely affect social cohesion. Furthermore, and despite gains made in the area of gender equality, rural women in Bhutan continue to carry a disproportionate share of care work while engaging in commercial

activities to supplement household income. There is a need to understand the impact of challenges women and young girls face in public spaces in participation in decision-making and on accessing opportunities. To address this, specifically tailored interventions should be developed, coupled with mentoring and support to access decision-making forums, training, innovation and financial resources. Further collaboration should be explored with CSOs and agencies working on women empowerment.

b. Marketing and Market Access: The biggest challenges facing the agri-food sector and the weakest link in the agri-food value chain remains value addition and strengthening of marketing and market access. Learning from the example of Koufuku International (a dairy processing company that has partnered with smallholder dairy producers supported by CARLEP), it is key to invest in a centrally located "hub" to support aggregation, collection, processing, packaging, transport and distribution. For the creation of these hubs, there is a need to: 1) conduct a feasibility study to guide the establishment of the hubs (e.g., define catchment area, connection to FG/cooperatives, equipment needed etc.); 2) link those FG/cooperatives to those hubs; and 3) design and plan for the operation and management of the hubs.

c. Youth engagement and enterprise development: In addition to the need of capacity enhancement and provision of access to land and financial resources, Bhutanese youth have a negative view of rural farming life as being laborious, precarious and economically unremunerated. Therefore, there is a need to bring about a paradigm shift in agriculture and affiliated businesses through branding it as a commercially viable and technologically driven. Support to youth needs to be properly packaged with training and skill development in commercial farming, basic entrepreneurship, and digital technologies as prerequisites. Youth should be properly trained and mentored to become farm managers and entrepreneurs, managing activities such as aggregation, processing, trading, marketing, etc. Youth should be provided with facilities to access land, training and finance – three of the direst challenges they face while embarking on agri-food business initiatives.

d. Agroecology to enhance resilience: One promising approach to achieving food systems transformation is through the adoption of agroecology. There are several lessons to build on from IFAD experiences in Bhutan and the region. CARLEP has supported farmers in decreasing their vulnerability to climate change and reduce costs and dependency on external inputs through permaculture farming and is bringing fallow lands back into production using both permaculture and regenerative agriculture models. It has also formed youth cooperatives as a way to engage young people in the agriculture sector. BRECSA will build on those lessons to further adopt agroecology as an integrated approach to sustainable food systems, benefiting small-scale producers and rural vulnerable communities.

C. Project objectives, geographic area of intervention and target groups

21. ***Project Goal and Objectives:*** GAFSP approved a USD 13 million grant for the *Building Resilient Commercial Smallholder Agriculture* (BRECSA) concept note. IFAD is co-financing the project with USD 8.935 million as a fully blended project. IFAD is the Supervising Entity for Investment and the Lead Implementing Partner Agency, while WFP is the Supervising Entity for Technical Assistance and Implementation Support. The goal of BRECSA is to catalyze a 30% increase in resilient commercial agricultural production and improve food and nutrition security in the 4 target Dzongkhags by 2030. The development objective is to transform smallholder agriculture into inclusive and resilient agri-food systems that are increasingly profitable and food and nutrition secure. BRECSA will facilitate the transformation of the agricultural sector in Bhutan through adopting a climate-resilient, nutrition-sensitive, and commercial value-chain approach. BRECSA will focus on agroecological production, empowering farmer and youth groups and cooperatives, investing in production and

marketing infrastructure, introducing internationally recognized food standards, and promoting an enabling financial, policy and innovative digital environment. BRECSA will target commercial, semi-commercial and subsistence farmer households. The total direct beneficiaries of BRECSA interventions are 12,074 farmer households (approximately 47,088 people), out of which 60% will be women and 30% youth.

22. ***Geographic areas of intervention:*** The project will be implemented in the central and south-central Dzongkhags (Districts) of Sarpang, Trongsa, Tsirang and Zhemgang. The four project Dzongkhags are administratively further divided into Gewogs (Ward – cluster of villages) and villages. There is a total of 37 Gewogs and 539 villages in the project target Dzongkhags. BRECSA will target all Gewogs within the 4 Dzongkhags. Selection of target villages within Gewogs for production, marketing and other project interventions will be undertaken at the implementation stage using the results from the CLEAR tool, the mapping exercise of youth and fallow lands, and the ARPs. The infrastructure for supporting aggregation, processing, storage and marketing will be located in Gewogs based on feasibility, marketing and investment studies, as well as, low exposure to climate shocks.

23. BRECSA's four target Dzongkhags, Zhemgang, Sarpang, Trongsa and Tsirang, have been selected using the following criteria: (i) demonstrated production potential in selected pro-poor commodities[24]; (ii) substantial youth demography and high poverty levels; iii) availability of access roads and/or local markets; (iv) demonstrated interest and commitment of communities, farmer groups and cooperatives for market-oriented production and the building of market linkages; and v) contiguity with CARLEP and FSAPP Dzongkhags for leveraging climate resilient farming systems and value chains developed by these projects. Two of the BRECSA target districts share a border with India, while one of them (Sarpang) has an airport to support commercialization.

24. Furthermore, Zhemgang, Sarpang and Trongsa are among the poorer Dzongkhags of Bhutan. Zhemgang has the second highest poverty headcount (29.4) while Sarpang has the 4th highest number of rural poor among the 20 Dzongkhags. Trongsa has the same poverty headcount as Sarpang (15.8%). The Dzongkhag of Tsirang, contiguous to the three poorer Dzongkhags, has been selected for its high potential for the commercialization of agriculture.

25. ***Targeting strategy:*** BRECSA has a strong focus on social inclusion and addresses the following common IFAD, WFP and GAFSP cross-cutting priorities:(i) gender and empowerment of women and girls; (ii) climate resilience; and (iii) improved nutritional outcomes. In addition, the project is designed to be youth-sensitive and inclusive of vulnerable populations, such as households with differently abled persons and women-headed households. The project will use a range of targeting mechanisms to implement the project in a manner sensitive to the needs and constraints of smallholder farmers, women, youth agri-entrepreneurs, value chain actors, and differently abled persons. In addition to potential for commercialisation, enhancing household nutrition and the involvement of women and youth will be important considerations.

26. BRECSA will have a multi-dimensional targeting approach focusing on poverty alleviation and improved food and nutritional security while boosting commercialization, strengthening value-chains and increasing the resilience of both poor small holder farmers and commercially-oriented farmers. Direct targeting will be used to ensure social inclusion of women, youth and vulnerable groups like women-headed households and persons with disability. Sixty percent of BRECSA beneficiaries will be women, including a minimum of 5

[24] This has been guided by IFAD's engagement in pro-poor value chain development - Corporate Level Evaluation. The pro-poor value chain selection crietria (Inclusive and sustainable development potential; growth potential, and enabling environment responsiveness) were considred for prioritization.

percent women-headed households and 30 percent will be youth. Six hundred differently abled women, men and youth, constituting 25% of the population of differently abled persons in the target districts will benefit from BRECSA interventions.

Table 1: BRECSA beneficiaries per Dzongkhag

Dzongkhag	Population	Total Rural population	Total rural households	Men in rural areas	Women in rural areas	Poverty Headcount Ranking	Rural Poor Ranking	BRECSA Beneficia-ries	BRECSA Beneficiary households
Zhemgang	17763	14252	3751	7338	6914	2	6	8.165	2.150
Trongsa	19960	16414	4559	9979	6435	6	11	9.350	2.600
Sarpang	46004	32994	8047	17220	15774	7	4	18.683	4.600
Tsirang	22376	18866	4717	9641	9225	15	13	10.890	2.724
Total	**106.103**	**82.526**	**21.074**	**44.178**	**38.348**			**47.088**	**12.074**

Source: Small Area Estimation of Poverty in Bhutan, Poverty Mapping Report 2017, National Statistics Bureau, Bhutan & Poverty and Equity Global Practice, The World Bank December 2019.

27. The government of Bhutan has criteria which it uses to classify households as subsistence households. The project will use this criteria for targeting, and mirror the % of this classification within the target districts for targeting beneficiaries as per Table 2 below. However, the final selection of beneficiaries will be further refined based on the CLEAR exercise and the baseline study findings[25], in consultation with the agriculture departments in the Dzongkhags. For some activities targeted at vulnerable households - such as homestead gardens - those would be distributed equally per villages selected and community consultation will be used to select beneficiary households.

Table 2: Beneficiary HHs composition by commercialization status

State of commercialization	Number of beneficiary HHs	% of total
Commercial HHs	120	1,0
Semi-commercial HHs	7.480	62,0
Subsistence HHs	4.474	37,1
Total	12.074	100,0

28. ***Social Inclusion Strategy:*** The social inclusion strategy of BRECSA focuses on improving well-being, increasing visibility, voice and agency, reducing the burden of labour, expanding choices and control over productive assets to facilitate the empowerment of marginalized groups. It also focusses on building the capacity of implementers including government dhzokhag officials and the officials of the MoAF to understand the spirit of social inclusion and implement the project in a way that is sensitive to the needs and priorities of marginalized groups. The social inclusion of women, youth and vulnerable groups, including women, youth, vulnerable women from women-headed households and differently abled persons will be ensured through focussing on intrinsic, instrumental and collective agency,

[25] An Empowerment Index (EI) survey will be undertaken as part of the baseline survey in order to understand the women's role and needs in terms of empowerment. This is in line with IFAD's policy on gender equality and women's empowerment.

recogninzing that changes in any one of these dimensions impacts other dimensions[26]. The overall targets for women are 60 percent of project beneficiaries and youth will be 30 percent of beneficiaries.

Table 3: Women's Empowerment in BRECSA

Empowerment Dimension	**Project Interventions**
Intrinsic Agency	Livelihood Development Plans involving critical self-reflection, self-defined goals and strategies Participation in ARPs and MSPs leading to increased sense of own agency Social Behaviour Change Plan for Improved Choices in Nutrition Leadership, negotiation and management training
Instrumental Agency	Strategic Investment Plans that articulate specific strategies to meet the needs and priorities of youth and women Access to productive resources: land, agricultural inputs, labour-saving machineries Provision of matching grants and subsidies, agricultural inputs, storage, aggregation and processing facilities Training in crop production, post-harvest processing and as Community Animal Health Workers
Collective Agency	Membership of Farmer's Groups Membership in community of practice groups (permaculture farmers and hubs) Strengthening of women farmer groups and cooperatives Participation in developing of ARPs with facilitators trained in Gender Equity and Inclusion Participation of 50% women in the Multi-Stakeholder Forums Women and youth led hubs

29. **Value chain selection:** A crucial part of the project approach and inclusion strategy is the sound selection of the pro-poor value chains. The selection of priority commodities was based on: potential for inclusion and empowerment; additional benefit to poor youth and women; opportunity to promote household nutrition;climate resilience; market demand and competitive advantage; economic and financial analyses; and national priorities for poverty reduction and agricultural commercialisation. The priority list of commodities includes: dairy, poultry, vegetables, mushrooms, ginger and turmeric. Flexibility will be needed to allow additional value chains (oilseeds, green tea, honey and other NWFPs) to be included post the conclusion of the CLEAR analysis and formulation of ARPs, as new opportunities may arise and adjustments may be required due to changing market dynamics.

30. **Farmer groups and market operators:** There are 111 FGs and Coops operational in the target districts, accounting for almost 2800 members. Vegetable coops / FGs are the

[26] Naila Kabeer, Gender equality and women's empowerment: a critical analysis of the third Millennium Development Goals, 2005.

majority (41), followed by dairy coops (21). Dairy coops tend to have most members (36 on average) [27].These groups are responsable for production, aggregation and marketing, and they provide services to members in terms of input acquisition and production support services. The members of the poultry cooperatives are relatively well organized and sell their products through their respective cooperatives. They also make bulk purchases of feed and other inputs through the cooperative. Another example is FG/cooperatives supplying fresh produce to local schools through the school feeding programme.

31. The FG/cooperatives are increasingly responding to production based on market needs, and becoming further involed in commodity export. Based on the selected target commodities / VCs, joint planning, Capacity Gap Analysis and Training Needs Assessments will be carried out. Based on the results of these assessment, organisational and capacity strengthening will be conducted for the selected cooperatives/groups. Training will include organisational management and leadership, enhanced financial and market literacy, and entrepreneurial savviness.

D. Components/outcomes and activities

32. Since BRECSA's main aim it to support the transformation of the agricultural sector from subsistence farming to a more commercial and sustainable/resilient sector, it is structured so that the first component focuses on enhancing resilient agricultural production systems and improving productivity while leaving no-one behind; the second component is to help bring this production to market and develop pro-poor market linkages; while the third component supports an enabling environment for a more competitive and innovative commercial agricultural sector. Each component builds on the other resulting in three inter-connected components: Component 1: Resilient production systems; Component 2: Strengthened value chain coordination and market linkages; and Component 3: Innovative and competitive agri-food sector. The direct and indirect beneficiaries of the different components is summarised in the Table 3 below:

Table 4: Direct and Indirect Beneficiaries of the Project by Components and Sub-components

Component / Sub-component	**Direct beneficiaries – households**	**Indirect beneficiaries -population**
Resilient Production Systems		
Consolidated Livelihood Exercise for Analyzing Resilience (CLEAR)	-	106.103**
Gewog and Dzongkhag Agriculture Resilience Plans (ARPs)	12.074	59.015
Support to vulnerable groups to improve income and nutrition status	5.400	-
Investment in commercial farming systems	4.210	-
Strengthened Value Chain Coordination and Market Linkages		
Enhancing efficiency of value chain operations	8.420	61.338
Business linkages and multi-stakeholder platforms	9.600*	18.578
Innovative and competitive agri-food sector		
Access to financial services	200	-
Digital technologies to support marketing	1.207	106.103
Policy dialogue	-	106.103

[27] Overview FGs and ACs in Bhutan, Ministry of Livestock, 2022

Total	**12.074**	

*Beneficiaries of MSPs (7.600 HH constituting the commercial and semi-commercial) and Business linkages (2000 HH). ** total farm HHs*

Component 1: Resilient production Systems

33. This component focuses on building resilient production systems based on a regenerative model that increases resilience to climate and other shocks, and that contributes to food and nutrition security. Efforts will be taken to transition subsistence farmers to semi-commercial, and semi-commercial farmers to more commercially oriented operations. This component will seek to increase capacities, household food and nutrition security, women inclusion in the agriculture sector, assets, and income.

Sub-component 1.1 - Consolidated Livelihood Exercise for Analyzing Resilience (CLEAR):

34. Under this sub-component, WFP's "CLEAR" tool will be deployed to analyse longer-term changes in risk and vulnerability to better understand impacts of climate change on livelihoods, food and nutrition security and broader livelihood vulnerabilities disaggregated by gender. CLEAR considers climate related impacts, both in terms of extreme weather events and long-term gradual changes (including shifting rainfall patterns, rising temperatures, etc.). The CLEAR will have a focus on value chains to match commodities with the appropriate agro-ecological zone, as well as, for defining specific infrastructure needs to contend with anticipated climate change impacts.

35. The CLEAR process is highly participatory. Based on identified needs, the analysis is tailored to address the country´s thematic priorities (i.e., nutrition, migration, supply-chains, etc.) and the livelihoods and vulnerability assessments are oriented accordingly. During the scoping phase, a Task Force (TF) will be established consisting of relevant stakeholders (including MoAF, GNHC, Hydromet, NEC, etc.). The Implementation phase will involve defining baseline relationships between climate-related hazards, food security and key livelihood activities. This is done by developing a Livelihood Zone Map at national, Dzongkhag and community levels through consultation workshops (for all Gewogs). Group discussions are undertaken to understand dominant livelihood activities, including how households access the food they eat and generate income, what changes have they observed with regard to weather /climate/rainfall patterns/their environment over the past decade, root causes of vulnerability, how they are coping with them and what are the main adaptation challenges. Climate change projections will be analyzed and scenarios of anticipated climate change impacts on the agriculture sector for the next 50 years will be developed. The implementation phase will be outsourced to a scientific partner who will undertake the zone mapping and interpretation of climate projections from the perspective of food security and livelihoods. Using the latest climate models, the scientific partner will then identify the most likely future climate scenarios and assess the potential impacts on livelihoods together with WFP climate experts. This phase will involve 20 Dzongkhags and Gewog consultation workshops and community focus group discussions (sample of 2 communities per Gewog). A more in-depth analysis of all Gewogs in the BRECSA target Dzongkhags will be undertaken.

36. This is followed by a validation phase which includes the development of adaptation options that need to be implemented to reduce future impacts of climate change on food and nutrition systems, both at policy and programmatic levels. Through multi-stakeholder workshops at national, Dzongkhag and Gewog levels, results will be presented, and barriers and recommendations for adaptation options will be formulated.

37. Although designed for, and populated with information and data from the BRECSA target districts, the results of the CLEAR exercise will have national relevance as findings and derived adaptation strategies can be extrapolated to similar agro-ecological zones and comparative livelihoods in Bhutan, and can be further used by Bhutan in its Nationally Determined Contributions (NDC). The CLEAR exercise will enhance the effectiveness and

resilience of all BRECSA investments and indirectly benefits all households living in rural areas in the 4 BRECSA target Dzongkhags. Furthermore, as its relevance extends beyond BRECSA, the total number of indirect beneficiaries is significantly higher than the population in the 4 target Dzongkhags. The resulting analysis of CLEAR will guide the formulation of Gewog and Dzongkhag level Agriculture Resilience Plans (ARPs).

Sub-component 1.2 - Gewog and Dzongkhag Agriculture Resilience Plans (ARPs):

38. Drawing on the analyses of the CLEAR exercise, ARPs will be developed for all 37 Gewogs in the 4 target Dzongkhags. The Gewog level ARPs will be aggregated to develop a Dzongkhag level ARP. The ARPs will be developed in a participatory manner bringing together smallholder farmers, aggregators, traders, processors, potential investors, other value chain actors and relevant Gewog and Dzongkhag personnel with 50 percent participation of women. The downscaled CLEAR analysis will inform the ARPs for identifying geographic and site-specific exposure and vulnerability to anticipated climate impacts and to articulate the targeted support required for the 3 BRECSA target household groups (subsistence, semi-commercial and commercial) within each Gewog. The ARPs will include spatial and temporal planning of cropping and livestock raising zones, identification of resilient crop varieties, resilient livestock breeds, identification of site-specific agro-ecological practices, spatial planning and design of climate-resilient infrastructure works and other climate change adaptation measures (erosion control, flood and/or land-slide protection, water-saving technologies, water harvesting and storage facilities, disease prevention & control etc.) as per the specificities of each Gewog. The ARPs will provide the required information for developing tailored packages of climate- sensitive agricultural production inputs, technologies and practices that meet the needs of the 3 household groups with a focus on women and youth.

39. The development of ARPs requires significant community mobilization to ensure that the target population is meaningfully engaged in planning, implementation and monitoring of the identified priority interventions. Furthermore, longer-term engagement with the farmers is required to ensure proper take-up of new approaches and technologies, effective group and cooperative formation and operation, facilitation of logistics, market linkages, and field monitoring and data collection. Gender and youth-sensitive facilitation will be provided to ensure inclusion and meaningful participation. As a practical means of addressing the above challenges and needs, BRECSA will appoint a full-time ARP Coordinator within the Project Management Unit (PMU), as well as establish a trained cadre of community supporters for ARP development and implementation, referred to as *Sanam Jabjorpa* (SJ). At a minimum, there will be 1 *Sanam Jabjorpa* per Gewog (min 37) who will be tasked to work together with the Gewog agriculture and livestock officers, and report to the ARP Officer in the PMU. The *Sanam Jabjorpa* will be selected from a pool of graduates through a competitive process.

40. **Technical assistance:** The generation of the ARPs will be technically backstopped by WFP through specialists in agricultural resilience/CC adaptation and agroecological planning specialists. WFP will also provide a 3-week training to the SJs in consensus building and group cohesion, agroecology and permaculture, hygienic dairy production, Gender Equity and Social Inclusion (GESI), food and nutrition security and nutrition-sensitive capacity building, financial education and business plan development, and M&E. Follow up technical trainings will be provided over the course of the implementation period on production of specific commodities (i.e. mushroom or honey) and other commercial aspects of farming (enterprise development for provision of bio-inputs, post-harvest processing etc.). WFP will also provide training to the Dzongkhag agriculture and livestock officers and Gewog staff to upgrade their skills and build a cohesive team with the SJs. Furthermore, in an effort to translate ARPs into action WFP will strengthen the capacities of farmers to enable them to adopt new technologies and agroecological farming practices, and increase their production in terms of quantity and quality to meet market demand. The ARPs will be re-assessed and, if necessary, revised every 2-years.

Sub-component 1.3 – Support to vulnerable groups to improve income and nutrition status:

41. This sub-component will provide customized support to women, men and youth - including women-headed households and households of differently abled persons - to improve their livelihoods, food and nutritional security and, where possible, facilitate their integration into the value-chains supported by BRECSA.

Activity 1.3.1: Livelihood Investment Plans

42. In each Dzongkhag, the PMU – and mainly the Inclusion and Nutrition Officer and the *Sanam Jabjorpa* - will oversee the finalization of the criteria for selection of the vulnerable households for livelihood support in consultation with the Dzongkhag, agri-extension staff and communities. The 1,500 beneficiaries will be divided between the four Dzongkhags proportionate to the population of the Dzongkhags and the targets for youth, women and differently abled persons.

Table 5: Distribution of Beneficiaries of Livelihood Investment Plans per Dzongkhag

Dzongkhag	Total Target beneficiaries	Women	Youth		Differently Abled Persons				
			Young Women	Young Men	Total	Women	Men	Young women	Young men
Sarpang	600	281	60	60	199	70	70	30	30
Trongsa	300	141	30	30	99	35	35	15	15
Tsirang	345	136	29	29	151	53	45	23	23
Zhemgang	255	74	16	16	150	53	45	23	23
Total	**1500**	**631**	**135**	**135**	**600**	**210**	**210**	**90**	**90**

43. The project will guide and mentor the beneficiaries through a four-month structured process to identify the livelihood investment opportunity and develop a livelihood investment plan. In the process of developing a livelihood plan and mentoring visits, a selection of GALS tools will be used to facilitate critical reflection on life choices, challenges and opportunities, gender dynamics within the household. BRECSA will provide a grant of up to $500 as initial working capital to kick-start the income-generating activity. The households will continue to be supported through mentoring visits for a minimum of eight months after the enterprise has been started. A service provider will be contracted to design the eight Livelihood Investment Plan sessions and a format for eight follow-up mentoring visits to be undertaken after the income-generating activity has been started. The service provider will develop and design a training manual and other materials required by the *Sanam Jabjorpa* to conduct the household sessions. The service provider will design and deliver the Training of Trainers (ToT) for the *Sanam Jabjorpa*. Residential 10-day ToTs will be held in each Dzongkhag in year 2 of the project. The *Sanam Jabjorpa* in the Dzongkhags will be trained to conduct the Livelihood Investment Plan sessions and provide mentoring support to the beneficiaries.

44. Eight Livelihood Investment sessions will be delivered fortnightly over a period of four months. The Livelihood Investment Plan will be finalized at the end of this period and submitted to the PMU for approval and disbursement of the funds. Activities will include supporting beneficiaries in the production of commercial commodities (poultry, dairy, vegetables including mushroom) as well as with small-scale machinery and equipment for agro-processing and food preservation (pickling, drying, fermentation, blanching, roasting, etc.) of micronutrient-rich foods and their safe and hygienic storage at the household level. The beneficiaries will be linked to relevant training that is being provided by BRECSA and to

relevant farmer groups and/or cooperatives functioning in their area. BRECSA will support them in marketing their produce through the market support interventions (sub-component 2.1). Beneficiaries will have the option of pooling their investments, should a small group wish to do so. The *Sanam Jabjorpa* will visit the beneficiaries assigned to them every month for the eight months after the enterprise has been started to provide mentoring support to build confidence, encourage critical reflection on life choices through GALS tools and reinforce skills to establish and sustain the enterprise.

Activity 1.3.2: Nutrition-sensitive Agriculture Interventions

45. As a part of nutrition-sensitive agriculture interventions, the project will seek to improve access to, and availability of, nutritious foods to enhance diets. Diversification of food production through home gardens is an integral part of local food systems and the agricultural landscape of Bhutan. Under this activity, around 3,166 subsistence smallholder households[28] will benefit from the home garden support package and distribution of inputs worth USD 500 per household over a period of six years. Packages will be customized based on the needs of the farmers. The PMU, supported by the decentralized services of the MoAF, will be responsible for implementation, including mobilization, distribution of packages and capacity building of households. In order to promote learning and exchange among fellow subsistence farmers, a minimum of two nutrition gardens will be developed as demonstration sites within each Gewog to promote a sustainable model for food security and dietary diversity.

46. In terms of nutrition awareness and capacity building, the *Sanam Jabjorpa* and the relevant district officers will be provided with a three-day hands-on residential training on food-based nutrition and effective communication techniques, followed by a refresher training. Agriculture nutrition integrated training will be facilitated through the PMU Inclusion and Nutrition Officer, district nutritionists within MoH, nutritionist within the country office of the WFP, and subject matter specialists on agriculture, farming, livestock and Social Behaviour Change (SBC). The *Sanam Jabjorpa* will in turn provide nutrition education to farmer families to improve their overall nutritional status for healthy and productive lives. The integrated agricultural nutrition awareness will be rolled out to 21,600 project beneficiaries in the four target districts.

47. In order to improve the food and nutrition status of beneficiaries, the project will benefit from the knowledge generated by the FSAPP GAFSP-supported project currently being implemented in Bhutan by the World Bank. The FSAPP Social Behaviour Change (SBC) strategy (2019-2022) in the project target districts[29] emphasizes 9 behaviours[30] that need to be addressed as key drivers of malnutrition. BRECSA will adapt this strategy to the project target districts by undertaking a study to examine dietary diversity among four groups of women within BRECSA target districts: adolescent girls (15-17)[31], youth (18-35), pregnant and lactating women, and other women in the reproductive age group (36 to 49) to explore the dynamics of food availability, accessibility, affordability, and consumption in relation to the ten food groups and socio-economic activities these women are involved in. The findings of this study will form a solid knowledge base to develop a detailed Social Behaviour Change (SBC) Plan for BRECSA beneficiaries[32]. For the implementation of the Plan, BRECSA project

[28] Households who produce for their own consumption
[29] FSAPP target districts include Chhukha, Dagana, Haa, Samtse and Sarpang. Sarpang is the overlapping district between FSAPP and BRECSA
30 The 9 priority behaviours are: Knowledge and Awareness of Child Malnutrition, Exclusive Breastfeeding, Complementary Feeding (Anaemia in children <5), Dietary Diversity/Anaemia in Adolescent/Pregnant Women, Antenatal Care, Consumption of Alcohol and Betel Nuts, Adolescent Pregnancies, Overweight and Obesity Among Adolescents and Hygiene Practices
31 Adjusted to fit the study needs
32 WFP country office in Bhutan in collaboration with the Ministry of Education is undertaking qualitative behavioural research to inform a Social and Behaviour Change (SBC) Strategy aiming to promote healthy diets among school-aged

will seek linkages and complementarities with FSAPP, particularly for key nutrition messages promoted and Information, Education and Communication (IEC) materials developed.

48. To further improve nutritional practices, the project will support training of 6300 youth (boys and girls), 14,700 women and 600 people with disabilities (PWD). In separate groups, the Nutrition Officer and the *Sanam Jabjorpa* will provide youth and women with key nutrition information to enhance household consumption and overall dietary improvement. Nutrition awareness and information related to integrated homestead food production, cooking demonstrations on low-cost nutritious recipes from garden produce, backyard farms, food combinations, and small-scale household level agro-processing aiming at enhancing micronutrient content of foods, increasing shelf life and prolonged year-round food availability will be endorsed. The project will also develop first-of-its-kind country-level nutrition-sensitive agriculture knowledge products inclusive of manuals, field-based SBC materials and social media campaigns to create momentum around nutrition awareness. BRECSA will also assess the minimum dietary diversity of women (MDD-W) at the beginning, mid-term, and end of the project as part of the baseline survey.

*Table 6: Total Beneficiaries of Nutrition Interventions**

	Youth			PWDs		
	Girls	Boys	Women	Men	Women	Total
Nutrition education	3,150	3,150	14,700	300	300	21,600
Home gardens/ backyard poultry farms*	475 (30%)	475 (30%)	1,930 (60%)	143 (4.5%)	143 (4.5%)	3,166
**These beneficiaries are from vulnerable HHs, and are also included in nutrition education*						

Activity 1.3.3 Readiness Support for Differently Abled Persons

49. The total number of differently abled persons in the project target Dzongkhags is 2,432. BRECSA will target 600 differently abled persons, which comprises 25 percent of the total population of differently abled persons in the target districts. BRECSA will ensure that within the target of 600 beneficiaries, the three groups of differently abled persons, mild, moderate and severe, are all included. In selecting project beneficiaries, priority will be given to the poorer more vulnerable households, including women headed households. A minimum of 50 percent of the differently abled persons will be women and thirty percent young women and men between the ages of 18 to 35. The distribution of the target beneficiaries will be proportionate to the population of differently abled persons in a Dzongkhag. The project will, where possible, engage the differently abled persons directly in agriculture related income generating activities (Activity 1.3.1). In cases where the differently abled person herself/himself is not able to engage in an income-generating activity, the caregivers will be engaged in an agri-related income-generating activity to enable the household to generate more income and have better resources to take care of the differently abled persons.

50. A service provider (an organization specialized in working with differently abled persons) will be recruited to identify the target beneficiaries in the four Dzongkhags, obtain their consent to participate in the project, and assess the need for assistive devices or technologies required to enable the person to be more functional. The service provider will counsel and mentor the person and their caregiver for a period of at least 6 months, providing life skills, self-care and management techniques and on-going support to help the differently

children in Bhutan. The findings of this survey will also inform BRECSA interventions as the age group of adolescents is overlapping for both surveys.

abled persons and the household reach a higher level of well-being. The differently abled persons and / or the caregiver interested in pursuing income generating activities will be linked by the service provider to the SJs in the area. The SJs will support nutrition awareness education and the PMU will provide the homestead with a garden kit to promote food and nutritional diversity and security for the differently abled persons and their household. The service provider will be responsible for organizing a total of eight Empowerment Forums for Differently Abled Persons. These will be organized in two rounds in each Dzongkhag, in the third and sixth year of BRECSA. In each forum, 20 differently abled persons will be invited with their caregivers to exchange lessons learnt, success stories and to dialogue with Dzongkhag officials about ways forward to enhance their inclusion in livelihood opportunities. These forums will help to enhance the visibility and dignity of differently abled persons.

Sub-component 1.4 - Investment in commercial farming systems

51. This subcomponent focuses on enhancing the commercialisation of farming systems. Similar to the analysis done under the CARLEP project, a geospatial fallow land and youth demography analysis is being undertaken to inform the BRECSA CLEAR and ARP development process. This will enable the identification of high potential production zones (Hubs) which will be centered along main arteries and economic corridors and designed using permaculture farming principles for promoting climate resilient agroecological farming. Farmer Groups or Cooperatives (FG/FCs) will be organised and linked to the Hubs for facilitation of commercial production, capacity building and input provision. This will enable engagement of a larger group of farmers who would produce specific commodities in sufficient volumes for aggregation and commercialisation. BRECSA will support the establishment of at least 4 youth-led Hubs per Dzongkhag (16 in total); each hub covering 1 – 2 Gewogs (up to 32). In support of the hubs and surrounding farmer network, an ecosystem of enterprises will be established for provision of critical inputs (bio-inputs) to facilitate increased production of marketable commodities. The *Sanam Japjorba* will play a critical role in mobilising the young women and men, farmers and entrepreneurs for operationalising this Sub-component. The project will also support the construction of critical infrastructure for ensuring optimal production and marketing (see also Subcomponent 2.1).

Activity 1.4.1: TA for Climate Resilient Commercial Agriculture Production and Business Management

52. For operationalising the above-described Hub, a number of TA activities will be undertaken by the project to capacitate the different actors engaged in commodity production. These TA activities include:

53. **Permaculture farming:** In each Dzongkhag, four dynamic farmers (Lead Farmers) already practicing some level of diversified farming will be identified. Similarly, young women and men and other farmers interested in adopting agroecological farming who reside relatively close to the Lead Farmer will also be identified. A training on permaculture will be provided for both the Lead Farmer and identified youth and farmers through a learning-by-doing approach on converting the Lead Farmer's land into a permaculture farm. This training will be delivered by a service provider recruited by the project. The second step will be the amalgamation of some of the trained youth into FG/FCs for formation of the 16 Hubs. The youth FG/FCs will either be provided land by the government within their locality, or the youth groups will enter into a long-term lease with land owners in their area that have fallow land (a template legal agreement was developed under CARLEP). The permaculture service provider will guide the youth in translating their knowledge gained from the Lead Farmer training into designing a fully functional permaculture farm. The network of permaculture farms and Hubs will be linked to form a community of practice (COP) and connected via an online app for remote supervision and intermittent support from the service provider for a period of 2 years. Exposure visits to neighbouring country permaculture sites will be undertaken for lead

farmers and Hub members. Model permaculture farms will ideally be < 4 acres managed by lead farmers who are semi-commercial or commercial farmers, as well as youth groups, who will have access to fallow land from the government. A fallow land and youth demography study has been undertaken for the project area for pairing youth groups with available fallow lands. While the project will encourage farmers with relatively large farm size to adopt permaculture technologies, there is no technical barrier to smaller landholdings also transitioning to permaculture.

54. **Financial education and business literacy:** Financial education and business literacy (FEBL) training will be provided to youth Hubs, Farmer Groups and Cooperatives (FG/FCs) and entrepreneurs for Small and Medium Enterprise (SME) development. This will capacitate these groups to operate on a commercial basis and to inform decisions for maximizing returns on their investments. FEBL training will cover the essentials of financial literacy and household finances; basic business skills on managing their farm as a business; design of bankable business plans; and effective financial management of group and cooperative enterprises. These courses are critical to generate regular savings, provide women and men farmers with the skills and confidence to work collectively and engage with vendors and investors. They will also capacitate cooperatives to design and implement 'financial literacy' campaigns and activities at the local level, including building themselves as potential future lenders to their shareholders.

55. **Formation and Strengthening of Farmer Groups and Cooperatives:** For advancing commercially oriented agriculture operations, BRECSA will support existing FG/FCs as well as establish new dairy, poultry, crop, mushroom etc. FG/FCs where needed. The *Sanam Japjorba* will mobilise interested individuals/households who would like to join a FG/FC. Subsequently, the SJ will submit the paperwork to RAMCO for formal registration of the FG/FC. The FG/FCs will receive training in 2 critical areas: 1) leadership, management and negotiation; and 2) FEBL (as described above). With regard to the first training area, several service providers will be procured for training each FG/FC in leadership for building group cohesion; management for effective meetings, collective decision making, and enforcement of bylaws; and negotiation for better input and sale prices.

Activity 1.4.2: Dairy and Poultry Production

56. **Dairy production:** The SJs will identify interested households that want to engage in the dairy value chain and support them with formation of Dairy FG/FCs. In addition to the trainings detailed in 1.4.1, the Dairy FG/FCs will be trained in hygienic shed management, milking, container sterilisation and storage by the Regional Livestock Development Center (RLDC - DOL). Furthermore, the project will financially support DOL with procuring dairy cattle and sex-sorted semen, co-finance improved shed construction, production and distribution of improved fodder seed and vegetation for planting, establishment of community-managed Milk Chilling Centres (MCCs), and refrigerated trucks where required.

57. The project will provide the following support for expanding dairy production capacity:

- Provision of cross-bred cows – 40% subsidy and 60% farmer – to increase daily volume of milk production. A total of around 1600 crossbred cattle will be purchased over the duration of the project. They animals will be transported according to international standards, ensuring the welfare of animals. In order to minimize risks, provisions will be made for covering the entire cost of quarantine and insurance for a year per animal;
- Farmer groups who purchase crossbred animals will be supported with CGI roofing sheets and cement for improved shed construction. The farmer groups will contribute local building materials and labour. Up to a total of 1600 cowsheds will be supported under the

programme. Dairy groups will be encouraged to engage with the National Biogas Programme for combining biogas units with the improved sheds;
- High nutrient content fodder seed will be provided to Dairy FG/FCs for cultivation on-farm and on fallow lands. The project will also provide chaff-cutters for efficient fodder utilisation;
- Resources will be provided to RLDC for training 40 Community Animal Health Workers (CAHWs) who are not only capable of primary animal health care and administering artificial insemination but also, are able to train dairy farmers with hygienic shed management and clean milk production;
- Households that want to establish a complementary enterprise of vermicompost production will be supported through Sub-Component 3.1 – Access to financial services.

58. **Poultry production:** Notwithstanding the disruption to the egg and broiler chicken market caused by the inferior feed purchase in 2021 and subsequent import of eggs from India to meet the shortfall, poultry production provides a good entry-point activity for youth FG/FCs to engage in as it is relatively less labour intensive and provides good returns within the first year of operations. To ensure sustainability of poultry operations the project will focus on expansion of hatchery capacity, hygienic shed management, local feed production, and storage and transport. The project will support existing poultry FG/FCs and the SJs will identify interested households for forming new poultry FG/FCs. Both the existing and new FG/FCs will undergo the trainings described above under the activity *Formation and Strengthening of Farmer Groups and Cooperatives*. The project will provide the following support for improving poultry production:

- For newly formed poultry FG/FCs the project will support procurement of parent stock for the National Poultry Development Centre, Sarpang, and cost share the construction of improved poultry sheds, basic equipment (drinker, feeder and heater), and day-old chicks. The project will cover 50% of the cost and the farmer or group will need to assume the remainder of the cost. They will be connected with the credit service providers under "access to financial services" under SC3.1;
- All poultry FG/FCs will receive training as described under the section above on *Formation and Strengthening of Farmer Groups and Cooperatives, as well as on hatchery management and expansion.*
- The CAHW will be trained in providing animal health support services such as for administering vaccines.

Activity 1.4.3: High Value Commodities

59. A number of commodities have been identified that have high potential for cultivation in the target Dzongkhags with good market value. Off-season vegetables (OSV), ginger, and turmeric rank the highest although other high value crops (HVCs) such as shade grown cardamom, oil seed and green tea are also good candidates. Based on the ARPs, target zones for producing HVCs will be delineated and SJs will mobilise interested households for formation of FG/FCs. The other high value commodity the project will support is mushroom cultivation. Domestically, there is a significant demand for mushrooms that can be met through the establishment of youth-run mushroom sheds similar to what ARDC Wengkhar initiated under CARLEP. As production volumes exceed domestic demand, both fresh and dehydrated mushrooms can be exported to neighbouring countries and markets further afield.

60. Building on the honey value chain in Tsirang, Sarpang and Bumthang, an assessment on honey production in target Gewogs will be undertaken to develop a systematic scaling up strategy. All crop and honey producer groups and cooperatives will be linked to the Hubs for aggregation and marketing. Support will be provided to the National Apiculture Centre for procurement of Apiculture seed, equipment and training for advancing its mandate

in the project areas. The following are the key activities that the project will support for promoting HVCs and honey production:

- A 100 crop production groups will be established with the support of SJs, registered by RAMCO and trained in production methods by ARDC Smartening and agri-extension officers using training materials developed under CARLEP (materials will be revised/enhanced to suit the BRECSA target Dzongkhags). The crop production groups will also receive relevant additional trainings described under Activity 1.4.1. ARDC Smartening and agri-extension officers will receive refresher training in agroecological crop production by technical experts procured nationally or internationally;
- The crop producer groups will receive a 50% subsidy on seed, bio-inputs, polytunnels, drip/sprinkler irrigation, and minor production tools;
- Ten mushroom groups will be established with the assistance of SJs. ARDC Wengkhar will train the groups in temperature-controlled mushroom shed construction and maintenance, sterile substrate and spore production, and packaging.
- Considering the relatively higher costs and the need for creating a critical mass of mushroom producers, a subsidy of 50% will be provided to interested mushroom producer group members. The remaining 50% will be in the form of a loan obtained through the financial service or through own contribution. (Sub-Component 3.1);
- An assessment along the different agro-ecological zones will inform the investments in developing the honey value chain, including group formation, capacity building (applying a peer-to-peer approach) and provision of basic production materials like beehives (possibly "honey on tap" boxes), protective gear and simple equipment. Also, support will be provided to the honey groups with packaging, branding, aggregation and transport. Initially about 10 honey producer groups will be established with a possibility of expansion depending on the demand.

61. Of the total beneficiaries of 12,074, those engaged in the honey, poultry, mushroom, and permaculture VCs are 1,410, which is 11.6% of the total. This group constitutes a critical mass for establishing the foundation for the respective value chains, and are made up of semi-commercial or commercial farmers. Subsistence farmers have a different package of support and once they graduate to semi-commercial status, they will be eligible to engage in these higher investment-related activities. The honey, poultry and mushroom production is well suited for youth engagement considering that they are less labor intensive. While the investment costs are relatively high due to Bhutan's particular geographic context, the cost recovery period is between 2 – 4 years as the profit margins are lucrative due to high local, regional and export demand. These products are low hanging fruit for establishing "Brand Bhutan" exports. There are several examples of well-functioning semi-commercial and commercial farmers and youth groups who have taken up these activities under CARLEP. The project will link interested farmers with the rural finance component to raise the 50% credit to match the project grant.

62. **Infrastructure:** To support the above production activities the project will invest in public goods infrastructure, which will be climate-proofed. The proposed interventions include:

a. *Climate-resilient Irrigation Infrastructure:* The provision of irrigation (new/ rehabilitation schemes) was identified by the RGoB and communities as the highest priority. Currently, many irrigation systems in Bhutan are in poor condition and require rehabilitation. Leaky canals, frequent damage by landslides, sedimentation in the upper reaches of the canal, lowering of river bed, insufficient water at the source, inappropriate structures, and increasing competition over the use of water are some of the common problems these irrigation systems face. The project will fund: (i) 16 schemes for rehabilitation and improvement of existing irrigation systems. The implementation of these schemes will benefit about 1,000 households and shall bring more than 1,200 acres of agriculture land

under improved irrigation with adequate, reliable and timely supply of water to farmlands; (ii) development of 4 new irrigation schemes (The final selection of schemes/sites will be determined based on the CLEAR and ARPs. The new schemes are expected to benefit further 1,376 households and bring about 2,432 acres of land under irrigation); (iii) water storage to help the provision of more reliable water supplies to the beneficiary communities during the dry seasons, and (iv) address climatic hazards like floods and wildfires via increased soil carbon sequestration, which significantly increases absorption of soil moisture and reduces soil erosion. Implementation will be done with the technical support of the Dzongkhag Engineering Section. O&M will be the responsibility of Water User Associations (WUAs), comprising of beneficiary HHs. A MoU will be signed between the project and the WUAs. The project will also strengthen the capacity of WUAs through formal and informal trainings and through awareness raising sessions aimed at O&M of irrigation schemes, cost recovery, and conflict resolution.

b. Fencing: The project will fund appropriate fencing (vegetative, electric, chain-link) for the farms demonstrating high potential for agriculture commercialization. The project will fund 160 km of electric and hybrid fencing, and will pilot 32 km of chain link fencing for scaling-up based on the results. The project will sensitize and proactively encourage farmers to employ vegetative fencing such as, Sichuan pepper (*Zanthoxylum* spp), a sturdy thorny bush that deters certain wildlife species.

c. Land Development: The key activities anticipated in land development will include: preparation of terraces of suitable width; site enhancement, land levelling, stabilizing risers etc. The proposed activities will help in developing land suitable for hand-tiller usage to support commercial scale agriculture. These measures will be complemented with improved soil fertility and water conservation measures for improving and sustaining land productivity and crop production.

d. *Greenhouses:* Based on the successful utilization of protected agriculture technology, the project will fund about 160 greenhouses in all four Dzongkhags. The greenhouses with improved technology (using appropriate material for frame construction) will help in promoting year-round high value vegetable production. The project will pilot automated drip-irrigation systems to gain efficiencies in water application and reduced labour. Greenhouses and all other project interventions will be provided as per targeting strategy laid down in the PDR. The green houses will be provided to both individual HHs and to clusters of farmers, specifically for youth hubs.

Component 2: Strengthened Value Chain Coordination and Market Linkages

63. This component will build on Component 1's increased agricultural outputs and promote agricultural commercialization and foster exports through investing in post-harvest facilities within the established hubs. The hubs will cater to a certain number of prioritized crops based on market demand and other factors, including agro-ecological, climate, seasonality etc. based on the CLEAR analysis.

64. Efforts will be undertaken to build business linkages between producers, buyers, financiers and local stakeholders through multi-stakeholder platforms (MSP).

Sub-component 2.1 - Enhancing efficiency of value chain operations:

65. Enhancing efficiency in value chain transactions is crucial for improving the competitiveness of the RNR sector in Bhutan. This sub-component will apply an integrated value chain approach, defining interventions in all value chain functions from input supply, production, aggregation and storage, processing, to defining marketing channels, and export strategies. Value chain specific intervention strategies and plans will be formulated to guide investment planning.

Activity 2.1.1 Investing in post-harvest facilities for key commodities

66. To support the commercialization of agricultural produce (including livestock products), the project will fund aggregation centres, and small-scale processing centres with required washing, grading, packing facilities and storage. These processing facilities will be strategically located based on the CLEAR analysis and Dzongkhag ARPs. Feasibility studies, detailed supply chain and economic and financial analysis, and business plan development will precede all construction related to processing and marketing facilities.

67. **Dairy value chain:** BRECSA will invest in improving supply chains (milk collection centers [MCC], milk cooling units, refrigerated transportation) and processing (small scale dairy plants). BRECSA will support farming households with the development of a cold chain for allowing efficient product flow to the nearest milk processing unit. Depending on the volumes produced and relative remoteness of production units, a collection and aggregation system consisting of Milk Collection Centres (MCC) and transportation arrangements will be established. The project will invest in approximately 10 MCC (500 Litres), allocating a total budget of 100,000 USD benefitting an estimated 1000 beneficiaries of which 80% are women.

68. There are 21 existing dairy cooperatives active in the BRECSA target districts, of which 12 of them are in Trongsa. Existing cooperative dairy processing units operate largely below their available processing capacity. Regarding small-scale milk processing units, there are 12 operating in the project area of which 7 are in Zhemgang. BRECSA aims to identify potential commercial dairy enterprises willing to source from the BRECSA target area in a similar setup as with Kofouko (KIPL) under CARLEP. In the absence of a corporate investor for a large investment, BRECSA will explore opportunities to co-finance with FG/FC the establishment of smaller scale milk processing units in locations that cater to local needs for fresh milk, yoghurt, butter and soft cheese. The size of the small-scale production units will be determined by the production in the sourcing areas but vary between a capacity of 100 to 300 liters per day for dairy groups totalling 30 to 50 members. It is estimated that at least 5 new dairy processing units will be constructed with a tentative overall budget allocation of USD 1,750,000. All investments will be preceded with a feasibility analysis.

69. Lack of adequate quality control is observed at the cooperative milk aggregation processing centres. Introduction of a simple technology to establish minimum hygiene standards and identify protein and fat content levels would provide additional value to the product competitiveness in the market as certified / controlled products will fetch premium pricing and offer an extra layer of protection against side-selling by producers. BRECSA will support dairy farmer groups in the procurement of lactometers (measuring protein/fat content) and establishing a pricing system differentiating quality of produce. Farmer groups will be trained in quality measurement and in applying the defined quality-based pricing system. This will benefit 15 farmer groups or 500 beneficiaries of which 80% are women.

70. **Poultry and egg value chain:** There are several active farmer groups and cooperatives dedicated to the poultry and egg sub-sector within the BRECSA target area. The project will invest in the strengthening of the existing groups and the formation of new groups where needed. These groups will be supported in institutional development, business planning (including collective input procurement), processing, transportation, marketing, quality control and advanced labelling and packaging. The Project will:

a) Cost-share on a 50% basis the upgrading of existing or new processing units for clean meat production and freezing;
b) Cover 50% cost of up to 4 freezer vans for transporting dressed frozen meat from processing units to retail outlets;
c) Undertake market analysis to identify possibility and need for product diversification, specific labeling, organic production, etc.;

d) The SJs will identify investors/entrepreneurs interested in establishing small-scale poultry feed production units and connect them with BRECSA financial service providers.

71. **Vegetable value chain:** Vegetables are an essential part of the Bhutanese diet and particularly red and green vegetables (green beans, dark green leafy vegetables, carrots, tomato, pumpkins) which contains essential vitamins and nutrients for improving diets. Vegetable farming is a viable economic investment that generates income and creates jobs. Chilli, onion and tomatoes are referred to as priority strategic commodities in the Renewable Natural Resources (RNR) strategy.

72. Aggregation and storage facilities for the vegetable value chain is crucial to reducing post-harvest losses, estimated to reach 30% or more. The production figures per district vary substantially with Tsirang topping the list (approx.5000 MT) and Zhemghang closing the ranks, not exceeding 1000 MT of annual production. Trongsa reports two existing warehouses while there is one in Tsirang. With an estimated production increase of 25-50% of total, Tsirang would need a storage capacity of 7,000 to 10,000 MT, Sarpang and Trongsa 5000 – 7000 MT and Zhemghang 1,500 MT. Depending on the location of the main production areas vis-à-vis destination markets, an average of 3 storage facilities per District will be established. This entails an average capacity per storage of 2,500 - 3000 MT for Tsirang (3 facilities), 2000 MT for Trongsa and Sarpang (3 facilities) and 500 MT for Zhemghang (3 facilities). These processing facilities will be strategically located based on the CLEAR analysis and Dzongkhag ARPs. Besides vegetable producers, also producers of other strategic commodities like spices or mushrooms can potentially make use of the foreseen facilities, benefitting an estimated number of 13,000 households (65% of farmers producing at the semi-commercial or commercial level).

73. **Spice value chain (ginger and turmeric):** BRECSA will support the development of marketing strategy for the spice sub-sector based upon identified market trends / opportunities and competitive advantage of the spice industry in Bhutan. Upon identified needs and opportunities, BRECSA will invest in aggregation centers and processing units for ginger (including cleaning, sorting, drying etc.), and turmeric (including curing, drying, polishing, milling, filtration etc.) to be owned and managed by established FGs, as well as invest in packaging and labelling of processed produce for the retail market. BRECSA, and through the developed marketing strategy, will look at opportunities for diversification and value addition, including oil production. Potential beneficiaries include all spice producers in the target area or close to 2000 farmer households.

74. **Mushrooms:** Establishing mushroom Farmer Groups (FGs) is an effective way to reach economy of scale and building backward and forward linkages. The project will support mushroom FGs in establishing an aggregation infrastructure with local collection, storing, grading, packaging and drying facilities. It is estimated that 8 aggregation facilities with a total budget of USD 80,000 will be co-financed. The investments will benefit an estimate of 500 beneficiary households. BRECSA will also invest in improving packaging and labelling and in establishing more direct farmer group – retail outlet/consumer linkages. Through DAMC, additional market segments for processed mushrooms will be explored, including for the export market.

75. **Other niche products (honey, oilseed, green tea…):** A technical agency will be recruited to undertake an in-depth analysis in Y1 looking into high potential niche products such as honey, medicinal and aromatic plants, and essential oils in relation to speciality markets focusing on selected Asian (Japan, South Korea, Singapore etc.) and Western countries (Europe, US). This analysis will serve to identify the commodities with the highest comparative advantage. An investment plan will be developed for each commodity, including a marketing strategy, branding and packaging for export of a quality premium brand.

76. The project will support individual beekeepers and apiculture farmer groups through subsidizing processing equipment. In case new groups or mergers of existing groups consists

of a minimum of 50 members with an anticipated production volume of 1500 kg annually, BRECSA will co-finance collective processing equipment like casting machine, honey extraction machine or a fully utilised honey extraction centre, with sale counter and processing room. The total number of beneficiaries from intervention in the honey value chain is estimated at 200 households.

77. **Sustainability - Operations and Maintenance:** Most of the infrastructure investments proposed under the project will be taken over by the corresponding beneficiary communities, farmers, cooperatives, youth groups or private sector entities (such as market infrastructure – cold stores/processing units). The project will handover these facilities to the respective beneficiaries by signing a standard Memorandum of Understanding (MoU), developed for every type of infrastructure facility. The MoU will identify the management and O&M responsibility of funded assets, while clearly delineating the roles and responsibilities of beneficiary, project and of other stakeholders (Dzongkhag/ Gewog administration/engineering section); provide mechanism for meeting the operational expenditures (routine or special maintenance etc.); and respective contribution. The MoU will be a key reference document for all post-completion activities.

78. **Technical assistance:** WFP will support the enhancement and efficiency of value chains through targeted interventions, including: (i) enhance the organisational levels of farmers and strengthen the performance of farmer groups and cooperatives; (ii) create effective market linkages between farmer groups and buyers / outlets; (iii) strengthen the capacities of government agencies in promising market-oriented planning based on economic (cost-benefit) analysis; (iv) build decentralized capacity of DAMC officers in providing market-based and tailored services to farmers; (v) capacitate and assist Dzongkhag level government agencies in developing and delivering on small-holder based market access policies and programmes; (vi) undertake market research, exploration, trial marketing and establish linkages with international markets to enhance export, particularly of high-end speciality products; and (vii) develop digital platforms/ICT tools including on markets and pricing .

Activity 2.1.2 – Capitalising on Hubs to support commercialization:

79. Support to commercialization will be mainly centered around the Hubs that will be created (SC 1.4), as well as, around the farms established by the state-owned Farm Machinery Corporation Limited (FMCL). Within the FMCL farms, the government provides the land and covers the costs of establishing the farm including fencing, land preparation, internal road construction, provision of greenhouses and inputs. FMCL manages the farm and runs it with youth labour recruited and trained in commodity production. The overall intention of FMCL is to handover the farm to the youth workers once the farm has become a viable operation.

80. As a means of replicating the FMCL farm model, although significantly smaller and with critical enhancements, the project will support the creation of youth FG/FC run Hubs. These youth FG/FCs will enter into long-term land leases with owners of fallow lands in their locality. To further incentivize youth, the Hubs will be equipped with proper amenities such as housing, laundry, WiFi connectivity, and some basic sport facilities. Drawing on lessons learned from Land Use Certificate (LUC) program and CARLEP, engaging and retaining youth in agriculture is a major challenge. The retention rate was high where housing and basic amenities were provided on-farm. Without housing, youth have to travel, in some cases, 3 – 4 hours a day to get to the farm. This has proved to be a major reason for a high drop-out rate.

81. The Hubs will be supported with training and serve as a Farmer Field Schools for the adjacent network of farmer FG/FCs for building knowledge on agroecological farming. Based on demand, the Hubs will serve as an input distributor for provision of seed and vegetative planting material, bio-inputs, and minor tools to the farmer FG/FC network. The Hubs will also serve as an aggregation point for the neigbouring farmer FG/FC networks to deliver their produce based on a guaranteed minimum price and profit sharing. The Hub will be an active

member of the multi-stakeholder platform (MSP) and will negotiate forward contracts with vendors for purchase of produce. The MSPs will also enable the linking of the ecosystem of service enterprises producing bio-inputs etc. with the Hub for facilitating distribution to a larger clientele. The hub and spoke model will significantly reduce the transaction costs for vendors as they will be able to collect bulk produce from one site.

82. The Hubs will "centralize" post-harvest processing activities for meeting both domestic and export markets. This could include simple sorting and washing of produce to slightly more advanced processing such as slicing and sun-drying of organic ginger for example. Based on the Hub Business Plan, other more sophisticated processing activities could be initiated such as dairy processing into cheese and yoghurt, jam and pickle production, mushroom dehydration etc. In partnership with PPD clear guidelines will be developed for handover of FMCL farms to the youth FG/FCs.

Table 7: Beneficiary households' composition by income generating (value chain) activity

Project support / Value Chain / enterprises	**Target Beneficiary Households**	**% of total**	**Commercial HHs**	**Semi-commercial HHs**	**Subsistence HHs**
Livelihood investment plans implementation support	1.500	12,42	-	600	900
Home garden support	3.166	26,22	-	-	3.166
Readiness support to PWD	600	4,97	-	400	200
Permaculture	400	3,31	20	380	-
Livestock production					
Dairy (Cattle) farming	800	6,63	20	780	-
Poultry farming	800	6,63	20	780	-
High value commodities					
Vegetables farming	1.400	11,60	20	1.380	-
Ginger farming	300	2,48	10	290	-
Turmeric farming	300	2,48	10	290	-
Commercial mushroom farming	10	0,08	10	-	-
Honey production	200	1,66	10	190	
Support to general subsistence and semi-commercial farmers	2.598	21,52	-	2.390	208
Total beneficiary households	**12.074**	**100,00**	**120**	**7.480**	**4.474**
% of total	100		1	62	37

83. As the quota of each beneficiary group is specified and criteria refined and agreed with RGoB, there is little scope for elite capture. In addition, 60% of beneficiaries are women who typically experience multi-dimensional intra-household poverty, which further militates against the possibility of elite capture. Furthermore, elite capture will be mitigated through the engagement of *Sonam Japjorba* (SJ) (i.e. community mobilisers). The SJs will work with the Gewog administration to identify the target beneficiaries from each category (subsistence, semi-commercial and commercial). The intervention packages will thus be assured to reach the correct target groups.

Sub-Component 2.2 - Business linkages and multi-stakeholder platforms:

84. Under this sub-component, BRECSA will facilitate the establishment and functioning of multi-stakeholder platforms to support business development and commercialisation at Thimphu and District levels. These MSPs will focus on 2-4 commodities and bring together all relevant stakeholders that engage in the RNR sector including Gewog and Dzongkhag personnel, farmers, vendors, investors and representatives of women and youth. The platforms will have a linking, learning and problem-solving character, and at Thimphu level, will be chaired by DAMC and co-chaired by the Bhutan Chamber of Commerce and Industry (BCCI). Dzongkhag level MSP meetings will be convened and chaired by RAMCO. Through the establishment of MSPs, a more systematic engagement between farmers, their groups and private sector operators will be facilitated, which will open up access to private sector engagement for provision of value chain services over the longer term.

85. MSPs, in partnership with relevant departments and agencies, will be responsible for domestic and export market exploration and facilitation. MSPs will engage in investment planning and based on the initial value chain analysis and defined investment strategies, a Strategic Investment Plan (SIP) will be prepared for each selected commodity. The SIP will be based on sound market assessments and will enable market oriented production by farmers as well as determine volume, quality, price, primary processing, and transport to market. It will provide a framework for inviting farmers and their groups, entrepreneurs, the government, development projects, private investors and service providers to co-invest in the project area, thus facilitating access to markets, knowledge, technology and capital for smallholder rural farmers. The SIP will be guided by the Dzongkhag ARPs and aligned with the Hubs to support commercialization of the agricultural sector. Under the framework of the SIP, BRECSA will promote the use of PPP funding to promote investments in rural enterprises and RNR farms for creating job opportunities particularly for youth and women.

86. The Farmer to School linkages (B2B) marketing strategy was initiated by the CARLEP to help smallholder farmers solve marketing issues. Additionally, in order to introduce food production planning among farmers for supply to schools, WFP has been implementing the School Menu Planner (SMP) PLUS.

87. SMP PLUS is a digital tool that uses a set of databases on food prices and food composition tables and an algorithm to produce value-for-money, nutritious menus for school meals using locally sourced food and seasonal ingredients. The tool quantifies schools' monthly requirements of vegetables, fruits and livestock products that help local farmers plan their production of crops for a full year in advance. Reports from the pilot districts of Zhemgang, Trongsa and Tsirang show several encouraging results of implementing the SMP PLUS tool (i) 15% reduction in cost per meal (ii) 26% improvement in dietary diversity in school meals (iii) 28% to 60% increase in procurement of locally produced perishable foods (iv) increase in food sourced from smallholder farmers from 10 % to 17% and (v) quantification of weekly/monthly requirement of vegetables, fruits, livestock products in schools generating advance demand for farmers thus helping them in production planning.

88. The table below indicates the coverage of the farmer to school linkages in BRECSA target districts. Of the 90 schools present in the district, 95.5% are covered for supply of fresh produce via a network of 119 farmer groups and cooperatives. While SMP PLUS has been piloted, its coverage is limited to only 18 schools (20%) with no presence in Sarpang.

Table 8: Coverage of ´farmer to school´ linkages

Districts	Number of schools linked to farmer groups	Number of children per district enrolled in schools	No of farmer groups linked to schools	FG/Coops linked with school	Current implementation of School Meal Plus (SMP) in numbers

				Women	Men	
Trongsa	20	3508	39	373	124	6
Zhemgang	30	4332	27	147	146	6
Sarpang	20	6235	37	412	832	-
Tsirang	16	4512	16	10	49	6
Total	**86**	**18587**	**119**	**942**	**1151**	**18**

**Data provided by RAMCO*

89. The SMP Plus tool will be introduced in the remaining 74 schools across the target districts over a period of one year. To analyse operational challenges in BRECSA target districts, the project will undertake a detailed analysis of constraints on the existing functions of the supply chain across farmers cooperatives and schools. The analysis will include assessing end-to-end requirements - customer/beneficiary requirements, demand signals, vis-a-vis supply capacity. The data collection will be undertaken during the first year of implementation through focus group discussions and in-depth interviews with farmer groups, cooperatives, Gewog administration officials, extension officials, RAMCO and the buyers. Findings of this analysis will be further validated for each target district along with identifying possible interventions through four workshops (one per district). The activity will be a stepping stone to intensify linkages between local farmers and schools as well as strengthening markets' ability to supply food at more affordable prices. Potential interventions include the amendment of contractual clauses allowing for price-adaptations based on price fluctuation in the market, improved transportation schedule, skill development support, etc. The overall intervention will include 90 schools and 87 FGs with over 2000 direct beneficiary farmer households (excluding 18,578 students as indirect beneficiaries in terms of improved daily dietary intake and nutritional status).

Component 3 – Innovative and competitive agri-food sector:

90. This component supports the first two components through the creation of an enabling financial and policy environment to promote a competitive and modernized food sector. Under this component, activities will be supported to improve access to financial services, digitization, and policy dialogue to support private enterprise development and certification for meeting internationally recognized food standards.

Sub-component 3.1 - Access to financial services:

91. Access to financial services especially for rural enterprises and agriculture sector in general has remained a key challenge in Bhutan. To improve access to financial services for the key target segments of BRECSA, the project will undertake specific interventions focused on challenges and constraints on the demand side i.e., farmers, youth, cooperatives, groups etc. The key activities under this sub-component are:

92. Focus on primary production, subsistence orientation and low engagement of private sector are a few key issues surrounding agriculture in Bhutan. To shift its current production driven agricultural practice into market led and commercial agricultural practice, Bhutan will need to turn 'semi-commercial' agricultural holdings into 'commercial' holdings and assist 'commercial' holdings to be more competitive and efficient. Such a transition would require a

number of inputs including 'capital'. However, 'semi-commercial' holdings continue to face challenges raising capital for scaling up[33].

93. When it comes to rural and agricultural finance, the Bhutan Development Bank (BDBL), a state-owned enterprise (SOE), is the key financial institution. In fiscal year 2020/21, BDBL alone accounted for more than 90% of the total agricultural loans provided by the financial sector. National Cottage and Small Industries Development Bank (NCSIDBL) is another state-owned enterprise, established by the Government, specifically to meet the financing needs of the cottage and small industries from agricultural and nonagricultural sector. Beyond banks, the project may also consider engaging Micro Finance Institutions (MFIs) especially in rural areas and remote geographic clusters which are difficult for banks to reach. Amongst 5 MFIs operating in Bhutan, RENEW is the market leader with over 70% share in the total MFI loan portfolio and covers 10 Dzongkhags and 95 Gewogs.

94. BRECSA will provide 'matching grants' to entrepreneurs who show intent and capacity as a partial credit guarantee to the bank. This will also help mitigate the 'collateral requirement', which is one of the key barriers in access to finance. Matching grant support will be used as a one-time start up fund to set-up enterprises, and will be instrumental to build the confidence of the beneficiaries leading to their participation in the market system, as well as building their asset base for enterprise management. The matching grant will be implemented through a tripartite arrangement involving the project, beneficiaries and participating financial institutions. The project will release the 'matching grant' to the beneficiaries in their respective bank accounts (withdrawal restricted), and the bank will issue loans to the beneficiary taking the 'matching grant' as a form of partial credit guarantee. The implementation will be guided by a MOU/Agreement between the project and the participating financial institution. The MOU will specify the role of the parties in identifying the beneficiaries, collection of proposal and loan documentation, release of 'matching grant', and coordination on the ground for loan monitoring and repayment. The proposed matching grant scheme will cover up to 50% of the project cost not exceeding $6,000 per project concept. The borrower is expected to secure 20-30% of the project cost from the bank as a 'loan' and the remaining 30-20% as his own contribution. A total of 150 beneficiary farmer households are expected to be covered under this initiative.

Sub-component 3.2 - Digital technologies to support marketing:

95. This sub-component aims at the development of new (or adaptation of proven) digital support platforms or tools based upon mapping the RNR digital environment as well as assessing past and existing ICT investments and demands. The developed digital tools will be aligned with the government plans for the digitalization of the agricultural sector as captured in the Bhutan E-RNR Masterplan.

96. There have been several initiatives to address the needs of farmer for digitised information. The main initiative currently operational is the Agricultural Market Information System (AMIS) Platform managed by DAMC. AMIS provides pricing data from 26 retail markets and 4 auction markets spread over Bhutan. While the retail markets provide retail prices that provide farmers with an indication of price trends but not farm-gate prices, the auction markets are more relevant for informing farmers regarding price setting for their produce. Although the AMIS has made a step further regarding digitalization of farmer support services, the data input is very unreliable and often outdated.

97. BRECSA will conduct an analysis that will define enhancements and new tools and functionalities to existing systems. Based on the results of the analysis, a new ICT platform will be defined and subcontracted to an ICT firm. The new ICT application will be user-

[33] Economic Census of Bhutan, 2019

friendly, in local language, and could tackle issues related to: (1) production and pricing in different locations, (2) demand in different markets, (3) transportation (facilitating farmers and traders to search and contact transport service providers), and (4) any other useful functionalities.

98. BRECSA will train Gewog staff on the use of the enhanced tool. Demonstrations will be organised for at least 50 farmers per Gewog. To enhance traffic and increase volume of visitors, the project will develop and deliver an awareness raising and knowledge sharing campaign through regional roadshows and digital exhibitions in all Gewogs. In addition, DAMC will be trained to conduct regular user monitoring with feedback loops to allow for client responses and refinements. A software maintenance contract with the developer will be entered into for 6 years. The platform and data will be owned by DAMC.

Sub-component 3.3 - Policy dialogue:

99. This sub-component will undertake policy dialogue to support the promotion of Brand Bhutan's organic and high-value agri-food products in regional and international export markets. To this end, internationally recognised regulation, standardization and certification processes will be pursued. This sub-component will be led and managed by the Policy and Planning Division of MOAF and Bhutan Agriculture and Food Regulatory Authority (BAFRA). Establishing a Geographical Indication (GI) for project commodities will enable the promotion of Brand Bhutan linked to target Dzongkhags. The GI in the context of BRECSA could be developed for a whole Dzongkhag, or for specific high value commodities within the Dzongkhag.

100. The conditions for the establishment and management of the GI can be summarized as follows: (i) the specific quality linked to origin that is well defined in the specifications (in order to demonstrate intellectual property right and ensure strong market differentiation); (ii) the collective action and territorial governance; (iii) the effective marketing efforts (the GI is effectively used to market the products); and (iv) the legal framework and role of PPD and BAFRA pertaining to the effective protection of GI.

101. BRECSA will provide support for the development of GI as well as to regulation, standardization and certification. This support includes: (i) enhancing the technical capacity of the BAFRA laboratory; (ii) strengthening on-farm biosecurity in the target areas and prime commodities; (iii) Strengthening Sanitary and Phytosanitary Measures (SPS) to enhance food safety and facilitate trade of commodities; (iv) setting up standards, including a code of practice or regulations of use relevant to the GI; (v) support for meeting conditions for development of GI certificates in compliance with requirements of importing countries; (vi) support inspection and certification as per the quality standards developed by the technical departments (DoL, DoA & DAMC); (vii) establish traceability, verification and control schemes in order to ensure continued quality and compliance with the code of practice or regulations of use; (viii) obtain legal protection for the geographical indication and design an enforcement strategy; and (ix) build the capacity of BAFRA staff in inspection, certification and enforcement.

102. With regard to cooperatives, the RGoB developed a Cooperative Act in 2001, which was later revised in 2009. The Act was enacted to facilitate the development of cooperatives as a sustainable pillar of growth within the private sector. The implementation of this Act was supplemented in 2010 by Co-operatives Rules and Regulations, which provide procedural requirements for the formation, governance, management and financial oversight of farmer groups and cooperatives. The current legislation is cooperative friendly and allows for the promotion and development of farmer groups and cooperatives in the country. However, some issues have been raised by cooperative members, DAMC and Legal Services of the Ministry of Agriculture and Forests. BRECSA will work with DAMC to address these through a revision of the rules and regulations, and will produce guidelines that foster agri-food

commercialization. Additionally, BRECSA will support DAMC in developing Federation and Auditing guidelines to assist with amalgamation of Farmer groups and Cooperatives into Federations that can facilitate price stabilization and lobby for improved policy and regulation for their respective sub-sectors.

103. WFP has been supporting RGoB with DRR and has prioritized policy support under its new country strategy. This will continue during the duration of BRECSA, along with support to MOAF in strengthening institutional capacities to enhance mainstreaming of climate risk and DRR into planning and decision-making at different levels.

E. Theory of Change

104. The agricultural sector of Bhutan consists mostly of traditional and subsistence farming units and suffers from a limited asset base, weak capacity of farmers and their groups, climate vulnerability, limited water availability, wildlife-crop depredation, low soil fertility, inadequate dietary diversity, gender inequality, and labor shortage compounded by minimal engagement or interest by youth to engage in the sector. Furthermore, high post-harvest losses, limited storage and processing facilities, and inefficient market linkages due to poor engagement of the private sector and entrepreneurial investments, are holding back the commercialisation of the sector.

105. BRECSA's theory of change is that the transformation of Bhutan's agri-food system into a leading edge, resilient and competitive system that can improve national food and nutrition security, while also creating sustainable income for farmers and jobs for youth will, require increasing the resilient production and productivity of smallholder farmers, developing integrated and resilient value chains (coupled with post-harvest processing), establishing market linkages, and engaging youth and private sector in that transformation process. Providing opportunities for private sector operators to expand their services, and creation of an ecosystem of new services linked to agroecological farming and export oriented production, is essential for ensuring long-term sustainability. Likewise, the extensive capacity building proposed on agroecological farming, financial and business literacy, and cooperative formation undergird the transition to commercial farming.

106. The above focus areas will be supported by the creation of an enabling financial and policy environment to promote a competitive and streamlined food sector, including improved access to financial services, policy dialogue to support certification for meeting internationally recognized food standards, as well as, the development of digital support platforms and tools for the digitalization of the agricultural sector as articulated in the Bhutan E-RNR Masterplan.

107. In addition to improving access to - and availability of –nutritious food to enhance dietary diversity through investments targeted at vulnerable households, the project has defined specific interventions to ensure a nutrition-sensitive approach. These include capacity building, awareness raising, fostering behavioural change, home gardens for vulnerable households and linkages with the national school meal programme. The creation of new jobs and business opportunities for women and young people will contribute to women and youth empowerment.

108. The project will pay close attention to mainstream climate considerations into value chain selection, production and marketing interventions. The application of the CLEAR tool will inform the project on agroecological zoning for crops and livestock production, and selection of aggregation, processing and marketing centres based on robust spatial and temporal climate vulnerability and risk assessment. The multistakeholder Dzongkhag-level ARPs will be developed based on the CLEAR analysis, to further strengthen the resilience of agriculture and livestock sectors to climate and other shocks, as well as, on robust market analysis.

109. The linkages between climate-resilient value chain development and market-oriented food production will act as a catalyst in boosting the Country's aspirations to transition from a

Least-Developed to Middle-Income Country under its 12th and 13th 5-Year Plans. The focus on empowering women and youth employment and income opportunities aligns with several of the RGOB's social and economic policies and addresses the need to generate an employment base and opportunity for future generations to participate in a productive and sustainable society in line with the aspirations of Bhutan's Gross National Happiness philosophy.

F. Alignment, ownership, and partnerships

110. *Alignment with SDGs:* BRECSA is in line with the 2030 agenda for sustainable development. Investment in food and agriculture sector has the highest potential to accelerate achievement of almost all SDG goals. Targeting smallholder farmers in high poverty areas, improving food security, enhancing farm production and productivity, targeting all Gewogs in all project districts, supporting small and medium infrastructure, and adopting agroecological technologies and practices and other climate change adaptation measures will contribute to SDG goal # 1 ending poverty, goal # 2 ending hunger, and goal # 13 combating climate change and its impacts. As a gender transformative and nutrition and youth sensitive project, providing customized support to women headed households, households with differently abled persons, and improving nutritional status of households, will contribute to SDG goal # 3 ensuring healthy lives and wellbeing for all and goal # 5 gender equality and empowerment of women and girls.

111. *Alignment with national priorities:* BRECSA is fully aligned with the RGoB's 12th Five-Year Plan, RNR Strategy 2030, RNR Marketing Strategy 2021, other RNR sub-sector strategies, RNR Marketing Policy 2021, Transformation of Agriculture through Crop Prioritization 2022 (A strategy document for 2022-2027), Economic Contingency Plan 2020, Bhutan's Food Systems Pathways submitted to the UN Food Systems Summit 2021, Guidelines on Cost-Sharing Mechanism for RNR Sector 2021 (DAMC), Draft Enterprise Development Guidelines (DAMC), Cooperative (Amendment) Act of Bhutan 2009, Agriculture Survey Report 2021 (National Statistics Bureau), Labour Force Survey Report 2021 (National Statistics Bureau), White Paper on Bhutan School & Hospital Feeding Program 2019 (MoAF) and Incentive Scheme for Market-led Production of RNR Commodities 2021. It is also in alignment with the national organic flagship program and water and irrigation flagship program.

112. The project is also in line with Bhutan's nationally determined contribution (NDC) document that highlights climate- resilient agriculture and climate-proofing key infrastructure, such as irrigation and roads, as priority adaptation needs. The NDC highlights adaptation priorities to promote climate resilient agriculture, organic farming, sustainable agricultural practices, and resilience to the impacts of climate change.

113. *Alignment with IFAD policies and corporate priorities:* With relation to IFAD's corporate strategic objectives (SO), the project is aligned to SO1: Increase poor rural people's productive capacities, and SO2: Increase poor rural people's benefits from market participation. The project also responds to both objectives of IFAD's Country Strategic Note (CSN) for Bhutan: SO1 - Foster transformation of smallholder agricultural production into inclusive, equitable, diverse and resilient agri-food systems, and SO2 - Create an enabling environment for private sector enterprise development in the agri-food sector for engaging youth in lucrative commercial ventures.

114. *Country Ownership:* From the beginning of preparing the concept note, the process has been led by the Policy and Planning Division (PPD) of the MoAF in collaboration with the teams from IFAD and WFP. Similarly, with a team of experts from IFAD and WFP, the project design process was led by the PPD. Accordingly, the project design report is prepared in full consultation with MoAF and all other relevant agencies and stakeholders including Ministry of Finance, GNH Commission, local governments, CSOs, youth and private sector representatives, and farmer's representatives and cooperatives in all project districts. Like

other IFAD supported projects, BRECSA will be implemented through the RGoB agencies and in line with the RGoB's financial and procurement systems.

115. *Harmonization and partnerships:* BRECSA will directly contribute to the RGoB's priorities to enhance food security, economic recovery, growth, and diversification, and youth engagement. The project's support to the existing commercial farms and development of new Hubs for agricultural production, aggregation, processing and training of youth and farmers fits into the MoAF's overall plan to establish commercial farms and processing hubs in different parts of the nation to enhance food self-sufficiency and import substitution. The project's support to building market linkages and infrastructure, commercialization of farming systems, and support for required certification and standardization for export market development fits into the nation's priority to accelerate market development for agri-food products. The project's targeted support to the vulnerable households and smallholder farmers contributes to the nation's goal to reduce poverty and inequality. The project's focus on youth and private sector engagement and promotion of digital agriculture, permaculture and protected farming contributes to the MoAF's aspiration to develop a new generation of farming and farmers.

116. BRECSA will complement, cooperate and promote partnerships with ongoing and future projects funded by other development partners in the four projects districts. The relevant ongoing projects include:

- **World Bank's GAFSP** supported Food Security and Agriculture Productivity Project (FSAPP), with COVID-19 response additional funding (July 2017 - December 2024). The USD 13 million project is being implemented by the MoAF, in partnership with the World Bank and FAO. The project covers 24 Gewogs (out of a total of 58) in five south- western Dzongkhags: Chukha, Dagana, Haa, Samste and Sarpang. It includes Sarpang, one of the BRECSA project districts. The project's objective is to increase agricultural productivity and enhance access to markets for farmers in the above districts. There are many areas of complementarity in terms of strengthening farmer capacity, enhancing productivity, infrastructure development and market access. BRECSA's support to Sarpang districts will be aligned and coordinated with the ongoing support from FSAPP.

- **Green Climate Fund's** (GCF) Supporting Climate Resilience and Transformational Change in the Agriculture Sector in Bhutan. This is an on-going project (January 2020 - December 2025). The project, with USD 25.347 million GCF funding, is being implemented by the GNH Commission, in partnership with the UNDP. The project's direct beneficiaries include 27,598 agriculture households (118,839 people) in 8 target Dzongkhags of Dagana, Punakha, Trongsa, Tsirang, Sarpang, Samtse, Wangdue Phodrang and Zhemgang. It includes all BRECSA project districts of Zhemgang, Tongsa, Sarpang and Tsirang. There are areas of complementarity in climate- resilient infrastructure, climate-resilient agriculture and land development. BRECSA's project activities will be aligned and coordinated with the ongoing GCF project.

- **Adaptation Fund's** (AF) Adaptation to Climate-induced Water Stresses through Integrated Landscape Management. This is an on-going project (January 2022 - December 2026). The project, with USD 9.999 million AF funding, is being implemented by the Department of Agriculture and Department of Forest and Park Services, MoAF in partnership with Bhutan Trust Fund for Environmental Conservation (BTEF). The project includes two BRECSA project districts of Sarpang and Tsirang. BRECSA's project activities will be aligned and coordinated with this AF project, especially in the areas of irrigation water infrastructure.

- **Youth Employment and Rural Entrepreneurship (YERE) – Bhutan:** The 'Youth Employment and Rural Entrepreneurship (YERE)' project was introduced by the Government of Bhutan's Ministry of Agriculture and Forests, and the World Bank, with

financial support from the Japan Social Development Fund. It is a three-year project, with a total budget of USD 1.25 million. The project aims to promote youth employment in the export industry, reversing COVID-19's negative impacts. The project provides rural youth with access to financial, business, technical and life-skills training. Computer training is also provided to bridge the digital divide. After the successful completion of the trainings, the top 200 youth-enterprise proposals are supported with grants of USD 4,600 each, and technical assistance for the establishment of their respective enterprises. In this context, the project is contributing to the national goals of enhancing economic opportunities for unemployed youth, alleviating rural poverty, and reducing the vulnerability of the local population in poor and remote areas of the country.

G. Costs, benefits and financing

a. Project costs

Table A: Project costs by component and financier - (Thousands of United States dollars)

	RGOB Contribution		GAFSP grant (WFP)		GAFSP grant (IFAD)		IFAD loan		Financial Institutions		Beneficiaries		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
1. Resilient Production Systems	271.6	1.8	1,975.2	12.9	6,753.2	44.2	906.2	5.9	-	-	5,361.3	35.1	15,267.5	50.8
2. Strengthened Value Chain Coordination and Market Linkages	244.6	3.5	326.2	4.6	2,583.0	36.6	3,416.8	48.5	-	-	480.0	6.8	7,050.5	23.5
3. Innovation and Competitive Agri-food Sector	137.4	3.5	132.7	3.4	1,063.8	27.4	1,374.6	35.4	704.8	18.1	469.9	12.1	3,883.1	12.9
4. Project Management, Monitoring and Evaluation, and Knowledge	459.8	11.9	166.0	4.3	-	-	3,237.4	83.8	-	-	-	-	3,863.2	12.8
Total project costs	1,113.4	3.7	2,600.0	8.6	10,400.0	34.6	8,935.0	29.7	704.8	2.3	6,311.2	21.0	30,064.4	100.0

Table B: Project costs by expenditure category and financier - (Thousands of United States dollars)

	RGOB Contribution		GAFSP grant (WFP)		GAFSP grant (IFAD)		IFAD loan		Financial Institutions		Beneficiaries		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Works	280.6	3.8	38.1	0.5	3,051.1	41.5	3,087.1	42.0	-	-	901.7	12.3	7,358.7	24.5
Equipments and Materials	27.7	2.7	-	-	669.9	64.2	223.9	21.5	-	-	121.2	11.6	1,042.7	3.5
Vehicles	6.4	5.0	-	-	-	-	120.7	95.0	-	-	-	-	127.0	0.4
Goods, services and inputs	270.2	2.1	170.9	1.3	5,087.6	39.1	1,504.4	11.5	704.8	5.4	5,288.3	40.6	13,026.1	43.3
Consultancies	72.4	4.1	678.1	38.2	559.7	31.5	464.3	26.2	-	-	-	-	1,774.6	5.9
Operating costs	52.0	4.2	-	-	-	-	1,187.5	95.8	-	-	-	-	1,239.5	4.1
Salaries and Allowances	331.8	11.2	1,217.1	41.2	-	-	1,407.9	47.6	-	-	-	-	2,956.7	9.8
Workshops	33.2	3.4	286.7	29.6	195.3	20.2	452.5	46.8	-	-	-	-	967.7	3.2
Training	39.2	2.5	209.1	13.3	836.3	53.2	486.8	31.0	-	-	-	-	1,571.4	5.2
Total project costs	1,113.4	3.7	2,600.0	8.6	10,400.0	34.6	8,935.0	29.7	704.8	2.3	6,311.2	21.0	30,064.4	100.0

Table C: Project costs by component and year - (Thousands of United States dollars)

	PY1	PY2	PY3	PY4	PY5	PY6	PY7	Total
1. Resilient Production Systems	1,305.6	3,114.8	3,570.1	3,816.1	2,488.0	524.0	449.1	15,267.5
2. Strengthened Value Chain Coordination and Market Linkages	99.7	1,166.5	1,916.3	1,814.7	1,402.1	568.2	83.0	7,050.5
3. Innovation and Competitive Agri-food Sector	390.1	956.5	902.7	783.9	747.2	30.9	71.8	3,883.1
4. Project Management, Monitoring and Evaluation, and Knowledge	710.1	541.8	610.3	585.3	591.1	439.8	384.8	3,863.2
Total project costs	2,505.5	5,779.6	6,999.3	7,000.0	5,228.4	1,563.0	988.7	30,064.4

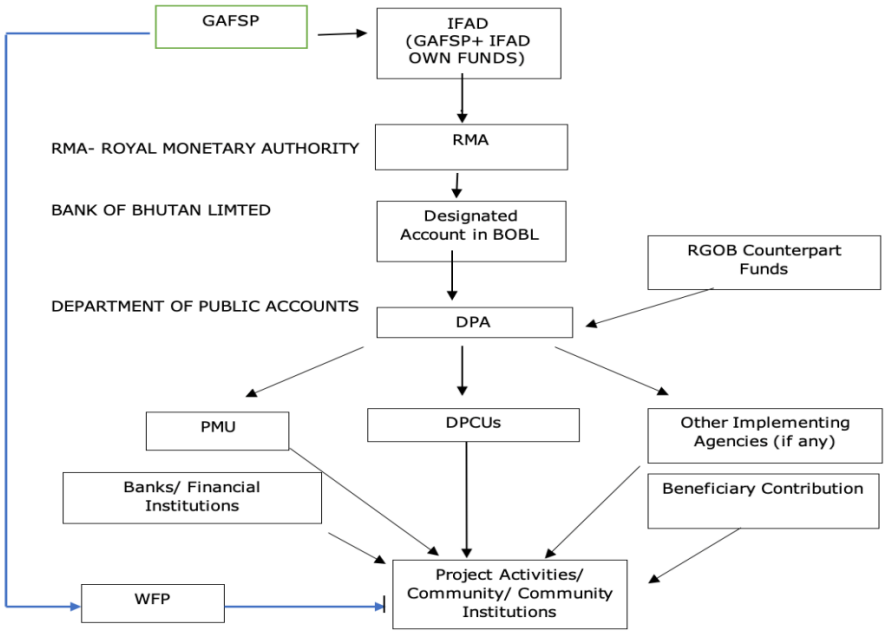
b. Disbursement

117. Two Designated Accounts (DA) denominated in USD for the Investment Entity GAFSP Grant and IFAD Loan shall be opened by the Royal Monetary Authority (RMA) of the RGoB in its Central Bank, Bank of Bhutan Limited (BOBL), to which funds will flow from IFAD. The funds will be disbursed in USD. RMA will transfer the funds based on project requirements to the Department of Public Accounts (DPA), which in turn will release this amount to the project in accordance with the approved AWPB. Funds will be disbursed following revolving fund methodology with advances based on quarterly submitted Interim Financial Reports (IFRs). The project may also request funds as reimbursements for pre-financed activities. The method of disbursement of IFAD funds and the procedure for submission of WAs will be detailed in the Project Implementation Manual (PIM).

118. The government counterpart funds, aside from the taxes on goods and services, shall be contributed by the RGOB, and it shall ensure timely and adequate release of the funds to the project in accordance with the AWPB. The project shall have a separate bank account at each of the implementing units wherein the amounts received from RGoB through DPA including, GAFSP, IFAD loan and RGoB counterpart funds will be deposited and used for project activities. The project shall submit withdrawal applications (WAs) for eligible expenditures, as per IFAD procedures and formats, to RMA, Ministry of Finance, through MOAF for onward transmission to IFAD. Beneficiary contribution shall also be recorded in the books of the project to arrive at the total project expenditure.

119. Disbursements from the DPA in respect of GAFSP, IFAD and RGoB counterpart funds will be made to all implementing units as per the approved AWPBs. All implementing units shall provide monthly expenditure statements by financier, components and categories to the PMU. The fund flow is depicted in the flowchart below:

FUND FLOW



120. Regarding the portion of the GAFSP grant channelled directly from GAFSP Trustee to WFP for Technical Assistance, WFP shall provide to the PMU a quarterly statement of expenditure by components and categories to enable the PMU to compile the total project

expenditure for its quarterly Interim Financial Reports (IFRs) submission to IFAD. The WFP funds utilization should be segregated in the reporting.

121. **Retroactive financing/ Project Pre-Financing Facility (PFF)**: At the Borrower's request IFAD financing up to USD 0.5 million may be provided as retroactive financing with prior Executive Board approval, to cover eligible expenditures between the date of approval of the design document by IFAD and the date of Entry into Force. Some of the activities that can be funded under retroactive financing are: (i) costs related to studies to be initiated (ii) procurement and customization of software; (iii) some operating costs; (iv) staff and consultants recruitment cost; (v) purchase of a minimum set of equipment and materials; and (vi) activities related to a baseline survey. To be eligible for retroactive financing, goods and services must have been procured according to the procurement procedures applicable to Grant/ Loan financing. The funds for these activities will be provided initially by the RGoB, which will be reimbursed once the IFAD conditions precedent to withdrawal have been met.

122. **Taxes:** The proceeds of the IFAD financing will not to be used to pay taxes which will be part of the counterpart funding of RGoB to the project. The estimated tax amount is USD 0.757 million, which will be borne by the RGoB, as part of its contribution as counterpart funding.

123. **Conditions Precedent to withdrawal:** In accordance with Section 4.02 of the General Conditions, no withdrawal shall be made from the Loan and Grant Accounts until the first AWPB, including the 18-month procurement plan has been approved by IFAD. Furthermore, the following will be designated as additional general conditions precedent to withdrawal: (i) the PMU shall have been duly established and the respective key project staff such as Project Director and Finance Manager shall have been appointed; (ii) the Borrower shall submit an official document confirming the availability of adequate counterpart funds for the first Project Year; (iii) the authorized signatories shall have been submitted to IFAD; (iv) the draft Project Implementation Manual shall have been endorsed by the PSC and received no-objection from IFAD; (v) the Designated Accounts shall have been duly opened.

c. Summary of benefits and economic analysis

124. **Direct benefits**: The primary benefit streams of the project will be through increased net incomes from household farm enterprises for the various commodities supported by the project due to production intensification, commercialization, empowerment of farmers' group and improved market access. The benefits would accrue mainly from agricultural business creation and expansion, facilitated by project support on supply chain development and establishing market linkages with potential suppliers. This will be supplemented by intensification and commercialization of production in a sustainable way. Increased income will be possible through increased land productivity (higher cropping intensity and yields), labour productivity (higher return on family labour) and access to water (higher water use efficiency).

125. **Indirect benefits**: The value chain approach being adopted by the project will create rural employment with new job opportunities, especially for the youth. These would not necessarily be in the production sector but in the service sector along the value chains, from processing and packaging to transportation, machinery hiring, etc. Promotion of climate-sensitive and sustainable production techniques in soil fertility management such as intercropping, rotation, relay cropping, strip cropping, etc., water management and promotion of resilient seeds will have positive environmental benefits. Intensification and diversification of agriculture and livestock production might also have benefits in terms of household nutrition through a more diversified diet from own production as well as purchases made through additional incomes. Further project support in cold storage, dairy processing plants, assembling, marketing and trading activities and foreign trade will generate significant indirect benefits.

126. **Financial analysis:** A financial analysis of the following enterprises, households and sub-sector models was carried out: (i) high value commodities (vegetable, mushrooms, ginger, turmeric and honey), (ii) animal (dairy/cattle and poultry), and (iii) permaculture, (iv) livelihood investment plans, (v) home gardens, and general subsistence and semi-commercial farmers including PWDs. Incremental annual net benefits[34] vary widely across activities, ranging from US$ 96 for livelihood improvement plans to US$ 4,971 from permaculture enterprises. As anticipated, these activities are playing a bigger role in employment generation[35], on an average 2 family members and 1 hired worker were employed and there is prospect to increase employment generation to a notable level in all the selected value chain commodities. Not surprisingly, the return is less in case of livelihood improvement plans, home garden and general subsistence and semi-commercial farmers including PWDs. All the models demonstrate very satisfactory benefit/cost ratios, financial internal rates of return (FIRR) and positive net present value (NPV). This indicates the attractiveness of the investments in these value chain enterprises.

127. **Economic analysis**: Based on the financial models on enterprises, households and sub-sector, an economic analysis of the project has been conducted using economic prices. The economic benefits of each model have been aggregated based on: (i) the number of direct beneficiaries for each model aligned with phasing of investments in the COSTAB; and (ii) adoption rates (crop and livestock models) and survival rates (rural enterprise models) based on the past experiences. As for the economic costs, investment cost, O&M costs of the marketing, irrigation and other infrastructure cost and recurrent cost were considered. The costs covered by the project have been extracted from the models to avoid double counting. Cost-benefit analysis yields an overall EIRR of 19.2%. The estimated NPV for a 9% discount rate is Nu. 2,905.72 million (USD 38.74 million) and the BCR of 2.3. A positive NPV under the current Opportunity Cost of Capital of 9% indicated that the project investments were sound and solid.

128. **Risk analysis**: Sensitivity analysis and switching value analysis was done to assess the impact of changes on return on investment due to change on risk parameters: A sensitivity analysis was conducted to assess the effect of variations in (i) 10% and 20% decrease in benefits; (ii) 10% and 20% increase in costs, (iii) one year and two-year delay on incremental income accrual, and (iv) 10% and 20% decrease in adoption rate. In all these scenarios, EIRR was above 15%. Result of sensitivity analysis revealed that the project is highly sensitive on delay on accruing benefit by even by one year compared to decrease on project benefits, increase in project cost and decrease in adoption rate. The switching value for the total project benefits is about 56.8% while for the project costs it is approximately 131.4%.

129. **Project cost by beneficiary**: The project will target to 12,047 households and 47,088 persons. With the project cost estimates, project cost per beneficiary households is USD 2,489.6 and that of cost per person is USD 638.4.

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[34] The net benefits include net of cost of yearly investments and smallholders require external loans to finance their working capital need in the first year. Their yearly / seasonal investment will be met either from their annual cash flow from the enterprise or additional borrowing. Since most of these activities are seasonal in nature with gestation period of few months to year, they may need working capital loan in the beginning of the farming season which can be paid after harvest.

[35] Like in other parts of rural Bhutan, BRECSA project areas is characterized by youth unemployment and under-employment of the smallholder farmers, most of them opting seasonal migration to Thimphu, neighbouring countries and overseas countries. Initial impact of the BRECSA support will be to gradually reduce underemployment rate and later attracting seasonal migrants as well on BRECSA promoted enterprises. In rural areas, smallholders are confident that growing two crops of vegetables (with gradual expansion), 2 milking cattle/buffalo and 500 bags of mushroom provide decent and full-time employment.

d. Exit Strategy and Sustainability

130. A detailed exit strategy for BRECSA will be prepared during PY4. A consultation workshop will be undertaken in each district, in collaboration with all project partners, to detail and finalize the exit strategy. Risks and challenges will be identified early on to allow for elaboration of mitigation measures. The exit strategy will be coupled with a monitoring framework to ensure readiness. The exit strategy will phase out activities as linkages with the supported private sector entities are strengthened. A high level of participation from the Government, beneficiaries and partner institutions is planned from the outset to ensure ownership by local stakeholders. BRECSA incorporates several features designed to promote long-term sustainability, including:

a) The CLEAR tool will ensure that BRECSA plans and maps out the spatial and temporal impacts of climate change on smallholder farmers and rural communities. This exercise will inform how food security is affected by climate risks, enabling climate resilient planning for placing commodities in their appropriate agroecological zone, as well as, for defining specific infrastructural needs as a response to anticipated climate impacts and identified commodity value chains. This will ensure sustainability of investments over the longer-term.

b) Strategic value chains have been chosen to ensure availability of adequate resources to establish these well. Production and marketing investments for crops and livestock is designed to support value chain development planning over the long-term.

c) Village level planning and implementation through ARPs, farmer groups, farmer coops and group formation, establishing O&M groups for asset management is expected to stimulate ownership by target communities.

d) The value chain approach will lead to interweaving production, marketing and enterprise development to ensure benefits to farmers as well as the private sector, creating viable businesses to ensure sustainability.

e) Technical assistance is targeted to meet real needs, improve capacities and knowledge of farmers, asset accumulation and agro-ecological technologies to sustain farm enterprises.

f) Improved market access, linkages, transport efficiency and product quality, storage facilities to control post-harvest losses, contractual relationships and capture of premium prices will enhance incomes and resilience and create durable enterprises.

g) Overall, strengthening local institutions, farmers and their groups and developing ownership is the most effective way to ensure sustainability beyond the implementation period. The programme will also strengthen the organisation capacity of RAMCO, ARDC and other partner organizations and stakeholders to continue to serve local communities beyond the programme period.

131. With regards to O&M of infrastructure, the infrastructure will be handed over to beneficiary communities such as farmers, cooperatives, youth groups or private sector entities under an MoU. The MoU will clearly delineate the roles and responsibilities of beneficiary, project and other stakeholders, and shall provide a mechanism for meeting the operational expenditures with respective contributions. Budget allocations have been made in the COSTAB for training Water User Groups (WUAs) and Road User Associations (RUAs). Furthermore, through the provision of TA, the project will build the capacity and provide trainings to beneficiary communities and infrastructure management committees on operational maintenance of infrastructure facilities.

132. The RGoB remains committed to improve access to, and use of finance, in the agriculture sector, particularly targeting smallholders and micro-small-medium enterprises (MSMEs). The project's one-time injection of capital is for building economic viability and sustainability of agricultural enterprises amidst a challenging environment. This in turn is

expected to nurture and sustain the financial sector's confidence in the agri-sector for enhancing investments.

3. Risks

H. Project Risks and mitigation measures

133. Various project risks have been analysed and mitigation measures have been planned. The main risks and mitigations are as follows:

Potential Risks	Scale	Mitigation Measure
Limited capacity of implementing partners	Medium	IFAD has managed to identify strong partners (ARDC, FMCL, RLDC) who have supported implementation of CARLEP activities and added value in terms of innovation. IFAD will continue engaging with its partners, and identify others to support its objectives. BRECSA has allocated sufficient resources for capacity development support and targeted technical assistance.
Limited capacities and resources for farmers to embark on agricultural commercialisation	Medium	BRECSA has defined a solid programme to build capacities and skills, including on governance, enterprise management, financial literacy, value addition and marketing, coupled with investments and access to financial services.
Limited opportunities for policy Engagement	Medium	IFAD, and through CARLEP, has some success stories to build on regarding policy work. A well-defined policy agenda has been defined within BRECSA, replete with resources for implementation. Engagement with government (PPD and BAFRA) and other partners will be pursued for supporting commercialization opportunities through MSPs and enhanced branding, regulation, standardization and certification.
Ineffective inclusion of women, youth and vulnerable groups in project interventions	Low	BRECSA has a strong focus on social inclusion. Direct targeting will be used to ensure social inclusion of women, youth and vulnerable groups, such as women-headed households and persons with disabilities. Specific budget allocations have been made to ensure outreach. Sixty percent of BRECSA beneficiaries will be women and 30 percent will be youth. Six hundred differently abled women, men and youth, constituting 25% of the population of differently abled persons in the target districts will benefit from BRECSA interventions.
Challenge of strengthening climate change resilience at farm and community level	Medium	The main planning instruments of BRECSA are the CLEAR tool and ARPs, which will guide interventions, enhance long-term adaptive capacities and generate knowledge to integrate agroecological planning. BRECSA will also support the implementation of recommendations of the NDC document, including the selection of drought tolerant crop varieties, and promoting agroecological approaches, including permaculture.

Market price fluctuations affect the income patterns of production models	Medium	MSPs will allow for strategic production planning based on market demand and facilitate necessary adjustments as changes take place. Also, access to market information through digital tools will support real time decision making. Farmer group and cooperatives will be organized around production and commercialization hubs to strengthen negotiation skills and help share better price premium.
Failure to establish sufficient management capacity of the marketing groups and cooperatives	Medium	Comprehensive technical support, training and exposure and access to new techniques and know-how will be provided by the PMU (marketing and value chain development Specialist), RAMCO, DAMC and other relevant stakeholders. This will include close support through the development process and implementation of Investment Plans.
Extension service outreach is limited to ensure inclusion of remote households and most-vulnerable groups	Low	The project will recruit a team of *Sanam Jabjorpa* (community supporters/mobilizers) to mitigate the shortage of extension officers, work closely with beneficiaries, identify needs, and support ARP development and implementation. This team will act as a direct link between beneficiaries and the PMU, and will undertake continuous support and close monitoring to ensure successful engagement.
Inefficient use of funds due to lack of fiduciary oversight and weak internal controls	Substantial	Project management will ensure that internal control mechanisms adopted for BRECSA are adhered to at all project levels through i.a: i) regular monitoring of physical implementation progress and identification of issues; ii) establishing a time bound action plan for addressing any identified issues; and iii) ensuring proper segregation of duties by clearly outlining roles/responsibilities and verification through monitoring activities. Dzongkhags/Gewogs will be required to submit regular financial reporting to PMU for the consolidated quarterly IFR reporting. Furthermore, the project should be subject to internal audits with follow-up on recommendations.
Failure to deliver timely and satisfactory audit/financial reporting as per IFAD/GAFSP requirements	Substantial	Training of project staff on IFAD/GAFSP requirements and procedures for financial reporting will be provided during start-up and to any new staff joining later. The PIM will include information on timelines for reporting to ensure preparation of IFRs and annual financial statements with adequate time for internal clearance and approval processes. MoAF should further have a clear MoU with the RAA to complete the external audit within the stipulated timelines, allowing for timely submission to IFAD. As e-PEMS does not currently allow for customization the project will adopt a separate system (computerized) from which reports can be automated and generated, to reduce manual input.

I. Environment and Social category

134. The proposed environmental and social category for BRECSA is **moderate**, based on the SECAP screening tool. The Project will not impact on any sensitive areas or result in loss of natural habitat and biodiversity. BRECSA's interventions will be confined to existing cultivated and fallow lands; and activities will not be located in areas at high risk of geophysical hazards, thus the risk to agriculture, livestock and small-scale infrastructure are considered to be minimal. The Project design will be directed at environmentally sound and sustainable

agriculture and livestock: a) priority will be given to water source protection and multiple water use systems for water use efficiency, b) agroecology will be promoted, lead farmers and *Sanam Jabjorpas* will provide onsite support to farmers, c) chemical inputs will be replaced by locally made biofertilizers and pesticides, use of liquid fertilizer will be promoted, project will encourage integrated pest management d) Project will work to minimize the waste from agriculture or livestock, and market and processing centres, and as far as possible these will be recycled mostly for manure production, e) renewable energy technology will be promoted as part of the value chain and support market development activities. BRECSA will only support small-scale climate proofed infrastructure with no further harm on environment. The project has a strong focus on social inclusion with ambitious targets for the inclusion of women, youth and differently abled persons. It has customized interventions for these groups who will be actively engaged in decision-making and provided with opportunities for peer-learning and dialogues on their needs and priorities with RGoB. Inclusion of women, youth, and where possible, differently abled persons, in the development of ARPs and strategic investment plans will facilitate their participation in BRECSA.

J. Climate Risk classification

135. As per the SECAP screening tool, the climate risk category of the project is determined as **moderate**. Following are the key themes and steps followed to assess climate risks:

i. Hazard identification: As per the ThinkHazard report, the project intervention area is likely to experience river flood, landslides, extreme heat and wildfires. The CLEAR tool will be employed to assess climate hazard hotspots and decisions will be made whether to avoid such areas or integrate appropriate adaptive measures for project interventions. Likewise, climate scenarios predict changes in temperature, climate variability and alterations in intensity and frequency of extreme events. The ARPs, supported by the findings of the CLEAR tool, will guide location for project interventions considering aforementioned climate change and its potential impacts on households and commodities

ii. Exposure Assessment: Crop and livestock production are frequently affected by rainfall variability, prolonged droughts, changes in temperature, and pest and diseases. BRECSA will support efficient irrigation and water-use technologies to tackle water scarcity problems. Efforts will be made to promote Permaculture, integrated pest management, and bio-input production, and selection of suitable crops to manage pest and diseases.

iii. Sensitivity: The only positive response to sensitivity screening questions is the multidimensional poverty, which is above 0.1 for Bhutan. However, the multidimensional poverty has been halved in 2017 compared to 2012. BRECSA will support vulnerable households to participate in value chains to increase their income and livelihood standard.

iv. Adaptation capacity and climate resilience: One of the core goals of the project is to increase community resilience to adverse impact of climate change. The RGoB together with development partners and NGOs, are wisely supporting target households with the necessary social and economic resources to prepare for or respond to climate-related events. The country has good farm road networks and the rural infrastructure effectively delivers services to farmers and rural dwellers. Farmers are getting ample support from government to continue and diversify their farming practices. The detailed analysis of the climate scenario and resulting risks and response measures to the main investments indicate that the BRECSA is expected to be moderately sensitive to climate risks and an integration of climate issues has been undertaken as part of the detailed design. This process has resulted in practical adjustments under the project to reduce losses and damages from climate change impacts to target beneficiaries, and will also strengthen local climate adaptation capacities.

K. Organizational Framework

a. Project management and coordination

136. **Project oversight:** The **Ministry of Finance** (MoF), as IFAD's counterpart agency and borrowing entity, will be the nodal agency for the BRECSA project. MoF will designate a Focal Officer (FO) from the Department of Public Accounts (DPA) who will be responsible for liaising with the Ministry of Agriculture and Forests (MoAF) and IFAD and the Project Management Unit (PMU), for facilitating operations of the Designated Accounts, clearing Withdrawal Applications (WAs), ensuring smooth fund flow and disbursements, submitting consolidated financial progress reports and ensuring audit of the project. The FO will participate in programme review meetings, meet with supervision missions and participate in mission wrap up and other meetings to discuss and resolve fund related issues.

137. The **MoAF** – and through the Policy and Planning Division (PPD) - will be the executing agency of the project and the formal counterpart to IFAD and WFP. MOAF will provide overall implementation support and oversight, policy guidance and direction, second technical staff from the pool of civil servants for implementation, and provide technical backstopping through line departments and agencies in the field. The Project Management Unit (PMU) will report to the Chief of the PPD.

138. To undertake these tasks, PPD will be supported by a **Planning Officer** and a **Coordination Officer**. The **Planning Officer** will liaise with the Project Management Unit (PMU) and relevant departments within MoAF and other relevant Ministries to facilitate convergence and coherence with flagship programmes and other initiatives and coordinate with other donor programmes and projects to build synergies and avoid duplication; be responsible, in collaboration with IFAD and WFP, to organize and coordinate annual supervision and implementation support missions, mid-term and project completion reviews, and analytical studies as detailed in the project design; support all policy related work under BRECSA; and assist the PPD Chief with PSC related matters. The **Coordination Officer** will be responsible for domestic and international communication, media relations and advocacy; monitoring, evaluation and reporting; and facilitate youth, gender, nutrition and inclusion mainstreaming priorities[36]. The Coordination Officer, in addition to project activities, shall also support the PPD in carrying out communication advocacy services including M&E support for the PPD of the Ministry. This will enable a better integration of BRECSA within MOAF advocacy and M&E activities.

139. **Project Steering Committee (PSC):** BRECSA will be governed by a Project Steering Committee (PSC) chaired by the Secretary, MOAF and comprised of the following members: Secretary/ Director, Gross National Happiness Commission (GNHC); Director, Ministry of Finance (MoF); Director, Ministry of Health (MoH); Dzongdag, Sarpang Dzongkhag Administration; Dzongdag, Tsirang Dzongkhag Administration; Dzongdag, Trongsa Dzongkhag Administration; Dzongdag, Zhemgang Dzongkhag Administration; Director, Bhutan Agriculture and Food Regulatory Authority (BAFRA), MoAF; Director, Department of Agriculture (DoA), MoAF; Director, Department of Agricultural Marketing and Cooperatives (DAMC), MoAF; Director, Department of Livestock (DoL), MoAF; Chief Planning Officer, Policy and Planning Division (PPD), MoAF; Project Director, BRECSA, Project Management Unit (PMU). The Chief Planning Officer PPD will function as the member Secretary of the PSC. IFAD and WFP representatives will participate as observers. The PSC shall meet at least twice a year and convene additional meetings when necessary.

[36] Specific ToR for gender, nutrition and youth mainstreaming will be prepared for the Coordination officer in order to ensure appropriate implementation and follow up of social inclusion activities and outcomes.

140. The responsibilities of the PSC will include, among others: (i) broad oversight of project implementation; ii) compliance of project activities with Government's policies and the terms and conditions of the financing agreement; (iii) approval of Annual Workplan and Budgets (AWPBs) and Consolidate Procurement Plan (CPP), (iv) coordination of project interventions with other development programmes and projects; and (v) policy and strategic guidance for improved implementation.

141. **Project Management Unit (PMU):** A PMU will be established at the Agriculture Research and Development Center (ARDC) Samtenling in Sarpang. The PMU is the primary implementation arm of the project for delivery of all Gewog and Dzongkhag level activities. The PMU will be led by a Project Director (PD) (a senior officer from the MoAF selected through a competitive process). The PD will lead and oversee the overall implementation of the project at the Gewog and Dzongkhag levels, including WFP technical assistance activities, and support the policy aspects of the project. He/she will manage the PMU team for delivery against performance indicators. The PD will report to the Chief of the Policy and Planning Division (PPD) of MoAF.

142. The following professional positions will be staffed within the PMU to ensure effective and timely implementation of the different activities:

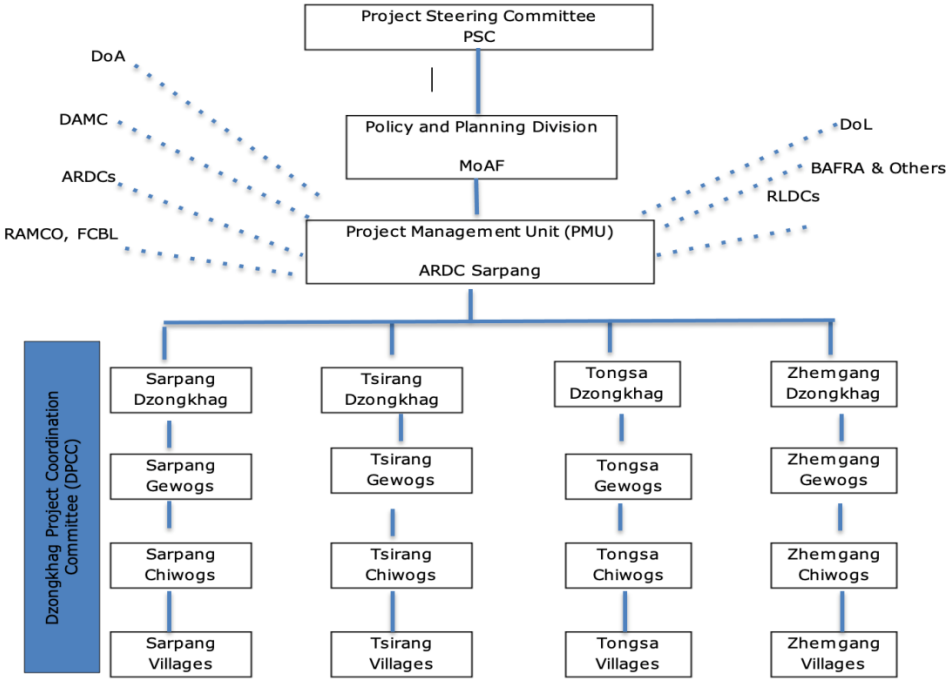
1. Full-time **Finance Officer** who will be responsible for budgeting, account management, Interim Financial Reporting (IFR) for fund flow management, compilation of Withdrawal Applications and reconciliation, annual financial reporting, submission of annual audit, and monitoring government counterpart financing.
2. Full-time **Procurement Officer** who will be responsible to initiate and conclude project related procurement processes that are consistent with RGoB and IFAD procurement policies and guidelines.
3. Three full-time **Sub-Sector Specialists** respectively for i) crop production, ii) livestock production, and iii) marketing and value chain development.
4. Full-time **Engineer** who will work in cooperation with the DoA Engineering Division and Dzongkhag Engineers, to plan, coordinate, facilitate procurement, and monitor implementation of infrastructure activities.
5. Full-time **ARP Coordinator** who will organise the capacity building of the *Sanam Jabjorpa* (community supporters for ARP implementation) to deliver key project interventions, develop annual workplans for CMs based on AWPB, direct and manage the work of the community mobilisers in the field, and monitor performance.
6. Full-time **Social Inclusion and Nutrition Officer** who will implement strategies for engaging the different groups, including women, youth and differently-abled persons, and facilitate the specific project interventions designed to meet their respective needs. The Officer will also support the implementation and supervision of the recommended activities of the ESCMP and will support the M&E and KM officer on monitoring and data collection.
7. Full-time **Monitoring, Evaluation and Knowledge Management Officer** who will maintain a project Management Information System (MIS) for tracking all project indicators, identify lags in implementation and propose adaptive management options, and produce targeted knowledge products for promoting resilient, nutritious and commercial agriculture production, youth engagement, scaling up good practice, and evidence gathering for informing policy dialogue.
8. TA funded technical specialists responsible for the implementation of technical assistance activities will be an integral and embedded part of the PMU team. The medium-term TA specialists are national market system and value chain development specialist (47 months), national cooperative strengthening and marketing specialists (2 positions of 24 months, each one responsible for two districts), and national nutrition specialist (36 months), who would be complemented by short term national and international thematic experts for areas such as CLEAR, ARPs, agroecology, business plans, high-end marketing and ICT. The WFP technical team will delineate the TA activities to be carried out annually

for inclusion in the Annual Workplan and Budget (AWPB) and Procurement Plan (PP). The WFP technical specialists will work under the supervision of the PD of PMU and report to him/her. All budgets for annual work plans, personnel and administration costs for the WFP technical assistance component are integral part of the overall work planning and budgeting.

143. The full-time professional officers at the PMU will either be seconded staff from MoAF (government contribution) or experienced and qualified individuals recruited from the market.

144. **Implementation Modalities:** Under the leadership of the Dzongdags, respective Dzongkhag and Gewog administrations will be the implementing agencies in the project areas. The Dzongkhag and Gewog administrations will be responsible for planning, coordination, implementation, supervision, monitoring and evaluation, finance and accounts, procurement, audit, report generation, and other activities related to the project. There will be a **Dzongkhag Project Coordination Committee (DPCC)** with the Dzongdags as the chairpersons, Gups of all Gewogs, relevant sector heads and other relevant agencies and stakeholders as members. The Dzongkhag Agriculture Officer (DAO) will serve as the **Dzongkhag Project Coordinator** and as member Secretary of the DPCC.

145. Under each Dzongkhag, the Gewogs will take the lead in implementing the project activities. The Dzongkhags with relevant sector heads and technical experts, and concerned agencies like ARDC, RLDC, RAMCO and FMCL will support the Gewogs in, among others: (a) planning for investments; (b) collection of inputs for Dzongkhag level AWPB and PP; (c) management of inputs supply; (d) supervision; (e) technical backstopping and trainings; (f) accounts, financial management, procurements, and audit, (g) progress monitoring including data collection and data validation to feed into the PMU M&E systems; and knowledge management through documentation of good practices and lessons learned.



146. **Inter-agency coordination:** IFAD and WFP will coordinate based on quarterly meetings, where the Country Directors of the two organisations will bring in needed project staff and experts, review the performance of the project as per the AWPB, identify

challenges and bottlenecks, as well as mitigation measures. Other meetings could be convened on a need's basis. In addition to the coordination meetings, IFAD and WFP will hold a meeting every March of the project implementation calendar to engage in AWPB and procurement planning.

b. Financial Management, Procurement and Governance

147. Summary Risk Assessment: A Financial Management (FM) risk assessment has been completed, following virtual meetings with the finance officials of the MOAF. The risk assessment and the mitigation measures are provided in Annex 10 to the PDR. Based on a combination of inherent country risk with identified project risks, the overall inherent risk is Substantial before mitigation, the overall FM risk rating assigned to BRECSA after mitigation measures are implemented is Moderate.

148. **Inherent risk at country level**: Bhutan's fiduciary environment for utilising both internal and donor funds is considered broadly adequate. The Government has made progress in strengthening its Public Expenditures Management System (ePEMS). It has demonstrated its commitment to continuing its PFM reforms by developing more efficient public FM systems and ensuring transparency by strengthening state oversight institutions. The Corruption Perception Index of Bhutan published by TI has been constant at 68 (ranking 25/180) as the 25th least corrupt country in the world in 2021.

149. **Control risks:** Overall, BRECSA will be operating in a substantial inherent risk environment due to the persistence of some weaknesses in the public sector FM systems as outlined in the PEFA analysis and in light of observed deficiencies noted for CARLEP, primarily relating to financial reporting and audit. Proposed project FM arrangements incorporate multiple measures intended to reduce such risks and ensure that (i) project funds are used for intended purposes in an efficient/effective way; (ii) reliable/timely financial reports are prepared and audited within the stipulated time; (iii) internal audit is conducted; and (iii) project assets/resources are safeguarded from unauthorized or wasteful use.

150. **Organization and staffing at the central and district level.** A dedicated Finance Manager (FM) will be deputed by MoF to the PMU and will be in charge of the finance functions for the project period. The PMU finance team will be responsible for compiling/consolidating data of all the district units and implementing partners. The FM will be responsible for the overall functioning of the finance team, for coordination with the Government for disbursement of counterpart funds, preparation/submission of IFRs, Withdrawal Applications (WA), preparation of consolidated financial statements (FS), review of financial reports, timely audit completion/submission and provision of guidance to the Dzongkhag teams. Moreover, he/she will be responsible for maintaining accounts of the PMU, contributing to AWPB preparation, coordinating with the Dzongkhag accounts officers, disbursement of funds to the Dzongkhag offices, checking vouchers and synchronization of accounts.

151. At Dzongkhag level the PMU will have a dedicated accountant. The PMU finance team will perform all accounting and reporting functions such as preparation of vouchers, issue of cheques and recording all transactions in the software, and preparation of monthly bank reconciliation statements. The finance personnel will report to the FM at the PMU. Accounting and reporting will be undertaken in accordance with International Public Sector Accounting Standards (IPSAS-Cash).

152. **Accounting systems, policies, procedures and financial reporting**. BRECSA will use the country E-Public Expenditure Management System (ePEMS) for its accounting, which is a double entry computerized accounting system used for all Government accounts. The system works well with a uniform chart of accounts and is linked to the Multi Year

Rolling Budget (MYRB) which tracks expenditure against the approved budgets. However, since the software is a centralized accounting system, no customization can be done at project level. Thus, preparation of reporting by components, categories and financiers, and for the Interim Financial Reports (IFRs), in the formats required have to be performed through a separate system by exporting the data and consolidating it. Accounts of the PMU/districts will be synchronized every month and will be used for consolidated quarterly financial reports and for preparation of the WA. The AWPB prepared by the project and the audited accounts shall be submitted to the PSC for approval before submission to IFAD.

153. **Financial reporting arrangements:** The PMU will be required to prepare and submit IFRs on a quarterly basis to IFAD no later than 45 days after the end of each reporting period. All financial reporting will disaggregate information by component/category and by source of financing, among others, to enable IFAD reporting to GAFSP. Content and format of the IFRs will be specified in the PIM. The PMU will consolidate its accounts with those of the relevant Dzongkhag offices, project implementing agencies and districts and produce consolidated annual financial statements in line with IFADs reporting requirements. The unaudited FS will be submitted to IFAD within four months of the end of each fiscal year. In line with IFAD's requirements, documentation will be reviewed through Project Supervision Missions and for audit purposes.

154. **Budgeting.** MoAF follows the budget preparation guidelines set out in the Budget Manual issued by MoF. Annual budgeting will be done in line with Government's existing budget framework and timetable (Budget calendar) as part of MoAF's regular budget submission. The budget line with GAFSP and IFAD contributions will be clearly identified and reported upon as part of MoAF budget allocations under a sub-budget category to ensure that the principle of 'aid on budget' is observed. After obtaining data from the districts which will be based on the annual plans of the communities/ institutions and other activities to be undertaken by the PMU, the budget will be finalized by the PMU, ensuring coherence with defined categories/components and allocations. Along with the PP, the AWPB has to be submitted to IFAD for approval at least two months prior to the commencement of the relevant fiscal year. The RGOB shall ensure timely release the funds to the project in accordance with the approved budget.

155. **Submission of withdrawal applications (WAs)**. It is foreseen that the project will prepare and submit to IFAD WAs on a quarterly basis through the MoF for the loan funds. For the GAFSP grant, it is foreseen that WAs will be submitted annually. All financing and loan service payments shall be exempt from taxes. The WA should be by way of quarterly IFRs. For Report Based disbursement (RBD), BRECSA needs to have an integrated computerized system and all reports should be automated and generated from the software itself.

156. **Internal controls:** The government policy lays out transactional control on all government receipts and payments at all levels. The transactional control framework is considered adequate and reflects best practice. Physical achievements are not tracked against financial expenditure. The Project's internal controls will rely on the Government established accounting and internal control guidelines as documented in the Financial Management Manual (FMM) issued by MoF. Internal controls will also be verified during the annual audit exercise and reported to IFAD in a Management Letter, in line with IFAD's audit guidelines.

157. Procedures and record maintenance at all levels will be based on RGoB procedures consistent with IFAD's requirements and those documented in the FMM and the PIM. The PIM shall include provisions in respect of internal controls, preparation of project FS, financial reporting arrangements, contract management and audit requirements. The FM shall be responsible for the effective implementation of the overall internal control system. To the extent possible, all payments will be made through direct bank transfers. Cash

transactions will be permitted only in exceptional cases and for reasons to be recorded in writing or for petty cash payments.

158. **Fund Flow:** The flow of funds is depicted in the chart under the Disbursement section. The project will follow report-based disbursement, the format of which is provided in the PIM. Funds will be advanced based on the cash flow forecasts of the next two quarters and upon submission of the relevant IFR for withdrawal claims; IFAD will confirm whether a minimum of 50% of the previous advance has been justified. IFRs are required to be submitted to IFAD on a quarterly basis to fulfill the reporting requirement, regardless of whether a WA is scheduled to be submitted.

159. **Subsidiary Agreement**. As RGoB's funds and IFAD financing are transferred to the implementing agencies and partners, the PMU will enter into subsidiary agreements with each entity receiving project funds. The provisions of the agreement shall be articulated in the PIM.

160. **Internal Audit.** The internal audit unit at MoF works based on its priorities and is need based. Due to its mandate of covering all RGoB units based on its internal assessment, it may have limited capacity available to cover the Project activities as part of its oversight functions. Should it be ascertained that the internal audit arrangements provided by the Internal Audit Unit are insufficient, a private audit firm may be contracted as a complementary measure, in order to determine risk areas and propose mitigating measures. The internal audit function should be conducted of the PMU every quarter. A copy of the report along with the Management replies to the observations will be submitted to IFAD. The internal audit will also include statutory compliances. TORs for the internal audit will be included in the PIM. An action taken report (ATR) from the PMU and the districts shall be submitted to the PD and the internal auditors (reports/ATR reviewed by the PSC every six months).

161. **External Financial Audit.** The Royal Audit Authority (RAA) has the mandate to audit all foreign funded loan projects, following standard and specific donor requirements by INTOSAI.

The consolidated FS including the use of the counterpart funds will be audited by the RAA and reports will be furnished to IFAD within six months of the end of the relevant fiscal year. The auditor is required to deliver an audit package consistent with the TORs defined in the PIM. The Project shall maintain an Audit Log in respect of the audit observations and get it validated by the auditor during the subsequent audit or earlier.

162. In light of the resource restraints as per noted above, in case the RAA is unable to complete the audit within the stipulated time, the project may consider procuring an independent auditor to undertake the audit in accordance with approved TOR to ensure fulfilment of the IFAD audit reporting requirements.

163. **Procurement.** Project Procurement will be undertaken in accordance with RGoB's National Procurement Framework consistent with IFAD's procurement procedures. This includes the use of the Governments e-procurement system and adoption of standard bidding documents as accepted by other international financial institutions. Overall inherent procurement risk rating under BRESCA is moderate while residual risk post mitigation is low. Main risks identified include: (i) the inadequate capacity of the seconded procurement officers; ii) inadequate and poor technical inputs (upstream activities) such as with regard to design, drawings, and bill of quantities leads to complications during contract implementation; (iii) risk of substantially low or high bid prices; (iv) unpredictable increase in raw material and fuel costs; (v) delays in contract implementation due to lack of labour, material and contractors' liquidity issues; and (vi) inconsistencies with IFAD Standard Bidding Documents. Mitigation measures proposed include: (i) Drawings and designs are supported by external technical assistance; (ii) recruit dedicated long term technical experts

instead of seconded officers; (iii) request bidders and contractors signing the Self-Certification Forms on anticorruption, sexual harassment, sexual exploitation and abuse as a part of bids/proposals and contract documents; (iv) conduct prior and ex-post procurement review; (v) undertake coaching, on-the-job trainings and refresher trainings on procurement (IFAD project procurement guidelines and manual, ICP E2E Procurement System, participation in BUILDPRO procurement training program); vi) require accreditation in national procurement system (framework); (vii) apply relevant provisions in the bidding documents to deal with abnormally low bids, including seeking higher performance security; viii) rate analysis and have realistic technical estimates; (ix) ensure sufficient contingency funds are allocated; x)prepare technical estimates referring to both BSR and the market rates of materials; and (xi) realistic contract management plans;xii) add a requirement of bank credit lines specifically for the contract in the evaluation and qualification criteria; xiii)provision for advance payment in installments; xiv) provision of payment for plant and materials; xv) monitor the contractor's performance closely and take necessary action as early as possible; xvi) close monitoring of the contract execution; and xvii) use an early warning clause in contracts.

164. **Governance and transparency framework**: All project staff should be familiarized with the IFAD Anti-Corruption policy and in case any fraud or corruption is noticed during implementation of the project it should be reported to the Investigating Section of the IFAD Office of Audit and Oversight (AUO) as per procedures defined in the relevant documentation.

L. Planning, M&E, Learning, KM and Communication

a. Planning, M&E, Learning, Knowledge Management and Communication

165. **Planning:** The Dzongkhags with relevant sector heads and technical experts, and concerned agencies like ARDC, RLDC, RAMCO and FMCL will support the Gewogs in collection of inputs for the preparation of the Dzongkhag level Annual Workplan and Budget (AWPB) and Procurement Plan (PP). WFP TA support will guide the AWPB and PP development process. The PMU will compile the different Dzongkhag level AWPBs and prepare a single project AWPB. The AWPB will be approved by the PSC. The AWPB will identify all agencies and service providers responsible for delivering project activities, and estimated financial outlays for the year including, RGoB and beneficiary contributions. The PP will detail all procurements, including WFP's procurements, to be undertaken for the year and the modalities governing those procurements. Whenever implementing partners identify the need to change, adopt and adjust the working modality and annual work plans or procurement plans, they may propose such changes to the PMU, to be ultimately endorsed by the PSC and IFAD. BRECSA will be enrolled in IFAD's BUILDPROC training programme in order to increase the procurement capacity of the PMU.

166. **Monitoring and Evaluation:**

167. Drawing on the CARLEP M&E system, a robust geo-referenced M&E system will be established. The PMU will establish an M&E unit and develop the M&E system, which will support progress monitoring. The M&E system will harmonize with RGoB's PLaMS as mandated for all projects, as well as, ensure full complementarity between IFAD, WFP and the GAFSP M&E requirements. The M&E system will systematically monitor the ESCMP activities and collect related data. Additionally, the PMU M&E unit will design formats to capture and collect critical data not captured by PLaMS and for data from the field level,

drawing on lessons from CARLEP as per IFAD programme management requirements. The M&E system will also serve to highlight areas where immediate intervention and remedial action is needed. The system will be participatory and decentralized involving key target groups so that the target groups will participate in identification of project activities and monitoring implementation of project. The measurement of all IFAD outcome indicators will follow the COI measurement guidelines methodology.

168. The logframe will constitute the basis for the 3 tier M&E system: (i) output monitoring with focus on physical and financial inputs, activities and outputs; (ii) outcome monitoring for the measurement of benefits at household and community levels; and (iii) impact assessment evaluating project impact for the target groups in comparison with objectives. The system will be compliant with IFAD requirements, and relevant data, analysis and reporting will be disaggregated by gender and age. The data will inform the preparation of above mentioned AWPBs and annual progress reports. The PMU M&E unit will carry out annual outcome surveys (AOS) to measure changes as a result of programme interventions to provide a rapid feedback on progress. A baseline survey will be commissioned by the PMU at the start to assess the socio-economic status of households and define the benchmark against which project performance will be assessed. The Empowerment Indicator and the Minimum Diet Diversity Indicator (MDD-W) will be included in the baseline survey and tracked at mid-term and completion. An end-of-programme impact survey will be contracted to an external agency to assess the contribution of BRECSA in achieving its overall goal.

169. **Learning, knowledge management and communication:** A comprehensive KM action plan will be developed during the first year of implementation. BRECSA's KM activities will support the effective flow of relevant information between project staff, beneficiaries and other stakeholders. The objective of knowledge management is to ensure the project units are able to generate and document the knowledge that is useful to build practical know-how that helps to improve project performance and results. Output, outcome and impact data generated by the M&E system will inform high-quality case studies, briefs and reports. The PMU will document the emerging experiences, lessons, best practices and policy briefs, and share them widely. Additional technical assistance will be sourced by the PMU for producing knowledge products as needed. All knowledge products will be disseminated for enhancing learning, policy dialogue and potential scaling-up of successful interventions.

b. Innovation and scaling up

170. BRECSA will introduce and pilot innovative features that include: a) climate-resilient infrastructure, including for water harvesting and "automation" of currently manually operated drip irrigation systems; b) improved greenhouse design (testing stronger and economical material for frame construction – with assessing right orientation allowing maximum/optimal radiation; c) e-agriculture using ICT coupled with digital education for farmers and their groups; d) the Introduction of Hybrid/Chain link fencing instead of electric fencing to be more effective against human-wild life conflict for certain species; e) creation of production and marketing hubs that act as start-up incubators for young farmers; f) a solid approach and designed activities to target differently-abled persons and promote their social and economic well-being, and g) promotion of permaculture to enhance farmers´ resilience to climate change through converting existing farms into permaculture farms, coupled with permaculture trained lead farmers. The lead farmer model will thus be an important innovation of the extension services system in Bhutan and will as such be prepared for nation-wide scaling up. A website will be established (or existing MoAF website used), including knowledge management products as knowledge sharing tools on innovation.

M. Project Target Group Engagement and Feedback, and Grievance Redress

a. Project Target Group Engagement and Feedback

171. BRECSA will have a strong focus on vulnerable households, youth, and differently-abled persons. Since this target group may not normally come forward to take up any project activities, special efforts will be made to identify and engage them. Their engagement will be ensured in both planning and implementation stages through the continuous support of the Sanam Jabjorpa. The CLEAR and ARPs formulation processes will engage target groups to identify priorities, suitable value chains, and specific locations for project interventions. BRECSA's annual planning process will include community consultation to identify target groups' needs and issues. The FG/FC and other capacity building interventions will include building skills and leadership to effectively participate in project planning and implementation. BRECSA will develop beneficiary selection criteria for vulnerable households and quotas; sensitivity to the availability of women and marginalized people when organising events; delivery of services for vulnerable people to their homes; timely and regular assessment of participation of different categories of farmers and vulnerable groups such as women-headed households; and outreach to ensure the participation of poor households in livelihood support packages.

172. BRECSA will have adequate mechanisms to gather and consider the target group and key stakeholders' needs, priorities and feedback, including on SECAP processes where applicable. The project ARP Coordinator will collate feedback for improving delivery and enhancing AWPBs and PPs. A poster with information of the Gewog and Dzongkhag project officer's name, photo and easily accessible contact details (including email and phone number) in local language will be placed in visible places of all project offices. Similarly, a feedback collection box will be placed in visible and easily accessible places with readable sign/language in all project offices. Digital means (email, website, social platforms) will also be widely used to collect feedback. A simple feedback collection format will be developed and made easily available to project beneficiaries and stakeholders. A person, group or organizations' identity - who shares feedback - will be kept anonymous if requested and the project's actions to address the feedback will be shared with them in a timely manner through email, phone, project's ongoing events, website and social media. Periodic and annual progress reports will have a section on key feedback and actions taken by the project to help support adaptive management. BRECSA will deploy special studies and field verification visits to collect feedback and to assess stakeholders' satisfaction with project's response. An Annual Outcome Survey will be conducted to review project's performance and outcomes at the household level; assess the efficacy of its targeting strategy and beneficiaries' satisfaction with services delivered.

b. Grievance redress

RGoB has a well-established online grievance mechanism Known as eKaaSel which can be accessed from the Citizen Portal- www.citizenservices.gov.bt [37]. The system has been developed to serve as a one-stop platform with the primary objective of streamlining the grievance redressal aspect of service delivery through an online channel of communication. BRECSA will conduct a campaign through project staff to make its beneficiaries aware of this mechanism. In addition, the project will establish a project specific feedback and grievance redress mechanism for project beneficiaries and those affected by project activities in the target Dzongkhags. The grievance procedure and disciplinary procedure will be put in place in consultation with MoAF and relevant Dzongkhag officials. The grievance redress mechanism will include a system to receive, address and document any concerns, complaints, notices of emerging conflicts, or grievances alleging actual or potential harm to

[37] https://thebhutanese.bt/ekaasel-online-grievance-redressal-system/

people affected by project activities. The period for resolution of the complaint will be specified and a quarterly report on the number of complaints, key issues and action disaggregated by gender and age will be prepared by the PMU. These complaints will be analyzed and measures to address them will be undertaken by the PMU.

173. BRECSA will publish the grievance redress mechanism on its website, Facebook page and through other media, as well as, communicate the procedure for providing feedback/registering a grievance during all inception workshops and MSPs. This mechanism will also address the beneficiaries concerns and grievances related to social and environmental compliance as mentioned in the SECAP. Also, IFAD has a Complaints Procedure to receive and facilitate resolution of concerns and complaints with respect to alleged noncompliance of its environmental and social policies and the mandatory aspects of its Social, Environmental and Climate Assessment Procedures. https://www.ifad.org/web/guest/accountability-andcomplaints-procedure.

N. Implementation plans

a. Supervision, Mid-term Review and Completion plans.

174. The project will be implemented over seven years. In the first year, a Start-up Workshop will be organized to sensitize all key project stakeholders on the project's design, development objectives key components and implementation arrangements.. The workshop will allow partners to discuss their role in BRECSA and reflect on logframe indicators, baselines and target values. Furthermore, procedures for financial management, procurement, selection of beneficiaries for different components, strategies for M&E and KM will be introduced to staff undertaking these key functions. Follow up inception workshops will be subsequently organized in each Dzongkhag to sensitize local partners about the project.

175. The PMU will commission a study in PY1 to establish the baseline for measuring outcome indicators related to target beneficiary groups. Terms of reference will be prepared with the help of IFAD and WFP to ensure that all key indicators included in the log-frame are included in the baseline and completion surveys.

176. At least one supervision mission will be undertaken annually by IFAD and WFP with additional implementation support missions deployed as required. The composition of the implementation support missions will be based on the technical needs of the project components and lagging areas of performance.

177. A mid-term review will be organized by IFAD and WFP, together with the RGoB in year 3 to: (i) assess implementation progress, achievements and the continued validity of project design; efficiency and effectiveness of implementation management, procurement and financial arrangements; (ii) identify key lessons learnt and good practice; and (iii) provide recommendations for improved performance including need for restructuring, if required.

178. Thematic studies will be conducted on a needs basis to support programme activities, policy dialogue and scaling up. The project will conduct an annual outcome survey to assess progress.

179. At the end of the project, BRECSA will conduct an end of project impact evaluation to assess the extent to which the project has achieved its development objectives and addressed beneficiary needs. This evaluation will also provide valuable information regarding lessons for future programming.

180. BRECSA will benefit from Project pre-financing under the IFAD Facility for faster implementation of project start-up (FIPS) to accelerate project start-up and improve implementation readiness. The specific actions under FIPS include:

a. Recruitment of PMU staff.
b. Recruitment of community supporters for ARP implementation *(Sanam Jabjorpa)*
c. Preparation of first AWPB, Project Implementation Manual (PIM) and Procurement Plan
d. Procurement of essential goods and services required during the first year of implementation
e. Establishment of the fiduciary and M&E systems

Annexes:

Annex 1: Logical Framework

Annex 2: Theory of Change

Annex 3: Project cost and financing: Detailed costs tables

Annex 4: Economic and Financial Analysis

Annex 5: Social Environment and Climate Assessment (SECAP) Review Note

Annex 6: First Annual Work Plan and Budget (AWPB)

Annex 7: Procurement Plan for first 18 months

Annex 8: Project Implementation Manual (PIM) – Separate document (draft)

Annex 9: Integrated Project Risk Matrix (IPRM)

Annex 10: Financial Management Assessment

Annex 11: Exit Strategy

Investing in rural people

Kingdom of Bhutan

Building Resilient Commercial Smallholder Agriculture (BRECSA)

ANNEX 1 LOGICAL FRAMEWORK

Building Resilient Commercial Smallholder Agriculture - BRECSA

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Outreach	**1 Persons receiving services promoted or supported by the project**				Progress Report	Annual	PMU	No delays in project implementation, procurement and disbursement
	Males – Males		11000	18836				
	Females - Females		14000	28252				
	Young - Young people		5600	14126				
	Total number of persons receiving services - Number of people		25000	47088				
	Male - Percentage (%)		40	40				
	Female - Percentage (%)		60	60				
	Young - Percentage (%)		10	30				
	Persons with disabilities - Number		340	600				
	1.b Estimated corresponding total number of households members				Progress Report	Annual	PMU	
	Household members - Number of people		28080	37830				
	1.a Corresponding number of households reached				Progress Report	Annual	PMU	
	Women-headed households - Households		3700	5800				
	Non-women-headed households - Households		3500	3900				
	Households - Households		7200	9700				

Project Goal Catalyze a 30% increase in resilient commercial agricultural production and improve food and nutrition security in the 4 target districts by 2030	**% of households reporting 30% increased production yield / produce being marketed compared to baseline**				Impact Assessment	At baseline, mid-term and completion	PMU	A baseline survey is conducted; Project approach and timelines are adhered to; An efficient M&E system is developed and implemented, impact assessment undertaken
	Households - Percentage (%)							
Development Objective Transform smallholder agriculture into inclusive and resilient agri-food systems that are increasingly profitable and food and nutrition secure	**1.2.8 Women reporting minimum dietary diversity (MDDW)**				Progress Reports	Baseline, mid-term and completion	PMU	A baseline survey is conducted; Project approach and timelines are adhered to; An efficient M&E system is developed and implemented
	Women (%) - Percentage (%)		35	50				
	Women (number) – Females		6353	14126				
	Households (%) - Percentage (%)		35	50				
	Households (number) – Households		6353	9075				
	Household members - Number of people		25410	36300				
	Women-headed households - Households		2954	4220				
	Women-differently-abled persons - Households		170	360				
	IE.2.1 Individuals demonstrating an improvement in empowerment				Project monitoring	Baseline, mid-term and completion	PMU	
	Total persons - Percentage (%)							
	Total persons - Number of people		25000	47000				
	Females - Percentage (%)							
	Females - Females		14000	28200				

	Males - Percentage (%)						
	Males – Males		11000	18800			
	2.2.5 Rural producers' organizations reporting an increase in sales				Project monitoring and progress reports	Baseline, mid-term and completion	PMU
	Percentage of rural POs - Percentage (%)		44	60			
	Number of Rural POs – Organizations		80	150			
	Rural POs wtih women in leadership position – Organizations						
	2.2.1 Persons with new jobs/employment opportunities					Baseline, mid-term and completion	PMU
	Males – Males		1000	1700			
	Females - Females		1200	2040			
	Young - Young people		3000	5000			
	Total number of persons with new jobs/employment opportunities - Number of people		2200	3740			
	Persons with disabilities – Number		170	360			
Component 1 Resilient Production Systems **Outcome 1** Enhanced agri-food sector contribution to GDP, economic	**SF.2.1 Households satisfied with project-supported services**				Progress Report	Baseline, mid-term and completion	PMU	Results of CLEAR tool clearly guide the development of the ARPs. The ARPs are developed in all gewogs and inclusive. Government supports PMU to bring about effective implementation of ARPs.
	Household members - Number of people		22460	30264			
	Women-headed households - Households		2960	4650			
	Households (%) - Percentage (%)		80%	80%			

opportunities, food and nutritional security and income of smallholder farmers, women and youth.	Households (number) – Households		5760	7760				
	SF.2.2 Households reporting they can influence decision-making of local authorities and project-supported service providers				Progress Report	Baseline, mid-term and completion	PMU	
	Household members - Number of people		16000	28000				
	Women-headed households - Households		1800	4000				
	Households (%) - Percentage (%)		70%	70%				
	Households (number) – Households		3000	6800				
	1.2.4 Households reporting an increase in production				Progress Reports	Baseline, mid-term and completion	PMU	
	Total number of household members - Number of people		100	100				
	Households - Percentage (%)		38	71				
	Women-headed households - Households							
	Households - Households		8000	15000				
	3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices				Progress Reports	Baseline, mid-term and completion	PMU	
	Total number of household members - Number of people		15000	28250				
	Households - Percentage (%)		60%	60%				
	Women-headed households - Households		2300	4350				
	Households - Households		3850	7243				

Component 1 Outputs	**1.1.8 Households provided with targeted support to improve their nutrition**				Progress Report	Annual	PMU	ARPs implemented and monitored; Mentoring undertaken to support vulnerable households; training and awareness on nutrition effectively undertaken; Trainings are scheduled in a time and location suitable for all beneficiaries
	People receiving improved nutrition services and products		5880	8220				
	Males – Males							
	Females - Females		5880	8220				
	Households - Households							
	Household members benefitted - Number of people							
	Young - Young people		2520	3780				
	Women-headed households - Households							
	Households with homestead kitchen gardens which beneficiaries are included in nutrition educations							
	Females - Number		772	1158				
	Males - Number							
	Young - Number		380	570				
	Differently abled persons - Number of people		114	172				
	Capacity building of extension workers on nutrition - Number		37	37				
	Households - Number		1266	1900				
	3.1.4 Land area where climate resilient or sustainable agriculture practices are implemented				Progress Report	Annual	PMU	
	Hectares of land - Area (ha)		552	1577				

	1.1.3 Number of smallholders producers/processors receiving productivity enhancement support				Progress Reports	Annual	PMU	
	Males – Males		1200	2000				
	Females - Females		2300	6000				
	Young - Young people		500	1300				
	Total rural producers - Number of people		3500	8000				
	2.1.2 Persons trained in income-generating activities or business management				Progress Reports, MIS system	Annual	PMU	
	Males – Males		500	1000				
	Females - Females		1500	3000				
	Young - Young people		750	1350				
	Persons trained in IGAs or BM (total) - Number of people		2000	4000				
	Persons with disabilities – Number							
Component 2 Strengthened value chain coordination and market linkages	**2.2.2 Supported rural enterprises reporting an increase in profit**				Progress Reports, MIS system	Baseline, mid-term and completion	PMU	Baseline established, hubs supported, farmers are willing to participate in Producer Farmer Organizations
	Number of enterprises – Enterprises		15	30				
	Percentage of enterprises - Percentage (%)							
	Farm – Farms							
Outcome 2 Fostered business-oriented environment for farmer groups to develop private sector enterprises in the agri-food sector and for engaging youth in	**2.2.6 Households reporting improved physical access to markets, processing and storage facilities**				Progress Reports. surveys, service providers' records, MIS	Baseline, mid-term and completion	PMU	
	Households reporting improved physical access to markets - Percentage (%)		20	50				

lucrative commercial ventures	Size of households - Number of people	4,6	4,6	4,6	System			
	Women-headed households - Households							
	Households reporting improved physical access to processing facilities - Percentage (%)		10	20				
	Size of households - Number of people	4,6	4,6	4,6				
	Women-headed households - Households							
	Households reporting improved physical access to storage facilities - Percentage (%)		25	60				
	Size of households - Number of people	4,6	4,6	4,6				
	Women-headed households - Households							
	Households reporting improved physical access to markets - Households		4200	10500				
	Households reporting improved physical access to processing facilities – Households		2100	4200				
	Households reporting improved physical access to storage facilities – Households		5250	12600				
Component 2 Outputs	**2.1.3 Producer-based organisations supported**				Progress Reports	Annual	PMU	Baseline established, farmers are willing to participate in Producer Farmer Organizations
	Total size of Organizations	15	2000	3900				

	Rural supported – Organizations			80	130			
	Males – Males			500	900			
	Females - Females			1500	3000			
	Young - Young people			500	1000			
	Rural organisations supported that are headed by women – Organizations			25	50			
	Policy 2 Functioning multi-stakeholder platforms supported					Progress Reports	Annual	PMU
	Number - Platforms			16	24			
Component 3 Innovative and competitive agri-food sector **Outcome 3** Enabling financial and policy environment to promote a competitive and modernized food sector	**Policy 3 Existing/new laws, regulations, policies or strategies proposed to policy makers for approval, ratification or amendment**					Progress Reports			BAFRA assigns a focal group to work closely with PPD and BRECSA to accelerate the process of regulation, certification and standardization; willingness of policy makers and other key stakeholders to provide enabling environmnet
	Number of policy products completed with project support related to agriculture, natural resource management, and food/nutrition security			0	1			
Component 3 Outputs	**1.1.5 Persons in rural areas accessing financial services**					Progress Reports	Annual	PMU	Appetite of beneficiaries to take-up loans; Banks capacitated/oriented to provide suitable packages to smallholder farmers.
	Men in rural areas accessing financial services - credit - Males			70	156			
	Women in rural areas accessing financial services - credit – Females			70	156			

	Young people in rural areas accessing financial services - credit - Young people		20	46				
	Total persons accessing financial services - credit - Number of people		140	312				
	Persons with disabilities in rural areas accessing financial services - credit – Number							

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Building Resilient Commercial Smallholder Agriculture (BRECSA)

ANNEX 2 THEORY OF CHANGE

BRECSA THEORY OF CHANGE

Impact	**Reduced Poverty**	**Enhanced food security**	**Improved nutrition**
Goal	Catalyze a 30% increase in resilient commercial agricultural production and improve food and nutrition security in the 4 target districts by 2030.		
Development Objective	Transform smallholder agriculture into inclusive and resilient agri-food systems that are increasingly profitable and food and nutrition sensitive.		
Key Outcomes	Agri-food sector contribution to resilience, food and nutritional security and income of smallholder farmers, women and youth is enhanced.	Commercialisation is fostered for farmer groups to develop private sector enterprises and for engaging youth in lucrative commercial ventures.	Enabling financial and policy environment to promote a competitive and modernized food sector is enhanced

Key Outputs	Available data on vulnerability, agricultural and livestock production zoning, aggregation, processing centres and satellite markets.	Developed gender and youth inclusive Agriculture Resilience Plans to support climate-resilient production.	Enhanced diet diversity through diversified food production (for both market and household consumption) and increased nutrition education.	Developed skills and approaches for increasing productivity and investment allocated to enhance commercialisation.	Completed value chain specific intervention strategies and plans to guide investment planning	Established gender and Youth inclusive hubs to support a robust agri-business sector.	Supported investments in effective and inclusive climate resilient infrastructure to support commercialization.	Established inclusive multi-stakeholder platforms and business linkages.	Developed inclusive financial products and processes & financial /business literacy to support production, processing, business development and expansion.	Established digitalization tools and platforms in support of marketing	Improved competitiveness of value chains and market share in domestic and international markets through regulation, standardization and certification.

Key Activities	Undertake the Consolidated Livelihood Exercise for Analyzing Resilience (CLEAR) diagnostic tool with gender and youth disaggregated data and analysis	Build the skills of women, men and youth farmer groups and cooperatives and provide them with access to assets for diversification and commercialization of farm systems and products, including off-farm businesses (organic inputs, biochar, soil stimulants, bio-fertilizers, bio-pesticides, etc.)	Support financial institutions to design and align their products and processes to enhance access to financial services for women, men and youth in smallholder households, cooperatives, producers, aggregators and traders.
	Formulate district and sub-district agriculture resilience plans (ARP)		
	Support nutrition-sensitive interventions (home	Establish gender and youth inclusive enterprise	Develop digital technologies and real

	gardens, nutrition education and awareness, water harvesting/storage tanks and selected on-farm and off-farm activities) to improve livelihoods and food and nutrition security of vulnerable groups	hubs for aggregation, storage, processing, packaging and marketing	time marketing, production and/or logistics data, including custom applications for on-demand extension and agri-food advisory services
	Invest in sustainable commercial farming systems of selected commodities (including in climate-resilient infrastructure) to enhance productivity and production expansion to support commercialization	Finance small and medium-scale infrastructure (aggregation and processing centers, cold storage, milk chilling centers and marketing facilities)	Promote branding of national niche-products through certification and regulation processes to ensure products meet internationally recognized food standards
	Develop skills of smallholder farmers (women and men), cooperatives and youth-led enterprises on climate resilient farming practices and technologies, including on permaculture, to ensure their economic empowerment	Facilitate business linkages between producers, buyers, financiers, and local public stakeholders through multi-stakeholder platforms (MSP) and business interactions (B2B) to meet local, national, regional and global consumer demand	
Main Components	Resilient production systems	Strengthened value chain coordination and market linkages	Innovative and competitive agri-food sector
Underlying Issues	Limited capacities of farmers and their groups. Climate vulnerability affecting productivity, limited water availability, wildlife crop depredation, labour shortage, low soil fertility, inadequate diet diversity, gender inequality and limited asset base to support livelihoods of vulnerable smallholder farmers.	Commodity loss, inadequate post-harvest handling, limited storage, processing and market facilities and inefficient linkages between farm produce and markets.	Lack of attractive opportunities and limited support for youth and women to invest in entrepreneurial activities. Absence of policy to support competitiveness of agri-food sector

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ANNEX 3: PROJECT COST AND FINANCING: DETAILED COSTS TABLES

SUMMARY OF DETAILED COSTS TABLES

Summary: Total programme costs are estimated as around US$30.0433 million over the seven years implementation period as below.

Table 1: Programme costs by component and financier

	RGOB Contribution		GAFSP grant (WFP)		GAFSP grant (IFAD)		IFAD loan		Financial Institutions		Beneficiaries		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
1. Resilient Production Systems	271.6	1.8	1,975.2	12.9	6,753.2	44.2	906.2	5.9	-	-	5,361.3	35.1	15,267.5	50.8
2. Strengthened Value Chain Coordination and Market Linkages	244.6	3.5	326.2	4.6	2,583.0	36.6	3,416.8	48.5	-	-	480.0	6.8	7,050.5	23.5
3. Innovation and Competitive Agri-food Sector	137.4	3.5	132.7	3.4	1,063.8	27.4	1,374.6	35.4	704.8	18.1	469.9	12.1	3,883.1	12.9
4. Project Management, Monitoring and Evaluation, and Knowledge	459.8	11.9	166.0	4.3	-	-	3,237.4	83.8	-	-	-	-	3,863.2	12.8
Total project costs	1,113.4	3.7	2,600.0	8.6	10,400.0	34.6	8,935.0	29.7	704.8	2.3	6,311.2	21.0	30,064.4	100.0

Table 2: Programme costs by expenditure category and financier

	RGOB Contribution		GAFSP grant (WFP)		GAFSP grant (IFAD)		IFAD loan		Financial Institutions		Beneficiaries		Total	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
Works	280.6	3.8	38.1	0.5	3,051.1	41.5	3,087.1	42.0	-	-	901.7	12.3	7,358.7	24.5
Equipments and Materials	27.7	2.7	-	-	669.9	64.2	223.9	21.5	-	-	121.2	11.6	1,042.7	3.5
Vehicles	6.4	5.0	-	-	-	-	120.7	95.0	-	-	-	-	127.0	0.4
Goods, services and inputs	270.2	2.1	170.9	1.3	5,087.6	39.1	1,504.4	11.5	704.8	5.4	5,288.3	40.6	13,026.1	43.3
Consultancies	72.4	4.1	678.1	38.2	559.7	31.5	464.3	26.2	-	-	-	-	1,774.6	5.9
Operating costs	52.0	4.2	-	-	-	-	1,187.5	95.8	-	-	-	-	1,239.5	4.1
Salaries and Allowances	331.8	11.2	1,217.1	41.2	-	-	1,407.9	47.6	-	-	-	-	2,956.7	9.8
Workshops	33.2	3.4	286.7	29.6	195.3	20.2	452.5	46.8	-	-	-	-	967.7	3.2
Training	39.2	2.5	209.1	13.3	836.3	53.2	486.8	31.0	-	-	-	-	1,571.4	5.2
Total project costs	1,113.4	3.7	2,600.0	8.6	10,400.0	34.6	8,935.0	29.7	704.8	2.3	6,311.2	21.0	30,064.4	100.0

Table 3: Programme costs by component and year

	PY1	PY2	PY3	PY4	PY5	PY6	PY7	Total
1. Resilient Production Systems	1,305.6	3,114.8	3,570.1	3,816.1	2,488.0	524.0	449.1	15,267.5
2. Strengthened Value Chain Coordination and Market Linkages	99.7	1,166.5	1,916.3	1,814.7	1,402.1	568.2	83.0	7,050.5
3. Innovation and Competitive Agri-food Sector	390.1	956.5	902.7	783.9	747.2	30.9	71.8	3,883.1
4. Project Management, Monitoring and Evaluation, and Knowledge	710.1	541.8	610.3	585.3	591.1	439.8	384.8	3,863.2
Total project costs	2,505.5	5,779.6	6,999.3	7,000.0	5,228.4	1,563.0	988.7	30,064.4

a) Programme financing

Total programme financing of US$30.0644 million is comprised of GAFSP grant funding of US$13.0 million (US$ 2.6 million through WFP and US$ 10.4 million from IFAD), IFAD loan (US$ 8.935 million), government funding of US$1.1134 million, banks US$0.704 million and beneficiaries US$6.3112 million. There is no financing gap.

Table 4: Programme financing plan

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Financing of Investment/Recurrent
(US$ '000)

	Financing							
	23/24	**24/25**	**25/26**	**26/27**	**27/28**	**28/29**	**29/30**	**Total**
I. Investment Costs								
RGOB Contribution	45.6	112.3	177.6	190.6	138.3	47.1	18.1	729.6
GAFSP grant (WFP)	591.8	178.5	185.0	164.1	105.6	72.2	85.8	1,383.0
GAFSP grant (IFAD)	689.3	1,704.1	2,577.8	2,761.0	1,785.2	671.2	211.5	10,400.0
IFAD loan	398.5	1,482.6	1,560.5	1,444.1	1,171.2	167.5	115.2	6,339.6
Financial Institutions	-	173.6	175.3	177.1	178.8	-	-	704.8
Beneficiaries	114.7	1,476.8	1,659.3	1,673.5	1,307.3	63.2	16.2	6,311.2
Total Investment Costs	1,840.0	5,127.9	6,335.6	6,410.3	4,686.5	1,021.1	446.8	25,868.1
II. Recurrent Costs								
RGOB Contribution	54.8	54.8	54.8	54.8	54.8	54.8	54.8	383.8
GAFSP grant (WFP)	240.5	226.7	225.5	164.7	119.9	119.9	119.9	1,217.1
GAFSP grant (IFAD)	-	-	-	-	-	-	-	-
IFAD loan	370.2	370.2	383.5	370.2	367.2	367.2	367.2	2,595.4
Financial Institutions	-	-	-	-	-	-	-	-
Beneficiaries	-	-	-	-	-	-	-	-
Total Recurrent Costs	665.5	651.7	663.8	589.7	541.9	541.9	541.9	4,196.2
III. Financial Charges								
RGOB Contribution	-	-	-	-	-	-	-	-
GAFSP grant (WFP)	-	-	-	-	-	-	-	-
GAFSP grant (IFAD)	-	-	-	-	-	-	-	-
IFAD loan	-	-	-	-	-	-	-	-
Financial Institutions	-	-	-	-	-	-	-	-
Beneficiaries	-	-	-	-	-	-	-	-
Total Financial Charges	-	-	-	-	-	-	-	-
Total Financing of Costs	2,505.5	5,779.6	6,999.3	7,000.0	5,228.4	1,563.0	988.7	30,064.4

Detailed cost tables

Table 5: Component 1 - Resilient Production Systems

Detailed Costs	Unit	Quantities								Unit Cost	Unit Cost	Base Cost (US$ '000)								Totals Including Contingencies (US$ '000)							
		23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	(BTN)	(US$)	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total
I. Investment Costs																											
A. Sub-component 1.1: Consolidated Livelihood Exercise for Analyzing Resilience (CLEAR)																											
1. International Technical Assistance	Person Month	3	-	-	-	-	-	-	3	1,500,000	20,000	60.0	-	-	-	-	-	-	60.0	60.2	-	-	-	-	-	-	60.2
2. National Technical Assistance	Number	8	-	-	-	-	-	-	8	695,625	9,275	74.2	-	-	-	-	-	-	74.2	74.6	-	-	-	-	-	-	74.6
3. Scopping exercises /a	Number	1	-	-	-	-	-	-	1	525,000	7,000	7.0	-	-	-	-	-	-	7.0	7.0	-	-	-	-	-	-	7.0
4. Implemetation phase /b	Number	1	-	-	-	-	-	-	1	7,500,000	100,000	100.0	-	-	-	-	-	-	100.0	100.5	-	-	-	-	-	-	100.5
5. Validation exercise / phase /c	Number	1	-	-	-	-	-	-	1	7,500,000	100,000	100.0	-	-	-	-	-	-	100.0	100.5	-	-	-	-	-	-	100.5
Subtotal												341.2	-	-	-	-	-	-	341.2	342.8	-	-	-	-	-	-	342.8
B. Sub-component 1.2: Gewog and Dzongkhag Agriculture Resilience Plans (ARPs)																											
1. Prepare / Implement Gewog and Dzongkhag ARPs																											
Prepare Gewog ARPs /d	Number	37	-	-	-	-	-	-	37	75,000	1,000	37.0	-	-	-	-	-	-	37.0	37.1	-	-	-	-	-	-	37.1
Prepare Dzongkhag Level ARPs /e	Number	4	-	-	-	-	-	-	4	112,500	1,500	6.0	-	-	-	-	-	-	6.0	6.0	-	-	-	-	-	-	6.0
Review and update Gewog ARPs /f	Number	-	-	-	37	-	-	-	37	45,000	600	-	-	-	22.2	-	-	-	22.2	-	-	-	22.7	-	-	-	22.7
Review and update Dzongkhag ARPs /g	Number	-	-	-	37	-	-	-	37	75,000	1,000	-	-	-	37.0	-	-	-	37.0	-	-	-	37.9	-	-	-	37.9
Subtotal												43.0	-	-	59.2	-	-	-	102.2	43.1	-	-	60.6	-	-	-	103.8
2. Training to Sanam Jabjorpa																											
Intensive Community Mobilization Training /h	Number	2	-	-	-	-	-	-	2	525,000	7,000	14.0	-	-	-	-	-	-	14.0	14.0	-	-	-	-	-	-	14.0
Refresher training on intensive community mobilization /i	Number	2	-	-	-	-	-	-	2	150,000	2,000	4.0	-	-	-	-	-	-	4.0	4.0	-	-	-	-	-	-	4.0
Subtotal												18.0	-	-	-	-	-	-	18.0	18.1	-	-	-	-	-	-	18.1
3. Staff Training																											
Training to district agriculture and livestock officers and gewog staff /j	Number	4	-	-	-	-	-	-	4	225,000	3,000	12.0	-	-	-	-	-	-	12.0	12.0	-	-	-	-	-	-	12.0
Refresher training to district agriculture and livestock officers and gewog staff /k	Number	4	-	-	-	-	-	-	4	112,500	1,500	6.0	-	-	-	-	-	-	6.0	6.0	-	-	-	-	-	-	6.0
Subtotal												18.0	-	-	-	-	-	-	18.0	18.1	-	-	-	-	-	-	18.1
4. Farmers' Training																											
Training on climate smart agricultural production /l	Number	4	4	4	4	4	-	-	20	112,500	1,500	6.0	6.0	6.0	6.0	6.0	-	-	30.0	6.0	6.1	6.1	6.1	6.2	-	-	30.5
Training on climate smart livstock production /m	Number	4	4	4	4	4	-	-	20	112,500	1,500	6.0	6.0	6.0	6.0	6.0	-	-	30.0	6.0	6.1	6.1	6.1	6.2	-	-	30.5
Training on production of specific commodities (i.e. mushroom or honey) /n	Number	4	4	4	-	-	-	-	12	112,500	1,500	6.0	6.0	6.0	-	-	-	-	18.0	6.0	6.1	6.1	-	-	-	-	18.2
Training on commercial farming / enterprise development /o	Number	4	4	4	-	-	-	-	12	252,375	3,365	13.5	13.5	13.5	-	-	-	-	40.4	13.5	13.6	13.7	-	-	-	-	40.8
Subtotal												31.5	31.5	31.5	12.0	12.0	-	-	118.4	31.6	31.8	32.0	12.3	12.4	-	-	120.0
Subtotal												110.5	31.5	31.5	71.2	12.0	-	-	256.6	110.8	31.8	32.0	72.9	12.4	-	-	259.9
C. Sub-component 1.3: Support to vulnerable groups to improve income and nutrition status																											
1. Livelihood Investment																											
Design and development of Livelihood Investment Packages /p	Number	1	-	-	-	-	-	-	1	1,500,000	20,000	20.0	-	-	-	-	-	-	20.0	20.1	-	-	-	-	-	-	20.1
TOTs on Livelihood Investment Sessions for Livelihood and Inclusion Officers /q	Number	1	-	-	-	-	-	-	1	780,000	10,400	10.4	-	-	-	-	-	-	10.4	10.4	-	-	-	-	-	-	10.4
Delivery of livelihood sessions /r	Number	-	2,000	2,000	2,000	2,000	2,000	2,000	12,000	600	8	-	16.0	16.0	16.0	16.0	16.0	16.0	96.0	-	16.2	16.3	16.4	16.5	16.6	16.7	98.7
Livelihood investment grants /s	Number	-	250	250	250	250	250	250	1,500	22,500	300	-	75.0	75.0	75.0	75.0	75.0	75.0	450.0	-	75.8	76.3	76.8	77.4	77.9	78.4	462.6
Livelihood investment monitoring visits /t	Number	-	2,000	2,000	2,000	2,000	2,000	2,000	12,000	600	8	-	16.0	16.0	16.0	16.0	16.0	16.0	96.0	-	16.2	16.3	16.4	16.5	16.6	16.7	98.7
Subtotal												30.4	107.0	107.0	107.0	107.0	107.0	107.0	672.4	30.5	108.1	108.8	109.6	110.4	111.1	111.9	690.4
2. Nutrition-sensitive Agriculture Interventions																											
Survey on Minimum Dietary Diversity for Women	Number	1	-	-	1	-	-	1	3	225,000	3,000	3.0	-	-	3.0	-	-	3.0	9.0	3.0	-	-	3.1	-	-	3.1	9.2
Qualitative behavioural research /u	Number	1	-	-	-	-	-	1	2	1,500,000	20,000	20.0	-	-	-	-	-	20.0	40.0	20.1	-	-	-	-	-	20.9	41.0
District nutritionist from MOH	Person days	-	15	2	2	2	2	2	25	2,625	35	-	0.5	0.1	0.1	0.1	0.1	0.1	0.9	-	0.5	0.1	0.1	0.1	0.1	0.1	0.9
District level training for agri. and livestock extnsion officers /v	Events	-	2	-	-	-	-	-	2	450,000	6,000	-	12.0	-	-	-	-	-	12.0	-	12.1	-	-	-	-	-	12.1
District level refresher training for agri. and livestock extnsion officers /w	Events	-	-	2	2	2	2	2	10	187,500	2,500	-	-	5.0	5.0	5.0	5.0	5.0	25.0	-	-	5.1	5.1	5.2	5.2	5.2	25.8
Nutrition education for women groups /x	Events	-	164	164	164	164	164	164	984	600	8	-	1.3	1.3	1.3	1.3	1.3	1.3	7.9	-	1.3	1.3	1.3	1.4	1.4	1.4	8.1
Nutrition education for youth groups /y	Events	-	105	105	105	105	105	105	630	600	8	-	0.8	0.8	0.8	0.8	0.8	0.8	5.0	-	0.8	0.9	0.9	0.9	0.9	0.9	5.2
District level nutrition promotion campaigns /z	Events	-	2	2	2	2	2	2	12	187,500	2,500	-	5.0	5.0	5.0	5.0	5.0	5.0	30.0	-	5.1	5.1	5.1	5.2	5.2	5.2	30.8
Designing of nutrition eductaion and communication materials	Contract	-	1	-	-	-	-	-	1	1,125,000	15,000	-	15.0	-	-	-	-	-	15.0	-	15.2	-	-	-	-	-	15.2
Pilot testing of nutrition eductaion and communication materials	Event	-	1	-	-	-	-	-	1	75,000	1,000	-	1.0	-	-	-	-	-	1.0	-	1.0	-	-	-	-	-	1.0
Printing of nutrition eductaion and communication materials	Number	-	1	-	1	1	-	-	3	375,000	5,000	-	5.0	-	5.0	5.0	-	-	15.0	-	5.1	-	5.1	5.2	-	-	15.3
Digital videos on nutrition eductaion and communication materials	Number	-	2	2	2	2	1	1	10	187,500	2,500	-	5.0	5.0	5.0	5.0	2.5	2.5	25.0	-	5.1	5.1	5.1	5.2	2.6	2.6	25.6
Social media campaigns nutrition eductaion and communication materials	Events	-	1	1	2	2	2	2	10	187,500	2,500	-	2.5	2.5	5.0	5.0	5.0	5.0	25.0	-	2.5	2.5	5.1	5.2	5.2	5.2	25.8
Nutrition model garden for demonstration	Number	-	25	25	22	-	-	-	72	18,750	250	-	6.3	6.3	5.5	-	-	-	18.0	-	6.3	6.4	5.6	-	-	-	18.3
Home Garden support /aa	Number	500	500	500	696	500	500	-	3,196	3,750	50	25.0	25.0	25.0	33.3	25.0	25.0	-	158.3	25.1	25.3	25.4	34.1	25.8	26.0	-	161.6
Infrastructure support for kitchen gardening, small greenhouses, drip irrigation kits rainwater harvesting, fe	Number	10	20	40	80	20	30	-	200	112,500	1,500	15.0	30.0	60.0	120.0	30.0	45.0	-	300.0	15.1	30.3	61.0	122.9	30.9	46.7	-	307.0
Subtotal												63.0	109.4	111.0	189.0	82.2	89.7	42.7	687.1	63.2	110.6	112.9	193.6	84.8	93.2	44.7	702.9
3. Inclusion and readiness support for differently abled persons																											
Needs assessment for readiness support /bb	Number	85	85	85	85	85	85	85	595	7,500	100	8.5	8.5	8.5	8.5	8.5	8.5	8.5	59.5	8.5	8.6	8.6	8.7	8.8	8.8	8.9	61.0
Assistive devices / technologies /cc	Number	85	85	85	85	85	85	85	595	15,000	200	17.0	17.0	17.0	17.0	17.0	17.0	17.0	119.0	17.1	17.2	17.3	17.4	17.5	17.7	17.8	121.9
Basic life skills counselling and mentoring /dd	Number	340	340	340	340	340	340	340	2,380	600	8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	19.0	2.7	2.7	2.8	2.8	2.8	2.8	2.8	19.5
Empowerment Forum for Differently Able Persons / Caregivers /ee	Number	-	-	4	-	-	-	4	8	75,000	1,000	-	-	4.0	-	-	-	4.0	8.0	-	-	4.1	-	-	-	4.2	8.3
Subtotal												28.2	28.2	32.2	28.2	28.2	28.2	32.2	205.5	28.3	28.5	32.8	28.9	29.1	29.3	33.7	210.6
Subtotal												121.6	244.6	250.2	324.2	217.4	224.9	181.9	1,565.0	122.0	247.2	254.5	332.1	224.3	233.6	190.3	1,603.9
D. Sub-component 1.4: Investment in commercial farming systems																											
1. TA for Climate Resilient Commercial Agriculture Production and Business Management																											
Permaculture Training to Lead Farmers and Groups	Number	16	-	-	-	-	-	-	16	375,000	5,000	80.0	-	-	-	-	-	-	80.0	80.4	-	-	-	-	-	-	80.4
FGs/FCs Formation and Set-up of Permaculture Farm	Number	-	16	-	-	-	-	-	16	15,000	200	-	3.2	-	-	-	-	-	3.2	-	3.2	-	-	-	-	-	3.2
Permaculture Exposure Visit in Neighbouring Country	Number	-	1	-	-	-	-	-	1	1,125,000	15,000	-	15.0	-	-	-	-	-	15.0	-	15.2	-	-	-	-	-	15.2
Development of video modules and other materials on Financial Education and Busienss Literacy	Number	1	-	-	-	-	-	-	1	750,000	10,000	10.0	-	-	-	-	-	-	10.0	10.1	-	-	-	-	-	-	10.1
TOT of FEBL Facilitators	Number	-	4	-	-	-	-	-	4	300,000	4,000	-	16.0	-	-	-	-	-	16.0	-	16.2	-	-	-	-	-	16.2
Implementation of FEBL Classes /ff	Number	-	100	100	100	100	100	-	500	22,500	300	-	30.0	30.0	30.0	30.0	30.0	-	150.0	-	30.5	30.8	31.1	31.4	31.7	-	155.3
Formation Farmer Groups and Cooperatives /gg	Number	8	8	8	-	-	-	-	24	70,350	938	7.5	7.5	7.5	-	-	-	-	22.5	7.5	7.6	7.7	-	-	-	-	22.9
Strengthening of Farmer Groups and Cooperatives /hh	Number	16	16	16	-	-	-	-	48	112,500	1,500	24.0	24.0	24.0	-	-	-	-	72.0	24.1	24.4	24.6	-	-	-	-	73.1
Subtotal												121.5	95.7	61.5	30.0	30.0	30.0	-	368.7	122.1	97.1	63.1	31.1	31.4	31.7	-	376.4
2. Promotion of commercial dairy production																											
Training for the Community Animal Health Workers /ii	Number	-	2	-	-	-	-	-	2	300,000	4,000	-	8.0	-	-	-	-	-	8.0	-	8.1	-	-	-	-	-	8.1
Distribution of cross-bred cattle breeds	LS	-	400	400	400	400	-	-	1,600	75,000	1,000	-	400.0	400.0	400.0	400.0	-	-	1,600.0	-	406.0	410.1	414.2	418.3	-	-	1,648.6
Support to cattle-shed improvement	Number	-	400	400	400	400	-	-	1,600	75,000	1,000	-	400.0	400.0	400.0	400.0	-	-	1,600.0	-	406.0	410.1	414.2	418.3	-	-	1,648.6
Support to feed-improvement	Number	-	400	400	400	400	-	-	1,600	15,000	200	-	80.0	80.0	80.0	80.0	-	-	320.0	-	81.2	82.0	82.8	83.7	-	-	329.7
Supply of chaff cutter	Number	180	180	180	90	-	-	-	630	37,500	500	90.0	90.0	90.0	45.0	-	-	-	315.0	90.3	90.9	91.6	46.1	-	-	-	318.9
Subtotal												90.0	978.0	970.0	925.0	880.0	-	-	3,843.0	90.3	992.3	993.7	957.3	920.3	-	-	3,953.9
3. Promotion of commercial poultry production																											
Support to poultry-shed construction/improvement	Number	-	200	200	200	200	-	-	800	120,000	1,600	-	320.0	320.0	320.0	320.0	-	-	1,280.0	-	324.8	328.1	331.3	334.7	-	-	1,318.9
Support to poultry feed management	Number	-	200	200	200	200	-	-	800	67,500	900	-	180.0	180.0	180.0	180.0	-	-	720.0	-	182.7	184.5	186.4	188.2	-	-	741.9
Subtotal												-	500.0	500.0	500.0	500.0	-	-	2,000.0	-	507.5	512.6	517.7	522.9	-	-	2,060.8
4. Commercial production of high value commodities																											
Establishment of the crop production groups /jj	Number	16	32	32	20	-	-	-	100	7,500	100	1.6	3.2	3.2	2.0	-	-	-	10.0	1.6	3.2	3.3	2.1	-	-	-	10.2
Matching grant support to smallholder farmers	LS	400	800	800	500	-	-	-	2,500	30,000	400	160.0	320.0	320.0	200.0	-	-	-	1,000.0	160.8	324.8	328.1	207.1	-	-	-	1,020.8
Matching grant support to mushroom producers	Number	-	10	10	10	-	-	-	30	1,200,000	16,000	-	160.0	160.0	160.0	-	-	-	480.0	-	162.4	164.0	165.7	-	-	-	492.1
Subtotal												161.6	483.2	483.2	362.0	-	-	-	1,490.0	162.4	490.5	495.4	374.8	-	-	-	1,523.1
5. Support to Infrastructure Development																											
Training for engineers, WUAs and RUAs	Number	3	3	3	3	3	3	3	21	225,000	3,000	9.0	9.0	9.0	9.0	9.0	9.0	9.0	63.0	9.0	9.1	9.2	9.3	9.3	9.4	9.5	64.8
Construction of new irrigation schemes	Number	-	-	1	2	1	-	-	4	7,500,000	100,000	-	-	100.0	200.0	100.0	-	-	400.0	-	-	102.0	205.6	103.6	-	-	411.2
Rehabilitation/renovation of existing irrigation scheme	Number	-	2	4	4	2	-	-	12	3,750,000	50,000	-	100.0	200.0	200.0	100.0	-	-	600.0	-	101.2	204.0	205.6	103.6	-	-	614.4
Electric fencing	Kilometer	-	20	40	50	30	-	-	140	150,000	2,000	-	40.0	80.0	100.0	60.0	-	-	280.0	-	40.5	81.6	102.8	62.2	-	-	287.0
Chain link fencing	Kilometer	-	4	8	8	8	-	-	28	1,875,000	25,000	-	100.0	200.0	200.0	200.0	-	-	700.0	-	101.2	204.0	205.6	207.2	-	-	718.0
Land development	Acre	-	8	12	20	-	-	-	40	1,480,275	19,737	-	157.9	236.8	394.7	-	-	-	789.5	-	159.8	241.6	405.8	-	-	-	807.1
Greenhouses (with drip irrigation)	No	-	20	40	60	20	-	-	140	150,000	2,000	-	40.0	80.0	120.0	40.0	-	-	280.0	-	40.5	81.6	123.4	41.4	-	-	286.9
Subtotal												9.0	446.9	905.8	1,223.7	509.0	9.0	9.0	3,112.5	9.0	452.2	923.9	1,258.0	527.4	9.4	9.5	3,189.4
Subtotal												382.1	2,503.8	2,920.5	3,040.7	1,919.0	39.0	9.0	10,814.2	383.9	2,539.6	2,988.6	3,138.9	2,002.0	41.1	9.5	11,103.6
Total Investment Costs												955.4	2,779.9	3,202.2	3,436.2	2,148.4	263.9	190.9	12,977.0	959.6	2,818.6	3,275.1	3,543.9	2,238.6	274.7	199.7	13,310.3

Table 5: Component 1 - Resilient Production Systems (Contd….)

Detailed Costs	Unit	Quantities								Unit Cost (BTN)	Unit Cost (US$)	Base Cost (US$ '000)								Totals Including Contingencies (US$ '000)							
		23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total			23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total
II. Recurrent Costs																											
A. Gewog and Dzongkhag Agriculture Resiliance Plans																											
Sanam Jabjorpa (SJ) /kk	Person months	444	444	444	444	444	444	444	3,108	20,250	270	119.9	119.9	119.9	119.9	119.9	119.9	119.9	839.2	119.9	119.9	119.9	119.9	119.9	119.9	119.9	839.2
Agricultural Resilience/CC Adaptation and climate Smart Agriculture Planning Specialists /ll	Person month	48	48	48	48	48	48	48	336	60,000	800	38.4	38.4	38.4	38.4	38.4	38.4	38.4	268.8	38.4	38.4	38.4	38.4	38.4	38.4	38.4	268.8
Subtotal												158.3	158.3	158.3	158.3	158.3	158.3	158.3	1,108.0	158.3	158.3	158.3	158.3	158.3	158.3	158.3	1,108.0
B. Nutrition eduction and communication materials development and publication																											
International Nutrition Education Specialist	Person months	6	-	-	-	-	-	-	6	907,500	12,100	72.6	-	-	-	-	-	-	72.6	72.6	-	-	-	-	-	-	72.6
Nutrition Officer (National)	Person months	6	12	12	6	-	-	-	36	285,000	3,800	22.8	45.6	45.6	22.8	-	-	-	136.8	22.8	45.6	45.6	22.8	-	-	-	136.8
Translator	Number	1	1	-	-	-	-	-	2	93,750	1,250	1.3	1.3	-	-	-	-	-	2.5	1.3	1.3	-	-	-	-	-	2.5
Subtotal												96.7	46.9	45.6	22.8	-	-	-	211.9	96.7	46.9	45.6	22.8	-	-	-	211.9
C. Investment in commercial farming systems																											
Consulting services /mm	Lumpsum	1	1	1	1	1	1	1	7	1,428,750	19,050	19.1	19.1	19.1	19.1	19.1	19.1	19.1	133.4	19.1	19.1	19.1	19.1	19.1	19.1	19.1	133.4
District engineers /nn	Person year	4	4	4	4	4	4	4	28	1,350,000	18,000	72.0	72.0	72.0	72.0	72.0	72.0	72.0	504.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	504.0
Subtotal												91.1	91.1	91.1	91.1	91.1	91.1	91.1	637.4	91.1	91.1	91.1	91.1	91.1	91.1	91.1	637.4
Total Recurrent Costs												346.0	296.2	294.9	272.1	249.3	249.3	249.3	1,957.2	346.0	296.2	294.9	272.1	249.3	249.3	249.3	1,957.2
Total												1,301.4	3,076.1	3,497.1	3,708.3	2,397.8	513.3	440.3	14,934.2	1,305.6	3,114.8	3,570.1	3,816.1	2,488.0	524.0	449.1	15,267.5

[a] Kick-off workshops, define and endorse process and scope, establish TF,
[b] Livelihood mapping (field level surveys in all 4 districts, all Gewogs)
[c] Scientific analysis outsourced to specialised institute; scenario development and formulation of adaptation options,
[d] Compile information and prepare plan
[e] Compile Gewog level plan and prepare consoliated plan, separate for each Dzongkhag
[f] Review progress / performance and update as required
[g] Review progress / performance and update as required
[h] 3-week training in consensus building and group cohesion, climate smart agriculture and permaculture, hygienic dairy production, GESI, M&E, etc.
[i] One week refresher training
[j] One week training community mobilization, preparation of ARPs, etc.
[k] Two day training on sharing experiences on community mobilization, preparation of ARPs, etc.
[l] 3 day training at community level @ 2 training per Dzonkhag
[m] 3 day training at community level @ 2 training per Dzonkhag
[n] 3 day training at community level @ 2 training per Dzonkhag
[o] @ community level 2 training per Dzongkhag on enterprise development for provision of bio-inputs, post-harvest processing
[p] Cost of needs assessment, sessions development, field-testing and materials, manual and TOT design
[q] Trainer's fee, transport costs training venue, board and lodging, meals & refreshments, training manual and materials
[r] Sessions to be delivered bi-weekly over 4 months at beneficiary households by Livelihood Investment Officers
[s] Cover cost of an asset and working capital to kick-start an agri-enterprise (poultry, cattle, goats, etc. and 600 grants to differently abled persons
[t] Each beneficiary receiving one mentoring visit per month for 8 months after the investment
[u] Inform Social and Behaviour Change Communication intervention to Promote MDD-W in Reproductive Age group
[v] 2 Batches in 4 districts
[w] 2 Batches in 4 districts
[x] At village / HH level including field based demonstration
[y] At village / HH level including field based demonstration
[z] Competitions, nutrition fairs, celebration of important days
[aa] Package include tool kits, vegetable seeds, and nutrition training
[bb] To be conducted by a CSO specialized in working for differently abled persons
[cc] Include walking frame, hoists, railings, wheel chairs, vision and hearing aids, toilet frames, bathing aids etc.
[dd] Include advice on life-skills, self-care, improved nutrition and management of disability for the period of a year with 4 touch points for each individual
[ee] Forums share needs and priorities and experiences, success stones and dialogue with dhzonkhag officials
[ff] 25 farmers per class, and covers fee for facilitators, and FEBL materials
[gg] Organize the farmers not yet in FGs/FCs into farmer's organizations
[hh] FGs/FCs selected based on rating exercises
[ii] Conducted by RLDC to train 40 Community Animal Health Workers (CAHWs)
[jj] Vegetable production, ginger, turmeric, honey and tea
[kk] Support farmers to proper take-up of new approaches and technologies, effective group and cooperative formation and operation, facilitation of logistics, market linkages, and field monitoring and data collection
[ll] Agricultural Resilience/CC Adaptation and climate Smart Agriculture Planning Specialists per Dzonkhas
[mm] For survey, design and feasibility studies of infrastructure
[nn] One engineer per Dzonkhas

Table 6: Component 2 - Strengthened Value Chain Cooridnation and Market Linkages

Detailed Costs		Quantities								Unit Cost	Unit Cost	Base Cost (US$ '000)								Totals Including Contingencies (US$ '000)							
	Unit	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	(BTN)	(US$)	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total
I. Investment Costs																											
A. Sub-component 2.1: Enhancing efficiency of value chain operations																											
1. Support to market infrastructure																											
Establishment of milk collection centre	Number	-	-	4	4	2	2	-	12	750,000	10,000	-	-	40.0	40.0	20.0	20.0	-	120.0	-	-	41.0	41.4	20.9	21.1	-	124.5
Establishment of new dairy processing units	Number	-	-	1	1	1	1	-	4	26,250,000	350,000	-	-	350.0	350.0	350.0	350.0	-	1,400.0	-	-	358.8	362.4	366.0	369.7	-	1,457.0
Upgrading of existing or new meat processing units	Number	-	-	2	2	2	2	-	8	3,750,000	50,000	-	-	100.0	100.0	100.0	100.0	-	400.0	-	-	102.5	103.5	104.6	105.6	-	416.3
Support freezer Van from transporting dressed frozen meat	Number	-	-	-	2	2	2	2	8	1,500,000	20,000	-	-	-	40.0	40.0	40.0	40.0	160.0	-	-	-	41.4	41.8	42.3	42.7	168.2
Construction of aggregation centre	Number	-	-	4	4	2	-	-	10	3,813,750	50,850	-	-	203.4	203.4	101.7	-	-	508.5	-	-	208.5	210.6	106.4	-	-	525.5
Establishment of mushroom aggregation facilities	Number	-	-	-	4	4	-	-	8	750,000	10,000	-	-	-	40.0	40.0	-	-	80.0	-	-	-	41.4	41.8	-	-	83.3
Construction of cold stores	Number	-	1	1	1	1	-	-	4	22,580,625	301,075	-	301.1	301.1	301.1	301.1	-	-	1,204.3	-	305.6	308.7	311.7	314.9	-	-	1,240.9
Construction of small shops / market facilities	Number	-	4	4	-	-	-	-	8	3,000,000	40,000	-	160.0	160.0	-	-	-	-	320.0	-	162.4	164.0	-	-	-	-	326.4
Support for the promotion of nitch products	Lumpsum	-	1	1	1	1	-	-	4	3,750,000	50,000	-	50.0	50.0	50.0	50.0	-	-	200.0	-	50.8	51.3	51.8	52.3	-	-	206.1
Subtotal												-	511.1	1,204.5	1,124.5	1,002.8	510.0	40.0	4,392.8	-	518.8	1,234.8	1,164.3	1,048.7	538.7	42.7	4,548.0
2. Infrastructure for E-hubs																											
On-site housing for youth farmers and other amenities	Number	-	4	4	4	-	-	-	12	5,625,000	75,000	-	300.0	300.0	300.0	-	-	-	900.0	-	304.5	307.6	310.6	-	-	-	922.7
Infrastructure for storing and sale of inputs	Number	-	4	4	4	4	-	-	16	1,875,000	25,000	-	100.0	100.0	100.0	100.0	-	-	400.0	-	101.5	102.5	103.5	104.6	-	-	412.2
Warehouse for aggregation (sorting, packaging and packging of perishable products)	Number	-	4	4	4	4	-	-	16	1,875,000	25,000	-	100.0	100.0	100.0	100.0	-	-	400.0	-	101.5	102.5	103.5	104.6	-	-	412.2
Small-scale processing infrastructure and machinery	Number	-	4	4	4	4	-	-	16	1,875,000	25,000	-	100.0	100.0	100.0	100.0	-	-	400.0	-	101.5	102.5	103.5	104.6	-	-	412.2
Subtotal												-	600.0	600.0	600.0	300.0	-	-	2,100.0	-	609.0	615.1	621.3	313.7	-	-	2,159.2
3. Research / Studies																											
Market study on product diversification, lebelling and organic production	Number	-	-	1	-	-	-	-	1	645,000	8,600	-	-	8.6	-	-	-	-	8.6	-	-	8.8	-	-	-	-	8.8
Study on marketing strategy for the spice sector	Number	-	-	1	-	-	-	-	1	675,000	9,000	-	-	9.0	-	-	-	-	9.0	-	-	9.2	-	-	-	-	9.2
Opportunities and Potetnialities Study for the Nitch Products (honey, tea, MAPs)	Number	-	-	1	-	-	-	-	1	675,000	9,000	-	-	9.0	-	-	-	-	9.0	-	-	9.2	-	-	-	-	9.2
Guidelines for FMCL for Gender and Youth Inclusive Hubs	Number	1	-	-	-	-	-	-	1	675,000	9,000	9.0	-	-	-	-	-	-	9.0	9.0	-	-	-	-	-	-	9.0
Subtotal												9.0	-	26.6	-	-	-	-	35.6	9.0	-	27.3	-	-	-	-	36.3
Subtotal												9.0	1,111.1	1,831.1	1,724.5	1,302.8	510.0	40.0	6,528.4	9.0	1,127.8	1,877.2	1,785.6	1,362.5	538.7	42.7	6,743.5
B. Sub-component 2.2: Business linkages and multi-stakeholder platforms (MSP)																											
Formation of National and Dzonkhag level MSPs	Number	5	-	-	-	-	-	-	5	150,000	2,000	10.0	-	-	-	-	-	-	10.0	10.0	-	-	-	-	-	-	10.0
Preparation of Strategic Investment Plan for Value Chain Commodities	Number	7	-	-	-	-	-	-	7	450,000	6,000	42.0	-	-	-	-	-	-	42.0	42.2	-	-	-	-	-	-	42.2
Meeting of the National Level MSPs	Number	2	2	2	2	2	2	2	14	225,000	3,000	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.1	6.1	6.2	6.2	6.3	6.3	43.2
Meeting of the Dzonkhag Level MSPs	Number	8	8	8	8	8	8	8	56	112,500	1,500	12.0	12.0	12.0	12.0	12.0	12.0	12.0	84.0	12.0	12.1	12.2	12.3	12.4	12.5	12.6	86.4
Women and youth smallholder farmers and agri-processors forum /a	Number	-	-	1	-	1	-	1	3	750,000	10,000	-	-	10.0	-	10.0	-	10.0	30.0	-	-	10.2	-	10.4	-	10.5	31.1
Revew and revise farmer to business marketing strategy	Number	1	1	-	-	-	-	-	2	750,000	10,000	10.0	10.0	-	-	-	-	-	20.0	10.0	10.1	-	-	-	-	-	20.2
Implement farmer to business marketing strategy /b	Number	37	37	37	37	37	37	37	259	20,850	278	10.3	10.3	10.3	10.3	10.3	10.3	10.3	72.0	10.3	10.4	10.5	10.6	10.7	10.7	10.8	74.0
Subtotal												90.3	38.3	38.3	28.3	38.3	28.3	38.3	300.0	90.6	38.7	39.0	29.1	39.7	29.5	40.3	307.0
Total Investment Costs												99.3	1,149.4	1,869.4	1,752.8	1,341.1	538.3	78.3	6,828.4	99.7	1,166.5	1,916.3	1,814.7	1,402.1	568.2	83.0	7,050.5
II. Recurrent Costs																											
Total												99.3	1,149.4	1,869.4	1,752.8	1,341.1	538.3	78.3	6,828.4	99.7	1,166.5	1,916.3	1,814.7	1,402.1	568.2	83.0	7,050.5

/a Total 60 participants @ 15 from each dhzonkhag (60% women-30 percent youth), cover board and lodging for 2 days.
/b One per Gewog per year

Table 7: Component 3 - Innovative and Competitive Agri-food Sector

Detailed Costs		Quantities								Unit Cost	Unit Cost	Base Cost (US$ '000)								Totals Including Contingencies (US$ '000)							
	Unit	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	(BTN)	(US$)	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total
I. Investment Costs																											
A. Sub-component 3.1: Access to financial services																											
1. Leveraging private sector investment																											
Matching grant support to semi-commercial holdings	Number	-	50	50	50	50	-	-	200	900,000	12,000	-	600.0	600.0	600.0	600.0	-	-	2,400.0	-	609.0	615.1	621.3	627.5	-	-	2,472.9
Matching grant support to commercial holdings	Number	-	-	2	4	4	-	-	10			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Subtotal												-	600.0	600.0	600.0	600.0	-	-	2,400.0	-	609.0	615.1	621.3	627.5	-	-	2,472.9
2. Improving financial and busienss literacy of smallholders and rural enterprises																											
Develop busienss literacy module /a	Number	1	-	-	-	-	-	-	1	750,000	10,000	10.0	-	-	-	-	-	-	10.0	10.1	-	-	-	-	-	-	10.1
Business literacy training to specified target rural population /b	Number	-	4	4	4	-	-	-	12	375,000	5,000	-	20.0	20.0	20.0	-	-	-	60.0	-	20.3	20.5	20.7	-	-	-	61.5
Business literacy need assessment of cooperatives	Number	1	-	-	-	-	-	-	1	1,125,000	15,000	15.0	-	-	-	-	-	-	15.0	15.1	-	-	-	-	-	-	15.1
Business literacy capacity development of cooperatives	Events	-	4	4	4	-	-	-	12	300,000	4,000	-	16.0	16.0	16.0	-	-	-	48.0	-	16.2	16.4	16.6	-	-	-	49.2
Subtotal												25.0	36.0	36.0	36.0	-	-	-	133.0	25.1	36.5	36.9	37.3	-	-	-	135.9
Subtotal												25.0	636.0	636.0	636.0	600.0	-	-	2,533.0	25.1	645.6	652.0	658.5	627.5	-	-	2,608.8
B. Sub-component 3.2: Digital technologies to support marketing																											
Diagnostic of Agriculture Market Information System and feasibility to introduce digital technologies	Number	1	-	-	-	-	-	-	1	1,500,000	20,000	20.0	-	-	-	-	-	-	20.0	20.1	-	-	-	-	-	-	20.1
Define and design new AMIS based on diagnostic findings /c	Number	-	1	-	-	-	-	-	1	3,750,000	50,000	-	50.0	-	-	-	-	-	50.0	-	50.8	-	-	-	-	-	50.8
Training to Gewog Staff on Digital Technologies /d	Number	-	-	37	-	-	-	-	37	75,000	1,000	-	-	37.0	-	-	-	-	37.0	-	-	37.9	-	-	-	-	37.9
Demonstration of Digital Technologies at Farmer Level /e	Number	-	-	37	-	-	-	-	37	15,000	200	-	-	7.4	-	-	-	-	7.4	-	-	7.6	-	-	-	-	7.6
Develop and deliver awareness raising and knowledge sharing campaing /f	Number	-	-	37	-	-	-	-	37	15,000	200	-	-	7.4	-	-	-	-	7.4	-	-	7.6	-	-	-	-	7.6
Training to DAMC to conduct regular user monitoring with feedback loops /g	Number	-	-	1	-	1	-	1	3	375,000	5,000	-	-	5.0	-	5.0	-	5.0	15.0	-	-	5.1	-	5.2	-	5.3	15.7
Subtotal												20.0	50.0	56.8	-	5.0	-	5.0	136.8	20.1	50.8	58.2	-	5.2	-	5.3	139.6
C. Sub-component 3.3: Policy dialogue																											
1. Purchase and Installation of Food self life testing equipments																											
Purchase and installation of equipments	Lumpsum	1	-	-	-	-	-	-	1	1,599,975	21,333	21.3	-	-	-	-	-	-	21.3	21.4	-	-	-	-	-	-	21.4
Training and capacity development /h	Lumpsum	-	1	-	-	-	-	-	1	500,025	6,667	-	6.7	-	-	-	-	-	6.7	-	6.8	-	-	-	-	-	6.8
Subtotal												21.3	6.7	-	-	-	-	-	28.0	21.4	6.8	-	-	-	-	-	28.2
2. Enhance technical capacity of laboratory																											
Purchase and installation of laboratory equipments /i	Lumpsum	1	-	-	-	-	-	-	1	6,000,000	80,000	80.0	-	-	-	-	-	-	80.0	80.4	-	-	-	-	-	-	80.4
Training and capacity development /j	Lumpsum	-	1	-	-	-	-	-	1	999,975	13,333	-	13.3	-	-	-	-	-	13.3	-	13.5	-	-	-	-	-	13.5
Purchase of materials for product analysis /k	Lumpsum	-	-	1	-	-	-	-	1	1,500,000	20,000	-	-	20.0	-	-	-	-	20.0	-	-	20.5	-	-	-	-	20.5
Purchase and installation of lab equipments /l	Lumpsum	1	-	-	-	-	-	-	1	1,749,975	23,333	23.3	-	-	-	-	-	-	23.3	23.4	-	-	-	-	-	-	23.4
Subtotal												103.3	13.3	20.0	-	-	-	-	136.7	103.8	13.5	20.5	-	-	-	-	137.9
3. Strengthen enforcement of on-farm biosecurity in the poultry and piggery farms /m																											
Bio-security awareness programme on pountry and piggery /n	Lumpsum	24	-	-	-	-	-	-	24	66,675	889	21.3	-	-	-	-	-	-	21.3	21.4	-	-	-	-	-	-	21.4
Survery of bio-secuirty measures /o	Lumpsum	-	1	-	-	-	-	-	1	1,700,025	22,667	-	22.7	-	-	-	-	-	22.7	-	23.0	-	-	-	-	-	23.0
Follow-up biosecurity monitoring visits /p	Lumpsum	-	-	1	1	-	-	-	2	849,975	11,333	-	-	11.3	11.3	-	-	-	22.7	-	-	11.6	11.7	-	-	-	23.4
Subtotal												21.3	22.7	11.3	11.3	-	-	-	66.7	21.4	23.0	11.6	11.7	-	-	-	67.8
4. Strengthening on-farm biosecurity and quality of planting materials /q																											
Develop and implement ornamental standard and manual /r	Lumpsum	1	-	-	-	-	-	-	1	1,500,000	20,000	20.0	-	-	-	-	-	-	20.0	20.1	-	-	-	-	-	-	20.1
Procurement of basic and sampling tools and equipments	Lumpsum	1	-	-	-	-	-	-	1	999,975	13,333	13.3	-	-	-	-	-	-	13.3	13.4	-	-	-	-	-	-	13.4
Seed sampling and testing facilities / laboratory	Lumpsum	1	1	1	1	1	1	1	7	150,000	2,000	2.0	2.0	2.0	2.0	2.0	2.0	2.0	14.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	14.5
Training and capacity development of new seed technologies	Lumpsum	1	-	1	-	1	-	1	4	999,975	13,333	13.3	-	13.3	-	13.3	-	13.3	53.3	13.4	-	13.7	-	13.9	-	14.2	55.2
Awareness on seed certification /s	Lumpsum	1	-	-	-	-	-	1	2	1,500,000	20,000	20.0	-	-	-	-	-	20.0	40.0	20.1	-	-	-	-	-	21.3	41.4
Develop nursery bio-security manuals	Lumpsum	1	-	-	-	-	-	-	1	999,975	13,333	13.3	-	-	-	-	-	-	13.3	13.4	-	-	-	-	-	-	13.4
Subtotal												82.0	2.0	15.3	2.0	15.3	2.0	35.3	154.0	82.4	2.0	15.7	2.1	16.0	2.1	37.7	158.1
5. Strengthening Sanitary and Phyto-sanitary Measures /t																											
Sampling and testing facilities /u	Lumpsum	1	1	1	1	1	1	1	7	150,000	2,000	2.0	2.0	2.0	2.0	2.0	2.0	2.0	14.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	14.5
Set-up fumigation facilities /v	Lumpsum	1	-	-	-	-	-	-	1	2,499,975	33,333	33.3	-	-	-	-	-	-	33.3	33.5	-	-	-	-	-	-	33.5
Training and capacity development on inspection, pest risk analysis, etc	Lumpsum	-	1	-	-	1	-	-	2	999,975	13,333	-	13.3	-	-	13.3	-	-	26.7	-	13.5	-	-	13.9	-	-	27.5
Subtotal												35.3	15.3	2.0	2.0	15.3	2.0	2.0	74.0	35.5	15.6	2.1	2.1	16.0	2.1	2.1	75.5
6. Third party certification for food, bhutangap and organic products /w																											
Training and capacity development /x	Lumpsum	-	1	1	1	1	-	-	4	999,993.75	13,333.25	-	20.0	13.3	13.3	6.7	-	-	53.3	-	20.3	13.7	13.8	7.0	-	-	54.7
Support to FBOs/SMEs/Operators for third party certification /y	Lumpsum	-	1	1	1	1	-	-	4	1,999,987.5	26,666.5	-	20.0	20.0	33.3	33.3	-	-	106.7	-	20.3	20.5	34.5	34.9	-	-	110.2
Maintanance of certification accredication activities	Lumpsum	-	1	1	1	1	-	-	4	750,000	10,000	-	6.7	6.7	13.3	13.3	-	-	40.0	-	6.8	6.8	13.8	13.9	-	-	41.4
Subtotal												-	46.7	40.0	60.0	53.3	-	-	200.0	-	47.4	41.0	62.1	55.8	-	-	206.3
7. Pursue mutual recognition of BAFRA inspection, testing and certification																											
Identify and document product specific SPS and Food safety requirement /z	Lumpsum	1	-	-	-	-	-	-	1	999,975	13,333	13.3	-	-	-	-	-	-	13.3	13.4	-	-	-	-	-	-	13.4
Prepare the standard/product specification /aa	Lumpsum	1	-	-	-	-	-	-	1	1,500,000	20,000	20.0	-	-	-	-	-	-	20.0	20.1	-	-	-	-	-	-	20.1
Awareness and capacity development for farmers and manufacturers /bb	Lumpsum	-	1	-	-	-	-	-	1	999,975	13,333	-	13.3	-	-	-	-	-	13.3	-	13.5	-	-	-	-	-	13.5
Hand holding and financial support to farmers and manufacturers /cc	Lumpsum	-	1	-	-	-	-	-	1	5,000,025	66,667	-	66.7	-	-	-	-	-	66.7	-	67.7	-	-	-	-	-	67.7
BAFRA capacity development on inspection, testing, and certification /dd	Lumpsum	-	-	1	-	-	-	-	1	1,500,000	20,000	-	-	20.0	-	-	-	-	20.0	-	-	20.5	-	-	-	-	20.5
Inspection, testing, and certification of prioritized products /ee	Lumpsum	-	-	1	-	-	-	-	1	3,000,000	40,000	-	-	40.0	-	-	-	-	40.0	-	-	41.0	-	-	-	-	41.0
Pursue accreditation/recognition of BAFRA's inspection, testing, and certification /ff	Lumpsum	-	-	-	1	-	-	-	1	1,500,000	20,000	-	-	-	-	20.0	-	-	20.0	-	-	-	-	20.7	-	-	20.7
Subtotal												33.3	80.0	60.0	20.0	-	-	-	193.3	33.5	81.2	61.5	20.7	-	-	-	196.9
8. Strengthening Bio-safety Measures																											
Competency development on GM food risk assessment /gg	Lumpsum	-	1	-	-	-	-	-	1	1,500,000	20,000	-	20.0	-	-	-	-	-	20.0	-	20.3	-	-	-	-	-	20.3
GMO surviellance on targeted crops /hh	Lumpsum	1	-	-	-	-	-	-	1	1,500,000	20,000	20.0	-	-	-	-	-	-	20.0	20.1	-	-	-	-	-	-	20.1
Awareness and capacity development for farmers and manufacturers /ii	Lumpsum	-	1	-	-	-	-	-	1	750,000	10,000	-	10.0	-	-	-	-	-	10.0	-	10.2	-	-	-	-	-	10.2
Purchase of PCR reagents for GMO analysis	Lumpsum	-	1	-	-	-	-	-	1	999,975	13,333	-	13.3	-	-	-	-	-	13.3	-	13.5	-	-	-	-	-	13.5
Subtotal												20.0	43.3	-	-	-	-	-	63.3	20.1	44.0	-	-	-	-	-	64.1
Subtotal												316.7	230.0	148.7	95.3	84.0	4.0	37.3	916.0	318.3	233.5	152.4	98.7	87.8	4.2	39.8	934.7
Total Investment Costs												361.7	916.0	841.5	731.3	689.0	4.0	42.3	3,585.8	363.5	929.8	862.7	757.3	720.6	4.2	45.2	3,683.1

Table 7: Component 3 - Innovative and Competitive Agri-food Sector (Contd…)

Detailed Costs		Quantities								Unit Cost	Unit Cost	Base Cost (US$ '000)								Totals Including Contingencies (US$ '000)							
	Unit	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	(BTN)	(US$)	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total
II. Recurrent Costs																											
A. Operating costs																											
Travel cost for inspection of nurseries /jj	Lumpsum	1	1	1	1	1	1	1	7	999,975	13,333	13.3	13.3	13.3	13.3	13.3	13.3	13.3	93.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	93.3
Travel cost for inspection and supervivson of agricultural commodities for exports /kk	Lumpsum	1	1	1	1	1	1	1	7	999,975	13,333	13.3	13.3	13.3	13.3	13.3	13.3	13.3	93.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	93.3
Travel cost for survey on knowledge and understanding on GMO /ll	Lumpsum	-	-	1	-	-	-	-	1	999,975	13,333	-	-	13.3	-	-	-	-	13.3	-	-	13.3	-	-	-	-	13.3
Total Recurrent Costs												26.7	26.7	40.0	26.7	26.7	26.7	26.7	200.0	26.7	26.7	40.0	26.7	26.7	26.7	26.7	200.0
Total												388.3	942.7	881.5	758.0	715.7	30.7	69.0	3,785.8	390.1	956.5	902.7	783.9	747.2	30.9	71.8	3,883.1

a Recruitment of service providers
b Recruitment of service providers
c One week training for 15 staff
d At Gewog level
e At Gewog level
f Regional roadshows and digital exhibitions in all Gewogs
g For all concerned staff
h Competency development of Lab officials on use of shelf life tseting equipment
i Purchase of standards, methods, reagents, consumables, equipments, etc as per the identified products and test parameters requirement (Biological and chemical disciplines) .
j Competency development of lab officials of both biological and chemical disciplines (Fielding in of expert and training the lab officials)
k Purchase of standards, reagents, consumables, etc for analysis of the products
l Purchase and installation of food shelf life testing equipment along with required accessories
m Mainly in Tsirang and Sarpang
n Conduct 24 biosecurity awareness programs, @ 12 [one each for each Gewog] for piggery and poultry farmers inTsirang and Sarpang Dzongkhag
o Door-to-door visits to piggery and poultry farms under Tsirang and Sarpang Dzongkhags to take stock of biosecurity measures implemented and to assess for adequacy of the measures implemented
p Follow-up biosecurity monitoring visits to piggery and poultry farms under Tsirang and Sarpang Dzongkhags to ensure continued implementation of biosecurity measures by the farmers
q Horticulture, floriculture, forestry and fodder in Tsirang, Sarpang, Zhemgang)
r In collaboration with DOA for the registered nurseries
s Creating awareness on seed certification requirements to registred Nursery opertors and seed growers
t Facilitate trade of RNR agriculture produce (Sarpang (Gelephu), tsirang and others)
u Facilities (cost) as non-radioactive certificate, sample cost and subcontracting as per the requirements of the importing country
v Fumigation house and heat treatment facilities
w As per ISO/IEC 17065 requirement to create market access of bhutanese food products.
x For the Food Product/BhutanGAP and Organic certification personnel/auditors
y For third-party Food Product/BhutanGAP and Organic certification requirements
z For prioritized agriculture and food commodities for identified export destination countries
aa As per the requirements of identified markets for prioritized products
bb To meet the product requirements for specified markets
cc For building required facilities, testing equipment and technical HR capacity to meet certification requirements
dd As per the standard requirements of identified export destinations for specific products
ee As per market requirement
ff By the competent authority of importing countries
gg Fielding in extrnal expert and train Biosafety Technical Working group and BAFRA field officials
hh Purchase of rapid test kit, reagents, subcontracting of samples, etc.
ii To meet the product requirements for specified markets
jj Under strengthening of on farm bio-security and quality of planting materials
kk Under implementation of SPS measures
ll By BAFRA field officials @ 20 respondents per dzongkhag 20 respondent, TA/DA, input data in survey tool, data analysis, etc.

Table 8: **Project Management, Monitoring and Evaluation, and Knowledge Management**

Detailed Costs		Quantities								Unit Cost	Unit Cost	Base Cost (US$ '000)								Totals Including Contingencies (US$ '000)							
	Unit	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	(BTN)	(US$)	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total
I. Investment Costs																											
A. Programme Management Unit																											
1. Materials and Equipments																											
Vehicle - Toyota Hilux /a	Number	1	-	-	-	-	-	-	1	3,600,000	48,000	48.0	-	-	-	-	-	-	48.0	48.0	-	-	-	-	-	-	48.0
Laptops	Number	5	-	-	-	30	-	-	35	105,000	1,400	7.0	-	-	-	42.0	-	-	49.0	7.0	-	-	-	43.3	-	-	50.3
Printers	Unit	1	-	-	-	5	-	-	6	30,000	400	0.4	-	-	-	2.0	-	-	2.4	0.4	-	-	-	2.1	-	-	2.5
Office equipment	Set	3	-	-	-	15	-	-	18	75,000	1,000	3.0	-	-	-	15.0	-	-	18.0	3.0	-	-	-	15.5	-	-	18.5
Subtotal												58.4	-	-	-	59.0	-	-	117.4	58.4	-	-	-	60.8	-	-	119.3
B. Project Implementation Unit, ARD Samtenling, Sarpang																											
1. Materials and Equipments																											
Vehicle - Toyota Hilux /b	Number	1	-	-	-	-	-	-	1	3,600,000	48,000	48.0	-	-	-	-	-	-	48.0	48.0	-	-	-	-	-	-	48.0
Vehicle - Isuzu D-Max pickup /c	Number	2	-	-	-	-	-	-	2	1,162,500	15,500	31.0	-	-	-	-	-	-	31.0	31.0	-	-	-	-	-	-	31.0
Laptops	Number	25	-	-	-	30	-	-	55	105,000	1,400	35.0	-	-	-	42.0	-	-	77.0	35.1	-	-	-	43.3	-	-	78.4
Printers	Unit	4	-	-	-	5	-	-	9	30,000	400	1.6	-	-	-	2.0	-	-	3.6	1.6	-	-	-	2.1	-	-	3.7
Office equipment	Set	12	-	-	-	15	-	-	27	75,000	1,000	12.0	-	-	-	15.0	-	-	27.0	12.0	-	-	-	15.5	-	-	27.5
Subtotal												127.6	-	-	-	59.0	-	-	186.6	127.8	-	-	-	60.8	-	-	188.6
2. Capacity building and training																											
Study tours and learning visit (in country and abroad)	Lump-sum	1	1	1	1	1	1	-	6	3,750,000	50,000	50.0	50.0	50.0	50.0	50.0	50.0	-	300.0	50.3	50.8	51.3	51.8	52.3	52.8	-	309.1
Subtotal												177.6	50.0	50.0	50.0	109.0	50.0	-	486.6	178.0	50.8	51.3	51.8	113.1	52.8	-	497.8
C. PLanning, monitoring and evaluation, knowledge management																											
1. Capacity development on planning, M&E and KM																											
Training on targeting, gender and youth /d	Lump sum	1	1	1	1	1	-	-	5	225,000	3,000	3.0	3.0	3.0	3.0	3.0	-	-	15.0	3.0	3.0	3.1	3.1	3.1	-	-	15.4
Training on knowledge management /e	Lump-sum	1	1	1	1	1	1	-	6	262,500	3,500	3.5	3.5	3.5	3.5	3.5	3.5	-	21.0	3.5	3.6	3.6	3.6	3.7	3.7	-	21.6
Training on monitoring and evaluation /f	Lump-sum	1	1	1	1	1	1	-	6	112,500	1,500	1.5	1.5	1.5	1.5	1.5	1.5	-	9.0	1.5	1.5	1.5	1.6	1.6	1.6	-	9.3
Refresher training on review, planning, M&E and KM	Event	1	1	1	1	1	1	-	6	750,000	10,000	10.0	10.0	10.0	10.0	10.0	10.0	-	60.0	10.1	10.2	10.3	10.4	10.5	10.6	-	61.8
Subtotal												18.0	18.0	18.0	18.0	18.0	15.0	-	105.0	18.1	18.3	18.5	18.6	18.8	15.8	-	108.1
2. Review, Planning and Coordination																											
Annual Review and Planning Workshop at Dzongkhags Level	Lump sum	4	4	4	4	4	4	4	28	225,000	3,000	12.0	12.0	12.0	12.0	12.0	12.0	12.0	84.0	12.1	12.2	12.3	12.4	12.5	12.6	12.7	86.7
Annual Review and Planning Workshop at Project Level	Lump sum	1	1	1	1	1	1	1	7	450,000	6,000	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.1	6.1	6.2	6.2	6.3	6.4	43.3
Progress review at Dzongkhags	Lump sum	4	4	4	4	4	4	4	28	150,000	2,000	8.0	8.0	8.0	8.0	8.0	8.0	8.0	56.0	8.0	8.1	8.2	8.3	8.3	8.4	8.5	57.8
Progress review at project level	Lump sum	3	3	3	3	3	3	3	21	225,000	3,000	9.0	9.0	9.0	9.0	9.0	9.0	9.0	63.0	9.0	9.1	9.2	9.3	9.4	9.5	9.5	65.0
Subtotal												35.0	35.0	35.0	35.0	35.0	35.0	35.0	245.0	35.2	35.5	35.8	36.1	36.4	36.8	37.1	252.9
3. Monitoring, Evaluation and Management Information System																											
Design of Planning, Monitoring and Evaluation System	Number	1	-	-	-	-	-	-	1	1,125,000	15,000	15.0	-	-	-	-	-	-	15.0	15.1	-	-	-	-	-	-	15.1
Design of farmers' diary /g	Number	7	-	-	-	-	-	-	7	75,000	1,000	7.0	-	-	-	-	-	-	7.0	7.0	-	-	-	-	-	-	7.0
Printing and publication of farmers' diary	Report	2,000	3,000	4,000	4,000	-	-	-	13,000	1,500	20	40.0	60.0	80.0	80.0	-	-	-	260.0	40.2	60.8	81.8	82.5	-	-	-	265.3
Training and demonstration of completing farmers' diary and data entry support	Report	-	4	4	4	4	-	-	16	375,000	5,000	-	20.0	20.0	20.0	20.0	-	-	80.0	-	20.3	20.5	20.6	20.8	-	-	82.2
Tablets for farmers level data collection	Nunber	37	-	-	-	-	-	-	37	26,250	350	13.0	-	-	-	-	-	-	13.0	13.0	-	-	-	-	-	-	13.0
Project Baseline Studies	Number	1	-	-	-	-	-	-	1	1,125,000	15,000	15.0	-	-	-	-	-	-	15.0	15.1	-	-	-	-	-	-	15.1
Impact studies of selected events (case studies)	Number	-	-	1	-	1	-	1	3	1,125,000	15,000	-	-	15.0	-	15.0	-	15.0	45.0	-	-	15.3	-	15.6	-	15.9	46.8
Annual outcome survey	Number	1	1	1	1	1	1	-	6	1,125,000	15,000	15.0	15.0	15.0	15.0	15.0	15.0	-	90.0	15.1	15.2	15.3	15.5	15.6	15.8	-	92.5
Mid-term Review	Number	-	-	-	1	-	-	-	1	1,875,000	25,000	-	-	-	25.0	-	-	-	25.0	-	-	-	25.8	-	-	-	25.8
IFAD supervision mission and ISM	Year	1	1	1	1	1	1	1	7	525,000	7,000	7.0	7.0	7.0	7.0	7.0	7.0	7.0	49.0	7.0	7.1	7.2	7.2	7.3	7.4	7.4	50.6
Project completion report	Number	-	-	-	-	-	-	1	1	1,500,000	20,000	-	-	-	-	-	-	20.0	20.0	-	-	-	-	-	-	21.2	21.2
Subtotal												112.0	102.0	137.0	147.0	57.0	22.0	42.0	619.0	112.5	103.4	140.1	151.7	59.3	23.1	44.5	634.5
4. Knowledge management and learning																											
Study on role of women and youth in BRECSA value chains	Lump sum	1	-	-	-	-	-	-	1	1,125,000	15,000	15.0	-	-	-	-	-	-	15.0	15.1	-	-	-	-	-	-	15.1
Workshops on social inclusion strategy /h	Lump sum	-	-	-	-	-	1	-	1	600,000	8,000	-	-	-	-	-	8.0	-	8.0	-	-	-	-	-	8.5	-	8.5
Printing and publications	Lump sum	-	1	1	1	1	1	1	6	375,000	5,000	-	5.0	5.0	5.0	5.0	5.0	5.0	30.0	-	5.1	5.1	5.2	5.2	5.3	5.3	31.2
Dzongkhags level knowledge sharing workshop	Lump-sum	-	-	4	4	4	4	4	20	375,000	5,000	-	-	20.0	20.0	20.0	20.0	20.0	100.0	-	-	20.5	20.7	20.9	21.1	21.3	104.6
Project level knowledge sharing workshop	Lump-sum	-	-	1	1	1	1	1	5	750,000	10,000	-	-	10.0	10.0	10.0	10.0	10.0	50.0	-	-	10.3	10.4	10.5	10.6	10.7	52.3
Subtotal												15.0	5.0	35.0	35.0	35.0	43.0	35.0	203.0	15.1	5.1	35.9	36.2	36.6	45.4	37.3	211.6
Subtotal												180.0	160.0	225.0	235.0	145.0	115.0	112.0	1,172.0	180.8	162.2	230.2	242.7	151.2	121.1	119.0	1,207.2
Total Investment Costs												416.0	210.0	275.0	285.0	313.0	165.0	112.0	1,776.0	417.2	212.9	281.5	294.4	325.2	174.0	119.0	1,824.2
II. Recurrent Costs																											
A. Project Staff																											
1. Project Management Unit, Thimpu																											
Chief Coordinating Officer	Person month	12	12	12	12	12	12	12	84	60,000	800	9.6	9.6	9.6	9.6	9.6	9.6	9.6	67.2	9.6	9.6	9.6	9.6	9.6	9.6	9.6	67.2
Associate Coordinating Officer	Person month	12	12	12	12	12	12	12	84	48,750	650	7.8	7.8	7.8	7.8	7.8	7.8	7.8	54.6	7.8	7.8	7.8	7.8	7.8	7.8	7.8	54.6
Project Liaison Officer	Person month	12	12	12	12	12	12	12	84	48,750	650	7.8	7.8	7.8	7.8	7.8	7.8	7.8	54.6	7.8	7.8	7.8	7.8	7.8	7.8	7.8	54.6
Driver	Person months	12	12	12	12	12	12	12	84	41,250	550	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2
Cleaner	Person month	12	12	12	12	-	-	-	48	18,750	250	3.0	3.0	3.0	3.0	-	-	-	12.0	3.0	3.0	3.0	3.0	-	-	-	12.0
Subtotal												34.8	34.8	34.8	34.8	31.8	31.8	31.8	234.6	34.8	34.8	34.8	34.8	31.8	31.8	31.8	234.6
2. Project Implememtation Unit, ARDC Samtenling, Sarpang																											
Project Director	Person month	12	12	12	12	12	12	12	84	56,250	750	9.0	9.0	9.0	9.0	9.0	9.0	9.0	63.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	63.0
Finance manager	Person month	12	12	12	12	12	12	12	84	41,250	550	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2
Sub-sector Specialist (Crop Production)	Person month	12	12	12	12	12	12	12	84	36,000	480	5.8	5.8	5.8	5.8	5.8	5.8	5.8	40.3	5.8	5.8	5.8	5.8	5.8	5.8	5.8	40.3
Component manager (livestock production)	Person month	12	12	12	12	12	12	12	84	41,250	550	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2
Component manager (marketing and value chain)	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
Project Engineer	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
ARP Coordinator	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
Social Inclusion and Nutrition Officer	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
M&E and KM Officer	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
Office assistant	Person month	12	12	12	12	12	12	12	84	30,000	400	4.8	4.8	4.8	4.8	4.8	4.8	4.8	33.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	33.6
Drivers	Person months	36	36	36	36	36	36	36	252	41,250	550	19.8	19.8	19.8	19.8	19.8	19.8	19.8	138.6	19.8	19.8	19.8	19.8	19.8	19.8	19.8	138.6
Cleaner	Person month	12	12	12	12	12	12	12	84	18,750	250	3.0	3.0	3.0	3.0	3.0	3.0	3.0	21.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	21.0
Subtotal												85.6	85.6	85.6	85.6	85.6	85.6	85.6	598.9	85.6	85.6	85.6	85.6	85.6	85.6	85.6	598.9
3. TA funded Technical Specialists																											
National market system and value chain development specialist	Person month	12	12	12	11	-	-	-	47	150,000	2,000	24.0	24.0	24.0	22.0	-	-	-	94.0	24.0	24.0	24.0	22.0	-	-	-	94.0
National cooperative strengthening and marketing specialist	Person month	-	24	24	-	-	-	-	48	112,500	1,500	-	36.0	36.0	-	-	-	-	72.0	-	36.0	36.0	-	-	-	-	72.0
Subtotal												24.0	60.0	60.0	22.0	-	-	-	166.0	24.0	60.0	60.0	22.0	-	-	-	166.0
Subtotal												144.4	180.4	180.4	142.4	117.4	117.4	117.4	999.5	144.4	180.4	180.4	142.4	117.4	117.4	117.4	999.5

Table 8: **Project Management, Monitoring and Evaluation, and Knowledge Management (Contd..)**

Detailed Costs		Quantities								Unit Cost	Unit Cost	Base Cost (US$ '000)								Totals Including Contingencies (US$ '000)							
	Unit	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	(BTN)	(US$)	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total	23/24	24/25	25/26	26/27	27/28	28/29	29/30	Total
II. Recurrent Costs																											
A. Project Staff																											
1. Project Management Unit, Thimpu																											
Chief Coordinating Officer	Person month	12	12	12	12	12	12	12	84	60,000	800	9.6	9.6	9.6	9.6	9.6	9.6	9.6	67.2	9.6	9.6	9.6	9.6	9.6	9.6	9.6	67.2
Associate Coordinating Officer	Person month	12	12	12	12	12	12	12	84	48,750	650	7.8	7.8	7.8	7.8	7.8	7.8	7.8	54.6	7.8	7.8	7.8	7.8	7.8	7.8	7.8	54.6
Project Liaison Officer	Person month	12	12	12	12	12	12	12	84	48,750	650	7.8	7.8	7.8	7.8	7.8	7.8	7.8	54.6	7.8	7.8	7.8	7.8	7.8	7.8	7.8	54.6
Driver	Person months	12	12	12	12	12	12	12	84	41,250	550	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2
Cleaner	Person month	12	12	12	12	-	-	-	48	18,750	250	3.0	3.0	3.0	3.0	-	-	-	12.0	3.0	3.0	3.0	3.0	-	-	-	12.0
Subtotal												34.8	34.8	34.8	34.8	31.8	31.8	31.8	234.6	34.8	34.8	34.8	34.8	31.8	31.8	31.8	234.6
2. Project Implememtation Unit, ARDC Samtenling, Sarpang																											
Project Director	Person month	12	12	12	12	12	12	12	84	56,250	750	9.0	9.0	9.0	9.0	9.0	9.0	9.0	63.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	63.0
Finance manager	Person month	12	12	12	12	12	12	12	84	41,250	550	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2
Sub-sector Specialist (Crop Production)	Person month	12	12	12	12	12	12	12	84	36,000	480	5.8	5.8	5.8	5.8	5.8	5.8	5.8	40.3	5.8	5.8	5.8	5.8	5.8	5.8	5.8	40.3
Component manager (livestock production)	Person month	12	12	12	12	12	12	12	84	41,250	550	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2	6.6	6.6	6.6	6.6	6.6	6.6	6.6	46.2
Component manager (marketing and value chain)	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
Project Engineer	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
ARP Coordinator	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
Social Inclusion and Nutrition Officer	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
M&E and KM Officer	Person month	12	12	12	12	12	12	12	84	37,500	500	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
Office assistant	Person month	12	12	12	12	12	12	12	84	30,000	400	4.8	4.8	4.8	4.8	4.8	4.8	4.8	33.6	4.8	4.8	4.8	4.8	4.8	4.8	4.8	33.6
Drivers	Person months	36	36	36	36	36	36	36	252	41,250	550	19.8	19.8	19.8	19.8	19.8	19.8	19.8	138.6	19.8	19.8	19.8	19.8	19.8	19.8	19.8	138.6
Cleaner	Person month	12	12	12	12	12	12	12	84	18,750	250	3.0	3.0	3.0	3.0	3.0	3.0	3.0	21.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	21.0
Subtotal												85.6	85.6	85.6	85.6	85.6	85.6	85.6	598.9	85.6	85.6	85.6	85.6	85.6	85.6	85.6	598.9
3. TA funded Technical Specialists																											
National market system and value chain development specialist	Person month	12	12	12	11	-	-	-	47	150,000	2,000	24.0	24.0	24.0	22.0	-	-	-	94.0	24.0	24.0	24.0	22.0	-	-	-	94.0
National cooperative strengthening and marketing specialist	Person month	-	24	24	-	-	-	-	48	112,500	1,500	-	36.0	36.0	-	-	-	-	72.0	-	36.0	36.0	-	-	-	-	72.0
Subtotal												24.0	60.0	60.0	22.0	-	-	-	166.0	24.0	60.0	60.0	22.0	-	-	-	166.0
Subtotal												144.4	180.4	180.4	142.4	117.4	117.4	117.4	999.5	144.4	180.4	180.4	142.4	117.4	117.4	117.4	999.5
B. Operating costs																											
1. Project Management Unit																											
Vehicle O&M	Vehicle / year	1	1	1	1	1	1	1	7	487,500	6,500	6.5	6.5	6.5	6.5	6.5	6.5	6.5	45.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	45.5
Office O&M	Lump-sum	1	1	1	1	1	1	1	7	225,000	3,000	3.0	3.0	3.0	3.0	3.0	3.0	3.0	21.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	21.0
Office supplies	Lump-sum	1	1	1	1	1	1	1	7	187,500	2,500	2.5	2.5	2.5	2.5	2.5	2.5	2.5	17.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	17.5
Travels and meetings	Lump-sum	12	12	12	12	12	12	12	84	225,000	3,000	36.0	36.0	36.0	36.0	36.0	36.0	36.0	252.0	36.0	36.0	36.0	36.0	36.0	36.0	36.0	252.0
Subtotal												48.0	48.0	48.0	48.0	48.0	48.0	48.0	336.0	48.0	48.0	48.0	48.0	48.0	48.0	48.0	336.0
2. Project Management Office																											
Vehicle O&M	Vehicle / year	3	3	3	3	3	3	3	21	487,500	6,500	19.5	19.5	19.5	19.5	19.5	19.5	19.5	136.5	19.5	19.5	19.5	19.5	19.5	19.5	19.5	136.5
Office O&M	Lump-sum	1	1	1	1	1	1	1	7	225,000	3,000	3.0	3.0	3.0	3.0	3.0	3.0	3.0	21.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	21.0
Office supplies	Lump-sum	1	1	1	1	1	1	1	7	450,000	6,000	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	42.0
Travels and meetings	Lump-sum	12	12	12	12	12	12	12	84	450,000	6,000	72.0	72.0	72.0	72.0	72.0	72.0	72.0	504.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	504.0
Subtotal												100.5	100.5	100.5	100.5	100.5	100.5	100.5	703.5	100.5	100.5	100.5	100.5	100.5	100.5	100.5	703.5
Subtotal												148.5	148.5	148.5	148.5	148.5	148.5	148.5	1,039.5	148.5	148.5	148.5	148.5	148.5	148.5	148.5	1,039.5
Total Recurrent Costs												292.9	328.9	328.9	290.9	265.9	265.9	265.9	2,039.0	292.9	328.9	328.9	290.9	265.9	265.9	265.9	2,039.0
Total												708.8	538.9	603.9	575.9	578.9	430.9	377.9	3,815.0	710.1	541.8	610.3	585.3	591.1	439.8	384.8	3,863.2

\a Imported from Japan
\b Imported from Japan
\c Imported from India
\d For relevant project staff
\e For relevant project staff
\f For M&E Officer
\g One for each value chain commodities
\h One day workshop on the Social Inclusion Strategy of BRECSA in each Dhzonkhags (35 participants)

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Building Resilient Commercial Smallholder Agriculture (BRECSA)

ANNEX 4: ECONOMIC AND FINANCIAL ANALYSIS

Background

1. **Project goal**: The Goal of the project is to "catalyze a 30% increase in resilient commercial agricultural production and improve food and nutrition security in the four target districts by 2030. The development objective is to transform smallholder agriculture into inclusive and resilient agri-food systems that are increasingly profitable and food and nutrition secure.

2. **Geographical area**: The Project will be implemented in the central and central south Dzongkhags of Sarpang, Trongsa, Tsirang and Zhemgang. The four project Dzongkhags are administratively further divided into Gewogs and villages. There is a total of 37 Gewogs and 539 villages in the project target Dzongkhags. BRECSA will target all Gewogs within these four project districts.

3. **Target groups:** The Project will target commercial, semi-commercial and subsistence farmer households. The total direct beneficiaries of BRECSA interventions are at 12,074 farmer households, out of which 60% will be women and 30% youth. The project will have a multi-dimensional targeting approach focusing on poverty reduction and improved food and nutritional security while boosting commercialization, strengthening value-chains and increasing the resilience of both poor smallholder farmers and commercially-oriented farmers. The project will develop specific mechanisms for poor households to be able to join appropriate value chains, and these households will be benefiting from expanding local agriculture employment opportunities associated with value chain-driven growth.

4. **Beneficiaries**: The project will target around 12,074 farmers' households who will benefit as producers, agri-industry entrepreneurs and employees and an additional about 10,000 household benefits indirectly through public infrastructure, agricultural extension, and financial education and business literacy sessions and financial services. Sixty percent of the beneficiaries will be women, including a minimum of 5 percent women-headed households and 30 percent will be youth. Six hundred people with disability (PWD) women, men and youth, who constitute 25% of the differently abled persons in the target districts will benefit from project interventions.

5. **Duration:** Duration of the programme will be 84 months (7 years). The implementation of the project will start in January 2023 for a period of seven years. The official closing date of the programme is December 2029. The economic and financial analysis (EFA) of the project has been covering the project duration of 84 (7 years) months.

Project components

6. BRECA project is structured around three inter-connected components: (i) Resilient production systems; (ii) Strengthened value chain coordination and market linkages; and (iii) Innovative and competitive agri-food sector.

7. First component focuses on building resilient production systems based on a regenerative model that increases resilience to climate and other shocks, and that contributes to food and nutrition security. A stratified approach will be adopted in targeting commercial, semi-commercial and vulnerable subsistence households as a means to incrementally improve their overall quality of life.

8. Second component seeks on building business linkages between producers, buyers, financiers and local stakeholders through multi-stakeholder platforms (MSP). The MSPs will support farmers in achieving effective commercialization of prime competitive commodities as well as identify investment needs associated with aggregation, storage, processing, packaging and marketing.

9. Finally, the third component supports the creation of an enabling financial and policy environment to promote a competitive and modernized food sector.

Project cost

10. The main assumptions underlying the derivation of project costs and the financing plan are the following:

- Project costs: Total cost of the project is USD 30.06 million, it is based on April 2022 prices, and will be financed over a seven-year period (2023-2029). The Project costs are presented in both BTN and USD.
- Inflation: Inflation in Bhutan is quite fluctuating. In 2019, average inflation was 2.82% which increased to 4.15% in 2020. The average inflation further increased to 6.27% per annum in 2021 and it is expected to remain at about 6% per annum in 2022. Average inflation is assumed to remain at 5% over the project period.
- Exchange Rate. Base Exchange rate of Bhutan Ngultrum (BTN) to USD is 75 (rounded) in April 2022 and this exchange rate has been used in EFA analysis. Conversions from current USD values into BTN use constant purchasing power exchange rates of NRs. 75 per USD.
- Taxes and Duties. There is value added tax (VAT) of 12 per cent levied on all imported and locally procured goods and services. Vehicles have a tax of up to 120% per cent depending on an engine power.
- International technical assistance does and grants not carry any taxes. Social security benefits (employee's portion) and income tax (employee deductions) are eligible for IFAD financing.

11. The Government will finance the cost of all taxes on goods and services procured under the Project. RGoB will also finance some PMU staff (on deputation) and operating costs and contribute to the cost of infrastructure development.

Project support

12. The project provides diverse types of support to the target beneficiaries. For the purposes of Economic and Financial Analysis (EFA), benefits are modelled assuming the following project support in each of the three project components:

13. **Resilient Production Systems:** The resilient production systems will be promoted by (i) Consolidated Livelihood Exercise for Analyzing Resilience (CLEAR), (ii) Develop Gewog and Dzongkhag Agriculture Resilience Plans (ARPs); (iii) Improve livelihoods of vulnerable groups, and (iv) Invest in commercial farming systems through a systematic support as under.

(a) **CLEAR Tool:** The project will use CLEAR diagnostic tool for zoning agricultural and livestock production, locating aggregation and processing centres and satellite markets, and streamlining supply-side logistics based on a robust spatial and temporal climate vulnerability and risk assessment.

(b) **Gewog and Dzongkhag ARP**: The project will support preparing Gewog and Dzongkhag ARP involving smallholder households, producer organisations, cooperatives, buyers, financiers, and district agriculture and market facilitation officers;

(c) **Improve livelihood of vulnerable households:** The project will follow the principles of 'leaving no one behind' and provide customized support to subsistence smallholders farmers, vulnerable households - including women-headed households and households of PWD in the target villages through the development of Livelihood Investment Plans. The project will improve the

nutritional status of these households by promoting nutrition-sensitive agriculture interventions through home gardens, poultry production and selected on-farm and off-farm activities and awareness raising on food-based nutrition. The project will also contribute to graduating these households from subsistence to semi-subsistence by providing them with necessary production and post-harvest inputs, capacity building, inclusion in cooperatives and market linkages.

(d) **Invest on commercial farming systems:** The project will support the creation of hubs as production zones for the different BRECSA prime commodities. The hubs will be centered along main arteries and economic corridors and will be designed using permaculture farming principles for promoting climate resilient agro-ecological farming and promotion of selected and promising value chain commodities. Farmers will be organised into a network of Farmer Groups or Cooperatives (FG/FCs), and linked to the Hubs for facilitation of capacity building, input provision, aggregation, post-harvest processing and marketing.

14. **Strengthen value chain coordination and market linkages:** The value chain coordination and market linkages will be strengthened through This component includes three sub-components: (i) Enhance efficiency of value chain operations, (ii) Establish Hubs to support commercialization and (iii) Business linkages and multi-stakeholder platforms (MSP) as under.

(a) **Enhancing efficiency of value chain operations:** The project will apply an integrated value chain approach, defining interventions in all value chain functions from input supply, production, aggregation and storage, processing, to defining marketing channels, export potential and strategies. The project will fund small to medium scale infrastructure to address remoteness and absence of appropriate marketing facilities for improving the profitability of smallholder farmers. The project will also fund provision of aggregation centres, storage, and small-scale processing centres with required washing, grading, packing facilities and storage to support the commercialization of agricultural produce. These processing facilities will be strategically located based on the CLEAR analysis and Dzongkhag ARPs.

(b) **Establishment of Hubs to support commercialization:** The project will support the creation of Youth Farmer Group/Cooperative run Hubs. It will support the establishment of at least 4 youth-led Hubs per Dzongkhag (16 in total). These Hubs will be supported with training and serve as a Farmer Field Schools for the adjacent network of farmers for building knowledge on agro-ecological farming. Based on demand, the Hubs will serve as an input distributor for provision of seed and vegetative planting material, bio-inputs, and minor tools to the farmer groups. The Hubs will also serve as an aggregation point for the farmer groups to deliver their produce based on a guaranteed minimum price and profit sharing.

(c) **Business linkages and multi-stakeholder platforms:** The project will facilitate the establishment and functioning of MSPs to support business development and commercialisation at Thimphu and District levels. The MSPs, in partnership with relevant departments and agencies, will be responsible for export market exploration and facilitation. MSPs will also engage in investment planning. Based on the initial value chain analysis and defined investment strategies, a Strategic Investment Plan (SIP) will be prepared for each selected commodity.

15. **Innovative and competitive agri-food sector:** The innovative and competitive agri-food sector will be supported to create an enabling financial and policy environment

to promote a competitive and modernized food sector. This includes activities such as: (i) Access to financial services, (ii) Digital technologies to support marketing and (ii) Policy dialogue.

(a) **Access to financial services**: The project will enhance access to and usage of agricultural financial services and VC financing tools for commercial and semi-commercial smallholders, producer groups, cooperatives, aggregators, traders, processors and other value chain actors engaged in selected agricultural commodities. The project will also work with financial institutions to develop customized products that are aligned to cash flow and seasonality of the different agricultural commodities and enhance the capacity of their field staff. Furthermore, the project will support farm households and enterprises to improve their financial literacy, skills and knowledge to improve their financial habits, financial discipline and investment decisions.

(b) **Digital technologies to support marketing**: The project will conduct careful analysis to assess existing farmer-support digital tools, their shortcomings and current needs of farmers to later develop a user-friendly tool/platform. The tool will tackle issues related to: (i) production and pricing in different locations (commodity, volume and price), (ii) demand in different markets (commodity, volume and price), (iii) transportation (facilitating farmers and traders to search and contact transport service providers for transporting agriculture produce), and (iv) other functionalities under the above four areas identified during the diagnostic analysis.

(c) **Policy dialogue**: This project will undertake policy dialogue to support the promotion of Brand Bhutan's organic and high-value agri-food products in regional and international markets. To this end, the Project will support BAFRA in the development of GI as well as provide needed investments for regulation, standardization and certification. The project will also work with DAMC to revise the rules and regulations of the Cooperative Act and produce guidelines that foster agri-food commercialization.

Project Beneficiaries Composition

16. The project proposes to adopt a multi-dimensional targeting approach focusing on poverty alleviation and improved food and nutritional security while boosting commercialization, strengthening value-chains and increasing the resilience of both poor small holder farmers and commercially-oriented farmers. The project is using direct targeting to ensure social inclusion of women, youth and vulnerable groups like women-headed households and PWD disability through setting quotas, including specific budget allocations to ensure outreach. The project will support them through different interventions.

17. **Livelihood investment plans**: The project will support about 1,500 beneficiaries HHs to prepare and implement livelihood investment plans (LIPs). They will be mainly the subsistence farmers who may graduate to semi-commercial category over time.

18. **Nutrition-sensitive agriculture interventions**: The project will impart nutrition education to 21,600 people to further improve nutritional practices comprising of 6,300 youth (boys and girls), 14,700 women and 600 PWD. Among them, the project will support around 3,166 subsistence smallholder households[38] through an adapted home garden support package.

19. **Readiness support for differently abled persons**: In view that differently abled persons can be excluded from social activities and have higher risks of getting

[38] Subsistence smallholder households who produce for their own consumption

marginalized, the project targets 600 differently abled persons (PWD) or caregivers to increase their readiness to engage in agriculture related income generating activities.

20. **Permaculture farming:** The project will support the setting-up of 16 permaculture farm and train 16 lead farmers and 384 youth and other farmers interested in adopting agro-ecological farming who reside relatively close to the Lead Farmer to promote permaculture farming practices. Total will be 400 beneficiaries HHs.

21. **Value chain development**: To start with the project will support promotion of value chain in commodities such as (i) dairy and poultry, (ii) high value commodities (off season vegetables, ginger, turmeric, etc.), (iii) mushrooms, and (iv) other niche products such as honey, tea, etc. Number of beneficiary HHs are estimated to be 800 dairy HHs, 800 poultry HHs on poultry productions, 2,000 HHs on high value crop production, 10 HHs on commercial mushroom production and 200 HHs on honey production. Total beneficiaries on direct value chain development will be 3,810 HHs.

22. The project will ensure that subsistence farmers and semi-commercial farmers in the project districts, excluded under support packages encompassing LIPs, home gardens support, readiness to PWD, permaculture and value chain will benefit from (i) financial education and business literacy, (ii) formation and strengthening of FGs and Cooperatives and (iii) project supported infrastructures. Total will be 2,598 beneficiaries HHs.

23. Table 1 below shows the phase-in and total number of direct beneficiaries of the project over the project period.

Table 1: **Smallholder Beneficiaries Households Distribution by Year**

S. N.	Project support / Value Chain / enterprises	Unit	2023/ 24	2024 /25	2025/ 26	2026/ 27	2027/ 28	2028/ 29	2029/ 30	Total	% of Total
1	Livelihood investment plans	No	150	300	300	300	450			1,500	12.4
2	Home garden support	No	400	700	700	600	766	-	-	3,166	26.2
3	Readiness support to PWD	No	50	150	150	150	100	-	-	600	5.0
4	Permaculture	No	50	100	100	100	50			400	3.3
5	Livestock production										
	Dairy – Cattle	No	50	250	200	200	100	-	-	800	6.6
	Poultry	No	50	250	200	200	100	-	-	800	6.6
6	High value commodities										
	Vegetables	No	200	350	350	300	200	-	-	1,400	11.6
	Ginger	No	50	100	100	50	-	-	-	300	2.5
	Turmeric	No	50	100	100	50	-	-	-	300	2.5
	Mushrooms (Oyster - Medium)	No	-	4	4	2	-	-	-	10	0.1
	Honey production	No	-	50	75	75	-	-	-	200	1.7
7	General subsistence and semi-commercial farmers	No	500	500	600	600	398	-	-	2,598	21.5
	Total	No	1,550	2,854	2,879	2,627	2,164	-	-	12,074	100.0
	% of the Total		13	24	24	22	18	-	-	100	

24. During BRECSA design, three broader groups of support such as (i) permaculture, and value chain commodities: (ii) animal (dairy and poultry) husbandry and (iii) high value commodities (vegetables, ginger, turmeric, mushrooms, and honey) are proposed based on agro-ecological suitability, comparative competitive advantage, market

potential and private sector interest, market demand and profit margin. Details on value chain commodities selection is provided in **Attachment 1**. Further in order to improve the food and nutrition security and livelihood status of beneficiaries, the project includes packages of services such as implementation of livelihood investment plans, home garden, readiness support to PWD and support to general small holders (subsistence and semi-commercial) farmers.

25. These households will be benefiting through various project interventions geared at building resilience of smallholders' farmers through value chains development interventions and will be supported based on cluster development approach through different packages of services (business literacy, extension, grant, private and public infrastructure, etc.). This process will be driven by the primary actors themselves, principally farmers and MSMEs through packages of services comprising of mentoring and mobilization of small-scale producers, brokering and cluster facilitation and inclusive value chains knowledge and policy support. They will receive business skill and household finances; managing own farm as a business; managing the enterprise as well as integrate the aspects of climate change, youth, and nutrition.

26. Beneficiaries will be assisted through multiple services such as adaptation and mitigation technologies and practices, improved access to markets, basic and productive and market infrastructure, support to permaculture, small irrigation, improvement of cattle and poultry shed and financial education and business literacy and eventual linkages with affordable and suitable financial services and products of the banks and financial institutions. Under this project, confidence of the farmers on production will be enhanced to promote their inclusion into value chain and improved marketing strategies through their participation on FGs that will allow enable them engage in produce aggregation, distribution, and responsiveness to market demands. The project support through FGs will be focus on enabling them to promote investments and become reliable value chain partners for buyers and customers.

Post-harvest value chain

27. Besides pre-harvest, BRECSA is creating incremental benefits by improving efficiency and effectiveness on existing value chain of supported commodities. This will be done through strengthening of the local aggregators comprising of FGs and cooperatives, post-harvest processors, youth enterprises and traders; and youth enterprises.[39] These will be complemented through improvement on wholesale and retail markets, promotion of irrigated agriculture through surface and pond irrigation technologies and other types of value addition such as produce aggregation, processing, packaging, storage and distribution. Such a support to create time, place and form utility of the commodities.

28. The project will focus on brokering and cluster facilitation to improve linkages between farmers, buyers and service providers to better exploit market opportunities. This will be done through facilitation of rolling MSPs, and associated business-to-business (B2B) follow-up with existing buyers and post-harvest value chain infrastructures initially. During the later stage of the project, some post-harvest value chain enterprises mainly related to processing of the commodities and input supply will gradually emerges. Indicative enterprise and production models for most likely value chains such as small-scale dairy processing and agro-vet services are prepared under this EFA exercises.

[39] Candidate enterprise will comprise of: (i) vegetable processing (drying and pickling); (ii) production of compost fortified briquettes, soil bio-stimulants and bio-pesticides; (iii) silage-making in bags; (iv) seed processing and packaging; (v) agro-vet services, (vi) processing, packaging and marketing of the feasible dairy products.

Financial services

29. Rural and agricultural financial is not very well development in Bhutan. Most of the smallholder farmers lack access to formal sector finance from Banks and Financial institutions (BFIs). The project support will focus on strengthening potential rural finance intermediaries (FGs and Cooperatives) as well as linking them with wholesale financial services from BFIs.

30. Sub-component 3.1 under component 3 focuses on leveraging and enhancing access to financial services for local private sector aggregators (smallholder producers, farmer groups and cooperatives) from development finance such as BDBL, and CSI Bank; and microfinance institutions such as RENEW MFI, BAOWE, Tarayana, Foundation, and enhance digital access to financial services for producers, aggregators and traders including online registration, and visibility of interest rates and charges. Further, the project will support the beneficiary farmers to prepare the livelihood investment plans, and linked them with these financial service providers. Mainly development finance institutions (case of large value chain entrepreneurs) and microfinance institutions and financial cooperatives (case of smallholder farmers) for required financial services depending on their stage and level of involvement on value chain system. Producers themselves will take risks and rewards analysis of their own investments and implement their plans.

31. Enterprises potentially promoted under BRECSA required both short (working capital) and medium term (term) loan. Very few enterprises likely to be emerged under BRECSA value chain development support such as cold storage, large scale dairy, and processing entity could potentially are long-term nature, but such enterprise requiring long term loans are not visualized at the design stage.

32. Government of Bhutan (GOB) has Priority Sector Lending (PSL) policy wherein loan ceilings for individuals is Nu 0.5 million, loan term is for 5 years, no collateral but mandatory insurance, up to 100% debt financing and preferential interest rate of 8%; for FGs / cooperatives and incorporated companies loan ceiling goes up to Nu 10m while other features remain the same. PSL target for the banks has been 1% of total loan portfolio to be lent to agricultural CSIs for all banks except BDBL. Additional 1% of total loan portfolio to be lend to non-agricultural CSIs for all banks and insurance companies. The project support will be centered to support potential project farmers, FGs and cooperatives under PSL of the GOB.

Approach and Methodology of EFA

33. Cost-benefit analysis method was used for carrying out the EFA[40]. Project benefits includes potential return from various project interventions such as permaculture farming, and value chain commodities namely (i) livestock (dairy and poultry) and (ii) high value commodities (vegetables, ginger, turmeric, mushrooms, and honey) as well as project support on food and nutrition security, livelihood investment plans and readiness support to differently abled people, and value chain enterprises. The potential costs to be incurred to realize these benefits by the project beneficiaries are accounted.

34. Benefits are estimated for all categories of the project beneficiaries and proposed value chain commodities. Major sources of quantifiable benefits are incremental agricultural production through adoption of improved technology, management practices and BRECSA access to financial services including financial education and business literacy, and strengthening of FGs and cooperatives. These benefits are properly

[40] The project's cost benefit analysis was carried out based on 'with/without' assumptions. Required data were collected from multiple sources including MOAF / DOA produced documents (i) Cost of Production of Food and Horticulture Crops in Bhutan, June 2020; (ii) Package of Practices of Field and Horticultural Crops of Bhutan, June 2019, (iii) Bhutan RNR Statistics, 2018, (iv) Agricultural Statistics 2020, (v) RNR Statistics of Bhutan 2019 and field level data collected during the mission and field survey of representative enterprises.

accounted. The project will support to improve wholesale and retail markets, processing, road access, and irrigation, which will be generating different benefits. BRECSA farmers will be benefiting directly from grant support from the project through livelihood improvement plans, home garden, support to differently abled people, permaculture farming and promotion of selected value chain commodities on high value crops and livestock production. They will also benefit indirectly through improved agricultural production environment such as improved irrigation facilities, road access, and market linkages. These benefits had been captured through indicative model for livelihood improvement, kitchen garden, enterprise and production models, etc. that are focused on input marketing, product aggregation, processing, packaging, storage and distribution.

35. Further, the project implementation approach to increase sustainability, resilience and profitability as a result of adaptation and mitigation technologies and practices, improved access to markets, access to basic and productive and market infrastructure, and financial education and business literacy are assumed to reduce price and quantity risks of the producers and are captured through integrated pricing mechanism.

36. BRECSA EFA was done using the similar assumptions that was used during CARLEP project design as well as due consideration on CARLEP EFA results to ensure that BRECSA EFA is consistent to the EFA done under the IFAD funded projects in Bhutan.

Financial Analysis

37. Financial analysis is done to demonstrate viability of the project proposed intervention at the enterprise and farming household levels. The methodology employed is to establish individual gross margin enterprise budgets for all the project support to demonstrate the efficiency of investment through positive change in net income following project implementation. These budgets provide the basis building blocks of the household farming business as expressed in farm budgets. Farm budgets[41] are developed for each of the value chain commodities: permaculture farming, high value commodities such as vegetables (onion, chilies and tomato), mushrooms (Oyster – medium scale), ginger, turmeric, and honey, and livestock commodities such as dairy/cattle and poultry as well as other farmed crops so as to develop a household perspective. Further, household model for LIPs, home garden, improved farming as a result of project support such of FEBL, FGs/cooperatives and public infrastructure support from the project. The financial analysis is formulated on an incremental basis and as such comparing with-project (WP) situation to the without-project (WoP) situation. In this way, the incremental benefit has been used as a basis of financial analysis.

38. **Assumptions and observations:**

- All the costs and benefits are valued at constant market price of April 2022.
- Only direct beneficiaries are considered and benefits and cost associated to over 10,000 indirectly benefitting households were not considered in this analyzed.
- Average size of landholding is 1.5 acre in project areas and various seasonal and perennial crops are planted and BRECSA support will enable beneficiary households to shifts from traditional cropping patterns to more commercial oriented farming system within the project areas.
- In all 12,074 farm households will receive BRECSA benefits directly. These households will have access to services such as project grants, training, extension

[41] A farm budget is a function of the farms cropping (and in some cases) livestock production pattern and the representative budget for that household type. The farm budget also reflects the investment, the debt service, the on-farm use, household consumption and the labour availability.

and financial services, improved value chain infrastructure, which will enable them to adopt new packages of production practices, crop varieties and cultivation techniques eventually leading to increased production and income.

- Beneficiary households already organised into FGs will benefit from the project. The project will support them to enhance their competence through training and capacity development and will actively participate in BRECSA package of services. In project areas, where FGs do not exist, new FGs will also be formed.
- Beneficiary households will receive BRECSA package of services directly or indirectly from the project under three components discussed above. They will receive technical support through RGOB Field Agricultural Officers (FAO), Agricultural Technicians (ATs) and community mobilizers recruited under project and other expert support as well as existing network of service providers at non-government sector.
- Most villages in project Dzongkhags have perennial or seasonal streams that could be tapped for irrigation through the construction of surface, pipelines-based, sprinkler and small lift irrigation system. Smallholders will also benefit from the market-oriented community infrastructure to be supported from the project.
- Commonly grown crops are paddy, wheat, maize, millets, pulses, vegetables and other fruit crops and the households apply farm yard manure / compost or little chemical fertilizers and households especially in proposed Dzongkhags use poly-tunnels for improved vegetable farming.
- Crop productivity is gradually being improved through adoption of quality of seeds / varieties, weeding, mulching, use of improved farm tools and implements, which were demonstrated by the beneficiary households. The access to quality seeds and inputs has been an issue and agro-vet located in several places in project areas will be strengthened to supply quality seed to the farmers.
- Vegetable farming comprises of several crops such as cabbage, cauliflower, carrot, radish, coriander, broad leaved mustard, peas, beans, cucumber, etc., but major focus of the project will be on promoting cultivation of essential vegetables namely chilies, onion and tomato that has high demand both at local and international market and have attractive rate of return. Area under vegetable farming ranges between 0.5 acre and 1.5 acre, with an average of 1 acre (0.4 ha (approx.).
- Improved road connectivity, irrigation facilities, access to agricultural inputs, market infrastructure, transport, processing, trade and other attendant facilities supported under the BRECSA and already provided by RGoB will enable participating households to realise increased margins on agricultural production.
- The smallholders in the project areas raise livestock such as cattle, pigs, goats, poultry birds, etc. in addition to agricultural activities. There exist potential to up-scale these business through technology, training and para-vet services. Back yard poultry and dairy cattle farming are highly promising activities with providence evidences for commercialization. The project support smallholder farmers to specialize and gradually commercialize on poultry and dairy cattle farming.
- There will be notable improvement on marketing of the farm produces due to BRECSA support through mentoring and mobilization of small-scale producers, brokering and cluster facilitation through MSPs and inclusive value chains knowledge and policy support. Over 90% beneficiary households will get information about prices and most will receive instant payments at sale and very few beneficiaries will receive payment after weeks. These practices will be gradually minimized.

- An average wage rate of Nu 500/person day for both male and female labour for hard work like land preparation and Nu 350-400/person day for both male and female labour for other activities like care and management of agricultural enterprise and inter-cultural operation. This wage rate has been assumed although the farm-wages tended to vary. The same rate is assumed for without project situation.
- Farmers pay land taxes as applicable and these form part of the fixed production costs. They use farm implements as well and depreciation in these implements is expected and 12.5% depreciation rate is used assuming 8 years economic life of these implements.
- Commodity prices vary significantly between Dzongkhags and seasons and the April 2022 prices were collected during the mission from different sources and those prices were compared with the prices used in undertaking EFA during CARLEP design. These prices were cross-checked / triangulated from national level price statistics collected by DOMC under MOAF.
- Access to financial services in Bhutan is at a nascent stage. Despite relatively wide branch networks of the BFIs, they are yet to expand access to financial services to inaccessible and remote areas. Available financial services are concentrated in few urban centres and along the market centers / township along the road corridor of the major highways. At present, BFIs are extending the short- and medium-term loans in the initial 3-4 years in several potential sectors mainly RGOB guarantee. They will potentially extend long term financial support to value chain enterprises on services related to aggregation, processing, packaging, storage and distribution in the later phase of the project. Overall loan portfolio for long-term loan for the BFIs has been increasing (<5%).
- The RGOB/MOAF has been designing suitable agricultural insurance services in the country and will potentially start implementation in 2023. The BRECSA project will work to strengthen agriculture insurance services as a tool for risk mitigation for producers in the value chain and agricultural loan extended by BFIs. Benefit from these services in form of risk reduction for producers and improved repayment performance of the BFIs could be integrated in higher production and better commodity prices, but this has not been considered in the EFA analysis.

Enterprise models

39. **Enterprise models type**: following enterprise models, which are indicative, were develop under without project and with project situation for the purpose of ex-ante EFA.

- Permaculture
- Livestock farming - dairy/cattle and poultry
- High value commodities - vegetables (chilies, tomato, onion), mushrooms (Oyster - Medium), ginger, turmeric and honey
- Livelihood improvement plans
- Home garden
- General subsistence and semi-commercial smallholder farming

40. The demand-driven nature of the project makes both financial modeling and calculation of a benefit stream rather indicative. Above six categories of enterprise models were prepared to illustrate income generating activities and micro-enterprises that can be subject of BRECSA supports. These supports will be extended through three inter-related but distinct project components.

41. The project is working on value chain development activities in above mentioned livestock and high value agricultural commodities in four Dzongkhags namely Sarpang, Trongsa, Tsirang, and Zhemgang

42. **Benefits:** The project is expected to lead to increase in incomes for smallholder HHs who otherwise lacks access to basic services on extension, finance, and technology to increase income and generate employment opportunities in the target areas. Key benefits would accrue from agricultural business creation and expansion, facilitated by project support on value chain development through social mobilization from project to establish their linkages with potential suppliers and enhanced access to basic services including access to financial services.

43. Financial analysis was done at project level using market prices. Incremental benefits were estimated based on actual physical outputs from the selected commodities. Prices information was collected for all inputs and output commodities from the markets and adjusted them to farm-gate prices. Using all available primary and secondary data, type of production models for each of the project intervention were developed under with and without project scenario.

44. **Without and with project scenario**: While vegetables, ginger and turmeric farming are land intensive activities, while honey, mushrooms, milk/dairy and poultry are not. Field observation revealed that honey, mushrooms and small-scale poultry farming are very much suitable to marginal and landless farmers.

Table 2: Project support / value chain / enterprise under without and with project scenario

Project support / value chain / enterprises	Average farm size (acre)	With-out project	With project	Model size with project (acre)
Livelihood investment plans	1.0	Barren land, paddy, wheat, maize	Paddy, wheat, maize, pulses, vegetable, cattle, poultry	1.0
Home garden support	0.8	Paddy, wheat, maize	Paddy, wheat, maize, pulses, vegetable, cattle, poultry	1.0
Permaculture	4.0	Barren land, maize, wheat, wheat	Paddy, wheat, maize, pulses, vegetable, cattle, poultry, grasses,	4.0
Livestock production				
Dairy – Cattle	1.0	Barren land, paddy, maize and wheat, cattle	Dairy cattle, cereal crops pulses	2.0 cross-bred cattle
Poultry	1.0	Barren land, paddy, maize and wheat, backyard poultry	Poultry (1000 boilers), cereal crops	1,000.0 birds
High value commodities				
Vegetables	1.5	Barren land, paddy, wheat, maize	Vegetables (chilly, onion, tomato), cereal crops	1.0
Mushrooms (Oyster - Medium)	1.5	Barren land, paddy, wheat, maize, mushroom	Mushroom, cereal crops	500.0 balls
Ginger	1.5	Barren land, paddy, wheat, maize	Ginger, cereal crops	1.0
Turmeric	1.5	Barren land, paddy, wheat, maize	Turmeric, cereal crops	1.0
Honey production	0.8	Barren land, paddy, wheat, maize	Honey, cereals, vegetables,	50.0

Project support / value chain / enterprises	Average farm size (acre)	With-out project	With project	Model size with project (acre)
General subsistence and semi-commercial farmers	1.50	Barren land, paddy, wheat, maize	Paddy, wheat, maize, pulses, vegetable, cattle, poultry	1.5

45. Field observation in revealed that adoption of BRECSA promoted technologies by smallholders will be gradual and there will be a continuous shift from current situation and desired level. For example, less than 20% of their farm will be transformed from cereal crops to vegetables, ginger and turmeric farming in the initial year of project support. Farmers raising one cattle will increase to two cattle. This way implication on food security and nutrition (FSN) will be minor and such a system will enable farmer to gradually develop resilience on BRECSA induced changes. Production of staples will decrease marginally while with the adoption of intensive farming in some plots of their farm land, smallholders will have supplementary sources of income to finance other household necessities.[42] In order to address FSN issues, subsistence farmers will be assisted to implement livelihood improvement plan, adopt the kitchen garden practices and which will be facilitate them graduate to semi-commercial and commercial scale.

46. Due to project support on various layers of the value chain, modernization of the farming sector is expected through (i) transformation of cereal crops farming into high value cash crops such as vegetable, ginger and turmeric farming, (ii) up-grading of the subsistence and traditional dairy (1 cattle) farming to commercial activity (2 improved cattle), and (iii) shift from limited scale production of back-yard poultry to commercial scale. This assumption is supported and based on emerging trend of large number of smallholder farmers in the project areas transforming traditional farming to more commercial one. Such conversion will gradually take place in the project areas and potentially increases during the project period.

47. Enterprise models were prepared for all activities discussed above. Profit margin under different enterprise models: (i) without project scenario covering traditional crops like paddy, wheat, maize, rajma beans, backyard poultry and dairy activities, and (ii) with project for vegetables, ginger, and turmeric, permaculture, etc. are land intensive activities, while mushrooms, dairy, poultry (boiler), and honey as less land intensive activities. The enterprise model for cardamom is also prepared but is not modeled in cost-benefit framework. These are included in the separate excel file.

48. Financial benefit and cost analysis of enterprise model**:** fixed investment, operative (fixed and variable) cost, benefits of all above commodities over 25-year horizon (2023-2048) of the project were estimated. Summary of the financial analysis of selected enterprises are presented in Table 3 and 4.

Table 3: Summary of Financial Analysis of Selected Value chain Commodities

Project support / value chain / enterprises	Unit	Size of Enterprise	Total Investment (US$)	Incremental annual net benefits at full development (US$)	Incremental family labor per year	Incremental hired labor per year
Livelihood	Acre	1.0	733	96	0	-

[42] Household model developed in this EFA has accounted overall HH income of adopting new ADSP promoted technologies where self consumption is considered as an "income" as this substitutes their portion to be purchased from market.

Project support / value chain / enterprises	Unit	Size of Enterprise	Total Investment (US$)	Incremental annual net benefits at full development (US$)	Incremental family labor per year	Incremental hired labor per year
investment plans						
Home garden support	Acre	1.0	500	101	1	-
Permaculture	Acre	4.0	13,333	4,971	2	8
Livestock production						
Dairy – Cattle	No	2.0	4,280	1,149	1	1
Poultry	No	1,000.0	26,667	4,530	1	3
High value commodities						
Vegetables	Acre	1.0	3,200	668	2	1
Mushrooms (Oyster - Medium)	Balls	500.0	13,200	2,386	1	1
Ginger	Acre	1.0	3,267	612	1	1
Turmeric	Acre	1.0	3,200	580	1	1
Honey production	Hives	50.0	7,787	2,613	2	3
General subsistence and semi-commercial farmers including PWD	Acre	1.5	487	146	1	-

49. Incremental annual net benefits[43] vary widely across activities, ranging from US$ 96 for livelihood improvement plans to US$ 4,971 from permaculture enterprises. As anticipated, these activities are playing a bigger role in employment generation[44], on an average 2 family members and 1 hired worker were employed and there is prospect to increase employment generation to a notable level in all the selected value chain commodities. Obviously, the return is less in case of livelihood improvement plan, home garden and General subsistence and semi-commercial farmers including PWD. All the models demonstrate very satisfactory benefit/cost ratios, financial internal rates of return (FIRR) and positive net present value (NPV). This indicates the attractiveness of the investments on these value chain enterprises.

[43] The net benefits include net of cost of yearly investments and smallholders require external loans to finance their working capital need in the first year. Their yearly / seasonal investment will be met either from their annual cash flow from the enterprise or additional borrowing. Since most of these activities are seasonal in nature with gestation period of few months to year, they may need working capital loan in the beginning of the farming season which can be paid after harvest.

[44] Like in other parts of rural Bhutan, BRECSA project areas is characterized by youth unemployment and under-employment of the smallholder farmers, most of them opting seasonal migration to Thimphu, neighbouring countries and overseas countries. Initial impact of the BRECSA support will be to gradually reduce underemployment rate and later attracting seasonal migrants as well on BRECSA promoted enterprises. In rural areas, smallholders are confident that growing two crops of vegetables (with gradual expansion), 2 milking cattle/buffalo and 500 bags of mushroom provide decent and full-time employment.

Table 4: Summary of Financial Analysis of Selected Value Chain Commodities

Project support / value chain / enterprises	Unit	Size of Enterprise	Net incremental benefits per USD of investment	BCR	NPV (USD) at 12% DF	FIRR[45]
Livelihood investment plans	Acre	1.0	0.13	1.01	212	16.1%
Home garden support	Acre	1.0	0.20	1.02	286	24.2%
Permaculture	Acre	4.0	0.37	1.17	28,566	54.4%
Livestock production						
Dairy – Cattle	No	2.0	0.27	1.27	4,887	28.2%
Poultry	No	1,000.0	0.17	1.11	14,348	20.0%
High value commodities						
Vegetables	Acre	1.0	0.21	1.12	3,525	42.4%
Mushrooms (Oyster - Medium)	Balls	500.0	0.18	1.25	6,502	18.3%
Ginger	Acre	1.0	0.19	1.10	2,976	35.2%
Turmeric	Acre	1.0	0.18	1.16	2,703	32.5%
Honey production	Hives	50.0	0.34	1.67	13,706	41.7%
General subsistence and semi-commercial farmers including PWD	Acre	1.5	0.30	1.06	775	43.1%

50. **Permaculture:** In view of the potentials of properly designed permaculture farming for the growth of agricultural ecosystems in a self-sufficient and sustainable way, the project targets to promote such farming among lead farmers and their followers in the project areas. Actually, this form of agriculture draws inspiration from nature to develop synergetic farming systems based on crop diversity, resilience, natural productivity, and sustainability. For the EFA, an indicative model comprising of crop livestock integration has been proposed and analyzed. The permaculture farming can potentially generate as much as US$ 4,971 net profit per year while creating 2 and 4 supplementary jobs for family labour and hired labour respectively.

51. **Vegetable production**: The agro-ecological conditions in the project Dzongkhags (Sarpang, Trongsa, Tsirang, and Zhemgang) are favorable for vegetable production round the year. The vegetables grown have experienced increasing domestic demand and have a huge export potential. The model assumes that a smallholder with 1 acre of land can produce up to 5,000 kg of onion, 1200 kg of small chili, 2,000 kg of large chili, and 8,000-10,000 Kg of tomato per acre. Farmers are gradually growing vegetable in a low-cost poly-house of 5 x 20 m and make a comparative higher return. Average earning per year of USD 668 obtaining about US$ 5 per family labour-day while generating some additional external employment during harvest time and for greenhouse maintenance.

52. **Mushroom farming**: Shiitake (*Lentinus edodes*) and Oyster (*Pleurotus* sp.) are focused mushrooms for production in different part of Bhutan. Out of these, Mushroom (Oyster) is very popular in these areas and to start with. BRECSA will support the promotion of Oyster mushroom which is grown in several capacities. Farm model of 500 balls capacity Oyster mushroom farming has been prepared. Rationalized by the increasing loss of arable land to urbanization and industrialization, the threat of climate

[45] Financial internal rate of return is significantly higher than the prevailing interest rate of Bhutanese banking and financial sector. One-year retail bank deposit rate is 9%; interest rate from microfinance is more than 18% excluding services charge and that of commercial banks and development banks ranges between 8 and 12%.

change is severe on farming. Thus, mushroom farming is the best substitute farming practice. The oyster mushroom farming (500 balls capacity) can potentially generate as much as US$ 2,386 net profit per year while creating 2 and 1 supplementary jobs for family labour and hired labour respectively.

53. **Ginger farming**: There growing demand for ginger products as household spice or medicinal value. Ginger farming has larger potential to increase production and productivity. The ginger produced in 1 acre of land can potentially generate as much as US$ 612 net profit per year while creating 2 and 3 supplementary jobs for family labour. Ginger farming is suitable as inter-crop as shade loving plant and can be grown in a neglected land / fallow land as well.

54. **Turmeric farming:** There is great potential for turmeric *production in Bhutan and RNR strategies has identified it as one of the potential export crops. T*here is huge un-met demand and larger portion of turmeric consumed in Bhutan as a spice crop and medicinal value. At present there has been growing interest and demand for turmeric farming in Bhutan and in the project areas as well. There exists possibility of generating as much as US$ 580 net profit per year while creating 2 and 3 supplementary jobs for family labour by intensive turmeric farming in 1 acre of land.

55. **Dairy:** *Demand for dairy products* in Bhutan in general and in the project areas in particular has been growing significantly in the recent years, driven by more consumers, higher incomes and greater interest in nutrition. Dairy production in Bhutan is one of the growing economic sectors, in the recent years, and is playing an important role to increase household level income in rural areas, mainly by increasing employment opportunities and establishing rural-urban linkages through milk and milk product as well as industrial products trade. Two cattle model can generate as much as US$ 1,149 net profit per year while creating 2 and 3 full time jobs for family labour.

56. **Poultry:** Poultry (boiler) farming is leading agricultural industries in Bhutan. It is one of the easiest means with low gestation period to generate cash income. Boiler farming is popular as chicken meant contains high quality of essential nutrients such as proteins, minerals, and vitamins that are required for improving human nutrition.[46] Because of quick returns, it is youth friendly and supplements family income and employment opportunities. Boiler poultry farming model of 1,000 birds can generate as much as US$ 4,530 net profit per year while creating 3 and 5 full time jobs for family labour and hired labour respectively.

57. **Honey**: Bhutan is known to have seven different honeybee species. Of these, *Apis mellifera*, *Apis cerana* and *Trigona* species are domesticated for honey production. Given the rich floral diversity, beekeeping is picking up but slow. Even trained beekeepers have reverted to the traditional form of beekeeping. Farmers harvest honey three or more times per year with an 8-10 kg average per year of *honey production* per colony. Honey has quick return; it is youth friendly and supplements family income and employment opportunities. Honey production model of 50 hives can generate as much as US$ 2.613 net profit per year while creating 2 and 1 full time jobs for family labour and hired labour respectively.

58. **Other project supports**: Other project support in the form of implementation support to livelihood investment plans, home garden and transform of the benefits of FEBL and support to FGs/Cooperatives by smallholder subsistence and semi-commercial farmers can potentially lead to create foundations for their participation in agriculture commercialization process and with some return and employment generation.

59. The details are included in the separate excel file.

[46] Jamtsho T. et al (2021), "Profitability of Broiler Farms in Four Southern Districts in Bhutan" Bhutan Journal of Animal Science, Volume 5, Issue 1 Page: 89-94, 2021.

Households Models

60. Using enterprise budgets and models from a range of project support / value chain / enterprises 'household models' for the respective project support were prepared to broadly illustrate the BRECSA's 'expected impacts' on the incomes, and involvement of household labour on-farm and non-farm activities. For the purpose of assessing household operations, average size of operational landholding was accounted and analyzed. Households models analyzed include: livelihood investment plan, home garden support, permaculture farming, livestock (dairy/cattle and poultry) farming, high value crops (vegetables, ginger, turmeric, mushroom, and honey) and General subsistence and semi-commercial farmers including PWD.

61. Table 6 presents the overview of these household models.

Table 5: Overview of the Household Model

Project support / Value Chain / enterprises	Average farm size (ha)	Cropping intensify (%)[47]		Model size	
		WoP	WP	Unit	Quantity
Livelihood investment plans	1.0	170	210	Acre	1.0
Home garden support	0.8	150	160	Acre	1.0
Permaculture	4.0	150	200	Acre	4.0
Livestock production					
Dairy – Cattle	1.0	180	180	No	2.0
Poultry	1.0	180	180	No	1,000.0
High value commodities					
Vegetables	1.5	153	187	Acre	1.0
Mushrooms (Oyster - Medium)	1.5	160	160	Balls	500.0
Ginger	1.5	153	167	Acre	1.0
Turmeric	1.5	153	167	Acre	1.0
Honey production	0.8	150	160	Hives	50.0
General subsistence and semi-commercial farmers including PWD	1.50	187	213	Acre	1.5
Total	1.26	167	188		

62. **Farm size:** The target group of the project are the smallholders and farm size greatly vary across project support packages. In general, farmers receiving support on home garden, and honey production will have smallest farm size of 0.8 acre. While those under vegetable, ginger, and turmeric value chain will be have on an average larger farm size (1.5 acre). Those adopting permaculture farming will have largest farm size. Those receiving support on livelihood investment plans, mushrooms, honey and general subsistence and semi-commercial farmers including PWD will have mixed size of holding. Average farm size of the BRECSA target beneficiary farmers will be 1.26 acre.

63. **Cropping intensity**: The programme intervention is expected to brings changes on cropping pattern and eventually on cropping intensity due to increase in area under irrigation as well as shift to low duration crops varieties from long duration one. There will be no change in cropping intensity of farm households engaged in livestock (cattle and poultry), mushroom and honey farming while there will be change in cropping intensity will increase in case of other types of project interventions. Average cropping intensity is 167% before the project which will increase to 187% after full development of the project.

[47] It refers to raising of a number of crops from the same field during one agricultural year; it can be expressed through a formula. Cropping Intensity = Gross Cropped Area/Net Sown Area x 100

64. The details are included in the separate excel file.

Sub-Project Model

65. Household models when grouped and aggregated are at project intervention level are called "sub-project models" and these are required in order to estimate overall project performance indicators. Information on implementation phasing of these sub-projects provided in Table 1 for seven-year project period provided basis for sub-project model preparation. The sub-project models are estimated for all the commodities and project interventions. The analysis results are summarized in Table 6.

Table 6: Overview of the Sub-project Model

Project support / Value Chain / enterprises	Total HHs	Adoption rate	Adoption adjusted	Financial Indicators		
				IRR	NPV 12% DF (Rs.'000)	BCR
Livelihood investment plans	1,500	60%	900	16.4%	23,319	1.01
Home garden support	3,166	60%	1,900	15.3%	15,364	1.01
Permaculture	400	90%	360	49.9%	556,923	1.16
Livestock production						
Dairy – Cattle	800	75%	600	38.1%	225,204	1.39
Poultry	800	75%	600	14.2%	247,195	1.05
High value commodities						
Vegetables	1,400	60%	840	39.0%	145,835	1.11
Mushrooms (Oyster - Medium)	10	75%	8	25.6%	5,551	1.28
Ginger	300	60%	180	57.9%	80,224	1.53
Turmeric	300	75%	225	29.1%	25,657	1.13
Honey production	200	90%	180	41.6%	142,033	1.64
General subsistence and semi-commercial farmers including PWD	3,198	52%	1,659	32.8%	86,682	1.05
Total	12,074	62%	7,451			

66. There will be 12,074 smallholders engaged in eleven types of project support / value chain / enterprises supported by the project. Not all the beneficiaries will benefit from the project, and some of them drop-out. It has been estimated that drop-out will be 38% and adoption rate will be 62% (rational discussed in section below). About 7,451 smallholder farmers will be retained and benefitted directly from the project.

67. The details are included in the separate excel file.

Adoption rate

68. Average adoption rate for the project has been estimated integrating the findings of the mission during field studies, discussion with key informants, focus groups discussions, assumptions on adoption rate done on similar projects in Bhutan, especially the findings on assumption by similar recently completed projects, especially CARLEP in Bhutan and High Value Agriculture Project (HVAP) and KUBK in Nepal.

69. Field survey conducted under this mission uncovered that in general, adoption rate will be higher in those activities relatively longer in duration, required initial investment that is specific to the enterprises and proven evidence of the perpetual flow of income over the longer period with lower intensity and impact of price and production risk. These commodities are livestock (dairy and poultry) farming, permaculture, honey, and mushrooms. On the other hand, adoption rate is relatively lower on commodities with low initial investment cost, higher intensity and impact of price and production risks. These commodities are vegetables, ginger and turmeric production. Project interventions on livelihood investment plans, home garden support and general subsistence and semi-

commercial farmers including PWD have a low adoption rate, in view of the intensity and impact of price and production risks.

70. In cognizance to above a 62% adoption rate (ranging between 52% and 90% among the selected value chain commodities) was used in this EFA.

71. The assumption on adoption rate used in this report is consistent to the other recently appraised report (VITA) and completed projects (HVAP) in Nepal and rate used in CARLEP at design. Adoption rate used by ex-post EFA of HVAP ranged between 64% and 91%, with an average of 84%. The adoption rate used was highest (91%) in case of goat and off-season vegetable value chain and lowest (64%) for timur. The adoption rates used for other crops were: apple (88%), vegetable seed (83%), turmeric (78%), and ginger (72%).

72. In view of above the adoption rate used in this EFA is similar to commodities like livestock (dairy and poultry) farming, high value commodities (vegetables, ginger, turmeric, mushroom and honey) and permaculture.[48]

73. The details are included in the separate excel file.

Financing plans

74. Total investments are financed through beneficiaries' equity contributions in cash, contributions in kind, and grant support from the project. There will be notable financing gaps. This need to be financed by as short to medium term loans from BFIs or matching grant support from government and non-government sectors. Financing plans were prepared for all models, in order to assess whether the mix of funding sources would be sufficient and adequate for enterprise creation and expansion. Table 7 presents the financing plans for the selected value chain enterprises.

Table 7: Financing Plans – Total financing requirements and sources of finance

Project support / Value Chain / enterprises	Unit	Size	Total financing requirement (NRs)			Financing source (NRs)		
			Fixed Investment	Working capital	Total	Program grant and infrastructure support	Smallholder's equity	Financing gaps
Livelihood investment plan	Acre	1.0	38,000	17,000	55,000	37,500	3,500	14,000
Kitchen garden support package	Acre	0.1	30,000	7,500	37,500	37,500	-	-
Permaculture	Acre	4.0	860,000	140,000	1,000,000	600,000	80,000	320,000
Livestock production								
Dairy – Cattle	No	2.0	306,000	15,000	321,000	200,000	24,200	96,800
Poultry	No	1,000.0	1,900,000	100,000	2,000,000	300,000	340,000	1,360,000
High value commodities								
Vegetables	Acre	1.0	135,000	105,000	240,000	35,000	41,000	164,000
Mushrooms (Oyster - Medium)	Number	500.0	890,000	100,000	990,000	65,000	185,000	740,000
Ginger	Acre	1.0	140,000	105,000	245,000	35,000	42,000	168,000
Turmeric	Acre	1.0	140,000	100,000	240,000	65,000	35,000	140,000
Honey	Hives	50.0	534,000	50,000	584,000	400,000	36,800	147,200
General subsistence and semi-commercial farmers	Acre	1.5	29,000	7,500	36,500	-	7,300	29,200

Note: Project support includes production related support such as input supply, fixed investment as well as public infrastructure such as irrigation (pond, surface, and lift), fencing, marketing, storage, transportation etc., for the beneficiary smallholder farmers.

[48] Since majority of the smallholders benefits through livelihood investment plans, home garden support and general subsistence and semi-commercial farmers including PWD whose adoption rate is in general low, the overall adoption rate worked-out to be low.

75. Subsidy from the project will be inadequate for the project beneficiary to realize the full benefits of the project support, but such support will act as a catalyst to them for augmenting current level of production. In order to get full potential from the project support, project need to assist them for access to finance from BFIs and access support from alternative sources.

Cash flow analysis

76. Cash analysis was done for all the value chain models. Cash flow is negative in all the value chain commodities in the first year[49] and it is necessary for the smallholders to look for alternative financial sources to ensure adoption of the proposed technology. Access to grant support from BRECSA supplemented through financial linkage for medium term loan from BFIs will be instrumental for farmer to finance the proposed investment. Financing is also required to manage the short-term working capital for uninterrupted management of the annual operational cost of these value chain commodities by the smallholders.

77. Cash flow analysis was done to evaluate the cash inflows and outflows from operations of six value chain household models. This indicates that these farm households will have difficulties to manage the enterprises in the absence of the external loan and grant support. The cash flow analysis was done integrating planned equity investment, grant from the project and borrowing from BFIs including projected repayment of principle and interest of the loans in cash flow before financing of each value chain household models.

78. The cash flow after financing / grant support from project shown for each project support / value chain / enterprises model proves that for all the year during the project life, there is no negative cash flow in these models.[50] This indicates that proposal to promote these interventions is "financially viable" at household level. Project proposal will be attractive for the beneficiaries, ensuring relatively high rate of adoption of the core value chain commodities selected for promotion from the project. This finding provides solid basis to assume that the investment on these value chain would yield the expected financial benefits.

79. The details are included in the separate excel file.

Economic Analysis

Main assumptions

80. Following were the assumptions used for economic analysis of the project. These assumptions were cross-checked with the assumptions used in economic analysis during CARLEP appraisal (ex-ante) and HVAP and KUBK (ex-post).

- A twenty-year analysis period is assumed, which included 7-year project investment period.
- Project produced goods will move freely within project area in response to market signals.
- All agricultural inputs and outputs that are traded are valued at price as of April 2022 and constant market price has been used.

[49] Due to upfront investment need for construction of cattle and goat shed, purchase of live animals (goat and cattle/buffalo), irrigation, poly-tunnels, storage requirement, planting materials, etc. cash flow in the first year will be negative. BRECSA grant and access to finance is important for farmers to motivate investment on these activities. Owner equity in the form of skill labour, supply of construction materials, equipment, etc. will supplement upfront cost to start these enterprises.

[50] These households require term (medium to long term) loan in the first year and nominal working capital loan in subsequent year and this depends on propensity to save/re-invest of these smallholders. Enhancing access to finance has important role for the sustainability of the BRECSA intervention.

- Economic investment costs are net of taxes. All costs directly associated with the incremental production are included in full, including incremental farm inputs and labour.
- A standard conversion factor (SCF) of 0.90 is applied to both traded and non-traded items for adjusting financial prices. A SCF of 85% have been used to come-up at shadow wage rate of labour.
- The analysis includes only direct on-farm benefits. Benefits accruing from value chain infrastructure such as such market centers, small-scale community infrastructure including small-scale water and irrigation schemes for crops and livestock (< 5 Ha. each), fencing and upgrading farm access roads (under 5 km each) has not been accounted in view of the well-coordinated nature of project implementation at sub-component level. Benefits of these infrastructures is assumed to be captured by incremental income in the project promoted value chain commodities;
- All costs and benefits are relating to investments made on targeted project area households and the resultants benefits;
- Significant changes or shifts in cropping patterns are assumed owing to strengthening of the value chain and increased adoption of appropriate agronomic practices such as inter-cropping, crop rotation, use of improved seeds, improved technologies, etc. and these reflect in cultivation of vegetables, ginger and turmeric farming.
- The analysis employs an Opportunity Cost of Capital (OCC) at 9%, which is the current long-term bond rate in Bhutan and forecasted future stream of benefits and cost were discounted at 9%. The same rate was applied during EFA at the time of CARLEP appraisal.

Costs and Benefits Streams and Analysis

81. **Production benefits**. The productions at farm level by project beneficiaries through different project supported interventions are direct output from the respective sub-project. In all, 12,074 households will receive project support in different form. Improved farming practices resulted in productivity increase will be in a range of 30% and 40%. The EIRR is calculated for all the project support / value chain / enterprises being supported from the. This was done in cognizance to the fact that these are the eventual project results. Incremental net benefits at full development were used for all categories of farm investment. Adoption rate of each farm enterprises is estimated to range between 52% and 90% with an average of 63% (for justification refer para 69 to 74 above) and consistent to the process done during appraisal of the CARLEP.

82. **Project economic costs.** The project economic costs are direct expenditures after adjusting for taxes and inflations but inclusive of physical contingencies. Recurrent costs for continued operations and maintenance are included in full. Economic prices for inputs and outputs models were estimated by applying conversion factors on financial prices. Inputs and outputs prices[51] were collected during mission's field visit and review of published information of Royal Monetary Authority of Bhutan, Ministry of Agriculture and Forestry, and National Bureau of Statistics in Bhutan.

83. **Environmental Benefit.** Key environmental benefits were increased rural employment, social mobilisation and effective participation of smallholder farmers, linkages with rural economy and markets and overall reduction in vulnerability. BRECSA demand-driven approach will ensure that FGs adopt gender responsive process to address the potential gender implications on labor.

Analysis Results

[51] See Annex … containing list of financial and economic prices used in EFA.

84. **Economic analysis.** Cost-benefit analysis yields an overall EIRR of 19.2%. The estimated NPV for a 9% discount rate is Nu. 2,905.72 million (USD 38.74 million) and the BCR of 2.3. A positive NPV under the current Opportunity Cost of Capital (OCC) of 9% indicated that the project investments were sound.

85. Main results for economic cost-benefit analysis are presented in separate excel file.

86. **Sensitivity Analysis**. A sensitivity analysis was conducted to assess the effect of variations in (i) 10% and 20% decrease in benefits; (ii) 10% and 20% increase in costs, (iii) one year and two-year delay on incremental income accrual, and (iv) 10% and 20% decrease in adoption rate. In all these scenarios, EIRR was above 15%. Result of sensitivity analysis revealed that the project is highly sensitive on delay on accruing benefit accrual by even by one year compared to decrease on project benefits, increase in project cost and decrease in adoption rate.

Table 8: Results of the Sensitivity Analysis[52]

Risk scenario	Δ%	Link with the risk matrix	EIRR	NPV (USD M)
Base scenario			19.2%	38.74
Project benefits	-10%	Combination of risks affecting output prices, yields and adoption rates	17.9%	31.92
Project benefits	-20%		16.5%	25.10
Project costs	10%	Combination of risk associated to inflation of project related materials	18.0%	35.99
Project costs	20%		17.0%	32.85
Project benefits delayed	1 year	Delay in the programme implementation due to various factors including implementation capacity, delays in system set-up.	17.0%	30.50
Project benefits delayed by two year	2 year		15.0%	22.93
Adoption rate	-10%	Combination of risks affecting output prices, yields and adoption rates	17.5%	31.43
Adoption rate	-20%		15.6%	24.73

87. **Switching Values**. The switching value for the total project benefits is about 56.8% while for the project costs it is approximately 131.4%.

Table 9: Switching value

NPV incremental benefit	5,116,735	-56.8%
NPV incremental cost	2,211,019	131.4%

Project Benefits

88. The immediate benefits from the project will be increased productivity through the introduction of better management and improved farming practices of the selected value chain commodities. The responses could be expressed as increased household income. As discussed already, seasonal gainful employment and under employment (gainful) is the main problem in the BRECSA areas like in other part of Bhutan and this is especially true in case of youth. The BRECSA support will enable smallholders including youth to reduce prevalent under-employment. At present, smallholders lack resources to start the profitable agri-enterprises and BRECSA will potentially meet this gap. BRECSA gender responsive intervention will be will be instrumental to reduce potential higher labor for women promoting gender equity and social inclusion. Only a fraction of the land (15-20%) owned by smallholders is suitable for cash crop farming and the transaction from subsistence to commercial farming will be slow / low and requires confidence building through demonstration and learning by doing. Potential food security and nutrition (FSN) problem will be low and there will be marginal reduction on current availability of

[52] Sensitivity analysis is done identifying attributes contributing to constant increase or benefit decrease and not the opposite on the assumption that increase in benefit and/or decrease in cost will improve the financial indicators under base scenario.

staples. Further, farmers can manage their HH need for staples crops by increase in cropping intensity on land not covered or not suitable for selected value chain.

89. **Other benefits**. Additional benefits will be generated from BRECSA's capacity building interventions on value chain development, potentially increased availability of value chain infrastructure. First, all participating households and FGs will be benefiting and taking advantages of the services of value chain actors, and private service providers, which will be capacitated and provided fund support for various economic and commercial developments. Second, women and youth from the poor groups will participate in managing their social and economic development and have better access to inputs and marketing their products. Third, there are agro-businesses facilitated buy-back arrangement, technical training and capacity building that further strengthen value chain. The BRECSA support adoption of improved cattle will be raised under stall feeding conditions. The BRECSA support package include promotion of feed and fodder farming, chaff-cutter (for making piece straw, grass and fodder), and shed management which ensure proper manure management and promote stall feeding.

90. **Tax revenue and other incomes**. The project is generating additional tax revenues to the government in the form of corporate taxes including VAT on the incremental turnover of the project generated agro-businesses such as cold storage, dairy processing plants, assembling, marketing and trading activities and foreign trade.

Farm Income Analysis

91. The project will target to 12,074 smallholder households and adjusting to the potential drop-out due to various reasons such as migration, project failure, etc., 7,587 small-holder households will effectively benefit from different services offered from different project interventions. Table 10 and 11 provides information on incremental farm income attributable from the programme interventions.

Table 10: Estimated Physical Contribution of the Project

Project support / value chain / enterprises	Unit	Incremental enterprise size	Number of beneficiaries (Adoption Adjusted)	Scale of progress (incremental)
Livelihood investment plans	Acre	1.0	900	900
Home garden support	Acre	1.0	1,900	1,900
Permaculture	Acre	4.0	360	1,440
Livestock production				
Dairy - Cattle	No	2.0	640	1,280
Poultry	No	1,000.0	640	640,000
High value commodities				
Vegetables	Acre	1.0	910	910
Mushrooms (Oyster - Medium)	Balls	500.0	8	4,000
Ginger	Acre	1.0	195	195
Turmeric	Acre	1.0	195	195
Honey production	Hives	50.0	180	9,000
General subsistence and semi-commercial farmers including PWD	Acre	1.5	1,659	2,489
Total			7,587	

92. Expected physical progress of the programme will be increase in 1,280 number of improved breed of cattle, 640,000 numbers of poultry birds, and farming of vegetables, ginger, and turmeric in additional 910 acre, 195 acre and 195 acre of land and mushroom farming in additional 4,000 balls in the project areas. Whole BRECSA area is food deficit and land is under-utilized as evidenced by current estimated cropping

intensity of 167%. There will be marginal increment on cropping intensity due to project intervention reaching to 172 %. As a rule of thumb, cropping intensity can go up to 200% without providing stress on land use (organic matter, soil fertility and productivity)[53]. Promoting of stall feeding of cattle farming will lower such stress.

Table 11: Estimates of Incremental Income of the Target Beneficiaries

Project support / value chain / enterprises	NPV (12% DF) including labor income (Nu. '000)		Incremental Income (Rs. '000)
	Before project	After Project	
Livelihood investment plans	541,086	698,952	157,866
Home garden support	312,415	407,367	94,953
Permaculture	909,860	3,893,757	2,983,897
Livestock production			
Dairy – Cattle	447,466	816,608	369,143
Poultry	478,795	2,009,922	1,531,127
High value commodities			
Vegetables	350,706	901,975	551,269
Mushrooms (Oyster - Medium)	356,335	756,319	399,983
Ginger	363,829	721,569	357,740
Turmeric	363,829	613,899	250,070
Honey production	312,415	1,240,214	927,800
General subsistence and semi-commercial farmers including PWD	688,730	773,798	85,068
Total	3,663,521,407	7,207,858,046	3,544,336,640
Income increase per beneficiary HH	482,894	950,078	467,184

93. Based on the estimates done in this analysis for the representative farm and household model, the project beneficiaries will realize the average discounted income of Nu. 467,184 during the project period.

Employment Generation

94. Majority of the households in BRECSA areas depends on agriculture. The area is characterized by youth un-employment and under-employment of smallholder farmers. Less than 20% population are estimated to be fully employed. Seasonal migration to Thimphu and bordering India cities is common phenomena in the area for search of jobs. BRECSA interventions will be instrumental to address under-employment problem prevalent in the areas and check seasonal migration some extent.

95. Estimated employment generation based on farm and household models prepared in undertaking EFA analysis has been average 3.5 person year of employment per value chain enterprise with a total of 10,948 person year employments. Smallholders use family labor for most of the farming activities that are easy to do and use hired labour to those farming activities demanding more hardship and energy such as land preparation, harvesting, marketing, manure management, and occasional fodder chopping and management.

Risk Analysis

96. There were a number of risks associated with BRECSA. These were relating to farm technology, reluctance on the part of the farmers to adopt the new technology, inadequate extension and market linkages and low price margins, lack of service providers and poor coordination and institutional support and policy risks. These issues

[53] Cropping intensity in highly commercialized area in Nepal is above 250% and in some areas of Kathmandu valley it is up to 400% owing to adopting of short duration crop varieties and less time required for land preparation due to mechanization.

and risks need to be addressed to some extent during the implementation of the programme.

Table 12: Risk Analysis

Risks	Risk description	Probability of occurrence	Mitigation measures	Likely impact on BRECSA performance
Economic and market risks	• External shocks to market economy • Increase in cost of production inputs • Reduced producers prices • Reduced demand	Low to medium	Value chain management	Decline in benefits and increase in costs by 20%: EIRR= 14.2% NPV= USD 19.20 million
Institutional	Delay in technology transfer/lack of quality planting materials slowing down the uptake rates and production	Medium	Extensive training and support to value chain linkages of commercially viable key commodities	Benefits lag by 2 years: EIRR= 15.0% NPV= USD 22.93 million
	Lack of financial capacity of smallholders to invest in high value agriculture	Low to Medium	Value chain financial product development and staff training Promotion of digital financial services	Decline in benefits by 20%: IRR= 16.5% NPV= USD 25.1 million
Market	Inadequate profit margins due to poor access, lack of transport and of market information Lower market prices of commodities	Medium to high	Strengthen market information system Diversified production, market led production promotion and strengthen value chain	Decline in benefits and increases in cost by 15%: IRR= 15.5% NPV= USD 24.08 million
Policy	Lack of commitment to investing in inclusive agricultural value chain development	Medium	Orientation and awareness on value chain approach to government officials and policy makers.	Farm operating costs increase by 20%: IRR= 17.0% NPV= USD 32.85 million
Others	Climate change risks of delayed and abnormal rainfall, drought, floods, frosts, etc. Natural calamities including flood and drought lower output of	Medium	Training farmers on agro-ecological practices/agroecology Promotion of agriculture insurance	Decline in benefits and increase in costs by 15%: IRR= 15.5% NPV= USD 24.08

Risks	Risk description	Probability of occurrence	Mitigation measures	Likely impact on BRECSA performance
	farm production		services	million

97. There is potentially high market risk, followed by medium incidence policy, and institutional risks. There is also economic and market risk and their incidence are likely to be small to medium. Focus group discussion conducted in Sarpang and Trongsa during the mission revealed that these risks could be mitigated through very basic project approaches to value chain management, extensive training and support to value chain linkages of commercially viable key commodities, value chain financial product development by BFIs and staff training, promotion of digital financial services, strengthening market information system, support to diversified production, market led production promotion and strengthen value chain, and promotion of agriculture insurance services. There is also a need to orient government officials and policy makers on value chain approach and training farmers on agro-ecological practices. These measures are likely to reduce the potential risks inherent to project implementation.

Attachment 1: Value Chain Commodity Selection

BRECSA project seek to facilitate the transformation of the agricultural sector in Bhutan through adopting a climate-resilient, nutrition-sensitive, and commercial value-chain approach. The project will target commercial, semi-commercial and subsistence smallholder farm households and assist them with moving out of subsistence agriculture and transitioning to more commercially oriented production for improving their overall quality of life.

Value chain selection

A crucial part of the project approach and inclusion strategy is the sound selection of value chains, based on agro-ecologically suitable commodities which have a comparative commercial advantage, market potential and private sector interest. The selection of commodities has been based on market demand and economic and financial analyses, along with take into consideration the additional benefit to youth and women, and household nutrition. This appendix provides process adopted for value chain commodity selection and prepare the list of initial selection of commodities for further analysis, especially in-depth economic and financial analysis.

Agricultural commodities

A study on "Cost of Production for Field and Horticultural Crops in Bhutan" undertaken by the Department of Agriculture under the Ministry of Agriculture and Forests of RGOB has collected information on cost of production (COP) of different agriculture commodities grown in the country representing different agro-ecological regions in June 2020. Table 1 provides information of different types of commodities covered in the COP survey.

Table 1: Commodities Covered in the Cost of Production Survey

S.N.	Commodity groups	Type of commodities
1	Cereal crops	Low altitude paddy, mid altitude paddy, high altitude paddy, Quinoa, Millet, Wheat, Barley, Buckwheat and Maize
2	Pulses/legumes	Rajma bean, Lentil, Soybean, Urd/Mung bean
3	Oilseeds	Mustard, Sunflower, Groundnut, Perilla, Niger
4	Solanaceous Vegetables	Chilli, tomato, egg plant
5	Pod vegetables	Bean, pea and okra
6	Leafy vegetables	Spinach, mustard green
7	Bulb vegetables	Onion, garlic
8	Cole vegetables	Cauliflower, broccoli, cabbage
9	Cucurbits vegetables	Bitter guard, cucumber, pumpkin
10	Stem vegetables	Asparagus
11	Roots and tuber vegetables	Potato, Radish, Carrot, Turnip, Cassava, Sweet potato, Yam, Ground apple
12	Mushroom	Shiitake, Oyster
13	Spice	Cardamom, ginger, turmeric
14	Temperate fruit	Apple, Persimmon, Apricot, Pear, Plum, Peach, Walnut, Kiwi, Hazelnut
15	Sub-tropical fruit	Mandarin, Mango, Banana, Litchi, Watermelon, Papaya, Jackfruit, Passion fruit, Guava, Pomegranate, Avocado, Pineapple
16	Plantation crops	Green tea, coffee, areca nut
17	Medicine and aromatic herbs	Goned, Zanthoxyllum, Tiyangku, Ruta Manu

As far as livestock commodities are concerned, similar information can be extracted from different sources for milk, chicken (meat), piggery, and honey. Information included in the "Cost of Production for Field and Horticultural Crops in Bhutan" for the above

agricultural commodities and information compiled for the livestock commodities are presented in Table 1 in excel sheet.

Rationale for selection of the commodities

It is clear from the review of agricultural and livestock commodities grown in Bhutan that there are over 80 commodities grown. While some of these commodities are highly viable with greater and sustained benefits to smallholders and others have very limited scope and impact. Further the project like BRECSA can't support the promotion of all these commodities to demonstrate the visible impact over the project period. This calls for selecting the commodities that have a comparative commercial advantage, market potential, private sector interest and high economic and financial rate of return.

Selection methodology

Against above background, all the agriculture and livestock commodities currently cultivated in Bhutan were ranked based on following four criteria: (i) cost of production, (ii) priority commodities of the Bhutan renewable and natural resources (RNR) strategies, (iii) success story stories of Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP), (iv) nutrition improvement potential, (v) market potential, (vi) income generation potential and (vii) gender, environment and climate considerations.

Among the above commodity selection criteria mentions above, (i) cost of production was assess computing cost of per kilogram of production, (ii) two other criteria namely priority commodities of the Bhutan renewable and natural resources (RNR) strategies, and success story stories of Commercial Agriculture and Resilient Livelihoods Enhancement Programme (CARLEP) in two discrete measurement as yes or no i.e. 0 = No and 1 = Yes, while remaining four criteria were measured using sub-criteria outlined in Table 2 in a subjective scale of 1-3 as 1 = low, 2 = medium and 3 = high.

Table 2: Sub-criteria under four main selection criteria

S.N.	Main criteria	Sub-criteria	Measurement scale
1	Nutrition improvement potential	• Food consumption • Food preferences • Food composition	1 = Low 2 = Medium 3 = High
2	Market potential	• Market demand • Private-sector interest and upgrading • Agro-ecological conditions	1 = Low 2 = Medium 3 = High
3	Income generation potential	• Level of engagement of smallholder producers • Margins • Employment generation	1 = Low 2 = Medium 3 = High
4	Gender, environment and climate impact	• Gender • Environment and climate	1 = Low 2 = Medium 3 = High

Information required for this selection exercises were obtained through a review of information from secondary sources such as nutrient content of the commodities, food habit and preference, review of export and import data and agro-ecological mapping, consultation with producers, comparison of cost of production and market price (wholesale and retail), comparison of the farm / enterprise budget prepared for economic and financial analysis. Further, these experiences were substantiated through a review of project progress report, annual outcome survey and other relevant information.

Commodity selection results:

Table 2 in the excel sheet presents the results of the commodity selection exercise based on the criteria outlined in Table 2 above. It is evident that these commodities are ranked in a score range of 11 (minimum) to 33 (maximum). The score received by these commodities ranges between 14 and 33. The information presented in Table 2 in the excel sheet provide the basis for choosing the commodities for promotion based on economic, financial, environmental and nutritional considerations.

Recommendations for value chain promotion

On the basis of the value chain selection process discussed above, following commodities are recommended for the value chain promotion under BRECSA project.

List of commodities selected for VC promotion in BRECSA

Commodity groups	Name of commodities	Total score (11-33)
Milk/Dairy	Cattle	33
Chicken	Poultry (1000 birds)	33
Vegetables	Chili, tomato, onion	32
Mushroom	Oyster Medium (500 bags)	29
Spices	Ginger	27
Spices	Turmeric	27
Honey	Bee (100 hives)	25

Investing in rural people

Kingdom of Bhutan

Building Resilient Commercial Smallholder Agriculture (BRECSA)

ANNEX 5: SOCIAL ENVIRONMENT AND CLIMATE ASSESSMENT (SECAP) REVIEW NOTE

Social, Environmental and Climate Assessment Procedures (SECAP)

I. Introduction

1. This Social, Environmental and Climate Assessment Procedures (SECAP) background contributes to the formulation of Building Resilient Commercial Smallholder Agriculture (BRECSA) project. It is a fully blended project of IFAD and the Global Agriculture and Food Security Program (GAFSP). IFAD is the investment Supervising Entity (SE) for Investments and the Lead Implementing Partner Agency, while the World Food Programme (WFP) is the SE for Technical Assistance and Implementation Support. The project development objective is to transform smallholder agriculture into inclusive and resilient agri-food systems that are increasingly profitable and food and nutrition secure. The objective will be achieved through three closely related key components: 1) resilient production system, 2) strengthened value chain coordination and market linkages, and 3) innovative and competitive agri-food sector.
2. BRECSA is a gender transformative project, targeting 60% women and promoting gender friendly tools and technologies. It is nutrition sensitive as the project seek to improve access to and availability of nutritious foods to enhance dietary diversity through combination of the income pathway. The use of Consolidated Livelihood Exercise for Analysing Resilience (CLEAR)[54] tool and Agricultural Resilient Plans (ARPs) will enable the project to factor in climate resilience in value chain selection, production and marketing interventions. Moreover, having the high-level youth targeting (30%) and a key focus to engage them in both on and off -farm activities, the project could also be classified as youth sensitive. Considering the production potential, substantial youth demography and high poverty levels, proximity to roads and local markets, and contiguity with CARLEP[55] Dzongkhags for expanding climate resilient farming systems and value chains, BRECSA will cover four Dzongkhags namely Sarpang, Tsirang, Trongsa, and Zhemgang.
3. This study was carried out following the requirements set by IFAD's Operational Procedures and Guidelines and the 2021 edition of IFAD's SECAP[56]. It was informed by i) desk review of relevant national policies and strategies, ii) analysis of ongoing projects funded by IFAD, GAFSP, and other development partners, and iii) wider consultations with representatives from the Royal Government of Bhutan's, Dzongkhags and Gewogs level line agencies, private sector actors, and target groups of the targeted Dzongkhags. The report also analyses relevant institutional frameworks, country program evaluations, and current environmental, social, and climate change studies and assessments.

II. Situational analysis and main challenges

4. Bhutan is a mountainous country with 771,612 people scattered along steep mountain slopes and valleys, many in remote and far-flung hamlets. The elevation reaches from about 150 meters above sea level in the south to over 7,000 meters in the north just within a horizontal distance of 100–150 KMs. More than half of the land area (51%) is protected to preserve the country's rich biodiversity. With 70.77% forest coverage, excluding shrubs, Bhutan is the only carbon-negative country in the world, absorbing more greenhouse gas emissions (GHG) than it emits. Bhutan's independence throughout its history has helped preserve its rich cultural heritage and traditions. As its development policies demonstrate, Bhutan strives to

[54] WFP CLEAR guideline (link)
[55] Commercial Agriculture and Resilient Livelihoods Enhancement Program (CARLEP), IFAD's ongoing project https://www.carlep.gov.bt/
[56] See https://www.ifad.org/en/-/social-environmental-and-climate-assessment-procedures

be self-sufficient and to conserve its environment and culture (NSB, 2021) (GNHC, 2019). However, being a land locked and least developed country with a fragile mountainous ecosystem, high dependence on agriculture and the significant role of hydropower for economic development place the country at risk from climate and other shocks (NEC, 2020). Poverty remains a key challenge of the project´s targeted smallholders. Traditional production-oriented farming, limited employment opportunities, a lack of skills, outmigration to pursue employment options as well as a lack of gender equality and social inclusion are the key identified social challenges. Furthermore, people inhabiting rural areas generally do not have easy access to financial institutions for agriculture-based credit, especially for longer term investment.

2.1 Socio-economic and nutritional assessment

Overall poverty situation

5. Bhutan's economy is characterized by a high proportion of self-employed persons, notably those who work on their own land. There are also good deals of small and cottage industries operated from home. The proportion of persons working for wages is relatively small. Bhutan has reduced poverty by two-thirds, from 36 to 12 % from 2007 through 2017, based on the $3.20/day poverty line. Extreme poverty ($1.90 per day) has been almost eradicated. However, poverty pockets continue to persist, creating geographical imbalances in economic development and opportunities for (youth) employment. Since the early 1980s, the annual real Gross Domestic Product (GDP) growth rate has been 7.5 %. The multidimensional poverty rate stands at 5.8% of the population, with the urban and rural poverty rates of 1.2% and 8.1%, respectively; and 93% of Bhutanese poor live in rural areas.

Figure 1 Bhutan Poverty and inequality status (Source: World Bank Poverty and Equity Brief, April 2021)

POVERTY	Number of Poor (thousand)	Rate (%)	Period
National Poverty Line	59.6	8.2	2017
International Poverty Line 47.9 in Bhutanese ngultrum (2017) or US$1.90 (2011 PPP) per day per capita	11.5	1.5	2017
Lower Middle Income Class Poverty Line 80.7 in Bhutanese ngultrum (2017) or US$3.20 (2011 PPP) per day per capita	90.6	12.2	2017
Upper Middle Income Class Poverty Line 138.7 in Bhutanese ngultrum (2017) or US$5.50 (2011 PPP) per day per capita	290.2	38.9	2017
Multidimensional Poverty Measure		3.9	2017
SHARED PROSPERITY			
Annualized Consumption Growth per capita of the bottom 40 percent		1.63	2012-2017
INEQUALITY			
Gini Index		37.4	2017
Shared Prosperity Premium = Growth of the bottom 40 - Average Growth		-0.05	2012-2017
GROWTH			
Annualized GDP per capita growth		4.17	2012-2017
Annualized Consumption Growth per capita from Household Survey		1.67	2012-2017
MEDIAN INCOME			
Growth of the annual median income/consumption per capita		2.27	2012-2017

6. The country's economy was seriously affected by COVID-19 impacts. The Bhutanese economy recorded a decline of 10.08 % in 2020, which is a 15.83 percentage points drop as compared to a growth of 5.76 % in 2019 (NAS, 2021). All economic sectors faced impacts of COVID-19 and overall economy contracted by 1.2 % in the financial year 2020/21. Service sector output fell by 3.6%, as the tourism industry remained closed affecting more than 50,000 jobs, mostly youths (WorldBank, 2021). COVID

19 has significantly affected the project´s targeted smallholder's livelihoods. Youth, especially in tourism and off farm activities, and migrants lost their jobs. Income from wages was stopped due to strict lockdown and their connection to the markets was disturbed.

7. Bhutan is administratively divided into 20 Dzongkhags, which consist of 205 Gewogs ("blocks"), 4 larger towns ("Thromdes"), 18 Dzongkhag towns and 42 satellite towns. Bhutan's moderate rural poverty rate marks substantial disparity across Dzongkhags, with the headcount ratio, i.e. the proportion of people living below the national poverty line, in 2017 ranging from merely 0.4 % in Paro to 38.6 % in Dagana (NSB, 2019). BRECSA targets people of the poorest Dzongkhags. It will be implemented in Zhemgang which has the second highest poverty rate in the country with 29.4%. Similarly, the project targeted Saprang and Trongsa Dzongkhags have the 6th and 7th highest poverty rate, respectively. Tsirang has a comparatively lower poverty rate as it shares its borders with India and has a relatively high amount of productive land and access to market. Selected Dzongkhags are located in geographically remote areas in south-east Bhutan, making access to services and market difficult.
8. The majority of the project's targeted smallholders are engaged in farming with limited cultivable lands. The smallholders are facing a number of challenges including: (a) water scarcity for agriculture, (b) labour shortages, (c) low agricultural productivity, (d) wildlife depredation of crops, (e) lack of market access and high competition with cheap food imports from India, and (f) adverse impacts of climate change.

Gender

9. Bhutan ranks 5th among the South Asian countries according to the Global Gender Gap Report 2021. Overall, the country is ranked 130 out of 156 countries (previously ranked 131 in 2020 and 122 in 2018). Bhutan scored highly in key areas such as educational attainment (117), however with a few women in parliament and ministerial positions, Bhutan ranked low in political empowerment (137) (WEF, 2021).
10. Women's economic engagement is less compared to men. The country ranks 130 out of 156 in females' economic participation and opportunities (WEF, 2021). The unemployment rate in Bhutan stood at 5% in 2020 (3.4% in 2018), with 6% women unemployed against 4.1% men. Young females' unemployment is furthermore worrisome, as it is estimated at 61.3% compared to 38.8% for men. More males (37.0%) are 'regular paid employees' than females (19.7%). The proportion of females (58.8%) working in the agriculture sector is higher than that of males (41.7%) (NSB, 2020). Total working female population in the four project Dzongkhags is 49,486 (46.64%), out of which 38,384 (77.49%) live in rural areas. Female labour force participation remains below 67% except in Zhemgang with 76.1% female engagement in the labour force. Both labour force and employment figures are largely dominated by agricultural works (LabourSurvey, 2021).

Table 13 Women economic engagement in Dzongkhags

	Labor force participation (%)			Unemployment (%)		
Dzongkhags	Male	Female	Total	Male	Female	Total
Sarpang	66	63.8	64.9	4.8	4	4.4
Trongsa	71.7	67	69.2	3.9	3.9	3.9
Tsirang	76.1	66.2	71.1	0.9	1.8	1.3
Zhemgang	75.2	76.1	75.7	1.2	2	1.6

11. Similar to country trends, more women are engaged in agriculture than men in the project's targeted Dzongkhags. This trend is growing as men are increasingly leaving

farms in search of off-farm works. Women actively managing households also participate in multiple livelihood strategies including agriculture production, livestock rearing, food preparation, working for wages, and maintaining their home. Their role in processing, aggregation and enterprises is limited mostly due to lack of knowledge and access to finance and market. The physical workload, and lack of access on modern tools and technologies are making women's life difficult.

12. The land inheritance is perceived to favour women in Bhutan. The majority of population follows matrilineal heritage giving women an advantage in ownership of land and livestock. It is estimated that 70% of land is owned by women. A gender assessment study conducted by UNDP Bhutan reports[57] the benefits accrued from agriculture and forestry activities were equally shared between men and women, while benefits from an off-farm contract, business and farm labour accrued more to men.
13. Women are more confined in household level works and participate less in decision making. Traditional beliefs have not restricted women's involvement in agriculture, household decision-making, and property inheritance, but their activities outside the community are less encouraged, especially in rural areas (WorldBank, NA). Generally, women's roles are confined to agricultural activities within the household, while men do off-farm or non-agricultural work. Women are also mainly involved in marketing of agricultural products in the local market (NEC, 2019). Women's representation at and engagement in political decision-making level is comparatively lower than their male counterparts in both the Parliament and local government with only 15.27 % and 11.6 % respectively. Similarly, there are only 11.2 % women at executive level in the civil service (GNHC, 2019).

Youth

14. Bhutan has a positive youth force with enormous potential to contribute to economic development. The country´s population is predominantly young, with 60% of its population below the age of 25 years. The literacy rate of the youth population defined as aged between 15-24 years is estimated at 93%. The literacy rate for urban youth is 97%, while it is 91% for the rural youth (NSB, 2017). But the lack of gainful employment for young people presents one of the key challenges in Bhutan today. The overall youth unemployment rate in 2021 is 20.9% (6,492 persons), almost six times higher than that of the national unemployment rate. Unemployed female youths are much higher than males. Out of the total unemployed youth, about 61.4% are females and 38.6% are males. Youth unemployment is almost double in urban areas with 28.6% and among people with skills than that of rural areas (15.8%) (LabourSurvey, 2021).
15. As per the statistical year book 2021, the four Dzongkhags targeted by BRECSA have 36,547 youths aged between 18-35 years (Sarpang-16,249; Trongsa-8757; Tsiring-6478; and Zhemgang-5063). While exact figures on youth unemployment could not be retrieved for each of the Dzongkhags, the national unemployment rate indicates that there are a large number of youths facing challenges to pursue economically viable and meaningful livelihood. The impact of COVID-19 on tourism and migrant working sector has further impacted on youth jobs. Along with the lack of employment opportunities, youths also struggle with limited access to finance, land, knowledge and markets.
16. Most of the youths are not willing to participate in conventional farming, as it is seen as a labour-intensive and difficult job with low economic return and little financial security. Young people rather prefer a secure government job. However, the field visits and interaction with youth explored that they are interested in modern agriculture, which requires fewer physical activities and has secured financial return.

[57] Report Link

For that, they need capacity building, access to finance and land and enhance their business literacy and entrepreneurship skills. The government had initiated a Land Use Certificate (LUC) program for young people. However, the dropout rate was very high due to remoteness of land and lack of capacity building initiations. It was noticed that quick income from the farm could play a motivational factor for them to continue farming. Activities involving livestock like dairy or poultry, or mushroom farming can be helpful in generating these quick returns.

Indigenous peoples and marginalized groups

17. The Drukpa are the dominant people group in Bhutan. They are divided into four main ethnic groups: the Sharchops, Ngalops, Khegs and Lhotsampas. These four groups make up 98% of country population. The Dzongkhags targeted by the project have limited opportunities for income generating activities. Smallholders are mostly engaged in subsistence farming, which is adversely impacted by water shortage and wildlife depredation. Lack of knowledge on business literacy and entrepreneurship, limited access to market, and poor understanding on agriculture commercialization are the main barriers for smallholders to explore further opportunities. BRECSA will support marginalized and vulnerable groups in the project area to enhance their livelihood without interfering with their cultural practices.

Nutrition

18. Bhutan continues to be at the crossroad of a triple burden of malnutrition with undernutrition, micronutrient deficiencies and overweight/obesity often coexisting. Nutrition is identified as one of the key national priorities in the 12th Five Year Plan (2019-2023). National Nutrition Survey 2015 shows that 21.2% of children aged 0-59 months are stunted and 4.3% are wasted. Disparities in the level of undernutrition remain persistently elevated in the eastern region of the country, in the poorest sections of the society and in rural areas. The stunting prevalence is high and of public health concern[58] which needs to be addressed through a mix of nutrition specific and nutrition sensitive interventions. Micronutrient deficiencies remain a major public health issue with the prevalence of anaemia among children under 5 years of age at 43.8%, among women of reproductive age at 34.9% and among pregnant women being 27.3%.
19. Although 98% of households in Bhutan are food secure, dietary diversity within households is very poor. The traditional Bhutanese diet mainly consists of cereals (predominantly rice), with a per capita consumption of 110 kg/year; consumption of pulses, animal source foods, fruits and vegetables are very low. Generally, diets are less diverse in rural areas and household in the poorer quintiles. For children aged between 6 to 23 months, only 11.7% of young children are fed with minimum acceptable diet, 16.6% are given iron rich food and only 15.3% are provided with 4 or more food groups (NNS 2015). This clearly indicates that only targeting food security is not enough for improving nutritional status.
20. Food habits increasingly include more processed foods and sugary drinks. On a per capita basis, Bhutanese households spend 20 % of their food budget on dairy products, 13 % on vegetables, 10 % on rice, and 10 % on other cereals and pulses[59]. Data shows that 43 to 96 % of household food expenditure was on imported food items and reliance on imports was especially high for cooking oil and rice. Data also indicates that demand for packed and processed food is expected to

[58] 20 to < 30 prevalence cut-off values are considered high for public health significance as per WHO
[59] National Statistics Bureau (2017)

rise the fastest[60]. These dietary changes have already resulted in an increase in obesity and chronic diseases. The NCD STEP Survey 2019, which collected the data for Bhutanese aged 15-69, shows that 33.5% are overweight and 11.4% are obese. The findings indicate insufficient consumption of fruits and vegetables, heavy episodic drinking, and limited physical activity as some of the major causes for high prevalence of overweight and obesity. Furthermore, diabetes is estimated to affect 13.2% of adult women and 13.9% of adult men. NCDs account for 71% of all deaths which makes NCDs Bhutan's biggest health challenge. The country has not shown any progress towards achieving its target for reducing obesity and diet related NCDs. The generally poor dietary diversity prevalent among the Bhutanese households can be indicative of the inadequate intake of many micronutrients such as B vitamins, iron, folate, vitamin A and possibly other key nutrients, such as zinc, found especially in fresh foods. Limited biochemical and dietary information and long gaps between national surveys to assess the micronutrient status of in the Bhutanese population suggests a need to conduct a micronutrient survey, including biochemical, dietary and clinical components.

21. Bhutan is rich in local food traditions, dietary practices and indigenous knowledge which needs to be considered and respected in developing climate change plans and programmes. For example, whole grains such as red rice (like brown rice in texture, with a nutty taste, is the only variety of rice that grows at high altitudes) buckwheat, and increasingly maize are traditionally consumed. It is essential, that traditional, desirable practices such as taking whole grain cereals, along with consumption of local animal breeds (that provide good quality protein and bioavailable micronutrients), herbs, spices (sources of antioxidants and immunological attributes), medicinal plants and lesser used neglected and underutilized species (NUS) which are locally grown and nutritious, should be promoted within a context of nutrition-sensitive agriculture and climate considerations to promote dietary diversity ((National Nutrition Strategy and Action Plan 2021-2025).

2.2 Environment and climate context, trends and implications

22. Geography: Bhutan lies in the eastern part of the Himalayan region. The country has a rugged terrain and sharp contrast in elevation ranging from 150 meter (m) in the south to over 7500 m above sea level in the north. The northern part of the country is characterized by snow-capped peaks of elevations above 7,300 m with abundant glaciers and alpine pastures. Bhutan is bordered by mountains in the Tibet Autonomous Region, the Lesser Himalayas (Inner Himalayas), and Duars Plain along its southern border. About 72.3% of the country is covered by forest, approximately 1.6% is glacier area and 13.8% account for agricultural land (Climate Risk Country Profile: Bhutan). Broadly, the country is divided into three agro-ecological zones: sub-tropical, temperate and alpine. Table 2 below summarizes the nature of different zones and the proportion of project area. The majority of the project area (54.15%) falls under the sub-tropical zone while nearly 39.5% area represents temperate zone.

Table 14 Agroecological zone and project area (NSB, 2021) (FRMD, 2017)

Agro-ecological zones	Altitude (m)	Temperature 0C			Rainfall (mm)	Project area sq km (%)
		Max	Min	Mean		
Alpine	>3500	12	-1	5.5	<650	113.41 (1.73)
Cool temperate	2500-3500	22	1	10	650-850	395.01(6.04)

[60] FAO, European Union and CIRAD. 2022. *Food Systems Profile – Bhutan. Catalysing the sustainable and inclusive transformation of food systems.* Rome, Brussels and Montpellier, France. https://doi.org/10.4060/cb8156en

Warm Temperate	1800-2500	26	1	13	650-850	1393.99 (21.310
Dry Sub-tropical	1200-1800	29	3	17	850-1200	2624.69 (40.12)
Humid Sub-Tropical	600-1200	33	5	20	1200-1500	1377.51 (21.05)
Wet Sub-Tropical	150-600	35	12	24	2500-5500	731.64 (11.9)

23. Forest and Biodiversity: Bhutan has 11 types of forests and rich biodiversity with an altitudinal range from 200 to 4600 m (NEC, 2019). The country's diversity includes more than 5,600 species of plants, nearly 700 species of birds and about 200 species of mammals (NBC 2014). Forests are the dominant ecosystems in the project area with more than 90% area coverage. Forest fires, land degradation, increase in pollution, improper waste management, and increasing urbanization are some of the key issues identified for the forest and biodiversity conservation. BRECSA's activities will be confined only within the agricultural area and attention will be given to forest and water bodies' conservation. Collaboration will be made with competent authorities to monitor forest area and quality.

Table 15 Land cover and use (NSB, 2021)

Dzongkhags	Forest	%	Agriculture	%	Water bodies	%	No of CF	ha
Sarpang	146,852.30	89.60	8,029.80	4.90	2,967.70	1.81	35	4,539.91
Trongsa	153,725.10	85.60	2,551.90	1.42	426.1	0.24	30	3,579.70
Tsirang	55,265.10	87.50	5,704.70	9.03	432.3	0.68	50	9,500.23
Zhemgang	225,361.50	94.20	3,446.30	1.44	1,660.60	0.69	33	4,466.92
Total	757,090.90	90.29	26,291.40	3.14	6,380.60	0.76	184	32,879.53

24. Water: A status report on water sources in Bhutan, carried out by the Watershed Management Division, shows that 2% (147) of the water sources have already dried whereas about 35% (2317) are in the verge of drying. The trend is similar in the Dzongkhags of the project. Out of 1329 water resources in the four targeted Dzongkhags, 3.2% (43) already dried up and more than one third (457) are drying.

Environment Assessment

25. The project's goal of increasing resilient commercial agriculture production and improve food and nutrition security in the 4 target Dzongkhags by 2030 demands a good amount of cultivable land, soil nutrient, fodder and water resources. If not properly managed, imposing pressure on the environment may range from increased water resource depletion, higher pollution levels due to the use of chemicals and pesticides, degraded soil quality, accelerated soil erosion and landslides, and increased pressure on natural resources. There may be chances of increased pressure on forests for fodder and infrastructure development. In addition, wildlife depredation of crops (up to 55% crop loss) and domestic animals are some of the major challenges faced by the farmers. The project will carefully consider these risks and identify specific mitigation measures (see Table below and ESCMP matrix).

26. Increases in cropping area in the project sites are expected to take place on currently abandoned agricultural land with a proper management and wise utilization of fallow lands. The project will support the government's program of engaging youth and to make a better utilization of fallow lands. BRECSA will not do value chain activities outside the agricultural lands.

27. BRECSA will promote sustainable agriculture and livestock practices limiting the use of agrochemicals, promote environmental stewardship, enhance quality of life for farming families and communities and increase the production. Permaculture sites will be established and onsite support to adopt permaculture will be provided. The milk value chain will include adequate fodder plantation, stall feeding, use of dung

and urine for manure, biofertilizer and biopesticide production which will ultimately reduce use of chemical inputs on farms. The project will encourage the use of farmyard manure, organic and mineral fertilizers; and bio-medicines. The project will promote an Integrated Pest Management (IPM) approach which will allow farmers to manage diseases, insects, weeds and other pests in a cost-effective and environmentally sound way.

28. As water scarcity is increasing, BRECSA will support interventions that will improve water accessibility, availability and distribution, such as source protection, irrigation canals, and water ponds to gain water efficiency during conveyance and field applications. The project has identified value chains that demand less water. In addition to that, support will be given to promote water efficient technologies such as drip irrigation, micro-sprinkles, in-field catchment ponds and mulching to increase soil water retention.

29. BRECSA only supports the construction and/or rehabilitation of small-scale infrastructure that has minimal and localised environmental risks and impacts that will be mitigated by known measures included in ESCMP.

30. The crops will be selected considering low impact from wildlife. BRECSA will fund appropriate fencing (vegetative, electric, chain-link) to reduce wildlife depradation. The project will fund 160 km of electric and hybrid fencing, and will pilot 32 km of chain link fencing for scaling-up based on the results. The project will sensitize and proactively encourage farmers to employ vegetative fencing such as, Sichuan pepper (*Zanthoxylum* spp), a sturdy thorny bush that deters certain wildlife species.

31. Increased waste stream and pollution from market centre, processing units, agriculture as well as livestock farms are other potential environmental impacts. BRECSA will coordinate and collaborate with organizations working to recycle wastage. These wastages can be used to produce organic compost and could be translated as an opportunity for income generation and mitigate the environmental impacts related to collection and disposal of solid waste. As far as possible, the use of renewable energy technologies for the production, processing and storage will be promoted via local support markets and commercial providers to help to reduce existing levels of pollution.

32. The table below summarizes environmental impact of the priority list commodities and the proposed solution measures.

Table 16 Environmental impacts and mitigation/adaptation measures

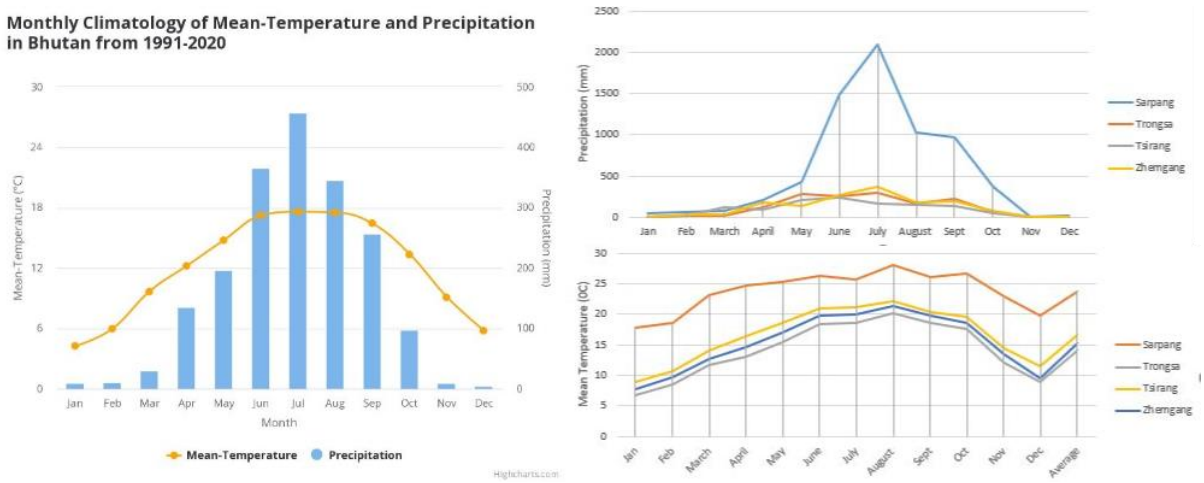
SN	Value chain / activity	Potential impacts on Environment	Risk signif-icance	Mitigation/Adaptation measures
1	Milk	Increase in number of cows may create additional pressure on natural resources for feed and farm pollution (Positive, if managed well: reduced pressure on natural environment, reduce pollution from waste, improved soil fertility, crop residues and waste reduction)	Medium	i) improved shed management to increase capture and reuse of both urine and dung as a manure, biofertilizer and biopesticide, ii) Increase the production of own feed resources by additional plantation of fodder and forage, iii) hay/silage production from crop residues, iv) use of wider availability of sexed semen for the better breed production and reduce the number of cattle
2	Mushroom	Mushroom production demands more natural resources base as production media (straw, animal dung, logs), parts of production practices may require more energy	Low	Multiple uses of natural resources, adequate management of reuse and recycle, exploring and using alternative energy sources.

SN	Value chain / activity	Potential impacts on Environment	Risk signif-icance	Mitigation/Adaptation measures
		and water (sterilizing straw through boiling)		
3	Ginger/Turmeric	Monocropping – reducing local bio-diversity and increase disease risks, hence increased use of chemicals and pesticides	Low	Intercropping mostly legume species, promotion of organic mulching, use of semi processing- solar dryer
		Increase use of Fertilizer and Pesticides	Medium	i) encourage farmer for bio inputs, ii) Training farmer on good agriculture practice and IPM
4	Poultry	Improper waste management leading to pollution	Medium	Use of waste to make bio compost
		Smell pollution		Construction of farm in adequate distance from house/village
		over use of vaccination and antibiotics also leading to health problem,		Regulate use of vaccination and medicines
		increase number and impact of parasites/diseases and pests		Maintain hygiene
5	Vegetable	Increase in chemical fertilizer and pesticides may pollute soil and water; excessive land use; increase water use	Medium	Promote permaculture and train on homemade bio inputs production, IPM trainings, avoid steep slopes to cultivation, minimization of tillage operation, mixed/intercropping, efficient water use technologies

Climate Change Assessment

33. The country's varied topography and geographical location dramatically varies. There is significant seasonal variability in temperatures: the summer months of June–August are characterised by average temperatures of 24°C–29°C, compared to the winter months of December–February with a mean annual temperature near 0°C, for the most recent climatology, 1991–2020. Average monthly rainfall follows a similar pattern, in which considerably more rainfall occurs during the summer months (approximately 240 millimeters [mm]) than during the winter months (approximately 90 mm). Data from 1976-2005 shows the mean temperature of Bhutan has increased by 0.8˚C. The temperature increase has varied from an average increase of 0.7°C in October and November, to an average increase of 0.8°C during June, July and September. Most variability from the mean was estimated for March, April and May with 0.6°C and December, January and February with 1.3°C (NCHM, 2019, adopted from (NCWC, 2020)).

Figure 2 Left: Bhutan Temp & Precipitation Trend (WorldBank CC Portal), upper right: 2020 monthly precipitation, lower right: 2020 monthly and average temperature (NSB, 2021)



34. According to the data for year 2020 (NSB, 2021) , among the project targeted Dzongkhags, Sarpang was hotter and also received comparatively high rainfall compared to the other three Dzongkhags. Average temperature in Sarpang was above 20°C compared to around 17°C for other Dzongkhags. Similarly, Sarpang also received heavy precipitation reaching 2000mm during July, nearly five times more than that of the other three Dzongkhags. The average precipitation in Sarpang in the last five years amounted to 5,613 mm while the average precipitation of the other Dzongkhags was below 1,500 mm.

35. Climate Scenario**:** Temperature projection shows a consistent increase in temperature for Bhutan under both Representative Concentration Pathways (RCPs). The increase in temperature under RCP 4.5 is about 0.8°C– 2.8°C during 2021-2100, while RCP 8.5 scenario shows increases of about 0.8°C to more than 3.2°C towards the end of the century. Mean annual rainfall over Bhutan is likely to increase in the future under both RCPs. Under the RCP 4.5 scenarios, the annual rainfall over Bhutan indicates an increase of about 10% to 30%, with 5% to 15% increase in summer rainfall. The projection also notes a likely increase of rainfall in the winter with some northern and north-western parts likely to experience a decrease in rainfall. Under the RCP 8.5 scenario, the mean annual rainfall indicates an increase of about 10-20% during 2021-2050 with more than 30% increase all over Bhutan towards the end of the century.

Impact of Climate Change on BRECSA interventions

36. The principal climate risks for the project include: (i) water stress due to variability of rainfall patterns and drying up of water sources; (ii) increased incidences of new and existing pests and diseases; (iii) productivity and quality declines due to temperature and water stress; (iv) and disruption of agri-value chains due to damaged roads and infrastructure caused by extreme climate events. Along with these, the predicted temperature increment has also some positive impacts on value chains including: i) creating opportunities of new vegetable and crop varieties in higher altitude; ii) increasing yields and an extension of the production seasons of vegetable and crops; and iii) favourable conditions for bees to collect more raw materials in extended production seasons resulting in increased honey production. The use of the CLEAR tool and ARPs will enable the project to factor in climate resilience in value chain selection, production and marketing interventions. The following provides a brief pathway to build resilience and address climate stressors:

Table 17 Pathways to build resilience

Production	Marketing	Consumption
• Extension of climate information services and support to	• Shortening value chains • Reducing reliance on the	• Promoting the shift toward sustainable,

producers • Promotion of low emission agricultural practices • Crop and variety selection in relation to seasonal and climate projections • Water use efficiency including irrigation • Improved soil-water management practices • Protected cultivation (greenhouses) • Soil fertility management to maximise soil carbon	import and distribution of fresh produce • Improving post-harvest processing and storage • Waste recycling • Reducing food waste • Local aggregation and storage infrastructure – community organisations and institutions • Central aggregation and storage – market centres • Cold chain development, storage and transport	climate friendly vegetable-based diets • Transforming social norms surrounding acceptable and nutritious diets

37. The table below summarizes the potential impact of climate change to the proposed commodities and the solution measures planned by the project. It has been compiled through discussions with production experts on the likely technical impacts on production of the above climate changes:

Table 18 Climate change impacts and mitigation/adaptation measures

SN	Commodity	Potential Climate risk on value chains	Risk significance	Solution measures
1	Milk	Increase in temperature may change in disease timing and outbreaks	Medium	ii) Provision of improved shed and proper monitoring, ii) improved breed selection and good husbandry, iii) easy access and effective animal health services, iv) forage-based feeding, v) improved biosecurity via stall-based production system
2	Mushroom	Increase pest and diseases	Low	Integrated pest management, regular monitoring, adequate consultation with experts
3	Ginger / Turmeric	Water shortage due to irregular rainfall and long dry period	Medium	i) organic mulching to retain moisture, ii) provision for cover crops, iii) efficient water use and addition measures to increase water availability by promoting water catchment pond, and construction or maintenance of small-scale irrigation iv) use of compost and biochar to retain moisture around the root zone
		Increase in temperature and excess water during monsoon may cause disease outbreak of rootrot	Low	i) adoption of integrated pest management practice, ii) promote a good soil health management by crop rotation, ridge making/ proper drainage, intercropping, mulching, proper selection of varieties etc., iii) provision of crop insurance iv) site selection, including focus on clusters in higher elevations with prolonged cold periods to reduce disease load.
5	Poultry	High or low temperature may increase mortality and disease and pest outburst, and decrease production	Low	i) proper poultry house construction, ii) hygiene maintenance, iii) improve technical support to farmers
6	Vegetable	Prolonged dry spell, irregular rainfall, excessive temperature, increase diseases and pest	Medium	i)provision of efficient water use, ii) organic mulching, iii) mixed and intercropping, iv) right selection of vegetable as per season, v) protected agriculture: tunnel faming, vi) promotion of permaculture

Second Nationally Determined Contribution (NDC)

38. The pledge to be carbon neutral is maintained in the second NDC, which was presented to the UNFCCC on June 24, 2021. Through sectoral Low Emission Development Strategies (LEDS) and the National REDD+ Strategy and Action Plan

2020, it reaffirms to remain carbon neutral while also charting a path to improve mitigation targets and activities. The LEDS were developed for key sectors of human settlement, food security, industries, and surface transport. The sectoral strategies aim at decoupling economic growth and greenhouse gas (GHG) emissions through clean technology, innovation, renewable energy, and green jobs creation. While the second NDC is ambitious and sets clear carbon reduction targets, Bhutan would require financial, technical and capacity building support from both national and international partners to ensure it meets its raised climate goals. The following table summarizes a few potential areas of collaboration to support Bhutan's second NDC targets.

Table 19 BRECSA's contribution to second NDC implementation

NDCs provision	BRECSA's interventions
Mitigation	
Forest conservation and management	Integrated Land Use Planning through CLEAR tool and ARPs; Promotion of agroecological production through promotion of permaculture and ARPs identified agriculture practices; Increased production and income
Low Emission Development Strategy for Food security	Switch from synthetic to organic fertilizers; Improved agricultural practices; increased biomass through increased perennial crop production; Small and medium scale domestic biogas production; Improved dairy cattle production through breed improvement and feeding management
Low Emission Development Strategy for Human Settlement	Increase in composting and recycling; Wastewater management; promotion of energy efficient appliances; Solar water heaters
Waste Management	Production, processing and marketing waste management, convert waste to manure
Alternative Renewable Energy	Biogas, solar, waste-to-energy technologies

39. The first NDC had highlighted ten broad areas of priority adaptation needs. The second NDC's adaptation priority is based on upcoming National Adaptation Plans (NAP). The NAP still hasn't been submitted yet, however, the second NDC has indicated NAP will cover priority needs and actions in the areas of water, agriculture, forests and biodiversity. Based on the presently available information, BRECSA will support on NAP implementation and contribute to (1) the adaptation sectors like sustainable commercial agriculture development and poverty reduction; (2) enhancement of smallholder's access on water; (3) improvement of the vulnerability scale of rural communities through community infrastructure support (irrigation, fencing, aggregation/processing and market structure etc.); (4) smallholder and institutional capacity building on climate adaptation; (5) increased income generating activities through support on agriculture enterprises etc.

2.3 Target Group

40. BRECSA will target smallholder to medium size farmers, female, youth, people with disabilities, and private sector actors involved in the selected value chains. Inclusion of small farmers and food insecure population will be ensured by selecting commodities that are expected to benefit the largest number of poor and by promoting efficient and climate resilient technologies, climate resilient and profitable crop varieties, as well as value chain commodities that benefit the intended target group most. The target households are broadly divided into three categories: a) households which are fully commercial and produce for sell only, ii) households producing for sale as well as own consumption and have a potential for commercial

farming, and iii) households producing only for own consumption. The CLEAR tool and ARPs will help to identify the most vulnerable communities, suitable project interventions for them, and specific locations for the implementation of activities, which will be instrumental for targeting.

41. To mitigate the short- and longer-term economic impacts of COVID-19 and to support recovery and resilience building, the project will target at least 60 % women beneficiaries and 30 % youth aged 18-35[61]. Six hundred differently abled people, constituting 25% of the population of differently abled persons in the target Dzongkhags will benefit from BRECSA interventions. Strategies will be adopted to support the empowerment of youth and women through enhanced economic opportunities, equal participation in groups and cooperatives, and leadership in local decision-making. Special attention will be paid to engaging these groups in the formulation of the Dzongkhags and Gewog level agriculture resilience plans.

42. In view of a large temporary economic migration in rural areas and lack of economic opportunities to women, attention will be given to address the specific needs of the households headed de facto by women. This will involve the selection of crops/livestock with high returns on labour and technologies that are less labour intensive and help reducing drudgery of women. Such crops/livestock are mushroom production, poultry and dairy, as they give high returns and are also suitable for small plots owned by women. Similarly, disadvantaged households, and other disadvantaged groups will be specifically targeted by the project. Specific income generating activities suitable for people with disabilities will be planned and priority will be given to them for other activities that are also suitable for them.

43. Youths, especially rural and female, will be one of the key priority target groups. BRECSA will work together with the government on fallow land utilization where support will be made to youths on access to basic requirements like finance, information, tools and technologies, and their skill development including farming & business skills, financial literacy, marketing and entrepreneurship for the sustainable commercial farming. Youths will be engaged in both off and on farm activities as per their interest and convenience.

44. BRECSA will develop mechanisms such as quotas, beneficiary selection criteria for vulnerable households, time and venue selection for activities considering the availability of women and marginalized people; delivery of certain services for vulnerable people at the doorstep, timely and regular assessment of participation of different categories of farmers and vulnerable groups such as women-headed households; and customized interventions that will ensure the participation of poor households in appropriate value chains. This will be achieved in part by expanding local agriculture employment opportunities associated with value chain-driven growth. The project will explicitly use a graduation approach for mobilization of poorer and more risk averse individuals, facilitating them to join commercial agriculture ready to do so, enabling them to work alongside and learn from their more experienced neighbours while being able to benefit from the improved access to markets and services via the group.

3. Institutional analysis

45. The Ministry of Agriculture and Forests (MoAF) is the leading ministry working with IFAD in coordination with the Ministry of Finance (MoF) as the borrower. The MoAF has a mandate of removing rural poverty. The Department of Agriculture (DoA), Forestry and Park Service (DoFPS), Livestock (DoL), Agriculture Marketing and Cooperatives (DAMC) and the Policy Planning Division (PPD) are the executive arms of the MoAF. At the Dzongkhag level, the MoAF has three offices from the line RNR

[61] Youth definition from: RGOB, 2010. National Youth Policy

sectors, i.e., agriculture, livestock and forestry, constituting the core staff responsible for the management, planning and execution of RNR development programmes. The Gewogs have three agricultural staff representing the line RNR sectors, who are the front-line staff (extension agents) working with farmers. Both the Agricultural Research Development Centre (ARDC) and Livestock Research Centre backstop the Extension Agents of both Agriculture and Livestock in the 205 sub-districts.

46. The World Food Programme will lead on the technical aspect of BRECSA implementation. The WFP has more than 40 years of working experience with the Royal Government of Bhutan. The partnership has focused on providing school meals, enhancing food security and nutrition. WFP's support now is focused on providing technical assistance and capacity development to the government in nutrition, climate resilient food systems and agriculture, and disaster preparedness and response.
47. The ministry of Labour and Human Resources has a department dedicated to providing entrepreneurship training to youth. The TVET division under the same Ministry runs programmes focusing on skill development for youth.
48. The infrastructure interventions will be implemented by the respective "Dzongkhag Engineering Sections (DES)". These DESs have a well-established institutional set up - comprising about 12-16 qualified engineers - in each Dzongkhag; and are attached with the respective Dzongkhag administration. The DES is headed by a "Chief Engineer" who is supported by one/two Executive Engineers, 2-3 Deputy Executive Engineers; and 8-10 Assistant Engineers. These engineering staff are loosely divided into three main sub-sections including: (i) design, (ii) implementation; and (iii) monitoring. On average, one dedicated engineer is available for each Gewog who is supposed to perform all tasks related to implementation of different types of infrastructures (roads, buildings, electric fencing, irrigation, aggregation centres and municipal services). The DES is assessed as sufficiently skilled and experience on infrastructure implementation, quality assurance and monitoring during execution of ordinary projects. However, DESs generally lack in skills and experience for the engineering designs of relatively complex projects, such as: new irrigation schemes (flow and loss calculations, optimum sizing etc.) and design of roads (geometry, curve design, structural stability etc.).
49. There are a number of farmer groups and cooperatives in the agri-food sector, including conventional farming, organic farming, marketing, dairy farming, and poultry farming. Youth Development Fund (YDF) is the main registered Community Service Organization (CSO) dedicated to youth. Other CSOs like Bhutan Centre for Media and Democracy (BCMD) and government agencies also have youth programs in different areas. There are also some CSOs which specialize in providing services to differently abled persons such as Ability Bhutan and Bhutan Disabled Persons Association. There are also many governmental and non-governmental agencies providing general entrepreneurship programs for unemployed youth. Beside DAMC (Department of Agriculture Marketing and Cooperatives), the Ministry of Agriculture and Forests started providing entrepreneurship and other related trainings to youth aspiring to take up agri-farming businesses. The cooperatives and self-help group (SHGs) are a relatively a new development in Bhutan's rural market. These groups of rural farmers, producers are at a nascent stage of their evolution with basic abilities in aggregation and mobilizing small local resources. Yet, there remains a potential to enhance their capabilities and even explore opportunities to link such local actors/aggregators with the market actors including financial institutions.
50. There are also CSOs specializing in working with entrepreneurs such as Loden Foundation, and Tarayana Foundation. RENEW works with women on gender equality and has implemented an innovative training on financial literacy with women and men farmers, changing mindsets to promote commercialization.

Policy and regulatory frameworks

51. The Renewable Natural Resources (RNR) Strategy 2040, which covers the forest, agriculture, and livestock sectors, was adopted in 2021 covering the forests, agriculture, and livestock sectors, and also includes the AFOLU sector under the IPCC emissions source category. Building on the REDD+ Strategy, LEDS for Food Security 2021, and the National Strategy for Sustainable Socio-economic Development through the Commercialization of Organic Farming 2019, the RNR Strategy integrates climate change resilience and low-emission development as one of the key strategies to actualize transformational change in this integrated sector (NDC, 2021).
52. The Climate Change Policy of the Kingdom of Bhutan 2020 was adopted with a vision for "a prosperous, resilient and carbon neutral Bhutan where the pursuit of gross national happiness for the present and future generations is secure under a changing climate." The policy aims to (i) provide strategic guidance to ensure that Bhutan remains carbon neutral and protect the wellbeing of the people of Bhutan by adapting to climate change in an efficient and effective manner, (ii) ensure meaningful participation of all relevant stakeholders in climate change action in a coordinated and coherent manner with clear roles and responsibilities, and (iii) ensure that the challenges and opportunities of climate change are addressed at all appropriate levels, through adequate means of implementation (finance, technology, capacity building and awareness) and integration into relevant plans and policies (NDC, 2021).
53. The national institutions for coordination of climate change actions across key agencies and stakeholder groups have been revitalized with the Climate Change Coordination Committee (C4) from the erstwhile Multisectoral Technical Committee on Climate Change. In addition, a climate change 'one stop platform' is being set up to help coordinate multi-stakeholder dialogue to develop and implement climate related work in Bhutan, with the aim to improve coordination between the different climate-sensitive sectors, enhance knowledge management and improve reporting and monitoring of all climate actions in Bhutan (NDC, 2021).
54. The Renewable Energy Master Plan (2017-2032) was adopted as a strategy for the long-term implementation of renewable energy technologies. This master plan identified 39,462 MW of technically feasible small hydropower, solar and wind projects across the country. These renewable energy technologies provide a basis for both clean energy generation for mitigation and adaptation to changing water flows and the impacts on hydropower in Bhutan (NDC, 2021).

4. Environmental and social category

55. The proposed environmental and social category for BRECSA is moderate, based on the SECAP screening tool. The Project will not impact on any sensitive areas or result in loss of natural habitat and biodiversity. BRECSA's intervention will be confined to existing cultivated and fallow lands and activities will not be located in areas at high risk of geophysical hazards. Thus, the risks to agriculture, livestock and small-scale infrastructure are considered to be minimal. The Project design will be directed at environmentally sound and sustainable agriculture and livestock: a) priority will be given to water source protection and multiple water use systems for water use efficiency, b) agroecology will be promoted, lead farmers and barefoot consultants will provide onsite support to farmers, c) chemical inputs will be replaced by locally made biofertilizer and pesticide, use of liquid fertilizer will be promoted and the project will encourage integrated pest management d) the Project will work to minimize the waste from agriculture or livestock, and market and processing centres and, as much as possible, these will be recycled mostly on manure production, e) alternative renewable technology will be promoted as part of the value chain and this is expected to support market development activities. BRECSA will only support small climate proof infrastructures with no further harm to the environment. The project has a strong focus on social inclusion with ambitious targets for the inclusion of women, youth and differently abled persons. It has

customized interventions for these groups who will be actively engaged in decision-making and provided with opportunities for peer-learning and dialogues on their needs and priorities with RGOB. Inclusion of women, youth, and where possible, differently abled persons in the development of ARPs and strategic investment plans will facilitate their participation in BRECSA.

5. Climate risk category

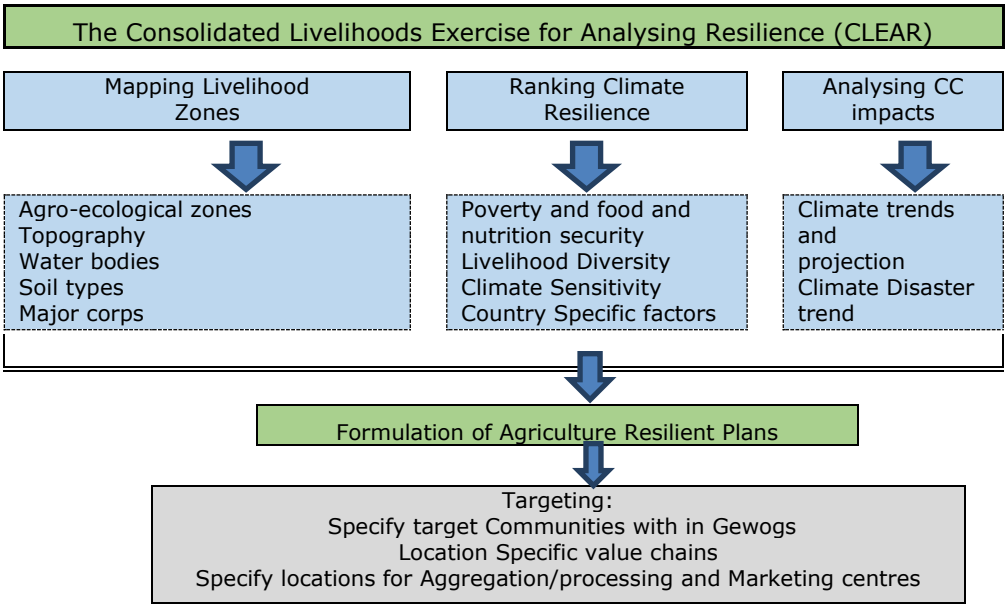
56. As per the SECAP screening tool, the climate risk category of the project is determined as moderate. Following are the key themes and steps followed to assess climate risks: (i) Hazard identification: As per the ThinkHazard report, the project intervention area is likely to experience river flood, landslides, extreme heat and wildfires. The CLEAR tool will be employed to assess climate hazard hotspots and decisions will be made either to avoid such areas or to integrate appropriate adaptive measures for project interventions. Likewise, reports on future climate scenarios show a change in temperature, climate variability and alterations in intensity and frequency of extreme events. The Agriculture Resilient Plans, supported by the findings of the CLEAR tool, will guide appropriate value chains, vulnerable communities and location for project interventions considering aforementioned climate change and its potential impacts (ii) Exposure Assessment: The crop and livestock productions are frequently affected by rainfall variability, prolonged droughts, changes in temperature, and pest and diseases. BRECSA will support on irrigation and water use efficient technologies to tackle water scarcity problems. Support will be made to promote Permaculture, integrated pest management, and bio-inputs production, and selection of suitable crops to manage pest and diseases. (iii) Sensitivity: The only positive response to sensitivity screening questions is the multidimensional poverty, which is above 0.1 for Bhutan. However, the multidimensional poverty has been halved in 2017 compared to 2012. BRECSA will support vulnerable households to participate in value chains to increase their income and livelihood standard. (iv) Adaptation capacity and climate resilience: One of the core goals of project is to increase community resilience to adverse impact of climate change. The RGOB, together with development partners and NGOs, wisely supports target households with the necessary social and economic resources to prepare for or respond to climate-related events. The country has good farm road networks and the rural infrastructures are effectively delivering services to farmers and rural dwellers. Farmers are getting ample support from government to continue and diversify their farming practices.

57. The detailed analysis of the climate scenario and resulting risks and response measure to the main investment activities, as summarized in table 6 will be further assessed with CLEAR and ARPs. For now, they indicate that the BRECSA is expected to be moderately sensitive to climate risks and an integration of climate issues has been undertaken as part of the detailed design. This process has resulted in practical adjustments under the project to reduce losses and damages from climate change impacts to target beneficiaries, and will also strengthen local climate adaptation capacities.

6. Recommendations for project design and implementation Targeting:

58. BRECSA will pay a key attention to mainstream climate consideration into production and investment decisions in the supported value chains. The CLEAR tool will help to identify major impacts of climate change, most vulnerable communities and inform adaptation measures suitable for particular locations, which will be a key measure for targeting and the selection of activities (Figure 3).

Figure 3 CLEAR and ARPs for targeting



59. BRECSA is an inclusive project. To implement that on the ground, project planning and execution process will be transparent and participatory. Proportionate participation from women, youth, indigenous and marginalized communities, and people with disability will be ensured and their concerns will be streamlined in the project's planning and implementation processes.

60. The selected value chains will be specifically targeted towards women and women headed households, rural youths, poor and marginalized communities and people with disabilities. A special attention will be given to enhance financial inclusion, business skills, appropriate methodology and tools for visioning and planning for better future, promote balanced workload between male and female, awareness on climatic risk, awareness on nutrition, capacity building, skill-based training and awareness programs. The time and venue for all such training will be aligned with these groups availability to participate.

61. Women: The project has the opportunity to ensure women participation in value chains from the planning to decision making. The value chain selection process needs to consider the potential for women's involvement. Their specific roles in the selected value chains need to be studied so that their needs and priorities can inform value chain development. An analysis of workload and working conditions by men and women themselves is essential, followed by interventions to promote more equitable rates of participation of women in production and marketing.

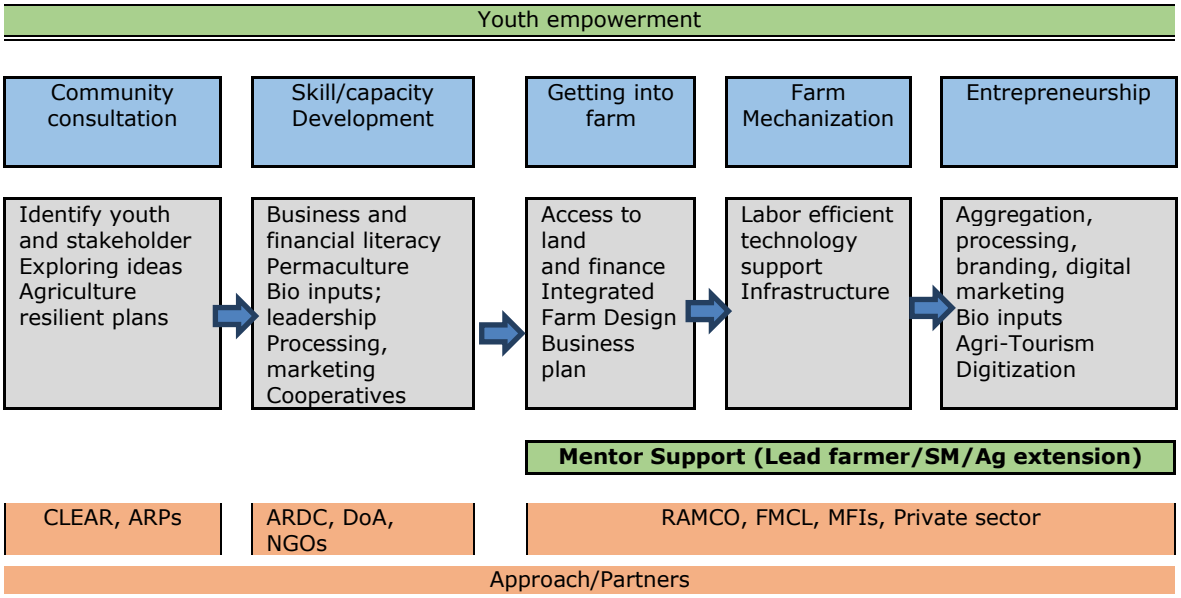
62. BRECSA will facilitate women in building assets and role and voices in making decisions both at household and community level. It will build their confidence to participate in household as well as cluster and bigger level decision making processes. Time-efficient techniques and technologies will be introduced to reduce women´s workload and raise the efficiency and maximise profit from involvement in value chains. These all will contribute to strengthen the agency of women, enhance their economic earning, labour productivity and leadership.

63. To contribute to a deeper transformation of women's roles in the rural economy, the project will also actively encourage to strengthen women's producer and processor groups through capacity building and business development support to increase the profitability of their business.

64. Youth: The project will work to retain the youth force in value chain processes and develop special programs for the oversees migrant returnee youth, in particular

those returning from cities and those affected by COVID-19. Their engagement is an important component of the project to achieve the desired outcome. Bhutanese youth are less attracted to traditional farming but have shown ample interest in market based commercial farming, livestock and/or poultry. The project will provide skill development trainings based on local requirements. There are potentials to develop entrepreneurship capacity among youths that increase networking and leadership. Currently, youth population is relatively low in villages; if they find better opportunities in the villages, in terms of both income and status, they will have opportunities to earn money in their hometown and also can continue their education. Interventions like livestock support that quickly gives return will be supported initially to motivate youths. Overall, the youth engagement in the programme leads towards sustainable and inclusive development of the villages. Figure 4 below illustrates the areas of youth support and potential partners.

Figure 4 BRECSA's areas of youth support



65. People with disability: BRECSA will give high priority to differently abled persons. With the learning from other projects supporting differently able people like Adaptation for Smallholders in Hilly Areas (ASHA) in Nepal, the targeting, activities selection, and appropriate cost management will be done during design phase. The project will take a holistic approach and include not only livelihood opportunities but also wellness support for differently abled persons. Differently abled persons who cannot directly participate in livelihood activities will still receive wellness support (assistive device or infrastructure, counselling on management of disability) and benefit through the engagement of a caregiver in a livelihood activity. Among the project's current selection of value chains mushroom, poultry, and honey may be more suitable for the differently abled persons.

66. Nutrition: The project will encourage interventions that promote nutritionally diverse and rich foods, for example dairy, honey, Adzuki beans and more. The new crop varieties with high nutritional value and benefits will be given higher priority. The project will promote and support the development of post-harvest management, storage and processing technologies at the community and household level. BRECSA will also focus on selection of gender responsive and nutrition sensitive value chains, pro-poor investment in sustainable agriculture, maternal education and awareness of optimal nutrition practices and convergence with ongoing nutritional programmes of the Royal Government of Bhutan. The project will facilitate the development of kitchen gardens aiming to produce diversified high nutritious foods.

67. Sustainable commercial farming: The RGOB has been piloting farm hubs to increase production and train and attract youth on farming. This is the right time to apply and promote sustainable commercial farming. BRECSA will focus on balancing economic profit, environmental stewardship and social responsibility. Along with the increasing farm production, the project gives due attention to enhancing soil quality, reduce the use of non-renewable and unsustainable inputs that are especially harmful for the environment, sustainable use of water resources through adopting water source protection and multiple water use, and use of indigenous knowledge and practices to tackle agriculture and natural resource problems. Such practices are also sound business practices for farmers to achieve sustained success with farming as a business, enhancing their key productive resources rather than mining them unsustainably. BRECSA will work to recover fallow lands and use them for sustainable commercial farming. Appropriate numbers of Permaculture sites will be established in the Dzongkhags and lead farmers will be trained to disseminate knowledge to fellow farmers. Youth will be encouraged to establish bio inputs enterprises, including vermicompost. Community based organic certification will be encouraged and other viable certification options will be explored and adopted. The design team will conduct an economic and financial analysis of permaculture and organic farming.

68. Water**:** Water source drying and farm level water shortage is one of the key problems. BRECSA will integrate water source protection, recharge ponds, multiple and efficient water use in irrigation and water related infrastructure. Equitable water sharing mechanisms should be established to avoid social conflict by mobilising and strengthening Water User Associations (WUAs). The irrigation master plan suggests that about 71% of the existing irrigation systems have either abundant or adequate water supply, while 29% of them have scarce or inadequate water supply. Thus, BRECSA can support and upgrade the existing systems to increase irrigated areas and/or cropping intensities with a particular focus on reverting fallow land back to cultivation.

69. Infrastructure: The project will only support small scale production and marketing infrastructure. While duly considering indigenous knowledge, final sites will be selected as per the CLEAR recommendation to avoid and minimize likely climate hazards. Climate proofing of production and market infrastructure will be considered at each step of the implementation process using an approach that reviews value chain resilience from farm to consumer. The project will support capacity building and trainings of Dzongkhags' engineers particularly in: climate resilient road designs and designing climate resilient irrigation schemes. In addition, the technical assistance may be available for hiring the services of individual design consultant(s)/consulting firm(s) on intermittent basis as and when needed. The project will also consider possible collaboration with an ongoing five-year JICA supported project within the MoAF, specifically focused on the capacity building of engineers at central level for design of large irrigation schemes. The engineers from DES will be competitively selected for participating in customized trainings under the proposed collaboration, once materialized. The waste management will be incorporated in processing and market infrastructure.

70. Human wildlife conflict: The project has identified commodities that are less affected by wildlife attacks, like honey, mushroom, ginger and turmeric. A recent study on effectiveness on electric fencing shows the lack of ownership and maintenance by farmers has resulted in as decrease in its efficiency. BRECSA will ensure the provision of maintenance, and also improved/innovative fencing designs based on the lessons learnt in close collaboration with community, and government agencies. The priority, however, will be given to biological fencing and selection of commodities and sites.

7. Further study needed

71. There is no need for further studies. However, as per the project design, the CLEAR tool will be applied and Dzongkhags/Gewogs level Agriculture resilient plans will be prepared.

8. Monitoring and evaluation

72. The project's M&E should well capture gender, socio-ethnicity, people with disability, youth and household poverty disaggregated data. All the project reports should reflect issues of gender, youth, marginalized and disadvantaged communities, and indigenous communities. The PMU will lead in the monitoring and evaluation process of the project together with implementing partners and stakeholders. BRECSA will adopt a strong focus on beneficiary-led collection and monitoring of project performance. Learning should be taken from CARLEP as it has a robust M&E system. A list of M&E indicators is included in the ESCMP matrix. The M&E framework should well capture ESCMP indicators and include in periodic reporting.

References:

2021. Bhutan Birding. *Bhutan Birding.* [Online] 10 21, 2021. https://www.bhutanbirding.com/climate-zones/.

2021. Bhutan Travel. *bhutan.travel.* [Online] 11 02, 2021. https://www.bhutan.travel/page/geography-geology.

2021. *Climate Risk Country Profile: Bhutan.* s.l. : The World Bank Group and the Asian Development, 2021.

Dentrup, T. 2018. *Agriculture transformation in Bhutan: From peasants to entrepreneurial farmers. .* s.l. : Asian Journal of Agricultural Extension, Economics & Sociology, 1-8, 2018.

FRMD. 2017. *Land Use and Land Cover of Bhutan 2016, Maps and.* Thimphu, Bhutan : Forest Resources Management Division, 2017.

GNHC. 2017. *Strategic Program for Climate Resilience under the Pilot Program for Climate Resilience. Climate-Resilient and Low-Carbon Sustainable Development Toward Maximizing the Royal Government of Bhutan's Gross National Happiness. .* s.l. : Gross National Happiness Comission, RGoB, 2017.

—. 2019. *Twelfth five year plan.* Thimpu : Gross National Happiness Commission, Royal Government of Bhutan, 2019.

Hazard, Think. 2021. Think Hazard. *Think Hazard.* [Online] 10 25, 2021. https://thinkhazard.org/en/report/31-bhutan/FL.

HeveanlyBhutan. 2021. Heavenly Bhutan Travels - HBT Travels. *Heavenly Bhutan Travels website.* [Online] 11 03, 2021. https://www.heavenlybhutan.com/omg-my-bhutan/indigenous-tribes-in-bhutan/.

Karst, H. 2017. *Protected areas and ecotourism: Charting a path toward social-ecological wellbeing.* 2017.

LabourSurvey. 2021. *Labour Force Survey.* Thimpu : National Statistics Bureau, Bhutan, 2021.

Laigden Dzed, Hari Prasad Pokhrel,. 2021. *National Nutrition Strategy and Action Plan 2021-2025.* Thimphu Bhutan : Nutrition Program, Department of Public Health, Ministry of Health, 2021.

MPI. 2017. *Multidimensional Poverty Index.* Thimpu : National Statistics Bureau, Royal Government of Bhutan, 2017.

NAS. 2021. *National Accounts Statistics .* Thimpu : National Statistics Bureau of Bhutan, 2021.

2014. *NBC.* s.l. : National Biodiversity Strategies and Action Plan. National Biodiversity Center, Ministry of Agriculture and Forests, Royal Government of Bhutan, 2014.

NCWC. 2020. *Gender and Climate Change in Bhutan with a focus on Nationally Determined Contribution Proprity Areas: Agriculture, Energy and Waste.* Thimpu : National Commission for Women and Children, RGOB, 2020.

NDC. 2021. *Nationally Determined Contribution.* s.l. : Royal Government of Bhutan, 2021.

NEC. 2020. *Climate Change Policy .* s.l. : National Environment Comission, Royal Government of Bhutan, 2020.

—. 2019. *Third National Communication: Vulnerability and Adaptation Assessment Technical Report.* s.l. : Nationl Environment Comission, Royal Government of Bhutan, 2019.

NNS. 2016. *2015 National Nutrition Survey.* s.l. : Nutrition Programme, Department of Public Health, Ministry of Health, 2016.

NPWC. 2019. *Accounting for Unpaid Care Work in Bhutan.* s.l. : National Commission for Women and Children, RGoB, 2019.
NSB. 2017. *Bhutan Living Standards Survey Report.* s.l. : Bhutan Statistic Bureau, 2017.
—. 2017. *Bhutan: Multidimensional Poverty Index.* Thimpu : National Statistics Bureau, Royal Government of Bhutan, 2017.
—. 2020. *Labor Force Survey Report Bhutan.* s.l. : Natioanl Statistics Bureau, 2020.
—. 2019. *Poverty Mapping Report 2017.* s.l. : National Statistics Bureau, Bhutan and Poverty and Equity Global Practice, The World Bank, 2019.
—. 2021. *Statistical Year Book of Bhutan.* Thimpu : National Statistics Bureau, 2021.
The Yaks: Heaart and soul of the Himalayan tribes of Bhutan. **Wangchuk, D., Dhammasaccakarn, W., Tepsing, P., & Sakolnakarn, T. 2013.** 2013, Journal of Environmental Research and Management, pp. 189-196.
WEF. 2021. *Global Gender Gap Report.* Geneva : World Economic Forum, 2021.
WorldBank. NA. *Systematic Country Diagnosis.* s.l. : World Bank Group, NA.
—. 2021. World Bank. *World Bank.* [Online] 10 24, 2021. https://www.worldbank.org/en/country/bhutan/overview#1.
YouthPolicy. 2011. *National Youth Policy.* s.l. : Department of Youth and Sports, Ministry of Education, RGoB, 2011.

Environmental, Social and Climate Management Plan (ESCMP)

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
1) Environmental									
Potential threat to forest and biodiversity resources including:									
Encroachment or expansion of agriculture in forest area	Vegetable, Ginger, Turmeric, infrastructures	Low	Value chain activities will be confined only in agriculture lands. Project will support government on youth engagement and fallow land use. Collaboration will be made with land commission to monitor forest boundary.	Meeting with farmers, youth and government line agencies to identify and explore use of fallow land; regular communication with forest department and land commission on forest boundary	PMU, forest office, land commission, youth, farmers	% use of fallow land in Gewogs /Dzongkhags(ha)	Baseline/midterm/completion and annual.	(A) Reports from forest department and land commission (B) Fallow land study report	Mainstream activity in Comp 1. No incremental cost

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Increase harvesting of forest products and open grazing	Dairy, Mushroom	Low	Project will encourage stall feeding and provision will be made to plant enough number/area of forage and fodder species in private and community lands; Logs for mushroom will be used from private land or collected within the harvestable amount from forest following government norms	Consultation with related communities	PMU, Farmers, project units	(a) % of farmers in Dairy value chains with stall feeding system (b) % of farmers using feed and log for mushroom from sustainably managed fodder and forage sources	Annual	Annual Outcome Survey, Baseline/mid-term/final impact surveys,	No incremental cost, support for the stall feeding, shed improvement are included in respective activities

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Human wildlife coexistence	Crops, infrastructure	Moderate to High	i)fencing-continuation of electric fencing with proper maintenance mechanism; trail and promotion of chain link fencing at certain places, ii) avoid palatable crops at high wildlife affected areas, iii) awareness on bio fencing	Awareness, capacity building	Project units together with DoA	i) % increase in fencing length or % increase area covered by fence	Annual	Annual Outcome Survey, Baseline/mid-term/final impact surveys; study reports on HWC and fencing	Proposed under component 1.4

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Increased water pollution from agriculture runoff due to the use of fertilizers and pesticides	All value chains	Moderate	(i) Mulching, promotion of organic fertilizers; (ii) Use of waste water management system; (iii) increase production and use of organic inputs, (iv) promote permaculture	Awareness, capacity building and easy access to new practices and technologies	WFP, BAFRA, DoA, RAMCO	(a) % of farmers with increased adoption of organic farming (b) Number of farmers trained in IPM (c) Number of farmers trained in permaculture	(a) Baseline/mid-term/final ; (b) Annual	(a) Baseline/mid-term/final impact surveys; Farmers' diaries (b) Project training records	Covered in respective programs

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Improper waste management	Dairy, poultry, aggregation/ Processing/ market centers	Moderate	(i) Waste management plan, both solid and liquid, necessary for project supported dairy, livestock, aggregation, processing and market centers; ii) promote segregation of organic and non-organic waste and support e bio compost and liquid fertilizer/pesticide production from organic waste; (iii) work with market management committes and local authorities to recycle and reuse of waste generated during production to processing; (iv) Capacitate smallholders and micro entrepreneurs on sustainable waste management by easy and effective technologies and better hygiene.	Awareness, capacity building and easy access to new practices and technologies	Project units	(a) % of project-supported aggregation, processing and markets with a waste management plan and an efficient waste management system (b) Number of capacity building events organized for smallholders and micro entrepreneurs	Annual	Project "infrastructure" records; Training reports; Reports from field inspection visits by PMU staff	Included in related infrastructure, no incremental cost

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Land and soil degradation	Crops	Moderate	(i) Tillage operation and grazing will be controlled in land with moderate to steep slopes (5^0-30^0). Conservation terraces will be promoted in such lands; (ii) Cultivation will be discouraged in land with slope more than 30 degrees (iii) Integrated Pest Management approach will be promoted to discourage use of chemical fertilizers and pesticides ; (iv) Crop varieties which demands excessive use of fertilizer and water will be discouraged; (v) Landslide prone areas will not be selected for any kind of value chain development; (vi) use of plastic mulching will be discouraged. If value chain activities are planned in proximity to such areas, adequate land cover practices such as grass, shrubs and trees with root network to prevent soil erosion and maintain current levels of soil organic matter/carbon.	Awareness	project units	(a) % of farmers using sound IPM practices (b) % of Gewogs with an increase in the land area managed through IPM (c) hectares of land under sustainable agricultural land management	(a) Annual; (b) Baseline/mid-term/completion.	(A) Secondary sources: Departmental reports ; (B) Primary source: CLEAR tool analysis and APRs	Mainstreamed in Comp 1 No incremental costs.

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Threat (such as chances of particular pathogen or pests, population declines of native species, altering key ecosystem processes like hydrology, nitrogen fixation, etc.) from introduction of exotic varieties and breeds	Crops, Livestock	Moderate	Introduction of only certified/verified varieties		PMU, BAFRA	*Ex ante: Component 1 activities to ensure that only certified/verified seeds suppliers are supported under the various Funds or capacity building activities.*	n/a	Secondary source: Departmental reports	No incremental cost
Social									
Potential increase on the workload on women due to engagement in project activities		Moderate	(i) Providing water storage tanks, chain link fencing and appropriate tools to vulnerable households for kitchen gardens (ii) Facilitating access to labour reducing machinery on cost-sharing (iii) Promotion of permaculture which will result in eventual reduction of labour (iv) ensuring that capacity building activities are scheduled, in consultation with beneficiaries, at a time when agricultural activities are minimal.		Project management unit	(a) number of women receiving home garden packages (b) number of women receiving training in permaculture	(a) and (b): Annual ; (c) baseline/mid-term/completion.	(a) List of home garden beneficiaries (b) Training records	No incremental costs

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Women's and youth's needs and priorities not sufficiently addressed in Agriculture Resilience Plans (ARPs) and Strategic Investment Plans		Moderate	Study to identify the role of women and youth in BRECSA value chains to inform ARPs Skilled facilitation to ensure that the youth and women's needs and priorities are elicited and factored into formulation of ARPs /SIP		PMU	Study on Women and Youth's involvement in BRECSA value chains completed Number of priorities /actions identified by women and youth in each ARP plan (37) and each SIP	NA	Study on Women and Youth's involvement in BRECSA value chains Minutes of ARP / SIP formulation Meetings	USD 1500 No incremental cost
Limited participation of women and youth in decision-making forums in Multi-stakeholder Forums (MSPs)	All	Moderate	A Social Inclusion expert in PMU to oversee the process of MSP formation Gender and youth sensitive facilitation of MSPs to ensure active participation		PMU	50% women and 30% youth members of MSPs Number of suggestions contributed by women and youth	Annual	Progress reports Minutes of MSP meetings	No incremental cost

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Limited or less than optimal investment on land or enterprises led by women and youth	All	Moderate	BRECSA increases women and youth's access to required investments on a cost-sharing basis for semi-subsistence farmers and as a grant for vulnerable households BRECSA provides youth and women with financial literacy to enable them to make sound investment decisions		PMU	number of women and youth provided investments on cost-sharing basis number of women and youth provided with financial literacy training	Annual	Annual progress reports	No incremental cost
Increased road traffic posing threat to road safety		Moderate	BRECSA will conduct a dedicated session on education about traffic and pedestrian safety collaborating with local communities and schools. Events related to capacity building, training, nutrition/climate/environmnent awareness will include a well designed session on road safety.	Awareness	PMU	Number of trainings with a dedicated session on road safety	Annual	Annual Progress Reports	Imbedded with planned capacity building events

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Limited participation of youth in agricultural production and processing	All	Moderate	30 percent quota for youth in project activities/support Promotion of models of youth friendly agri-enterprises involving less physical labour and quicker returns Access to machinery through provision of machinery on a cost-sharing basis and through renting from 'hubs'		PMU	% of youth beneficiaries in project Number of youths initiating agri-enterprises Number of youths renting machinery from 'hubs' Number of youths receiving machinery on cost-sharing basis	Annual progress reports, mid-term and completion	Project reports Baseline/mid-term/completion surveys ;	No incremental cost
Lack of nutritious food	All	Moderate	Gender and nutrition sensitive value chains, promotion of kitchen garden, awareness of optimal nutrition practices	Awareness, school feeding programs consultation	PMU and project units	% of household and women reporting minimum dietary diversity (MDDW)	Baseline, Midline and Endline	Baseline/mid-term/completion surveys ;	Included in nutrition budget
Climate change									

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Flood and landslide	all	Moderate	(i) CLEAR and APRs will guide value chain/infrastructure location/site selection which will exclude activities in flood and landslide prone areas and encourage to use land where farmers are traditionally doing farming; (ii) capacity building on climate proof infrastructure design and construction (iii) seek opportunity of crop, livestock and other value chain based enterprises insurance ;	Awareness, participatory implementation of CLEAR tool and APRs formation	WFP, PMU and project units	Include adaptation and mitigation measures identified by CLEAR and APRs	Upon value chain and beneficiaries' selection; mid-term and completion.	Baseline/mid-term/completion surveys	CLEAR and ARPs USD 800,000

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Drought, water shortage	All	Moderate to high	(i) Improve management practices: Small irrigation, water efficient technologies, infield water harvesting, water recharge/catchment pond ; (ii) water source protection for irrigation, iii) equitable water distribution mechanism to reduce social conflict	Awareness	PMU and project units	% of household using improved water management practices	(a) Baseline/midterm/final ; (b) Annual	Baseline/mid-term/final impact surveys; CLEAR tool analysis, APRs	Included in component 1.4

Environmental, social and climate Impacts	Commodities as main driver of risks	Risk rating	Recommended Mitigation/Enhancement measures	Public Consultation Activities	Responsible Institution	Means of Verification			Cost Estimate & Source
						Indicators	Frequency	Source of data	
Change in disease timing and outbreaks	All	Low to Medium	(i) Promotion of IPM; (ii) Capacity building and awareness events to maximize use of bio chemicals and fertilizers (iii) Promotion of permaculture	Awareness	Province project units	(a) % of farmers using sound IPM practices (b) % of beneficiary households with a crop or livestock insurance	(a) Annual and baseline, midterm, final ; (b) Baseline, mid-term, final	Baseline/mid-term/final impact surveys	
Decrease milk production in winter season	Dairy	Low	(i) Improve fodder and feeder production and feeding practices; (ii) improved shed management		PMU and project units	% of beneficiary farmers reporting an improved access to fodder and shed	Baseline, midterm, final	Baseline/mid-term/final impact surveys	Included in dairy value chain support

Investing in rural people

Kingdom of Bhutan

Building Resilient Commercial Smallholder Agriculture (BRECSA)

ANNEX 6: FIRST ANNUAL WORK PLAN AND BUDGET (AWPB)

Component 1: Resilient Production System

Detailed Costs	Unit	Quantuty PY1	Unit Cost (BTN)	Unit Cost (US$)	Cost (BTN '000) PY1	Cost (USD '000) PY1	Expenditure Account	Other Accounts Disb. Acct.	Fin. Rule	Proc. Acct.
I. Investment Costs										
A. Sub-component 1.1: Consolidated Livelihood Exercise for Analyzing Resilience (CLEAR)										
1. International Technical Assistance	Person Month	3	1,500,000	20,000	4,500	60.0	CON_EA	CON_DA	WFP (100%)	CON_PA
2. National Technical Assistance	Number	8	695,625	9,275	5,565	74.2	CON_EA	CON_DA	WFP (100%)	CON_PA
3. Scopping exercises /a	Number	1	525,000	7,000	525	7.0	CON_EA	CON_DA	WFP (100%)	CON_PA
4. Implemetation phase /b	Number	1	7,500,000	100,000	7,500	100.0	CON_EA	CON_DA	WFP (100%)	CON_PA
5. Validation exercise / phase /c	Number	1	7,500,000	100,000	7,500	100.0	CON_EA	CON_DA	WFP (100%)	CON_PA
Subtotal					25,590	341.2				
B. Sub-component 1.2: Gewog and Dzongkhag Agriculture Resilience Plans (ARPs)										
1. Prepare / Implement Gewog and Dzongkhag ARPs										
Prepare Gewog ARPs /d	Number	37	75,000	1,000	2,775	37.0	CON_EA	CON_DA	WFP (100%)	CON_PA
Prepare Dzongkhag Level ARPs /e	Number	4	112,500	1,500	450	6.0	CON_EA	CON_DA	WFP (100%)	CON_PA
Subtotal					3,225	43.0				
2. Training to Sanam Jabjorpa										
Intensive Community Mobilization Training /h	Number	2	525,000	7,000	1,050	14.0	TRAIN_EA	TRAIN_DA	WFP (100%)	TRAIN_PA
Refresher training on intensive community mobilization /i	Number	2	150,000	2,000	300	4.0	TRAIN_EA	TRAIN_DA	WFP (100%)	TRAIN_PA
Subtotal					1,350	18.0				
3. Staff Training										
Training to district agriculture and livestock officers and gewog staff /j	Number	4	225,000	3,000	900	12.0	TRAIN_EA	TRAIN_DA	WFP (100%)	TRAIN_PA
Refresher training to district agriculture and livestock officers and gewog staff /k	Number	4	112,500	1,500	450	6.0	TRAIN_EA	TRAIN_DA	WFP (100%)	TRAIN_PA
Subtotal					1,350	18.0				
4. Farmers' Training										
Training on climate smart agricultural production /l	Number	4	112,500	1,500	450	6.0	TRAIN_EA	TRAIN_DA	WFP (100%)	TRAIN_PA
Training on climate smart livstock production /m	Number	4	112,500	1,500	450	6.0	TRAIN_EA	TRAIN_DA	WFP (100%)	TRAIN_PA
Training on production of specific commodities (i.e. mushroom or honey) /n	Number	4	112,500	1,500	450	6.0	TRAIN_EA	TRAIN_DA	WFP (100%)	TRAIN_PA
Training on commercial farming / enterprise development /o	Number	4	252,375	3,365	1,010	13.5	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Subtotal					2,360	31.5				
Subtotal					8,285	110.5				
C. Sub-component 1.3: Support to vulnerable groups to improve income and nutrition status										
1. Livelihood Investment										
Design and development of Livelihood Investment Packages /p	Number	1	1,500,000	20,000	1,500	20.0	CON_EA	CON_DA	IFAD (100%)	CON_PA
TOTs on Livelihood Investment Sessions for Livelihood and Inclusion Officers /q	Number	1	780,000	10,400	780	10.4	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Subtotal					2,280	30.4				
2. Nutrition-sensitive Agriculture Interventions										
Survey on Minimum Dietary Diversity for Women	Number	1	225,000	3,000	225	3.0	CON_EA	CON_DA	WFP (100%)	CON_PA
Qualitative behavioural research /u	Number	1	1,500,000	20,000	1,500	20.0	CON_EA	CON_DA	WFP (100%)	CON_PA
Home Garden support /aa	Number	500	3,750	50	1,875	25.0	GS&I_EA	GS&I_DA	WFP (100%)	GS&I_PA
Infrastructure support for kitchen gardening, small greenhouses, drip irrigation kits rainwater harvesting, fe	Number	10	112,500	1,500	1,125	15.0	CON_EA	CON_DA	IFAD (100%)	CON_PA
Subtotal					4,725	63.0				
3. Inclusion and readiness support for differently abled persons										
Needs assessment for readiness support /bb	Number	85	7,500	100	638	8.5	CON_EA	CON_DA	IFAD (100%)	CON_PA
Assisstive devices / technologies /cc	Number	85	15,000	200	1,275	17.0	GS&I_EA	GS&I_DA	IFAD (100%)	GS&I_PA
Basic life skills counselling and mentoring /dd	Number	340	600	8	204	2.7	CON_EA	CON_DA	IFAD (100%)	CON_PA
Subtotal					2,117	28.2				
Subtotal					9,122	121.6				
D. Sub-component 1.4: Investment in commercial farming systems										
1. TA for Climate Resilient Commercial Agriculture Production and Business Management										
Permaculture Training to Lead Farmers and Groups	Number	16	375,000	5,000	6,000	80.0	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Development of video modules and other materials on Financial Education and Busienss Literacy	Number	1	750,000	10,000	750	10.0	CON_EA	CON_DA	IFAD (100%)	CON_PA
Formation Farmer Groups and Cooperatives /gg	Number	8	70,350	938	563	7.5	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Strengthening of Farmer Groups and Cooperatives /hh	Number	16	112,500	1,500	1,800	24.0	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Subtotal					9,113	121.5				
2. Promotion of commercial dairy production										
Supply of chaff cutter	Number	180	37,500	500	6,750	90.0	E&M_EA	E&M_DA	IFAD (60%), BENE (40%)	E&M_PA
Subtotal					6,750	90.0				
3. Commercial production of high value commodities										
Establishment of the crop production groups /jj	Number	16	7,500	100	120	1.6	GS&I_EA	GS&I_DA	IFAD (100%)	GS&I_PA
Matching grant support to smallholder farmers	LS	400	30,000	400	12,000	160.0	GS&I_EA	GS&I_DA	IFAD (50%), BENE (50%)	GS&I_PA
Subtotal					12,120	161.6				
4. Support to Infrastructure Development										
Training for engineers, WUAs and RUAs	Number	3	225,000	3,000	675	9.0	WORK_EA	WORK_DA	IFAD (100%)	WORK_PA
Subtotal					675	9.0				
Subtotal					28,658	382.1				
Total Investment Costs					71,654	955.4				

Component 1: Resilient Production System (Contd...)

Detailed Costs	Unit	Quantuty PY1	Unit Cost (BTN)	Unit Cost (US$)	Cost (BTN '000) PY1	Cost (USD '000) PY1	Expenditure Account	Other Accounts Disb. Acct.	Fin. Rule	Proc. Acct.
II. Recurrent Costs										
A. Gewog and Dzongkhag Agriculture Resiliance Plans										
Sanam Jabjorpa (SJ) /kk	Person months	444	20,250	270	8,991	119.9	S&A_EA	S&A_DA	WFP (100%)	S&A_PA
Agricultural Resilience/CC Adaptation and climate Smart Agriculture Planning Specialists /ll	Person month	48	60,000	800	2,880	38.4	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Subtotal					11,871	158.3				
B. Nutrition eduction and communication materials development and publication										
International Nutrition Education Specialist	Person months	6	907,500	12,100	5,445	72.6	S&A_EA	S&A_DA	WFP (100%)	S&A_PA
Nutrition Officer (National)	Person months	6	285,000	3,800	1,710	22.8	S&A_EA	S&A_DA	WFP (100%)	S&A_PA
Translator	Number	1	93,750	1,250	94	1.3	S&A_EA	S&A_DA	WFP (100%)	S&A_PA
Subtotal					7,249	96.7				
C. Investment in commercial farming systems										
Consulting services /mm	Lumpsum	1	1,428,750	19,050	1,429	19.1	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
District engineers /nn	Person year	4	1,350,000	18,000	5,400	72.0	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Subtotal					6,829	91.1				
Total Recurrent Costs					25,949	346.0				
Total					97,602	1,301.4				

\a Kick-off workshops, define and endorse process and scope, establish TF,
\b Livelihood mapping (field level surveys in all 4 districts, all Gewogs)
\c Scientific analysis outsourced to specialised institute; scenario development and formulation of adaptation options,
\d Compile information and prepare plan
\e Compile Gewog level plan and prepare consoliated plan, separate for each Dzongkhag
\f Review progress / performance and update as required
\g Review progress / performance and update as required
\h 3-week training in consensus building and group cohesion, climate smart agriculture and permaculture, hygienic dairy production, GESI, M&E, etc.
\i One week refresher training
\j One week training community mobilization, preparation of ARPs, etc.
\k Two day training on sharing experiences on community mobilization, preparation of ARPs, etc.
\l 3 day training at community level @ 2 training per Dzonkhag
\m 3 day training at community level @ 2 training per Dzonkhag
\n 3 day training at community level @ 2 training per Dzonkhag
\o @ community level 2 training per Dzongkhag on enterprise development for provision of bio-inputs, post-harvest processing
\p Cost of needs assessment, sessions development, field-testing and materials, manual and TOT design
\q Trainer's fee, transport costs training venue, board and lodging, meals & refreshments, training manual and materials
\r Sessions to be delivered bi-weekly over 4 months at beneficiary households by Livelihood Investment Officers
\s Cover cost of an asset and working capital to kick-start an agri-enterprise (poultry, cattle, goats, etc. and 600 grants to differently abled persons
\t Each beneficiary receiving one mentoring visit per month for 8 months after the investment
\u Inform Social and Behaviour Change Communication intervention to Promote MDD-W in Reproductive Age group
\v 2 Batches in 4 districts
\w 2 Batches in 4 districts
\x At village / HH level including field based demonstration
\y At village / HH level including field based demonstration
\z Competitions, nutrition fairs, celebration of important days
\aa Package include tool kits, vegetable seeds, and nutrition training
\bb To be conducted by a CSO specialized in working for differently abled persons
\cc Include walking frame, hoists, railings, wheel chairs, vision and hearing aids, toilet frames, bathing aids etc.
\dd Include advice on life-skills, self-care, improved nutrition and management of disability for the period of a year with 4 touch points for each individual
\ee Forums share needs and priorities and experiences, success stories and dialogue with dhzonkhag officials
\ff 25 farmers per class, and covers fee for facilitators, and FEBL materials
\gg Organize the farmers not yet in FGs/FCs into farmer's organizations
\hh FGs/FCs selected based on rating exercises
\ii Conducted by RLDC to train 40 Community Animal Health Workers (CAHWs)
\jj Vegetable production, ginger, turmeric, honey and tea
\kk Support farmers to proper take-up of new approaches and technologies, effective group and cooperative formation and operation, facilitation of logistics, market linkages, and field monitoring and data collection
\ll Agricultural Resilience/CC Adaptation and climate Smart Agriculture Planning Specialists per Dzonkhas
\mm For survey, design and feasibility studies of infrastructure
\nn One engineer per Dzonkhas

Component 2: Strengthened Value Chain Coordination and Market Linkages

Detailed Costs	Unit	Quantities PY1	Unit Cost (BTN)	Unit Cost (US$)	Cost (BTN '000) PY1	Cost (USD '000) PY1	Expenditure Account	Other Accounts Disb. Acct.	Fin. Rule	Proc. Acct.
I. Investment Costs										
A. Sub-component 2.1: Enhancing efficiency of value chain operations										
1. Support to market infrastructure										
3. Research / Studies										
Guidelines for FMCL for Gender and Youth Inclusive Hubs	Number	1	675,000	9,000	675	9.0	WORK_EA	WORK_DA	WFP (100%)	WORK_PA
Subtotal					675	9.0				
Subtotal					675	9.0				
B. Sub-component 2.2: Business linkages and multi-stakeholder platforms (MSP)										
Formation of National and Dzonkhag level MSPs	Number	5	150,000	2,000	750	10.0	WORKSHOPS_EA	WORKSHOPS_DA	WFP (100%)	WORKSHOPS_PA
Preparation of Strategic Investment Plan for Value Chain Commodities	Number	7	450,000	6,000	3,150	42.2	WORKSHOPS_EA	WORKSHOPS_DA	WFP (100%)	WORKSHOPS_PA
Meeting of the National Level MSPs	Number	2	225,000	3,000	450	6.0	WORKSHOPS_EA	WORKSHOPS_DA	WFP (100%)	WORKSHOPS_PA
Meeting of the Dzonkhag Level MSPs	Number	8	112,500	1,500	900	12.0	WORKSHOPS_EA	WORKSHOPS_DA	WFP (100%)	WORKSHOPS_PA
Revew and revise farmer to business marketing strategy	Number	1	750,000	10,000	750	10.0	CON_EA	CON_DA	WFP (100%)	CON_PA
Implement farmer to business marketing strategy /b	Number	37	20,850	278	771	10.3	WORKSHOPS_EA	WORKSHOPS_DA	WFP (100%)	WORKSHOPS_PA
Subtotal					6,771	90.6				
Total Investment Costs					7,446	99.7				
II. Recurrent Costs										
Total					7,446	99.7				

\a Total 60 participants @ 15 from each dhzonkhag (60% women-30 percent youth), cover board and lodging for 2 days.
\b One per Gewog per year

Component 3: Innovative and Competitive Agri-food Sector

Detailed Costs	Unit	Quantities PY1	Unit Cost (BTN)	Unit Cost (US$)	Cost (BTN '000) PY1	Cost (USD '000) PY1	Expenditure Account	Other Accounts Disb. Acct.	Fin. Rule	Proc. Acct.
I. Investment Costs										
A. Sub-component 3.1: Access to financial services										
1. Improving financial and busienss literacy of smallholders and rural enterprises										
Develop busienss literacy module /a	Number	1	750,000	10,000	750	10.0	CON_EA	CON_DA	IFAD (100%)	CON_PA
Business literacy need assessment of cooperatives	Number	1	1,125,000	15,000	1,125	15.0	CON_EA	CON_DA	IFAD (100%)	CON_PA
Subtotal					1,875	25.0				
Subtotal					1,875	25.0				
B. Sub-component 3.2: Digital technologies to support marketing										
Diagnostic of Agriculture Market Information System and feasibility to introduce digital technologies	Number	1	1,500,000	20,000	1,500	20.0	CON_EA	CON_DA	WFP (100%)	CON_PA
Subtotal					1,500	20.0				
C. Sub-component 3.3: Policy dialogue										
1. Purchase and Installation of Food self life testing equipments										
Purchase and installation of equipments	Lumpsum	1	1,599,975	21,333	1,600	21.3	E&M_EA	E&M_DA	IFAD (100%)	E&M_PA
Subtotal					1,600	21.3				
2. Enhance technical capacity of laboratory										
Purchase and installation of laboratory equipments /i	Lumpsum	1	6,000,000	80,000	6,000	80.0	E&M_EA	E&M_DA	IFAD (100%)	E&M_PA
Purchase and installation of lab equipments /l	Lumpsum	1	1,749,975	23,333	1,750	23.3	E&M_EA	E&M_DA	IFAD (100%)	E&M_PA
Subtotal					7,750	103.3				
3. Strengthen enforcement of on-farm biosecurity in the poultry and piggery farms /m										
Bio-security awareness programme on pountry and piggery /n	Lumpsum	24	66,675	889	1,600	21.3	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Subtotal					1,600	21.3				
4. Strengthening on-farm biosecurity and quality of planting materials /q										
Develop and implement ornamental standard and manual /r	Lumpsum	1	1,500,000	20,000	1,500	20.0	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Procurement of basic and sampling tools and equipments	Lumpsum	1	999,975	13,333	1,000	13.3	E&M_EA	E&M_DA	IFAD (100%)	E&M_PA
Seed sampling and testing facilities / laboratory	Lumpsum	1	150,000	2,000	150	2.0	E&M_EA	E&M_DA	IFAD (100%)	E&M_PA
Training and capacity development of new seed technologies	Lumpsum	1	999,975	13,333	1,000	13.3	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Awareness on seed certification /s	Lumpsum	1	1,500,000	20,000	1,500	20.0	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Develop nursery bio-security manuals	Lumpsum	1	999,975	13,333	1,000	13.3	CON_EA	CON_DA	IFAD (100%)	CON_PA
Subtotal					6,150	82.0				
5. Strengthening Sanitary and Phyto-sanitary Measures /t										
Sampling and testing facilities /u	Lumpsum	1	150,000	2,000	150	2.0	E&M_EA	E&M_DA	IFAD (100%)	E&M_PA
Set-up fumigation facilities /v	Lumpsum	1	2,499,975	33,333	2,500	33.3	E&M_EA	E&M_DA	IFAD (100%)	E&M_PA
Subtotal					2,650	35.3				
6. Pursue mutual recognition of BAFRA inspection, testing and certification										
Identify and document product specific SPS and Food safety requirement /z	Lumpsum	1	999,975	13,333	1,000	13.3	TRAIN_EA	TRAIN_DA	IFAD (100%)	TRAIN_PA
Prepare the standard/product specification /aa	Lumpsum	1	1,500,000	20,000	1,500	20.0	CON_EA	CON_DA	IFAD (100%)	CON_PA
Subtotal					2,500	33.3				
7. Strengthening Bio-safety Measures										
GMO surviellance on targeted crops /hh	Lumpsum	1	1,500,000	20,000	1,500	20.0	E&M_EA	E&M_DA	IFAD (100%)	E&M_PA
Subtotal					1,500	20.0				
Subtotal					23,750	316.7				
Total Investment Costs					27,125	361.7				
II. Recurrent Costs										
A. Operating costs										
Travel cost for inspection of nurseries /jj	Lumpsum	1	999,975	13,333	1,000	13.3	OC_EA	OC_DA	LOAN (100%)	OC_PA
Travel cost for inspection and superviison of agricultural commodities for exports /kk	Lumpsum	1	999,975	13,333	1,000	13.3	OC_EA	OC_DA	LOAN (100%)	OC_PA
Total Recurrent Costs					2,000	26.7				
Total					29,125	388.3				

Component 4: Project Management, Monitoring and Evaluation, and Knowledge Management

Detailed Costs

	Unit	Quantities PY1	Unit Cost (BTN)	Unit Cost (US$)	Cost (BTN '000) 23/24	Cost (USD '000) 23/24	Expenditure Account	Other Accounts Disb. Acct.	Fin. Rule	Proc. Acct.
I. Investment Costs										
A. Programme Management Unit										
1. Materials and Equipments										
Vehicle - Toyota Hilux /a	Number	1	3,600,000	48,000	3,600	48.0	VEHI_EA	VEHI_DA	LOAN (100%)	E&M_PA
Laptops	Number	5	105,000	1,400	525	7.0	E&M_EA	E&M_DA	LOAN (100%)	E&M_PA
Printers	Unit	1	30,000	400	30	0.4	E&M_EA	E&M_DA	LOAN (100%)	E&M_PA
Office equipment	Set	3	75,000	1,000	225	3.0	E&M_EA	E&M_DA	LOAN (100%)	E&M_PA
Subtotal					4,380	58.4				
B. Project Implementation Unit, ARD Samtenling, Sarpang										
1. Materials and Equipments										
Vehicle - Toyota Hilux /b	Number	1	3,600,000	48,000	3,600	48.0	VEHI_EA	VEHI_DA	LOAN (100%)	E&M_PA
Vehicle - Isuzu D-Max pickup /c	Number	2	1,162,500	15,500	2,325	31.0	VEHI_EA	VEHI_DA	LOAN (100%)	E&M_PA
Laptops	Number	25	105,000	1,400	2,625	35.0	E&M_EA	E&M_DA	LOAN (100%)	E&M_PA
Printers	Unit	4	30,000	400	120	1.6	E&M_EA	E&M_DA	LOAN (100%)	E&M_PA
Office equipment	Set	12	75,000	1,000	900	12.0	E&M_EA	E&M_DA	LOAN (100%)	E&M_PA
Subtotal					9,570	127.6				
2. Capacity building and training										
Study tours and learning visit (in country and abroad)	Lump-sum	1	3,750,000	50,000	3,750	50.0	TRAIN_EA	TRAIN_DA	LOAN (100%)	TRAIN_PA
Subtotal					13,320	177.6				
C. PLanning, monitoring and evaluation, knowledge management										
1. Capacity development on planning, M&E and KM										
Training on targeting, gender and youth /d	Lump sum	1	225,000	3,000	225	3.0	TRAIN_EA	TRAIN_DA	LOAN (100%)	TRAIN_PA
Training on knowledge management /e	Lump-sum	1	262,500	3,500	263	3.5	TRAIN_EA	TRAIN_DA	LOAN (100%)	TRAIN_PA
Training on monitoring and evaluation /f	Lump-sum	1	112,500	1,500	113	1.5	TRAIN_EA	TRAIN_DA	LOAN (100%)	TRAIN_PA
Refresher training on review, planning, M&E and KM	Event	1	750,000	10,000	750	10.0	TRAIN_EA	TRAIN_DA	LOAN (100%)	TRAIN_PA
Subtotal					1,350	18.0				
2. Review, Planning and Coordination										
Annual Review and Planning Workshop at Dzongkhags Level	Lump sum	4	225,000	3,000	900	12.0	WORKSHOPS_EA	WORKSHOPS_DA	LOAN (100%)	WORKSHOPS_PA
Annual Review and Planning Workshop at Project Level	Lump sum	1	450,000	6,000	450	6.0	WORKSHOPS_EA	WORKSHOPS_DA	LOAN (100%)	WORKSHOPS_PA
Progress review at Dzongkhags	Lump sum	4	150,000	2,000	600	8.0	WORKSHOPS_EA	WORKSHOPS_DA	LOAN (100%)	WORKSHOPS_PA
Progress review at project level	Lump sum	3	225,000	3,000	675	9.0	WORKSHOPS_EA	WORKSHOPS_DA	LOAN (100%)	WORKSHOPS_PA
Subtotal					2,625	35.0				
3. Monitoring, Evaluation and Management Information System										
Design of Planning, Monitoring and Evaluation System	Number	1	1,125,000	15,000	1,125	15.0	CON_EA	CON_DA	LOAN (100%)	CON_PA
Design of farmers' diary /g	Number	7	75,000	1,000	525	7.0	CON_EA	CON_DA	LOAN (100%)	CON_PA
Printing and publication of farmers' diary	Report	2,000	1,500	20	3,000	40.0	CON_EA	CON_DA	LOAN (100%)	CON_PA
Tablets for farmers level data collection	Nunber	37	26,250	350	971	13.0	TRAIN_EA	TRAIN_DA	LOAN (100%)	TRAIN_PA
Project Baseline Studies	Number	1	1,125,000	15,000	1,125	15.0	CON_EA	CON_DA	LOAN (100%)	CON_PA
Annual outcome survey	Number	1	1,125,000	15,000	1,125	15.0	CON_EA	CON_DA	LOAN (100%)	CON_PA
IFAD supervision mission and ISM	Year	1	525,000	7,000	525	7.0	WORKSHOPS_EA	WORKSHOPS_DA	LOAN (100%)	WORKSHOPS_PA
Subtotal					8,396	112.0				
4. Knowledge management and learning										
Study on role of women and youth in BRECSA valiue chains	Lump sum	1	1,125,000	15,000	1,125	15.0	CON_EA	E&M_DA	LOAN (100%)	E&M_PA
Subtotal					1,125	15.0				
Subtotal					13,496	180.0				
Total Investment Costs					31,196	416.0				

Component 4: Project Management, Monitoring and Evaluation, and Knowledge Management (Contd...)

Detailed Costs

	Unit	Quantities PY1	Unit Cost (BTN)	Unit Cost (US$)	Cost (BTN '000) 23/24	Cost (USD '000) 23/24	Expenditure Account	Other Accounts Disb. Acct.	Fin. Rule	Proc. Acct.
II. Recurrent Costs										
A. Project Staff										
1. Project Management Unit, Thimpu										
Chief Coordinating Officer	Person month	12	60,000	800	720	9.6	S&A_EA	S&A_DA	GOVT	S&A_PA
Associate Coordinating Officer	Person month	12	48,750	650	585	7.8	S&A_EA	S&A_DA	GOVT	S&A_PA
Project Liaison Officer	Person month	12	48,750	650	585	7.8	S&A_EA	S&A_DA	GOVT	S&A_PA
Driver	Person months	12	41,250	550	495	6.6	S&A_EA	S&A_DA	GOVT	S&A_PA
Cleaner	Person month	12	18,750	250	225	3.0	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Subtotal					2,610	34.8				
2. Project Implememtation Unit, ARDC Samtenling, Sarpang										
Project Director	Person month	12	56,250	750	675	9.0	S&A_EA	S&A_DA	GOVT	S&A_PA
Finance manager	Person month	12	41,250	550	495	6.6	S&A_EA	S&A_DA	GOVT	S&A_PA
Sub-sector Specialist (Crop Production)	Person month	12	36,000	480	432	5.8	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Component manager (livestock production)	Person month	12	41,250	550	495	6.6	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Component manager (marketing and value chain)	Person month	12	37,500	500	450	6.0	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Project Engineer	Person month	12	37,500	500	450	6.0	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
ARP Coordinator	Person month	12	37,500	500	450	6.0	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Social Inclusion and Nutrition Officer	Person month	12	37,500	500	450	6.0	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
M&E and KM Officer	Person month	12	37,500	500	450	6.0	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Office assistant	Person month	12	30,000	400	360	4.8	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Drivers	Person months	36	41,250	550	1,485	19.8	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Cleaner	Person month	12	18,750	250	225	3.0	S&A_EA	S&A_DA	LOAN (100%)	S&A_PA
Subtotal					6,417	85.6				
3. TA funded Technical Specialists										
National market system and value chain development specialist	Person month	12	150,000	2,000	1,800	24.0	S&A_EA	S&A_DA	WFP (100%)	S&A_PA
National cooperative strengthening and marketing specialist	Person month	-	112,500	1,500	-	-	S&A_EA	S&A_DA	WFP (100%)	S&A_PA
Subtotal					1,800	24.0				
Subtotal					10,827	144.4				
B. Operating costs										
1. Project Management Unit										
Vehicle O&M	Vehicle / year	1	487,500	6,500	488	6.5	OC_EA	OC_DA	LOAN (100%)	OC_PA
Office O&M	Lump-sum	1	225,000	3,000	225	3.0	OC_EA	OC_DA	LOAN (100%)	OC_PA
Office supplies	Lump-sum	1	187,500	2,500	188	2.5	OC_EA	OC_DA	LOAN (100%)	OC_PA
Travels and meetings	Lump-sum	12	225,000	3,000	2,700	36.0	OC_EA	OC_DA	LOAN (100%)	OC_PA
Subtotal					3,600	48.0				
2. Project Management Office										
Vehicle O&M	Vehicle / year	3	487,500	6,500	1,463	19.5	OC_EA	OC_DA	LOAN (100%)	OC_PA
Office O&M	Lump-sum	1	225,000	3,000	225	3.0	OC_EA	OC_DA	LOAN (100%)	OC_PA
Office supplies	Lump-sum	1	450,000	6,000	450	6.0	OC_EA	OC_DA	LOAN (100%)	OC_PA
Travels and meetings	Lump-sum	12	450,000	6,000	5,400	72.0	OC_EA	OC_DA	LOAN (100%)	OC_PA
Subtotal					7,538	100.5				
Subtotal					11,138	148.5				
Total Recurrent Costs					21,965	292.9				
Total					53,161	708.8				

\a Imported from Japan
\b Imported from Japan
\c Imported from India
\d For relevant project staff
\e For relevant project staff
\f For M&E Officer
\g One for each value chain commodities
\h One day workshop on the Social Inclusion Strategy of BRECSA in each Dhzonkhags (35 participants)

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ANNEX 7: PROCUREMENT PLAN FOR FIRST 18 MONTHS

Procurment plan for civil works

Package Number	General Description	Estimated Value (Nu. m)	Procurement Method	Review	Bidding Procedure	Advertisement
W-01	Construction of Irrigation Scheme at Zhemgang Dzongkhag.	12.000	NCB	Prior	S1E1/eGP	Q2/2023
W-02	Construction of Irrigation Scheme at Tsirang Dzongkhag.	12.000	NCB	Prior	S1E1/eGP	Q2/2023
W-03	Construction of Irrigation Scheme at Trongsa Dzongkhag.	12.000	NCB	Prior	S1E1/eGP	Q2/2023
W-04	Construction of Irrigation Scheme at Sarpang Dzongkhag.	12.000	NCB	Prior	S1E1/eGP	Q2/2023
W-05	Rehabilitation/Renovation of 4 Existing Scheme at Zhemgang Dzongkhag	3.70	NCB	Post	S1E1/eGP	Q1/2023
W-06	Rehabilitation/Renovation of 4 Existing Scheme at Tsirang Dzongkhag	3.70	NCB	Post	S1E1/eGP	Q1/2023
W-07	Rehabilitation/Renovation of 4 Existing Scheme at Trongsa Dzongkhag	3.70	NCB	Post	S1E1/eGP	Q1/2023
W-08	Rehabilitation/Renovation of 4 Existing Scheme at Sarpang Dzongkhag	3.70	NCB	Post	S1E1/eGP	Q1/2023
W-09	Construction of Farm Road at Zhemgang Dzongkhag	23.00	NCB	Prior	S1E1/eGP	Q3/2023
W-10	Construction of Farm Road at Tsirang Dzongkhag	23.00	NCB	Prior	S1E1/eGP	Q3/2023
W-11	Construction of Farm Road at Trongsa Dzongkhag	23.00	NCB	Prior	S1E1/eGP	Q3/2023
W-12	Construction of Farm Road at Sarpang Dzongkhag	23.00	NCB	Prior	S1E1/eGP	Q3/2023
W-13	Improvement of existing Farm Roads at Zhemgang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q4/2023

W-14	Improvement of existing Farm Roads at Tsirang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q4/2023
W-15	Improvement of existing Farm Roads at Trongsa Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q4/2023
W-16	Improvement of existing Farm Roads at Sarpang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q4/2023
W-17	Construction of Trails (internal farm roads, 5km) Zhemgang Dzongkhag	0.80	Shopping	Post	S1E1/eGP	Q1/2024
W-18	Construction of Trails (internal farm roads, 5km) Tsirang Dzongkhag	0.80	Shopping	Post	S1E1/eGP	Q1/2024
W-19	Construction of Trails (internal farm roads, 5km) Trongsa Dzongkhag	0.80	Shopping	Post	S1E1/eGP	Q1/2024
W-20	Construction of Trails (internal farm roads, 5km) Sarpang Dzongkhag	0.80	Shopping	Post	S1E1/eGP	Q1/2024
W-21	Construction of two Aggregation Centres at Zhemgang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q1/2024
W-22	Construction of two Aggregation Centres at Tsirang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q1/2024
W-23	Construction of two Aggregation Centres at Trongsa Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q1/2024
W-24	Construction of two Aggregation Centres at Sarpang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q1/2024
W-25	Construction of Cold Storage (10-20 MT) capacity at Sarpang Dzongkhag	15.00	NCB	Prior	S1E1/eGP	Q2/2024
W-26	Construction of Cold Storage (10-20 MT) capacity at Tsirang Dzongkhag	15.00	NCB	Prior	S1E1/eGP	Q2/2024
W-27	Construction of 2 Small Scale Processing Facilities at Zhemgang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q3/2024
W-28	Construction of 2 Small Scale Processing Facilities at Trongsa Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q3/2024
W-29	Construction of 2 Small Scale Processing Facilities at Tsirang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q3/2024
W-30	Construction of 2 Small Scale Processing Facilities at Sarpang Dzongkhag	5.00	NCB	Post	S1E1/eGP	Q3/2024
W-31	Construction of 2 Small	3.00	NCB	Post	S1E1/eGP	Q4/2024

	Shops/market facilities at Zhemgang Dzongkhag					
W-32	Construction of 2 Small Shops/market facilities at Trongsa Dzongkhag	3.00	NCB	Post	S1E1/eGP	Q4/2024
W-33	Construction of 2 Small Shops/market facilities at Tsirang Dzongkhag	3.00	NCB	Post	S1E1/eGP	Q4/2024
W-34	Construction of 2 Small Shops/market facilities at Sarpang Dzongkhag	3.00	NCB	Post	S1E1/eGP	Q4/2024

Procurment plan for goods						
Package Number	**General Description**	**Estimated Value($m)**	**Procurement Method**	**Review**	**Bidding Procedure**	**Advertisement**
G-01	Supply and Installation of Electric Fencing for Tsirang Dzongkhag (8km)	0.800	Shopping	Post	1S1E/eGP	Q1/2023
G-02	Supply and Installation of Electric Fencing for Trongsa Dzongkhag (8km)	0.800	Shopping	Post	1S1E/eGP	Q1/2023
G-03	Supply and Installation of Electric Fencing for Sarpang Dzongkhag (8km)	0.800	Shopping	Post	1S1E/eGP	Q1/2023
G-04	Supply and Installation of Electric Fencing for Zhemgang Dzongkhag (8km)	0.800	Shopping	Post	1S1E/eGP	Q1/2023
G-05	Supply and Installation of Chain Link Fencing Tsirang Dzongkhag (8km)	6.00	NCB	Prior	1S1E/eGP	Q2/2023
G-06	Supply and Installation of Chain Link Fencing Trongsa Dzongkhag (8km)	6.00	NCB	Prior	1S1E/eGP	Q2/2023
G-07	Supply and Installation of Chain Link Fencing Sarpang Dzongkhag (8km)	6.00	NCB	Prior	1S1E/eGP	Q2/2023
G-08	Supply and Installation of Chain Link Fencing Zhemgang Dzongkhag (8km)	6.00	NCB	Prior	1S1E/eGP	Q2/2023

G-09	Greenhouse, drip kits and water storage tanks for all the districts	30.00	NCB	Prior	1S1E/eGP	Q3/2023

Procurement plan for services							
Package Number	**General Description**	**Estimated Value ($m)**	**Selection Method**	**Review**	**Advertisement Date**(quarter/year)	**Type of Proposal**	**Comments**
CS-01	Consultancy services	20.00	QCBS (National)	Prior	Q3/2023	STP	quality and cost weightage of 80:20

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ANNEX 8: PROJECT IMPLEMENTATION MANUAL (PIM)

Separate document (draft)

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ANNEX 9: INTEGRATED PROJECT RISK MATRIX (IPRM)

INTEGRATED PROJECT RISK MATRIX (IPRM)

Overall Summary

Risk Category / Subcategory	Inherent risk	Residual risk
Country Context	Substantial	Moderate
Political Commitment		No risk envisaged - not applicable
Governance		No risk envisaged - not applicable
Macroeconomic	Substantial	Moderate
Fragility and Security		No risk envisaged - not applicable
Sector Strategies and Policies	Moderate	Moderate
Policy alignment	Moderate	Moderate
Policy Development and Implementation	Moderate	Moderate
Environment and Climate Context	Substantial	Substantial
Project vulnerability to environmental conditions	Moderate	Moderate
Project vulnerability to climate change impacts	High	High
Project Scope	Moderate	Low
Project Relevance		No risk envisaged - not applicable
Technical Soundness	Moderate	Low
Institutional Capacity for Implementation and Sustainability	Moderate	Moderate
Implementation Arrangements	Moderate	Moderate
Monitoring and Evaluation Arrangements		No risk envisaged - not applicable
Project Financial Management	Substantial	Moderate
Project Organization and Staffing	Substantial	Moderate
Project Budgeting	Moderate	Low
Project Funds Flow/Disbursement Arrangements	Moderate	Low
Project Internal Controls	Substantial	Moderate
Project Accounting and Financial Reporting	Substantial	Moderate
Project External Audit	High	Substantial
Project Procurement	Moderate	Low
Legal and Regulatory Framework	Moderate	Low
Accountability and Transparency	Low	Low
Capability in Public Procurement	Moderate	Moderate
Public Procurement Processes	Moderate	Low
Environment, Social and Climate Impact	Moderate	Low
Biodiversity Conservation	Moderate	Low
Resource Efficiency and Pollution Prevention	Moderate	Low
Cultural Heritage	Low	Low
Indigenous People	Low	Low
Labour and Working Conditions	Low	Low
Community Health and Safety	Moderate	Low
Road traffic risks	Moderate	Moderate

Risk Category / Subcategory	Inherent risk	Residual risk
Physical and Economic Resettlement	Low	Low
Greenhouse Gas Emissions	Moderate	Low
Vulnerability of target populations and ecosystems to climate variability and hazards	Substantial	Substantial
Stakeholders	Moderate	Low
Stakeholder Engagement/Coordination	Moderate	Low
Stakeholder Grievances		No risk envisaged - not applicable
Overall	Moderate	Moderate

Country Context	Substantial	Moderate
Political Commitment		No risk envisaged - not applicable
no risk envisaged at this stage		
Governance		No risk envisaged - not applicable
no risk envisaged at this stage		
Macroeconomic	Substantial	Moderate
Risk: The COVID 19 crisis has blocked export of agriculture produce and undermines the momentum built on value chain development.	Substantial	Moderate
Mitigations: The situation has improved and Bhutan is again exporting key commodities. BRECSA will invest in enhancing productivity and marketing of key commodities to meet domestic demand and export potential. Furthermore, the project is expanding its food supply to school programme and hospitals.		
Fragility and Security		No risk envisaged - not applicable
no risk envisaged at this stage		
Sector Strategies and Policies	Moderate	Moderate
Policy alignment	Moderate	Moderate
Risk: The institutions responsible for agriculture at gewog level often have limited capacity.	Moderate	Moderate
Mitigations: BRECSA has envisioned focused TA support to build capacities and develop ARPs in close coordination with district and gewog agriculture staff.		
Policy Development and Implementation	Moderate	Moderate
Risk: Non-conducive policies to support commercialisation of the agri-food sector	Moderate	Moderate

Mitigations: BRECSA will work with PPD and BAFRA on regulation, standardization and certification to ensure that the ´Bhutan Brand´ acquires a recognized seal to support export potential		
Risk: Market dynamics of selected value chains might change	Moderate	Moderate
Mitigations: The project will adopt a flexible approach to allow additional value chains (oilseeds, green tea, honey and other NWFPs) to be included post the conclusion of the CLEAR analysis and formulation of Agriculture Resilience Plans, as new opportunities may arise and adjustments maybe required due to changing market dynamics.		
Risk: Lack of technical capacity to respond to the identified market needs	Moderate	Moderate
Mitigations: BRECSA will invest in multi-stakeholder platforms (MSP) to link producer's group to agribusinesses and markets, as well as create a MSP at the national central level to identify and strengthen national, regional and international markets.		
Environment and Climate Context	Substantial	Substantial
Project vulnerability to environmental conditions	Moderate	Moderate
Risk: Soil quality degradation due to commercial agriculture, excessive use of water and other natural resources, wastage, chemical uses…	Moderate	Moderate
Mitigations: Pre-screening of suitable site selection for prospective hubs and groups to be supported by the programme to ensure that the commodities, scale and production systems are appropriate and sustainable in the specific location. For livestock, strict promotion of stall-based feeding systems and increased fodder/feed production to reduce open grazing. The project will also promote sustainable production technologies including: water efficient technologies, erosion control via poly-tunnel and soil nutrition management. For climate-sensitive infrastructure, the project will follow the national requirements for EIAs, and ensure proper monitoring.		
Project vulnerability to climate change impacts	High	High
Risk: Poor soil fertility limits agricultural productivity. The following climate risks are prevalent: i) droughts and floods due to erratic rainfall; ii) increasing day and night temperature; iii) landslides; iv) shifting agroecological zones.	High	High
Mitigations: BRECSA will promote a shift to regenerative and agroecological approaches for building sustainable livelihoods and ecological resilience. This will be based on the results of the CLEAR tool, and coupled with support to irrigation and water-use efficiency, soil fertility management, renewable energy, and climate resilient value chains.		

Project Scope	Moderate	Low
Project Relevance		No risk envisaged - not applicable
no risk envisaged at this stage		
Technical Soundness	Moderate	Low
Risk: Project is staffed with experienced and qualified accounts personnel. Staff from Implementing Units request further FM training form IFAD. Project staff is not aware of IFAD anti-corruption policy.	Moderate	Low
Mitigations: Finance staff attend IFAD online FM training course. Project staff and stakeholders are advised to read IFAD policy on Preventing Fraud and Corruption in its Activities and Operations. https://www.ifad.org/en/document-detail/asset/40189695		
Institutional Capacity for Implementation and Sustainability	Moderate	Moderate
Implementation Arrangements	Moderate	Moderate
Risk: Capacity of key implementing partners is variable.	Moderate	Moderate
Mitigations: BRECSA has established an effective project management and implementation mechanism with a well-staffed PMU and national agriculture agencies, Dzongkhag and gewog staff, in support of farming communities. Targeted training in results management will be undertaken, in addition to close monitoring by IFAD and WFP.		
Monitoring and Evaluation Arrangements		No risk envisaged - not applicable
no risk envisaged at this stage		
Project Financial Management	Substantial	Low
Overall		
Project Procurement	Moderate	Low
Legal and Regulatory Framework	Moderate	Low
Risk: The risk that the institutional capacity and practices (including compliance with the laws) are inadequate to conduct the procurement in a manner that optimizes value for money with integrity at the local level.	Moderate	Low
Mitigations: 1). Review periodically the application procurement law, regulation and procedures of the project. 2). Review and clear project procurement plan (consolidated) encouraging the use of competitive procurement methods 3). Provide consolidated procurement information on project website (opportunities and awards) Provide training at the local level to responsible officers		
Accountability and Transparency	Low	Low

Risk: The risk that accountability, transparency and oversight arrangements (including the handling of complaints regarding, for example, SH/SEA and fraud and corruption) are inadequate to safeguard the integrity of project procurement and contract execution, leading to the unintended use of funds, misprocurement, SH/SEA, and/or execution of project procurements outside of the required time, cost and quality requirements.	Low	Low
Mitigations: 1). Provide confidential report of complains received, under investigation and resolved. 2). Establish appropriate level of procurement reviews post and prior based on risk 3). Identify and report on risk flags during procurement supervision 4). Use IFAD standard bidding documents which include provisions for prohibitive action and safeguards		
Capability in Public Procurement	Moderate	Moderate
Risk: The risk that the implementing agency does not have sound processes, procedures, systems and personnel in place for the administration, supervision and management of contracts resulting in adverse impacts to the development outcomes of the project.	Moderate	Moderate
Mitigations: 1). Retain procurement professional to support intermittently 2). Periodic training and support to be provided to various implementing agencies teams		
Public Procurement Processes	Moderate	Low
Risk: The risk that procurement processes and market structures (methods, planning, bidding, contract award and contract management) are inefficient and/or anti-competitive, resulting in the misuse of project funds or sub-optimal implementation of the project and achievement of its objectives.	Moderate	Low
Mitigations: 1). Update procurement schedule in PP [Planned vs Actual] , utilize PP as monitoring cum review tool. Encourage the staff directly involved to undertake the World Bank promoted FREE certification courses in Public Procurement and Contract Management. Develop and operationalize procurement contract monitoring system [ICT system] to integrate Planning, Procurement, and Financial Management functions. The proposed system is expected to include already available procurement related data in the existing eGP Platform and with the spill over activities in line with AWPB. Develop and operationalize procurement contract monitoring system [MIS system] to integrate Planning, Procurement, and Financial Management functions		
Environment, Social and Climate Impact	Moderate	Low
Biodiversity Conservation	Moderate	Low

Risk: The main risk of the project regarding biodiversity is coming from human-wildlife conflicts. As Bhutan is a country with >70% forest cover, wildlife is regularly crossing into agricultural fields and destroying crops.	Moderate	Low
Mitigations: The agricultural resilience plans for each district is based on the application of WFP's CLEAR tool. All biodiversity sensitive areas will be avoided. In addition, following measures will be undertaken to avoid human-wildlife conflict: i) fencing-continuation of electric fencing with proper maintenance mechanism; trail and promotion of chain link fencing at certain places, ii) avoid palatable crops at high wildlife affected areas, iii) awareness on bio fencing		
Resource Efficiency and Pollution Prevention	Moderate	Low
Risk: The risk that the project may cause significant pollution to air, water, and land, and inefficient use of finite resources that may threaten people, ecosystem services and the environment at the local, regional, and global levels.	Moderate	Low
Mitigations: The project is adopting a circular model that recycles all waste products.		
Cultural Heritage	Low	Low
Risk: The risk that the project may cause significant cultural or physical resource degradation, including threats to or the loss of resources of historical, religious or cultural significance.	Low	Low
Mitigations: All cultural heritage sites will be avoided.		
Indigenous People	Low	Low
Risk: The risk that the project may cause significant adverse physical, social, or economic impacts on indigenous peoples, or in threats to or the loss of resources of historical or cultural significance to them.	Low	Low
Mitigations: The are no indigenous peoples as such in the project areas.		
Labour and Working Conditions	Low	Low
Risk: The risk that the project may cause exploitative labour practices (e.g. forced or child labour), gender based violence, discriminatory and unsafe/unhealthy working conditions for people employed to work specifically in relation to the project, including third parties and primary suppliers.	Low	Low
Mitigations: BRECSA is a gender transformational project and complies with all requirements for gender transformative projects.		
Community Health and Safety	Moderate	Low

Risk: The risk that the project may cause significant adverse impacts on the physical, mental, nutritional or social health/safety status of an individual, group, or population, including as a result of gender based violence.	Moderate	Low
Mitigations: BRECSA is a nutrition sensitive project which will enhance diet diversity and food security of all beneficiaries, hereby contributing to their physical and mental well being. Furthermore, BRECSA target 600 PXDs, corresponding to 25% of total PWDs of the targeted areas, by providing direct support to improve their livelihoods, income, living conditions and nutrition and health status.		
Physical and Economic Resettlement	Low	Low
Risk: The risk that the project may cause significant adverse physical, social, cultural or economic impacts, especially for marginalized groups, from land acquisition, and involuntary loss of land, assets, access to assets, income sources, or means of livelihoods.	Low	Low
Mitigations: No physical resettlement is anticipated.		
Greenhouse Gas Emissions	Moderate	Low
Risk: While some activities do sequester carbon (like permaculture systems), the project may actually have a positive carbon-balance (net GHG emissions) with investments into the dairy value chain, infrastructure, irrigation (also small livestock, terracing might be sources of Greenhouse Gas (GHG) emissions).	Moderate	Low
Mitigations: As Bhutan is a unique carbon sink with the forests absorbing large quantities of CO2 from the atmosphere, the GHG emissions of the project will not be very significant. In addition, the project is adopting a circular model with mitigation co-benefits.		
Vulnerability of target populations and ecosystems to climate variability and hazards	Substantial	Substantial
Risk: Climate change impacts leading to water scarcity/excess, pest infestations, soil fertility erosion, cold snaps and damage from hailstones etc..	Substantial	Substantial
Mitigations: (i) promotion of agro-ecological technologies; (ii) building interventions based on results of CLEAR tool; (iii) promoting permaculture; (iv) investing in climate resilient infrastructure; (v) investing on nutrition sensitive and climate smart value chains		
Stakeholders	Moderate	Low
Stakeholder Engagement/Coordination	Moderate	Low
Risk: Project is staffed with experienced and qualified accounts personnel. Staff from Implementing Units request further FM training form IFAD. Project staff is not aware of IFAD anti-corruption policy.	Moderate	Low

Mitigations: Finance staff attend IFAD online FM training course. Project staff and stakeholders are advised to read IFAD policy on Preventing Fraud and Corruption in its Activities and Operations. https://www.ifad.org/en/document-detail/asset/40189695		
Stakeholder Grievances		No risk envisaged - not applicable
no risk envisaged at this stage		
Risk: Increased road accidents from increased traffic flow	Moderate	Moderate
Mitigation: BRECSA will conduct awareness sessions specifically on road traffic and pedestrian safety in collaboration with local communities, government and nongovernmental organizations, and schools. The events related to capacity building, nutrition/climate/environment awareness, trainings will have a dedicated session on road safety.		

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Kingdom of Bhutan

Building Resilient Commercial Smallholder Agriculture (BRECSA)

ANNEX 10: FINANCIAL MANAGEMENT ASSESSMENT

Financial Management Assessment

Summary	Brief description of issues	Inherent (current) Risk H/S/M/L	Proposed Mitigation Measures	(Future) Residual Risk H/S/M/L
Country Risks				
1. TI Index *(0-30 High; 31-40 Substantial; 41-50 Moderate; 51-100 Low)*	**Score 68**	**L**		
2. RSP Score *(0-30 High; 31-40 Substantial; 41-50 Moderate; 51-100 Low)*	**Score 43**	**M**		
Control Risks				
1. Organization and Staffing *Risk that the implementing entity does not have the necessary number of adequately qualified and experienced financial management staff in the national and regional centers, resulting in limited ability to meet the functional needs of the project*	With limited experienced staff at the district level, getting dedicated accountants is a challenge.	S	Adequate and trained staff should be made available by the MoAF/ MoF to the project for the project duration	**M**
2. Budgeting *Risk that budgeted expenditures are not realistic, not prepared or revised on a timely basis, and not executed in an orderly and predictable manner, resulting in funds not being available when needed, ineligible costs and reallocation of project funds and slow implementation progress*	Introduce systems to collect information from the districts and implementing agencies and consolidating the same for the AWPB	M	Preparation of timely and realistic budgets based on the inputs from the districts and incorporating it in the Multi Year Rolling Budget	**L**
3. Funds flow and Disbursement Arrangements *Risk that funds from multiple financiers disburse with delay due to cumbersome treasury arrangements or inability of project cost centers and service providers to justify prior advances, resulting in delayed implementation*	Systems for flow of funds from RGOB is fairly robust. However, RGOB will require advance from IFAD for disbursement as generally it does not pre-finance projects.	M	IFAD needs to disburse funds to RGOB as advance based on the projected cash flows of IFRs to enable uninterrupted fund flow. The project needs to plan its cash flow and submit the IFRs/ WA promptly after the end of each quarter. Advances of the GAFSP portion will be made based on % against	L

			relevant AWPB.	
4. Internal Controls *Risk that appropriate controls over Project funds are not in place, leading to the inefficient or inappropriate use of project resources.*	Internal controls exist but a structured system of internal audit is not operational due to limited human resources. Physical achievements have not been tracked against financial expenditure.	S	A system of internal audit conducted on a regular basis needs to be introduced to ensure use of project resources as per the AWPB	M
5. Accounting and Financial Reporting *Risk that accounting systems – including polices and standards – are not integrated and reliable, leading to inaccuracies in financial records and that reasonable records are not prepared, issued and stored, leading to lack of informed decision-making.*	The accounting system works well for the Govt but is incapable of generating reports such as IFRs, expenditure by components, categories and financiers	S	The project should explore the possibility of using a software in parallel which is able to generate reports as required. This will prevent use of excel spreadsheets for such an exercise and at the same time reduce errors and save time	M
6. External Audit *Risk that independent and competent oversight of the Project financial statements is not in place or performed timely leading to possible misrepresentation of the financial results and/or suspension or other remedies due to compliance breaches.*	Audit conducted by RAA is generally delayed as they conduct audit of all Govt offices and projects. Late submission has been observed for other projects under country portfolio.	H	The MoAF should have a clear MoU with RAA to complete the audit within the stipulated time on priority as an externally aided project. In the alternative an independent auditor should be engaged to conduct the audit of the financial statements.	S
Overall Rating		**S**		**M**

Detailed Findings

	Topic	Brief description of issues	Mitigation Measures
1.	**Organization and Staffing** Note: In the case of a Government Department, the FM Specialist (FMS) should initially focus on the status of the country's Public FM (PFM) systems in order to gauge the level of FM risks to which the proposed project may be exposed. Once an understanding of the PFM environment has been ascertained, the FMS should then focus on the project level, paying close attention to the department(s) or unit(s) that will financially administer the project.		
1.1.	**Lead Programme Agency (LPA)** What entity is the LPA? What is the entity's legal status?	The LPA will be the Ministry of Agriculture and Forest, Govt of Bhutan	
1.2.	Will FM of the project be the responsibility of the LPA or be undertaken within the-PMU?	FM will be the responsibility of the PMU. The finance team will be deputed by the MoF to the PMU	The FM team should, as far as possible, be deputed for the entire project period and should be led by an experienced Finance Manager
1.3.	Has the entity implemented a donor-financed project in the past - if so, provide details.	Yes. The MoAF is currently implementing IFAD funded CARLEP project and has in the past too implemented MAGIP, AMEPP and others	
1.4.	**Staffing** What is the (proposed) organizational structure of the accounting department? Attach an organization chart.	The proposed organization structure consists of the Finance Manager and an Accountant at the PMU and a Finance Officer and an Accountant at the PMU and other implementing agencies	
1.5.	Identify the (proposed) accounts staff, including job title, responsibilities, educational background and professional experience. Attach job descriptions and CVs of key accounting staff.	All accounts staff are deputed by the MoF and are qualified to work as accountants. The job descriptions will be provided in the PIM	
1.6.	Are written position descriptions that clearly define duties, responsibilities, lines of supervision, and limits of authority for all of the officers, managers, and staff?	These are provided in the Financial Regulations of the RGOB	
1.7.	Are the project accounts and finance staff trained in IFAD procedures?	The staff to be engaged for the project are not yet finalized.	The training will be provided during the start-up workshop and by way of ISM
1.8.	Are any Finance Staff appointed on contract? What is the duration of the contracts? Indicate key positions not contracted yet, and the estimated date of appointment.	The finance team consists of RGOB regular staff and are not contractual staff	
1.9.	Is the finance and accounts staff adequately qualified and experienced? What is training policy for the finance and accounting	The Govt accountants are qualified and experienced in handling Govt accounts	The team recruited for the project should be trained in IFAD procedures

	Topic	Brief description of issues	Mitigation Measures
	staff?		
1.10	Is fraud awareness training foreseen at project start-up? The objective of such training should be to ensure that finance staff can demonstrate an understanding of the appropriate fraud policies and key risks faced by the project, as well as an awareness of the reporting channels and whistle-blower protection. How frequently is such a training foreseen? (recommended semi/annual)	Yes. Fraud awareness training will be conducted during start-up	IFAD will undertake the fraud awareness training during start-up and also during the course of project implementation in case new incumbents take over the FM responsibilities
1.11	Is there evidence that finance staff are regularly transferred to other Government departments? At what frequency are personnel transferred?	Yes. Govt staff are liable for transfer on completion of a five year duration at any office/post	The MoF should ensure continuity of trained staff for the project during the period of project implementation
1.12	Is the project finance and accounting function staffed adequately?	Yes. It will be adequately staffed	MoF/ MoAF to ensure adequate staffing during project implementation at the PMU and filling up vacancies without any delay in case they arise
2.			
2.1.	**Annual Work Plan and Budget (AWPB)** Identify who will be involved in the AWPB preparation/approval process	At the PMU, the FM will be involved in the AWPB compilation along with the M&E Officer. At the PMU, the Finance Officer along with the technical experts will be involved in the AWPB preparation. The approval of the budgets will be the responsibility of the MoAF (PSC)	It should be ensured that the AWPB preparation process is a bottom-up approach and that the budgets are prepared well in advance prior to the commencement of the fiscal year
2.2.	Are Implementing Entity project budgets prepared for all significant project activities in sufficient detail to provide a meaningful tool with which to monitor subsequent performance?	Yes – They will be prepared for all activities envisaged to be carried out during the year	The implementing agencies need to monitor the progress against the AWPB and track physical progress with the financial progress
2.3.	Are procedures in place to plan project activities, collect information from the units in charge of the different components, and prepare the budgets?	Systems will be developed to plan project activities and collection of information for preparation of the AWPB	The system for preparation of the AWPB should be developed and documented to ensure proper planning and execution
3.			
3.1.	Does the Implementing Entity have previous experience of using imprest fund and donor funding Statement of Expenditure (SOE) procedures? Were there any problems or issues encountered by project staff in the operation of the imprest fund or SoE procedures in the past?	The MoAF/ MoF has adequate experience in using imprest fund and SOE procedures	The current project will be funded based on preparation and submission of IFRs along with the WA. Training on IFAD financial reporting requirements and on disbursement modalities will be

	Topic	Brief description of issues	Mitigation Measures
			provided at start-up.
3.2.	Does the Implementing Entity have experience in the management of disbursements from IFAD or other donors? Have there been the major problems in the past in receipt of funds by the entity?	Yes, MoAF has adequate experience in management of disbursements from IFAD. No major problems have been encountered.	
3.3.	Does the entity have/need to develop capacity to manage foreign exchange risks?	MOF is equipped to manage foreign exchange risks	
3.4.	Are the beneficiaries required to contribute to project costs? How are payments made for the counterpart funds? If counterpart funds are to be contributed in kind (in the form of labour), are proper guidelines formulated to record and value the labour contribution?	Yes. Beneficiaries will be required to contribute to project costs in kind.	Systems need to be developed to capture the beneficiary contribution in kind and to appropriately value it for recording such contribution in the progress reports and financial statements
3.5.	Is part of the project implemented by communities or NGOs? Does the PMU have the necessary reporting and monitoring features built into its systems to track the use of project proceeds by such agencies?	Communities/ Community institutions will participate in project implementation	Systems need to be developed to monitor tracking of use of project proceeds by such agencies
3.6.	Describe (proposed) project funds flow arrangements; (attach flow chart and explanation of the flow of funds from IFAD, government and other financiers).	Flow Chart attached as part of the PDR	
3.7.	In which bank will the Imprest Account be opened?	The Designated Accounts will be opened by the Royal Monetary Authority (RMA) in Bank of Bhutan Limited (BOBL)	
3.8.	Are the (proposed) arrangements to transfer the proceeds of the financing (from the government / Finance Ministry) to the Implementing Entity satisfactory?	The existing arrangements for the ongoing IFAD funded project to transfer funds from the Ministry to the Implementing Entities are satisfactory	
3.9.	If microfinance schemes are foreseen, analyse the control system planned (staff capacity, financial reporting, targeting etc.) to determine whether they will address the inherent financial fraud risk exposure. Outline any control gaps identified.	Financing by banks and financial institutions is envisaged in the project design and they will address the financial fraud risk exposure while sanctioning loans to the project beneficiaries.	The project needs to assess the financial requirements of the beneficiaries and their capacity to repay the loans considering the project activities to be undertaken
3.10	If cash distribution schemes are foreseen: - Determine the level of security of the disbursement system to be adopted (cards, mobile phones, blockchain technology etc.) - Analyse the controls over beneficiary lists for receipt of	Cash distribution will not be undertaken as per project design	

	Topic	Brief description of issues	Mitigation Measures
	matching grants; how will the lists be maintained and communicated for receipt of resources? What controls are in place to secure the list of intended recipients? How will the names be verified?		
4.			
4.1.	**Policies, Procedures, and Manuals.** *Are there policies or procedures that outline the decision processes? Are they clear? Is there a separate Financial Manual (or equivalent)? How often are policies, procedures, and manuals reviewed/updated? What is the process of approval when modifications are required?*	The MoF, RGOB has prescribed Financial Rules and Regulations 2016 which serves as a Manual for finance and accounting staff of the Govt	The FRR and the PIM to be prepared should be followed by the project
4.2.	**Segregation of duties.** *Are the following functional responsibilities performed by different units or persons?* *i)Preparation of a transaction;* *ii) Review of a transaction;* *iii) Authorization of a transaction;* *iv) Custody of assets; and* *v) Reconciliation of accounts*	The work is segregated between the accountant who prepares and enters the transaction in the software and the Finance Officer/ Manager who approves the transaction before it is entered	The segregation of duties should be complied with at all times and at all implementing levels
4.3.	Are the functions of ordering, receiving, accounting for, and paying for goods and services appropriately segregated?	Yes. The ordering of supplies will be done by the admin/ procurement officer and the accounting and payment will be done by the accounts team	The accountants should not be involved in placing orders for goods and services
4.4.	Are bank reconciliations prepared by someone other than those who make or approve payments?	The reconciliation is done through the accounting system itself (E-PEMS)	If discrepancies are noted in the reconciliations, they should be promptly addressed
4.5.	Are internal controls for all high risk areas (most commonly cash transfers, fuel management (purchase rights / reasonable usage), vehicle logbooks, suspense accounts, manual payments) appropriate and adequately documented?	Internal controls exist in the Govt system for high-risk areas. Cash transfers are not undertaken, vehicle log books are maintained	The project is required to follow the FRR and PIM in respect of internal control measures to ensure that risk is minimized or eliminated
4.6.	Assess how per diem usage will be monitored.	All tours will be approved and per diem is fixed as per FRR	Proper monitoring of such tours along with back to office note should be documented
4.7.	Assess procedures foreseen for management and eventual recovery of advances.	Generally, advances to staff to carry out project activities are settled within the month. In case of civil works, the advances will be outstanding for longer duration	IFAD's contract monitoring tool is to be used to track the advances for works. Advances need to be settled within a month of completion of such activities

	Topic	Brief description of issues	Mitigation Measures
4.8.	**Internal Audit (if applicable)** Is there an internal audit department in the LPA? If, not, is internal audit deemed necessary given the size and design characteristics of the project? Describe internal audit requirements.	The MoAF has an internal audit division. However, they conduct internal audit as per their plan and priorities. Thus, it is not certain if internal audit of the project will be undertaken	A definite plan should be drawn up for the internal audit of the project either through the internal audit division or through an audit firm
4.9.	What are the qualifications and experience of internal audit department staff?	The audit division staff are qualified for conducting the audit	
4.10	To whom does the internal auditor report?	The audit team reports to the head of the agency which is being audited	
4.11	Will the internal audit department include the project in its work program?	Not certain as the internal auditors decide on audits to be undertaken based on their priorities after assessment of the risks involved	It should be ensured that the internal audit division undertakes the audit of the project agencies.
4.12	Are actions taken on the internal audit findings?	Actions are taken on the observations of the auditor to ensure resolution of the issues	
5.			
5.1.	**Basis of accounting applied by the Implementing Entity (cash, accrual), and whether the accounting standards are in line with IFAD's requirements (e.g. IFRS/IPSAS/IPSAS cash).**	IPSAS Cash system will be used for accounting	
5.2.	**Adequacy and reliability of accounting system.** Does the entity have an integrated accounting system that allows for the proper recording of project financial transactions, including the allocation of expenditures in accordance with the respective components, disbursement categories, and sources of funds? Will the project use the entity accounting system?	The project will use the E-PEMS system of the RGOB. The system is reliable but is unable to generate reports as per IFAD's requirements	The project may consider using a parallel system to record transactions so as to be able to generate IFRs including expenditure by components, categories and financiers
5.3.	Are controls in place concerning the preparation and approval of transactions, ensuring that all transactions are correctly made and adequately explained?	Adequate controls exist for preparation and approval of transactions	
5.4.	Is the chart of accounts adequate to properly account for and report on project activities and disbursement categories?	RGOB has its own chart of accounts.	The chart of accounts for the project will need to be prepared based on the COSTAB/ AWPBs
5.5.	Can cost allocations to the various funding sources be made accurately?	Yes. Each funding source has a separate code in E-PEMS	

	Topic	Brief description of issues	Mitigation Measures
5.6.	Are the General Ledger and subsidiary ledgers reconciled and in balance?	All ledgers are reconciled in the online system.	
5.7.	Are all accounting and supporting documents retained on a permanent basis in a defined system that allows authorized users easy access?	Hard copies of the accounting and supporting documents are maintained. It is not stored as part of the accounting system	All accounting documents need to be safely maintained during the project period and 10 years thereafter as required by IFAD
5.8.	What is the basis of accounting (e.g., cash, accrual)?	Cash system of accounting	
5.9.	What accounting standards are followed?	IPSAS (Cash) will be used	
5.10	Does the project have an adequate policies and procedures manual to guide activities and ensure staff accountability?	Yes. The FRR, 2016 prescribe policies and procedures for the finance function	
5.11	Do procedures exist to ensure that only authorized persons can alter or establish a new accounting principle, policy or procedure to be used by the entity?	Yes, the systems ensure that any alteration of any accounting principle, policies and procedures can be made only by the MoF	
5.12	Is there a written policies and procedures manual covering all routine project financial management activities? Are manuals distributed to appropriate personnel?	The FRR cover all routine FM activities. These are available with all accounting staff	A PIM will be prepared and shared with all appropriate personnel
5.13	**Payments** Are all invoices stamped PAID, dated, reviewed and approved, and clearly marked for account code assignment?	Not done as all payments are made online. Accounting system/ voucher displays who has prepared, who approved and who paid the amount	
5.14	**Cash and Bank** Does the organization maintain an adequate, up-to-date cashbook, recording receipts and payments?	Yes. The accounting is done on a regular basis	The only delay in recording is due to non-availability of internet connection and entries can be recorded only when the system is online.
5.15	Are bank and cash reconciled on a monthly basis?	Yes, on a monthly basis	
5.16	Assess the adequacy of the authorized signatory hierarchy and the appropriateness of the roles given the authorization (reporting lines, capacity, thresholds for 2nd signatures, etc.). Names and positions of authorized signatories of project bank accounts may be recorded if necessary.	The hierarchy system is adequate	
5.17	**Safeguards over assets** Is there a Fixed Asset accounting system, with a Fixed Asset Register, fully implemented - as part of an integrated accounting system? Is the system maintained up to date?	For fixed assets the Government Inventory Management System (GIMS) is used	The project will need to follow this system and integrate it with the accounting system on a regular basis

	Topic	Brief description of issues	Mitigation Measures
5.18	Are there periodic physical reconciliation of fixed assets and stocks?	Yes – Once a year by the RAA	The periodic verification should be adequately documented
5.19	Are there appropriate physical safeguards (security practices) for high value and/or high risk assets (e.g. petty cash, vehicles and logbooks, office equipment etc.) in place?	Yes – proper systems are in place	Documentary evidence of all assets will be maintained
5.20	**Other** Are fraud reporting and handling procedures described in the Project Implementation Manual?	They will be included	
5.21	Has the project advised employees, beneficiaries and other recipients to whom to report if they suspect fraud, waste or misuse of project resources or property?	This will be done during the start-up	The start-up Mission will explain the IFAD policy to all employees
5.22	Do policies and procedures clearly define conflict of interest and related party transactions (real and apparent) and provide safeguards to protect the organization from them?	Adequate system exists in the Govt for conflict of interest and related party transactions	This should be documented in the financial rules and declaration should be obtained
5.23	Do controls exist for the preparation of the project payroll and are changes to the payroll properly authorized	The payroll is centrally controlled.	
5.24	**Reporting and Monitoring** Does the reporting system need to be adapted to report on the project components?	The reporting system will incorporate the project components	The reporting system will need to be developed which will include reporting by components, categories and financiers from the accounting data of E-PEMS
5.25	Does the project have established financial management reporting responsibilities that specify what reports are to be prepared, what they are to contain, and the frequency of production.?	Yes	This will be further detailed in the PIM
5.26	What is the frequency of preparation of financial statements? Are the reports prepared in a timely fashion so as to useful to management for decision making?	Quarterly IFRs will be prepared	It should be ensured that IFRs are promptly prepared on completion of each quarter
5.27	Do the financial reports compare actual expenditures with budgeted and programmed allocations?	Yes, the budget is fed into the system through the Multi Year Rolling Budget (MYRB)	The financial reports prepared manually from the accounting data will disclose the actual vs budgets and the variances
5.28	Are financial reports prepared directly by the automated accounting system or are they prepared by spreadsheets or some other means?	Financial reports are prepared manually in Excel sheets	The possibility of generating reports through the system needs to be explored to ensure faster and error-free reports
5.29	(In case of need of consolidated financial statements) Is the accounting system sufficiently equipped to ensure proper consolidation of entities' financial data?	Consolidation is done manually	The possibility of generating reports through the system needs to be explored to ensure faster and error-free

	Topic	Brief description of issues	Mitigation Measures
			reports
5.30	**Information systems** Is the financial management system computerized?	Yes	
5.31	Does the system enforce the segregation of duties through restricted access and controls over edit and approver rights by staff role? How frequently will user access lists be reviewed for consistency and correctness? How will new rights and/or new users be added and old users removed? Is an independent review of system access rights and users foreseen?	Yes	
5.32	Can the system produce the necessary project financial reports?	No- this is being done manually for the ongoing project	
5.33	Is the staff adequately trained to maintain the system?	Yes. For Govt accounting system	The staff need to be trained in IFAD procedures and reporting formats
5.34	Are adequate systems in place to "back up" financial records	The data is stored in the centralized server	
6.			
6.1.	Who is the external auditor of the entity?	The Royal Audit Authority (RAA) will be the auditor for the project	
6.2.	Are there any delays in audit of the entity? When are the audit reports issued?	Yes. The submission of the audit reports have been delayed in the ongoing project	It should be ensured that the audit reports and audited financial statements are submitted to IFAD within a period of six months from the closure of the fiscal year
6.3.	Is the audit of the entity conducted according to the International Standards on Auditing?	Yes. It will be conducted as per ISA	
6.4.	Were there any major accountability issues brought out in the audit report of the past three years? Were there any issues noted in prior audit reports related to the operation of project imprest accounts or use of SOE procedures? Did any past audits flag potential fraudulent activities?	Not Applicable – as the project is yet to start	
6.5.	Will the entity auditor audit the project accounts or will another auditor be appointed to audit the project financial statements?	Generally, the RAA is the only auditor for such projects	It is recommended that an external auditor besides the RAA be engaged to conduct the audit of the financial statements considering the delays in completion of audit by the RAA
6.6.	Has the project prepared acceptable terms of reference for an	IFAD's standard TOR will be used for the	This has to be ensured even if the audit

Topic		Brief description of issues	Mitigation Measures
	annual project audit?	project audit	is conducted by the RAA

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Building Resilient Commercial Smallholder Agriculture (BRECSA)

ANNEX 11: EXIT STRATEGY

BRECSA EXIT AND SUSTAINABILITY STRATEGY

1. BRECSA focuses on commercialization of the agricultural sector and invests in institutional/capacity development to ensure safe exit and the sustainability of project outcomes. The exit strategy will comprise a sequential phasing away from supported activities as linkages with the supported farmer groups/private sector entities are strengthened. A high level of participation from the Government, beneficiaries and partner institutions is planned from the outset to ensure ownership by local stakeholders. Strengthening local institutions, farmers and their groups and developing ownership is the most effective way to ensure sustainability beyond the implementation period. The programme will also strengthen the organisation capacity of RAMCO, ARDC and other partner organizations and stakeholders to not only support programme results but to also continue to fulfill their mandate to serve local communities beyond the programme period.

2. The BRECSA Sustainability and Exit Strategy is built-in within its interventions. A detailed exit strategy for BRECSA will be prepared during PY4. A consultation workshop will be undertaken at the level of each district, in collaboration with all project partners, to flesh out and finalize the exit strategy. This will be coupled with possible risks and challenges, with the aim of identifying those early on to allow for elaboration of mitigation measures. The exit strategy will be coupled with a monitoring framework to ensure readiness. The Table below presents the approach to BRECSA sustainability and exit strategy at the level of the three components of the project.

Component	**Sustainability and Exit Elements**
Component 1 **Resilient Production Systems**	- The CLEAR tool will ensure that BRECSA plans and maps out the spatial and temporal impacts of climate change on smallholder farmers and rural communities over the long term. This exercise will inform how food security is affected by climate risks, enabling climate resilient planning for placing commodities in their appropriate agroecological zone, as well as, for defining specific infrastructural needs as a response to anticipated climate impacts and identified commodity value chains. This will ensure long-lasting sustainability of investments. - Village level planning and implementation will be undertaken through Agriculture Resilient Plans, based on the results of the CLEAR tool. Gewog and Dzongkhag agricultural officers will be trained on updating those plans which will remain to be the main community-based instrument to identify priorities and needs. - Training and mentoring of the most vulnerable groups will enable them to have sustainable self-employment. They will be provided with assets that will help increase their income and enhance their food and nutrition security. The mentoring will last till the households are generating income from the provided assets. This will ensure that the investment is sustainable over the long-run. Many of the vulnerable households will also be supported to become semi-commercial and benefit from the support that BRECSA is providing to this group of farmers. - Fresh graduates will be trained by the project as extension agents/social mobilizers. This will help in inserting unemployed youth into the labour market, and ensure that they acquire skills to develop their own businesses in the future. - A limited number of value chains has been chosen to ensure availability of adequate resources to establish these well. Production and marketing investments for crops and livestock is designed to support value chain development planning over the

	long-term. - Technical assistance support services in BRECSA are designed to promote responsiveness to the real needs, leading to enhanced capacities of farmers, coupled with knowledge, assets and tools to sustain their enterprises. - The smallholders organized into professional Farms Organization/cooperatives as legal entities will generate demand for inputs/services (including financing)—based on clearly thought-out Strategic Investment Plans. Their capacities will be supported so that they become viable business enterprises. - Productivity will be enhanced based on the results of the clear tool regarding agro-ecological suitability for the main commodities to be supported by BRECSA. This will ensure that investments in production are sustainable and risk to climate change impacts is reduced. - Climate resilient production approaches (efficient irrigation, permaculture, biofertilizers…) will enhance the ¨Bhutan brand¨ and ensure better market accessibility and export potential.
Component 2 **Strengthened Value Chain Coordination and Market Linkages**	- The value chain approach will lead to interweaving production, marketing and enterprise development to ensure benefits to farmers as well as the private sector, creating viable businesses to ensure sustainability. - Youth businesses will become more viable and sustainable through the support provided through improved market access, linkages, transport efficiency and product quality, storage facilities to control post-harvest losses, contractual relationships and capture of premium prices. - The services relevant to post-harvest handling, storage, processing and marketing within the hubs are primarily focused at the level of the value chains. As result, each stakeholder will have the required capacities to plan, invest and sustainably operate their farms or small businesses as integral component of the commercial value chains. The services will also ensure that all investments are socially and environmentally sustainable, in view of local economic and social structures, natural resource management, as well as changing climatic conditions. - The infrastructure built under the project will have pre-set pathways to sustainability, leading towards a successful project exit. (1) the infrastructure will be demand driven, prioritizing the infrastructure that serves the needs of the value chain and the community best; (2) the owners and beneficiaries of the infrastructure will contribute to its financing; and (3) beneficiaries will contribute to an operation and maintenance fund, and agreements will be signed with the Gewog administration for sustainability. This is expected to stimulate ownership by target communities. - Business-to-Business linkages—created for value chain development will be linked with these farmer organizations to enable smallholders to optimize yield and quality of their produce per acceptable standards. This will in turn give smallholders a fair price for their effort and the ability to plan and invest over the longer term. - Enhanced institutional capacity of farmer groups will allow them to have more bargaining power and a greater capacity for market penetration.

	- The MSPs at Central and District levels will bring together all relevant stakeholders that engage in the RNR sector including representatives of women and youth. The forums will have a linking, learning and problem-solving finding character, and at Thimphu level, will be chaired by MoAF - DAMC and co-chaired by the Bhutan Chamber of Commerce and Industry (BCCI). Giving a broad representation to the MSPs will ensure that their planning, strategies and priorities identified through the Strategic Investment Plans will be catered for at all levels to ensure that the identified commodities move to commercialization, accompanied by a long-term market exploration and export facilitation plan. - All support to hubs will be based on market studies, proper business planning—with clear breakeven point and profitability of the institutions supported, rigorous oversight and reporting.
Component 3 **Innovative and competitive agri-food sector**	- A targeted technical service package is deployed for financial literacy, which will support long term financial sustainability of the smallholder operations and livelihoods. - As follow up action to the value chain technical services, to ensure sufficient investment flow into the upgraded production systems, a financial support instrument is dedicated to semi-commercial farming who have difficulties in accessing finance to further develop their businesses. A Matching Grant will be provided, which will also act as a collateral. Those Grants will be extended to enterprise development in the value chains to strengthen market sustainability of the smallholder investments. The Matching Grants will be made available to farmers who demonstrate full viability and sustainability beyond the duration of BRECSA support. The semi-commercial farmers, with the new skills and capacities acquired through BRECSA, will independently maintain and further develop their upgraded agriculture operations. - The user-friendly digital support tools will enhance inter-linkages among smallholders and their groups, support market access and create a cadre of youth who will be engaged in marketing over the long-run. Those tools will also ensure that farmers have access to market information to ensure fair prices. - The policy work under BRECSA will support the promotion of Brand Bhutan's organic and high-value agri-food products in regional and international markets. To this end, internationally recognised regulation, standardization and certification processes will be pursued. This sub-component will be led and managed by the Policy and Planning Division of MOAF, and will help in building the main pillar to ensure competitiveness of the agri-food sector in Bhutan within international markets.