Bees for development Ethiopia

Strategic Plan: 2021 to 2030

June 2021

Bahir Dar, Ethiopia

Acknowledgements

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Foreword

The beekeeping sector represents one of the highly valued sectors in Ethiopia in economic, social and ecological grounds. It is known to be a pro-poor and land-efficient practice offering valuable products such as honey, beeswax, queen and bee colonies, and other products such as pollen, royal jelly, bee venom and propolis – all contributing to income and better nutrition including medicinal values. Despite, great potentials of the beekeeping sector, only about 10% of the honey and wax potential is tapped at the moment. Commercialization of other high value bee products such as pollen, propolis and bee venom is not yet well recognized and practiced.

In recognition of the economic and environmental significance of the beekeeping sector, Bees for Development Ethiopia (BfDE), since 2012, is promoting smallholder-friendly beekeeping practices that are espoused with natural resources management. It targets poor farmers including women, the landless youth, and physically impaired segments of the rural community. It works in collaboration with government institutions in the Amhara Region of Ethiopia. Encouraging results in terms of expanding beekeeper-friendly technologies, knowledge and skills building, honey production and productivity, income, ecosystems restoration have been registered since the launching of BfDE programmes.

Based on the rich experience BfDE has accumulated over the years, it has entered a new phase of development engagement and has developed a 10-years strategic plan running from 2021 to 2030. BfDE and its Board of Directors believe that the strategic plan is a true reflection of the development goals set by the Ethiopian government and the Development partners of the country.

I am very much pleased to see BfDE starting a great journey for change that is guided by a comprehensive development framework with clear sets of actions and processes. Hence, on behalf of the Board of Directors and BfDE I would like solicit all development partners and those who stand for the welfare of the poor and environmental sustainability to give due consideration to noble causes contained in the strategic plan and act favorably so that we can reach the very many disadvantaged segments of the rural community who are in dire need of our support to pursue a better livelihood complemented by protection of the natural resources and the wider environment. Finally, the Board of Directors wishes to express its earnest gratitude and appreciation to all who have contributed their expertise in the preparation process of the strategic plan.

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Foreword

Beekeeping is a wonderful means towards addressing the great challenges of our time: it brings economic benefit to thousands of rural families, and serves as a pillar in Ethiopia's efforts to combat climate change, restore biodiversity and protect forests.

Beekeeping is a wholly environmentally beneficial way for people to derive economic benefit from their natural resources, and it incentivises farmers to plant trees and restore degraded land. Bees increase crop yields through their pollination service, so helping to mitigate the looming impact of climate change on food production. Beekeeping gives the rural poor a means to make a sustainable livelihood, so reducing their reliance on emission-producing activities such as charcoal burning. With low start-up costs and limited demands on cash, labour and land, apiculture is accessible to even the most marginalised and vulnerable people. In this way beekeeping makes a direct contribution to SDG1 – the eradication of extreme poverty.

Bees for Development UK has worked side-by-side with **Bees for Development Ethiopia** since its inception in 2012. We have been hugely encouraged and impressed by **BfDE's** response to the needs of the communities they serve, and the way the organisation has sought to learn from experiences and improve their practices. **BfDE** has developed into a responsive and effective organisation with strong values to ensure participation, pro-poor development, excellence and sustainability.

The development of this Strategic Plan marks the beginning of the next phase in **BfDE**'s growth and development. It is a necessary and powerful document to ensure **BfDE**'s continued work is efficient and effective, consistent with the needs of the people they serve. The document sets out **BfDE**'s Strategic Objectives and intention to work with all relevant stakeholders who share the goal of achieving Ethiopia's Sustainable Development Goals, in ways that meet the needs of people while enriching the natural world.

I confirm that **Bees for Development UK** is committed to supporting the implementation of this Strategic Plan.

Nicola Bradbear

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ABBREVIATIONS

BfDE	Bees for Development Ethiopia
BFDT	Bees for Development Trust
BfD-UK	Bees for Development United Kingdom
BoA	Bureau of Agriculture
CRGE	Climate Resilient Green Economy
DAs	Development Agents (Agriculture)
EFCCC	Environment, Forest and Climate Change Commission
EIAR	Ethiopian Institute of Agricultural Research
FAO	Food and Agricultural Organization of the United Nations
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan
GPM	Global Precipitation Measurement
ILRI	International Livestock Research Institute
IMERG	Integrated Multi-satellite Retrievals for GPM
KBA	Key Biodiversity Area
MoA	Ministry of Agriculture
NDVI	Normalized Vegetation Index
NFSDP	National Forest Sector Development Programme
NRM	Natural Resources Management
SDGs	Sustainable Development Goals
SMART	Simple, Manageable, Achievable, Realistic and Timely
SWOT	Strengths, Weaknesses, Opportunities and Threats

EXECUTIVE SUMMARY

Bees for Development Ethiopia embarked into a new phase of development engagement and developed a 10-years strategic plan running from 2021 to 2030. The strategic plan is grounded upon the importance of exploring the potentials of the beekeeping sector further to address poverty and environmental resources degradation in Ethiopia. The purposes of this strategic plan are to: provide the ground for integration of actions; provide comprehensive framework of implementation; and increase organisational effectiveness, institutional partnership, sustainability, accountability, and learning.

The strategic planning process was guided by critical analysis of strategic development issues facing the natural resources and beekeeping sectors in Ethiopia and involved review of organisational experiences, lessons and challenges relevant to natural resources management and beekeeping development. SWOT analysis have been conducted to critically examine available internal capacities to build on and gaps that need to be improved including understanding enabling environments and restraining factors while implementing the strategic plan. Different levels of results with SMART indicators and strategic

interventions leading into realization of results are grounded up on development challenges facing the beekeeping and natural resource management sectors. The theory of change model has been employed as an overarching planning tool for BfDE's 10-year strategic plan.

Vegetation resources degradation and their importance for beekeeping; climate change and variability; knowledge and skill gaps; honey and beeswax production, productivity and marketing challenges; youth unemployment; beekeeping related policy enforcement and pesticide challenges; and food insecurity and poverty have been identified as strategic issues which this strategic plan is envisaging to address.

The vision of the strategic plan is to "see wealthy rural communities in Ethiopia, whose livelihoods are sustained through integrated apiculture and natural resources management". Its mission is to promote beekeeper friendly apiculture development in Ethiopia that is well integrated with sustainable natural resources management and knowledge development. Participation, pro-poor development, excellence and sustainability are organisational core values.

The strategic goal of this strategic plan is "contribution to reduction in poverty, unemployment levels in project intervention locations and reduction in environmental risks" and its strategic objectives are: increased income of poor households, rural unemployed youth and women from beekeeping and NRM; Improved perennial vegetation cover and biodiversity; and improved institutional systems and capacities for integrating NRM with beekeeping.

BfDE's strategic interventions encompass: natural resources management (NRM); honey and beeswax business development; and cross-cutting interventions (knowledge management; policy advocacy and gender mainstreaming). Implementation of these intervention components is expected to lead into various outputs including: BfDE's mountains, biodiversity management outputs; church forests outputs; climate risk management outputs; knowledge management outputs; honey production and productivity enhancement outputs; honey and beeswax marketing outputs; policy advocacy outputs; and gender outputs.

Intervention components leading into different levels of results are designed to be materialized by pursuing mix of approaches that subsume: BfDE's landscape adoption; the honey-shed nested in a watershed; use of simple technology; market-oriented interventions; community beekeeping mentors; alignment with broader development strategies; partnership; knowledge management and capacity building; and monitoring, evaluation and learning approaches.

The strategic plan will be implemented in South Wollo, South Gondar, Awi and West Gojam Zones of Amhara region of Ethiopia. It is expected to benefit 352,816 people (50% women) with a focus on unemployed rural youth and poor households.

BfDE will pursue a dynamic institutional reform model including improving its human resources and organisational policies to effectively meet strategic goals and objectives of the strategic plan. a two-phase human resources structure is envisaged depending on the depth and breadth of interventions that embody the strategic plan.

The total budget needed to effectively execute the strategic plan is in the amount of USD 17,258,815.78 divided proportionally for programmatic and administrative components.

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1. INTRODUCTION

1.1 Overview of beekeeping in Ethiopia

Beekeeping, the management of bees predominantly for the production of honey and beeswax, is widely practised in Ethiopia and has been for centuries – with some records dating the practice back to the 3rd century (Gebretsadik & Negash, 2016). Honey in Ethiopia is largely used for making a local drink (mead) called 'Tej', although in recent years honey is increasingly sold and exported for direct consumption. Beeswax is also widely traded in Ethiopia, not directly by beekeepers, but indirectly sold as a by-product of Tej making. Regardless of the scale of operations, , the majority of beekeepers employ cylinder-shaped beehives hung in tree branches for a dual purpose of catching swarms of bees that will be brought to the backyard and/or for producing honey while the hives remain in the trees.

There are estimated to be 10 million honeybee colonies in Ethiopia, distributed over diverse agro-ecological zones all over the country, from which 1.03 million (10% of total colonies in the country) are believed to be present in Amhara region.[1] Representing 1.3% of agricultural GDP, the total volume of honey produced in Ethiopia was estimated to be 54,000 tons per annum by the year 2015 compared to 28,000 tons in 2001.[2] Around 95% of total honey production in Ethiopia comes from local hives (representing 97% of total beehives in the country).[3] The combination of total honeybee colonies s and the annual volume of honey production makes Ethiopia to stand among the top 10 honey producing countries in the world and the leading in Africa. About, 2% of total production is estimated to be sold in international markets (Woldegiorgis, Haileselassie, & Mengistu, 2015)although it is not clear whether this estimate includes the less well-documented, yet substantial, trade to the Middle East.

The Apiculture and Silk Development Directorate under the Livestock Resources Development Sector (LRDS) of the Ministry of Agriculture is the designated entity in charge of designing and implementing national policies, strategies, and plans relevant to beekeeping in Ethiopia. Livestock and Fishery Resources Development and Promotion Agencies at regional level have mandates to design and implement region level beekeeping policies, strategies, and plans. These regional authorities have woreda and kebele (community) level structures to convey beekeeping relevant extension services to beekeepers. Other institutions involved in beekeeping development in Ethiopia (as indicated in the

[1] https://www.hindawi.com/journals/aag/2017/6354250/
[2] https://www.apitradeafrica.org/Documents/ApiExpoAfrica_2016/Ethiopia_Honeybee_Industry_situation_paper.pdf
[3] https://cri-world.com/publications/qed_dp_241.pdf

stakeholder analysis matrix) include, but are not limited to: Beekeeping research institutions; universities; the Ethiopian Apiculture Board; bees' products production and marketing cooperative unions and cooperatives; honey processing and exporting private companies, and NGOs.

It is widely understood that despite beekeeping operating at scale throughout the country, there is still potential for the sector to grow in both scale and value. Various interconnected factors are constraining the sector from delivering more substantial economic benefits, to more people and to the nation as a whole. The Apiculture value chain vision and strategy for Ethiopia, developed jointly by the Ministry of Agriculture and International Livestock Research Institute (ILRI) in 2013, pointed out eight major challenges facing the apiculture sub-sector.[4] These include: Dependence on technologies of low productivity resulting from undeveloped research; poor pre- and post-harvest management; limited number of industrial honey processors; inadequate capacity building and extension service, limited knowledge of modern apicultural development; lack of access to inputs; inadequate access to finance by smallholder farmers, small and medium size private businesses; lack of market information for both honey and beeswax; and negative impact of climate change (habitat destruction).
According to key informant sources, loose linkages among federal level and regional stakeholders of the beekeeping subsector have contributed their part in reduced effectiveness and efficiency of beekeeping development services and hence of productivity, quality, and income.

In the main Bees for Development Ethiopia concurs with these conclusions yet recognizes additional issues which are worth mentioning. Many stakeholders in the sector place very great emphasis on the promotion of frame hives (so-called modern hives), in the belief that frame hives can introduce greater efficiency into beekeeping, so increasing yields and income. Many years of experience in the promotion of frame hives have revealed that they are not appropriate in every context. Bees for Development takes the view that greater success is achieved by taking a 'right hive, right context' approach. Above all BfDE believes that the keys to beekeeping development lie not with frame hives – but with more beekeepers and with more forage. Bringing beekeeping to more people can be achieved if beekeeping is made more accessible, not less accessible and hive types therefore must be, above all else, accessible. Efforts to achieve more forage not only include the restoration of degraded lands and forests but they must also ensure that existing forage sources are not polluted by pesticides. Honey bee poisoning by pesticides is

[4] https://cgspace.cgiar.org/bitstream/handle/10568/67248/LMP_apiculture_2013.pdf?sequence=1

now causing beekeepers to keep fewer bees, a trend that must be checked if beekeeping is to remain a valuable source of living for millions of Ethiopians.

1.2 Organisational overview of Bees for Development Ethiopia

Evolved in 2012, BfDE is a local resident charity organization operational in Ethiopia. Its emergence was triggered by an understanding that despite recent growth and development in Ethiopia a number of very serious problems were facing Ethiopians, and the people of Amhara in particular. These problems include widespread food insecurity, chronic poverty, mounting unemployment, land degradation and landlessness. At the same time BfDE recognized that beekeeping had the potential to contribute to alleviating these problems and serve as a catalyst for land restoration and forest recovery. Beekeeping is a low-input, high-output livelihood activity which is accessible to people with limited financial resources and limited land, and is wholly beneficial for the environment. Bees for Development Ethiopia envisions seeing Ethiopians whose livelihoods are sustained through integrated apiculture development and natural resources management. BfDE works to promote beekeeper friendly beekeeping practices in Ethiopia that is well integrated with the environment thereby contributing to sustainable rural livelihoods.

Evolution and development of BfDE was also strongly supported by Bees for Development Trust – a UK based international companion organization that promotes sustainable beekeeping as a means of alleviating poverty and promoting biodiversity[5].Bees for Development Ethiopia and Bees for Development UK have jointly designed and implemented diverse development interventions that constitute nearly 85% of BfDE's total project budget invested since 2012 in Ethiopia. Both organisations will sustain their partnership throughout the strategic planning period and beyond.

Bees for Development Ethiopia is structured into three administrative ladders and these are: the general assembly comprising 15 members; the Board of Directors composed of 5 members; and the Secretariat. The General Assembly is the highest decision-making body responsible for: appointing Board of Directors; hearing organisational audit reports; and approving annual plans and budget. The Board of Directors is the second highest decision-making organ responsible for: overseeing performance of the organization on quarterly basis; approve quarterly plans and budget; and pass decisions that are beyond the scope of the Executive Director. The secretariat is led by an Executive Director who is accountable to the Board of Directors and responsible for managing day-to-day operations of the organization and

[5] www.beesfordevelopment.org

setting periodic plans and budget for approval by the Board of Directors and the General Assembly. He/she is responsible for leading organisational planning processes, oversees execution of programmes; nurtures partnership with international, national and local stakeholders, and ensures day-to-day operation of the organization are running smoothly. Currently, Bees for Development Ethiopia has 6 fulltime paid staff and two part time external consultants (one technical and one financial) as indicated in Figure 1.

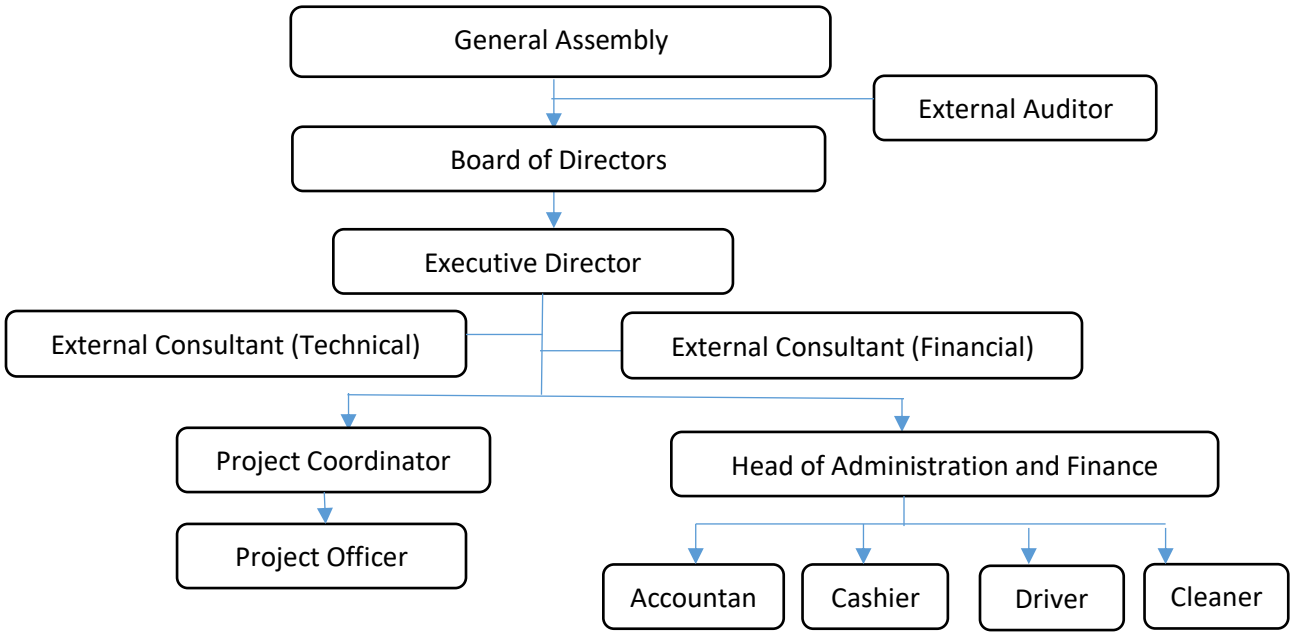


Figure 1: Current Organisational Structure of Bees for Development of Ethiopia

Bees for Development Ethiopia (BfDE) started working in Bahir Dar Zuria Woreda (Amhara region of Ethiopia) in July 2013 and its first development project was entitled "Building Capacity for Productive Apiculture". The project was based on assessment of the factors that contributed to the under-performance of previous beekeeping development in targeted locations. The findings included: low adoption rates of externally driven beekeeping technologies (attributed largely to non-participatory planning, poor monitoring, high cost of inputs, and partial supply); decline in the quantity of honey produced per hive (that resulted from conversion of land in to crop farming and associated loss of indigenous vegetation cover and massive use of pesticides for crop production and chat farming). As a consequence of this analysis BfDE designed this, and subsequent work, based on the imperative that beekeeping must be accessible to the beneficiaries we are helping and fully integrated with land and forage maintenance and restoration.

As presented in Annex A, BfDE's intervention portfolio increased from a single project in 2013 to a total of nine projects since then, two of which are on-going. The organization has managed to establish funding linkages with different donors and utilized a total budget of around 1,128,820 USD so far. We have managed to benefit 15,800 people (34% women) and over 80% of its beneficiaries are comprised of landless youth, women and very poor segments of rural population. Its geography of operations to-date is bounded only in three woredas of Amhara region (Bahir Dar Zuria, Dera, and Dangla). BfDE pursues top-bar hive based beekeeping development integrated with practical training, production-cycle based mentoring, and working through government extension system at the local level.

Despite making meaningful and well recognized contributions to apiculture development, BfDE's organisational capacity, importantly staff capacity (in terms of number and expertise) and limited funding held it back from expanding the scope of interventions, geographical coverage, and beneficiary reach. The organization has also lacked a comprehensive framework that provides the ground for implementing strategic actions and eventually realizing its development goals. All these necessitated putting in place a 10-years strategic plan whose purpose and key features are described in subsequent sections.

1.3Purposes of the strategic plan

The strategic plan is set to:

- Offer strategic focus for BfDE and its stakeholders towards maximum impact and realizing its organisational vision;
- Provide the ground for improved integration of actions and resources for synergy and maximum impact in line of organisational goals;
- Provide a comprehensive framework for implementing strategic interventions with clear sets of strategic goals, outcomes; and respective indicators;
- Increase BfDE's effectiveness in its contribution to sustainable livelihoods through improved institutional capacity, coordination, timely implementation, proactive risk management, and learning exchange;
- Enhance transparency and accountability through stakeholder participation, monitoring, evaluation, and reporting approaches;

1.4Planning methodology

The strategic planning process was guided by critical analysis of strategic development issues facing the natural resources and beekeeping sectors in Ethiopia in general and in Amhara region in particular. It involved review of organisational experiences, lessons and challenges relevant to natural resources management and beekeeping development. It builds on recommendations from stakeholder deliberations and findings from previous assessments of BfDE and other beekeeping stakeholders.

Analyses of strengths and weaknesses have been conducted to critically examine available internal capacities to build on and gaps that need to be improved. Opportunities and threats external to the organization have been analyzed to help understand enabling environments and restraining factors while implementing the strategic plan. A summary of strength, weaknesses, opportunities and threats (SWOT) analyses are presented in Tables 1 and 2. The strategic planning process has also involved stakeholder analysis (Table 3) to help understand types of beekeeping stakeholders, roles, and partnership models to be pursued.

Different levels of results (impacts, outcomes and outputs) and strategic interventions leading into realization of results are grounded up on development challenges facing the beekeeping and natural resource management sectors. The results we are aiming for through the implementation of the strategic plan are: Simple, Measurable, Achievable, Realistic, and Timely (SMART).

After thorough review of multiple strategic planning models, the theory of change model has been found to be appropriate and employed for BfDE's 10-year strategic plan. Although the theory of change model is employed as an overarching planning tool, some important features of the alignment model, the scenario-based model, and the real-time planning models have been incorporated. This is because, these models help to align with available resources and adapt to changing environments such as climate change and demography.

2. STRATEGIC ISSUES

2.1Vegetation resources degradation

Vegetation resources and most importantly forest resources are critical habitats for wildlife and provide rich sources of pollen and nectar for the bees. BfDE recognizes that forest resources are centers of natural biodiversity, are regulators of the hydrologic system, serve as pools of carbon, and offer many other

environmental, economic, and social benefits. As indicated in the National Forest Sector Development Programme (NFSDP), the forestry sector is believed to contribute to 3.3% of GDP. Claims on greater contribution of the forest sector to GDP however remain[6]. Despite incredibly high and irreplaceable functions of vegetation resources to humans, they are under threat. Overwhelming evidence reveals declines in the cover and diversity of perennial vegetation in Ethiopia, even in relatively better protected biodiversity hotspot areas.

As indicated in the 2020 forest resources assessment (FRA) by FAO, Ethiopia is experiencing net loss of 73,000 hectares of forests every year[7]. A 250 meters resolution NDVI-based preliminary analysis for the period between 2014 and 2018 showed that Ethiopia has lost about 183,384 hectares of dense forest (with NDVI values >0.65) – implying annual rate of deforestation of 4.27%. Similar analysis for Amhara region showed only 1.06% annual deforestation (see Annex D1 and D2). Recent vegetation cover change assessments in four key biodiversity areas in Ethiopia (Wadla, Guassa, Ankober-Debresina, and Aliyu Amba-Dulecha) show recession of perennial vegetation[8]. Although, these KBAs exhibited declining trend in perennial vegetation cover, other KBAs have exhibited positive changes. For example, NDVI-based preliminary assessment of vegetation dynamics in Awi Zone key biodiversity area proved increase in area coverage of high canopy vegetation categories (see Annex D3). Subject to further verification, this positive change is largely attributed to extensive plantations of *Acacia decurrens* in recent times (particularly in FagtaLekoma and Banja woredas) in response to increasing market demands for charcoal.

In view of the nexus between availability and diversity of vegetation and productivity of the beekeeping sector, BfDE is determined to contribute its part in restoration and sustainable management of degraded lands and biodiversity hotspots areas. This matches well with the CRGE strategy, the green legacy initiative, and the national forest sector development programme.

2.2Food insecurity and poverty

The proportion of chronically food insecure people in Ethiopia represent around 20% of the total population. The World Bank's poverty assessment report in 2011 indicated the proportion of poor people

[6] National Forest Sector Development Programme (NFSDP), Ministry of Environment, Forest, and Climate Change (currently named as Environment, Forest, and Climate Change Commission), 2017.
[7] http://www.fao.org/3/ca9991en/ca9991en.pdf
[8] http://www.beesfordevelopment.org/documents/a/assessment-of-keybiodiversity-areas-in-ethiopia-final-report/

to be around 30%[9]. Poor land productivity; high unemployment rates; low level of literacy; poor and unstable macro-economic framework; and climate related shocks are cited as main drivers of poverty and food insecurity in Ethiopia. BfDE will attempt to tackle land productivity and unemployment challenges through integration of beekeeping business development for the poor and sustainable management of environmental resources including addressing climate change and variability.

2.3Climate change and variability

Changes in the climate of Ethiopia are emphasized in the country's Climate Resilient Green Economy (CRGE) Strategy[10].Furthermore, detail descriptions on impacts associated climate change and variability in climate sensitive sectors particularly on agriculture are given in the agriculture and forestry sector climate resilience strategy[11].

Findings from an independent evaluation of one of BfDE's beekeeping projects found that climate change and variability, coupled with environmental resources degradation, had caused a reduction in the volume of harvest. In recognition of the nexus between climate, natural resources, and beekeeping, BfDE intends to make its future interventions climate-compatible including delivery of beekeeping and NRM relevant agro-met services. As part of this move, initial mapping of the rainfall climatology of intervention locations has been conducted (annex F).

2.4Knowledge and skill gaps

BfDE recognizes the irreplaceable roles of knowledge and skills in development and puts knowledge and skills enhancement at the center of its strategic interventions. Various knowledge products in natural resources management and beekeeping business development have been found to exist in different institutions. However, they are understood to be less sufficient, not made available in a structured and user-friendly platform, and are not dynamically managed. The level of expertise particularly at woreda and community levels remains very limited. BfDE will therefore harness its resources to establish a dynamically managed and easily accessible knowledge management platform in both NRM and beekeeping business development and will work to build the knowledge and skills of government

[9]https://www.worldbank.org/en/topic/poverty/publication/ethiopia-poverty-assessment
[10]https://www.undp.org/content/dam/ethiopia/docs/Ethiopia%20CRGE.pdf
[11]http://gggi.org/site/assets/uploads/2017/11/2015-08-Sectoral-Climate-Resilience-Strategies-for-Ethiopia-1-Agriculture-and-Forestry-Climate-Resilience-Strategy.pdf

extension experts at all levels. Nonetheless, greater emphasis will be given at woreda and community levels.

2.5 Accessibility of beekeeping

In Ethiopia the beekeeping system which is most widely promoted by the government extension service is based on frame-hives. The intention behind this approach is to increase beekeeping efficiency and yields per colony. However, this system has proved to have low adoption rates due to its technical complexity and the high cost of associated inputs. The unintentional consequence of focusing on frame hives has been to make beekeeping less accessible, not more accessible to the rural poor. We strongly advocate the 'right hive, right context' approach which means helping the poorest, most disadvantaged people start beekeeping, using whichever hive type is most suitable for their context, It is encouraging to see that in recent times the government extensions system is willing to promote Topbar hive based beekeeping production system, which is a more accessible, beekeeper-friendly technology, low cost, and suitable to bees.

2.6 Youth unemployment

Youth unemployment has become one of the main development challenges across Ethiopia. The problem is very pronounced in rural areas; land holdings are getting very low and land productivity is declining. Through experience, BfDE has learned that beekeeping can be done by people with limited land for agriculture, as apiaries can be set up on small plots of land and bees can forage on land belonging to other people. In addition, BfDE is working to integrate work to restore degraded land opportunities for the landless unemployed youth to be engaged in a variety of integrated beekeeping and NRM activities.

2.7 Beekeeping relevant policies

The government of Ethiopia has put in place enabling policies for beekeeping business development and natural resources management. The Apiculture Resources Development and Protection Proclamation No. 660/2009; Proclamation 674/2010 to provide pesticides control; the CRGE strategy (including the climate resilience strategy of the agriculture and forestry sector); sustainable land management, and food security programmes are some to mention. Nevertheless, limitations in effective implementation at the ground remain to be challenges and BfDE includes the realisation of these policy directions within our Strategic Plan.

2.8Honey and beeswax marketing challenges

Honey is highly marketable and readily sold in Ethiopia, with few beekeepers complaining of difficulties in selling produce and prices are generally buoyant. Honey trading remains largely in the hands of the informal sector and opportunities to add value through branding, market diversification and certification are not being fully developed. The factors which contribute to these undeveloped opportunities include quality management gaps; loose linkages among bees' products value chain actors; dependability and predictability of supply; lack of traceability; under-developed packaging and labeling of honey; gaps in diversification of products; low financial capacity of honey marketing agencies (such as cooperatives and unions) and gaps in branding and certification system.

Honey quality management challenges are often cited as the most important challenges in honey marketing when honey is sold in large quantities to distant markets this is a challenge when it comes to penetrating international niche markets. The responsibility for investing in traceable, well-organised supply chains with robust quality assurance systems in place largely falls to honey buyers who find it hard to invest in these development actions, whilst also financing honey trade and marketing. BfDE will examine these challenges and act accordingly in partnership with government and non-government stakeholders.

2.9Pesticides

Unwise and overuse of pesticides is a growing problem for the beekeeping sector in Ethiopia. Beekeepers report that their bee colonies dwindle during the agricultural season, at the time they expect them to be building up, and consequently beekeepers are keeping fewer bees and losing interest. This problem stems from a lack of coherent government policy between decisions and actions taken to protect crops and decisions and actions taken to support the beekeeping sector. Many government extension workers are unaware of the inherent contradiction in promoting pesticides, the harm being caused by these pesticides to people and non-target organisms and the alternatives. The sale and use of pesticides is well regulated. Most farmers obtain advice about crop protection from the vendors of agrochemicals who have a vested interest in selling pesticides and are not accountable for the advice and instructions they provide. It is highly concerning the pesticides which have been banned in Europe and USA, on account of their serious harm for pollinators and other wildlife, are widely used in Ethiopia. Continued efforts to address these challenges, through evidence, will form part of BfDE's strategic plan.

3. SWOT ANALYSIS

3.1Strengths and weaknesses

Different types of strengths and weaknesses (that are internal to Bees for Development Ethiopia) have been identified during the strategic planning process. Their descriptions and implications for development intervention are presented in Table 1.

Table 1: Strengths and weakness matrix

Strengths	Description	Implications for intervention
Expertise in improved beekeeping	BfDE has a well-known reputation in technical knowledge in beekeeping which is largely attributed to the executive director's personal expertise in the field.	• Defining ways to maximize available beekeeping knowledge and skills. • Actions to go beyond single-person expertise to help expand BfDE's horizons of intervention.
Beekeepers' centred approach	BfDE pursues exemplary beekeeper-centred approaches that include: engaging both husband and wife plus experienced and learner beekeepers (mentor approach) in the entire process; Low cost technologies such as top-bar hives; starting with awareness on benefits of beekeeping followed by training; use of manuals and posters for better understanding; etc.	• Experiences and lessons on this approach need to be well documented and shared for better impact. • Broadening the good works that characterize beekeeper centred approaches.
NRM based beekeeping	Integration of natural resources management with beekeeping is at the heart BfDE Programme approaches. The synergy between the health and success of bees and the wider environment is undisputed and together these approaches are mutually reinforcing.	• Building on existing practices and taking them to scale; • Documentation, sharing and scaling of lessons. • Interventions on biodiversity management with a focus on key biodiversity areas (hotspots).

Strengths	Description	Implications for intervention
		• Pursuing business solutions for increased integration of beekeeping and NRM/biodiversity conservation.
Strong partnership with government	The government structure, importantly the agricultural extension system, is used by BfDE while advancing its interventions. This has brought about influences at local level particularly in making the top-bar hive based beekeeping part of formal development plans.	• Nurturing existing collaboration with government bodies and continuing use of existing extension structures to reach beneficiaries. • Find possible ways by which good practices could be continuously shared and made part of formal planning process.
Strong partnership with Bees for Development Trust	Bees for Development Trust has backed BfDE since 2012. The two organisations are nurturing strong partnership to co-design, implement and evaluate interventions including improving its internal relations and donor base over time.	• Such partnership needs to be well strengthened and sustained in a way that both organisations work together for maximum impact
Growing partnership with donors	The types and numbers of donors financing BfDE interventions are increasing over time. BfDE started to work with only one funder in 2012 and now managed to work with more than five donor partners.	• Maintaining and sustaining partnership with existing donors. • Donor mapping and communication. • Ensuring quality knowledge management system for increased credibility and dependability.
Availability of organisational policies	Human resources, financial management, child protection, and anti-corruption policies	• Ensuring whether available policies are adequately addressed. This would entail exploring experiences of other organisations.
Good efforts in knowledge generation	BfDE started its development works at the onset by assessing development needs of beekeepers. It also further attempted to generate knowledge on impacts of agro-chemicals on beekeeping sector.	• Good starts though, the culture of knowledge generation should be well systematized with robust knowledge management system in pace.

Strengths	**Description**	**Implications for intervention**
Focus on marginalized groups in society	BfDE largely targets women, rural unemployed youth, the landless, and people with disabilities. This makes a significant contribution to tackling poverty and inequality.	• Broadening our targeting approach to benefit more and more numbers of marginalized social groups. • Simultaneously work with better off households and mentors for better impact.
Fostering emergence of a social enterprise (Api-3t)	Api-3t has recently evolved as a social enterprise run by BfDE – combining both social and business objectives. Incomes from business activities will be channeled into development interventions of the organization. In addition, the enterprise is expected to serve as a marketing hub for smallholder beekeepers.	• Market assessment; • International market linkages; • Traceability and branding.
Weaknesses	**Description**	**Implications for intervention**
Limited staff diversity and capacity	There are only three technical and two non-technical staff trying to manage the entire organisational portfolio. Their academic qualification levels are low except 2 with MSc degree. This limits the capacity for comprehensive planning, reduces programme scope, and has led to high dependence on external technical support. It affects knowledge management function of the organization and organisational dynamics management in a changing socio-economic, environmental and donor environments.	• Defining additional human resource requirements in reference to scope. • Building the capacity of existing staff (training, reading resources, experiences sharing, digital knowledge management approaches). • Redefining pay rates to attract better qualified employees.
Bounded to medium and small size grants	BfDE's interventions are financed by small and medium size grants. This has limited geographical and programmatic scopes.	• Working to ensure strong human resource base, knowledge management system, and good donor relations.

Strengths	Description	Implications for intervention
Absence of defined knowledge management system	Generation, documentation, sharing and retrieval elements of knowledge management are not systematized. M & E guidelines and communication strategies are not made available.	• Setting up a knowledge management function within BfDE; • Development of relevant guidelines for monitoring, evaluation, learning and sharing.
Loosely defined roles and responsibilities of staff	While limited numbers of staff are in charge to execute multiple projects, boundary of roles is found to be compromised. For example, the executive director is involved directly in routine project management activities which should have been the roles of technical experts had the organization a larger team of employees. This has reduced time that should be dedicated for strategic oversight and nurturing partnership.	• Proper staffing with clearly defined roles.
Low level of representation in national and international platforms	Limited numbers of technical staff reduced the degree to which BfDE takes part in important national and international platforms, workshops, and trainings.	• Same as above.
Limitations in job advertisements	Being a new organization, BfDE has limitations in terms of reaching a wide audience when advertising for specific posts. This risks the chance of getting more competent experts.	• Clear definition of roles; • Stringent criteria for employment; • Use of known social media particularly digital for advertisement
No own office compound	BfDE as a pioneering organization in beekeeping requires more space not only for staff desks but also for stores, and parking.	• Take advantage of the good relationship with government to acquire land for office building and store.

3.2Opportunities and Threats analysis

It is well evidenced that this strategic plan will benefit from multiple opportunities if properly tapped. At the same time, it will be implemented in the face of various threats that demand robust risk management strategy. Sets of opportunities and threats, summary descriptions and implications for intervention are presented in Table 2.

Table 2: Opportunities and threats matrix

Opportunities	**Description**	**Implications for intervention**
Environmental suitability for beekeeping	Amhara region and other parts of Ethiopia are suitable for beekeeping and significant quantities of honey and wax can be harvested. Agro-ecological diversities and seasonal variations throughout the country provide the potential for producing diverse types and qualities of honey at different periods of a year.	• The need for defining geographical priorities, types of intervention packages, product diversities, volumes, and timing of BfDE activities.
High demand for honey and beeswax in local, regional and international markets.	Honey can be easily sold by beekeepers without any need to invest in processing, bulking or packaging. There is a growing demand for packed honey suitable for selling on supermarket shelves in Ethiopia. The demand for premium quality honey at international markets is on the increase. There is high international demand for beeswax which has been harvested from hives where no miticides have been used.	• Clarity on where BfDE's added values will be in honey and beeswax value chain; • Thoughts and actions for quality standards, branding, traceability, and market linkages.
Availability of beekeeper-friendly	Bees do well in all types of beehives. Low-cost hives work just as well as expensive hives and this is good for BfDE'spro-poor agenda. The demand for top-bar hives in Ethiopia in general and Amhara region in particular is	• Partnership with designated entities at all levels to scale up and out locally and ecologically appropriate technologies.

Opportunities	Description	Implications for intervention
beekeeping technologies	increasing. Protective materials such as veils and gloves can be made locally. The top-bar hive is consistent with BfDE's approaches and options.	
Increasing trends in Beekeepers' knowledge, attitudes and practices	Existing beekeepers are knowledgeable and competent in sustainable beekeeping. Many new beekeepers quickly learn improved beekeeping practices and adoption rates are good. This is exemplified by recent increases in total numbers of beekeepers including women and unemployed youth.	• Systemic interventions towards scale and maximum impact (such as collaborative package development and promotion through the agri-extension system).
Presence of indigenous knowledge in beekeeping and processing	Beekeeping is a traditional practice in Ethiopia. Local knowledge and practices in hive making, bee colony management, local drinks making from honey (Tej and Birz), candle making, etc prevail almost all over the country.	• Building on local knowledge and existing practices.
Suitability of beekeeping business for women, the landless, and unemployed youth	The beekeeping sector is proven to be beneficial for addressing poverty, landlessness, social inequality, and environmental degradation. More women beekeepers are joining the sector due to shifts in methods of production (such as placement of hives in the backyard) and gender responsive approaches. The relatively low land demanding nature of beekeeping coupled with its ecological roles caught the attention of development stakeholders to support engagement of women, landless and unemployed youth in beekeeping.	• Defining clearly which social groups should be given the highest weight in terms of targeting in BfDE's interventions and why. • Cautiousness in socio-cultural sensitivities while targeting specific social groups and corresponding measures to be taken (such as awareness, husband-wife or men-women joint trainings and events). • Defining intervention packages that suit specific target groups particularly women and people with disabilities

Opportunities	Description	Implications for intervention
Availability of enabling policies and strategies for beekeeping and NRM	The political and institutional environment for beekeeping and NRM appears positive and supportive. The Apiculture Resources Development and Protection Proclamation No. 660/2009 is the leading policy environment for beekeeping development. This policy precludes importing second-hand beekeeping equipment and live bees from abroad. Other supportive policies, strategies and programmes, among others include: Proclamation 674/2010 to provide pesticides control; the Climate Resilient Green Economy (CRGE) Strategy; the Green Legacy Initiative; the National Forest Sector Development Programme; the Food Security Programme; the Sustainable Land Management Programme; and the 10-years (2021 to 2030) strategic plan of the Natural Resources Development, Protection and Use Directorate Under the Amhara National Regional State Bureau of Agriculture. There exist designated government institutions at national and local levels for beekeeping development and NRM such as the Ministry of Agriculture and EFCCC at national level, Livestock Resources Development and Promotion Agency at regional level, Offices of Agriculture at District level, and Livestock Development Agents at community/kebele level.	• Alignment of beekeeping development works by BfDE with available policies, strategies, and programmes. • Partnership with designated entities towards increased practicality and effectiveness of policies (advocacy, awareness, capacity building).
Sufficient numbers of stakeholders for beekeeping	In addition to government entities described above, various development partners (bi-laterals, multi-laterals, NGOs, community groups, and the private sector) are integrating beekeeping in their development priorities. Food security and sustainable land management partners (such as USAID, DFID, the World Bank, Sida, GiZ, etc); biodiversity management partners such as the Critical Ecosystem Partnership Fund; NGOs such as Nature and	• Identifying areas for collaboration/partnership and synergy rather than duplication; • Promotion of joint beekeeping knowledge management system.

Opportunities	Description	Implications for intervention
development and NRMexit	Biodiversity Union (NABU), Farm Africa, SOS Sahel, Netherlands Development Association (SNV), OXFAM GB, ORDA, REST, etc; private sector agents (bulk producers, processors, exporters); beekeeping cooperatives and unions are directly and indirectly involved in the beekeeping sector.	
Availability of unemployed labour force	High rates of youth unemployment (more importantly in rural areas) have become challenges in development. However, BfDE has the means to develop their potential and increase their life chances.	• BfDE can work in partnership with its stakeholders to engage unemployed rural youth in honey and beeswax value chain development and natural resources management.
Degraded landscapes as opportunities	While productive lands are becoming scarce and landlessness is becoming an increasing challenge in rural Ethiopia, the restoration of degraded lands presents a huge opportunity. Bringing unproductive land back into sustainable use, able to deliver economic benefits can offer new opportunities for the future of unemployed youth and the landless. Beekeeping is one the sectors that can make use of degraded lands through rehabilitation and sustainable management.	• BfDE, in collaboration with its stakeholders, can contribute to the green legacy initiative and convert degraded lands into suitable sites (BfDE mountains) for bees, livelihoods, flora, and fauna. • Existing practices in area closure and integration of beekeeping with NRM will offer the leverage for improved interventions. • Documentation of lessons and challenges in beekeeping-NRM nexus would form part of BfDE's knowledge development agenda.
Increasing population and urbanization	While population explosion puts pressure on natural resources, it at the same time offers opportunities for marketing of bees' products. Growing urbanization is also thought to increase the demand for bees' products.	• Contextual production and market assessment to support meeting the needs of growing population.

Opportunities	Description	Implications for intervention
Threats	**Description**	**Implications for intervention**
Growing trends in land degradation	Human pressures on environmental resources particularly expansion of agricultural activities into hilly landscapes has greatly reduced plant cover and water. This reduces resources for bees and has impacts on bee colonies and their productivity – with extended and cyclical impacts on pollination and ecosystem functions. The natural environment is degraded (in parts of Amhara) – hence it is possible that nectar is becoming a limiting factor for beekeeping expansion. We should not assume that more people can just add more and more beehives indefinitely.	• BfDE has a role to play in restoring degraded landscapes and biodiversity management in a way they can sustain themselves and livelihoods. • Scaling up good practices in integrated NRM-beekeeping. • As part of knowledge management function, support in-depth analysis on the impacts of NRM on bees, other ecosystem services, local climate systems, and livelihoods.
Climate variability and change	Local level rainfall and temperature anomalies, drought, and flooding, associated with climate change and variability in Ethiopia among others have been noted to affect climate-sensitive sectors in general and the beekeeping sector in particular. Honey bees are resilient and adaptable insects, and it is likely they can adapt to some climatic changes. Nevertheless, weather extremes are likely to impact on beekeepers' livelihoods.	• Identify and integrate additional livelihood strategies that complement beekeeping such as fruit production, supply of tree seedlings and other inputs including supply of colonies based on predicted demand and market linkages. • Use of climate service (trends, forecasts, and projections); • Water management activities such as rainwater and ground water harvesting/collection; • Use of temperature-friendly hives and flood-resilient apiaries (including selection of flood-free sites for establishment); etc.

Opportunities	Description	Implications for intervention
Less regulated agro-chemicals	Pesticides (insecticides, herbicides, and fungicides) are applied in most agricultural lands to control various forms of crop pests (insects, weeds and diseases) but their manner of use is largely un regulated way. The level of awareness about the harmful effects on bees is limited and policy provisions are not properly implemented. High incidence of agro-chemical usage weakens colonies and impacts yields.	• BfDE has a role to play in introducing IPM and promoting pollinator-friendly agriculture. • Interventions for community awareness on impacts of agro-chemicals and wise use of them. • Interventions on stakeholder learning platforms on agro-chemical use and ground level implementation of policies.
Low prices of honey in international markets compared to local markets	International markets are very competitive and there is a lot of cheap honey on the market. Ethiopian exporters have to work hard to compete. Export requires large volumes, bulking and processing. Although it seems that beekeepers appear able to sell honey without any difficulty and not really demanding BfDE's attention, this problem has impacts on efficiency of the entire honey and wax value chain. More and more resources are being injected to support beekeeping and NRM development in Ethiopia and more volumes are likely to be produced in the times to come. This may surpass local demands for bees' products and reduce local prices. Growing demands for good quality honey are less likely to be met by honey that is being supplied to the local market as the quality assurance process which determines local trade is largely based on trust and visual checking by customers, processes which are not easily translated to large scale honey trade to distant markets.	• "High quality and traceable honey" has the potential to attract better prices and BfDE has the capacity to work in this line. • Defining mechanisms for private sector engagement in brand honey processing, packaging, and marketing/export. The emerging BfD-supported PLC (Api-3t) would play a role as an intermediate honey processor and packer - one that gives a fair price to beekeepers and a quality guarantee to customers. • Production Vs demand (local and international) assessments and projections needs to be part of BfDE's knowledge management function. • Promoting and nurturing "economies of scale" approach – producing more with less cost and selling at relatively reduced price (getting advantage of higher income from bulk sales).

Opportunities	Description	Implications for intervention
The culture of crude honey marketing	Most beekeepers sell honey in the comb – as crude honey. It is hard for them to benefit from the 'beeswax market'. Other people (traders, processors and exporters) are more readily able to benefit from beeswax trade.	• Cost-benefit analysis and customer choice analysis (with and without comb). • Working with/engaging the private sector actors in honey and beeswax processing.
Diverging perspectives on beehive technology choices	Huge amount of money is spent to subsidize frame hive-based beekeeping by government and other development partners. Beekeepers are often told through the formal extension system about the benefits of using frame hives. Yet, it is proved to be complex, costly, time-intensive and has become one of the factors of colony absconding (due to the use of poor-quality beeswax foundation and stress of bees caused by colony manipulations). Much focus by government extension system on frame hives has undermined use of other alternatives such as top-bar hives which are productive, low cost, and friendly to both bees and beekeepers.	• In collaboration with government stakeholders, documenting the evidence base on benefits, lessons, and challenges of using different hive technologies including recommendations for different socio-economic and agro-ecological settings. • Sharing BfDE's experiences on locally-made top-bar hives (also the experiences of other stakeholders and beekeepers on use of different types of hives). • Advocate for and support to existing/proven low-cost hives promotion and/or participatory design of alternatives if it is deemed necessary (for example, adaptive top-bar hive size in response to shrinking bee colony populations).
High proportion of poor, landless and unemployed youth	Although these social segments, if properly capacitated and supported, bear one of the highest potentials for development, their existing size and demands will compete for limited productive resources and funding. Addressing the needs for all at the same time is impossible on the one hand and questions of equity would be compromised on the other.	• Clarity on targeting criteria and participatory selection of direct beneficiary groups. • Engaging catalytic agents at the local level (those who can adapt BfDE's models with their own resources). • Stakeholder mapping for synergy and employ systemic interventions for scale.

Opportunities	Description	Implications for intervention
Risks of rodents and theft	Combinations of landlessness and the drive to integrate beekeeping with NRM have necessitated establishment of apiaries inside and/or adjacent to communally managed lands such as vegetated hill sides. The risk of damage by rodents and thieves are higher as apiaries get farther from residential areas.	• Assessment of rodents and theft before set-up. • Through business plan with clear risk mitigation strategies.
Unpredictable funding	The funding environment is known to oscillate and it is hard to secure dependable and long-term funding partnership. Donor funding is in favor of bigger NGOs and it seems harder to see how donor funding trickles down to smaller NGOs.	• Build BfDE's institutional capacity first before helping others to build (importantly expertise and technology). • Institutionalizing dynamic knowledge management system (research, documentation, monitoring, evaluation, learning, sharing, and retrieval) including professional project/program design. • Need to make a stronger case for the value of BfDE and lobby and argue our case more effectively; • Running a socially responsible and complementary private business (such as the emerging honey processing and packaging business).

4. STAKEHOLDER ANALYSIS

BfDE has identified many categories of stakeholders to partner with and maximize its impact. They encompass: government institutions, donors, producers' organisations and the private sector, and NGOs. Types of stakeholders, brief description of roles and potential partnership approaches to be pursued by BfDE are given in Table 3.

Table 3: Stakeholder analysis matrix

#	Name of stakeholder	Brief description of their roles/interventions	Potential partnership approaches for BfDE
Government stakeholders			
1	Ministry of Agriculture, Livestock Resources Development Sector (MoA-LRDS) and Natural Resources Management (NRM) Sector	MoA (the LRDS) is the apex designated government institution for livestock development in the country in general and apiculture development in particular. The Apiculture and Silk Development Directorate under the LRDS is specifically in charge of designing and implementing national policies, strategies, and plans relevant to beekeeping. It maintains partnership with various beekeeping development agencies (regional government institutions, research and academia, Donors, NGOs, and the private sector) for beekeeping development. The NRM sector is responsible for providing strategic leadership in integrated watershed management policies, strategies, plans and approaches throughout the country. It fosters partnership with range of national and international bodies that support NRM and promotes integration of apiculture development with rehabilitation of degraded lands.	• Alignment of NRM-based beekeeping related interventions with national development priorities; • Joint monitoring and learning to promote beekeeper friendly beekeeping technologies and practices; • Partnership for effectiveness of beekeeping policies and strategies such application of pesticides, environmental degradation, etc at national scale; • Support to legitimacy of BfDE's programmes throughout Ethiopia.

#	Name of stakeholder	Brief description of their roles/interventions	Potential partnership approaches for BfDE
2	Amhara Region Livestock Resources Development and Promotion Agency	Designated government institution for livestock development in Amhara region in general and apiculture development in particular. The agency, through development agents at community level, reaches beekeepers and promotes improved beekeeping development activities in all parts of the Amhara region. It largely pursues frame-hive based beekeeping and recently included top-bar hives into the formal extension.	• Alignment of beekeeping related interventions with regional development priorities; • Joint/participatory beekeeping technology development; • Joint monitoring and learning to promote beekeeper friendly beekeeping technologies and practices; • Partnership for effectiveness of beekeeping policies and strategies such application of pesticides, environmental degradation, etc in Amhara region; • Two-way capacity building support partnership (training, guideline development, research, etc); • Support to legitimacy of BfDE's programmes in Amhara region.
3	Amhara Region Bureau of Agriculture (BoA)	The Natural Resources Management wing of the BoA is responsible for promoting integrated watershed management policies, strategies, plans and approaches in Amhara region. It fosters partnership with range of national and international bodies that support NRM and promotes integration of apiculture development with watershed development. It provides NRM extension services such as soil and water conservation.	• Areas of partnership to be defined.

#	Name of stakeholder	Brief description of their roles/interventions	Potential partnership approaches for BfDE
4	Amhara Region Environment, Forest and Climate Change Agency (EFCCA)	EFCCA has since recent times assumed the role of degraded mountains rehabilitation, forest management, and biodiversity conservation in Amhara region of Ethiopia.	• Providing the legal ground and technical support to BfDE in its interventions relevant to restoration of degraded lands and management of biodiversity hotspots and other priority areas. • Joint monitoring and learning to promote eco-friendly beekeeping approaches and biodiversity management. • Creating enabling environment to access degraded lands for BfDE's mountain rehabilitation interventions.
5	Amhara Agricultural Research Institute (ARARI)	Through its apiculture research centre located in the Eastern Outskirts of Bahir Dar, ARARI conducts various beekeeping relevant researches, develops beekeeping technologies, and releases them for application through formal extension system.	• Joint/participatory beekeeping technology development; • Joint monitoring and learning to promote beekeeper friendly beekeeping technologies and practices; • Two-way capacity building support partnership (training, guide development, research, etc);
6	Holeta Agricultural Research Centre (HARC)	HARC is a prominent research center in the country in beekeeping with over 32 years of experiences. It is located in about 45 KMs West of the capital Addis Ababa. It was first established as a beekeeping research center in 1965 and now evolved to include research themes in different facets of agriculture (crops, animal health, dairy, animal feed, entomology, etc). The beekeeping research unit operates in the	• Joint/participatory beekeeping technology development; • Joint monitoring and learning to promote beekeeper friendly beekeeping technologies and practices; • Two-way capacity building support partnership (training, guide development, research, etc);

#	Name of stakeholder	Brief description of their roles/interventions	Potential partnership approaches for BfDE
		areas of hive products, bee protection, bee biology, bee botany, bee management, bee equipment, and beekeeping extension.	
7	National Meteorological Agency (NMA)	NMA is nationally designated entity for generation and dissemination of meteorological information (historical data, forecasts, and projections) for different time scales and for the entire country. NMA has two branches (regional meteorological service centers) in Amhara region (in Bahir Dar and Kombolcha).	• Access to meteorological information that help inform BfDE's beekeeping and NRM interventions. • Advisory services associated with weather and climate events such as rainfall anomalies, droughts, extreme rainfall, etc.
8	Amhara Region Bureau of Finance and Economic Cooperation (BoFEC)	BoFEC is mandated to coordinate, sign partnership agreements with and monitor NGO operations throughout Amhara region. It also serves as information clearing house in various socio-economic and geographic parameters in the region.	• Partnership agreements; • Access to available socio-economic and geo-graphic information; • Joint monitoring and learning.
9	Universities (Bahir Dar, Gondar, Debremarkos, Debretabor, Woldiya, Awi)	The animal production wings of these universities offer beekeeping relevant courses to their undergraduate and graduate student. They are also involved beekeeping relevant research, technology development and community services.	• Joint/participatory beekeeping technology development; • Joint monitoring and learning; • Two-way capacity building support partnership (training, guide development, research, etc);

#	Name of stakeholder	Brief description of their roles/interventions	Potential partnership approaches for BfDE
10	Amhara Region Bureau of Trade, Industry and Market Development (BoTIMD)	BoTIMD is a government body designated for creating enabling policy and legal framework to advance trade and industrial development in Amhara Region.	• Nurturing partnership to facilitate the honey and beeswax marketing functions of BfDE. For example, technical support in business planning for business groups supported by BfDE, legalization, access to finance, etc; • Joint monitoring and learning to promote beekeeper friendly market linkages and practices.

Beekeepers' organisations and private sector actors			
11	Local and international private honey traders	These segments of beekeeping stakeholders are diverse. They include: local level honey collectors, local level honey retailers; assemblers, honey and bees wax processors, packers and exporters. Some private sector actors do a mix of production, processing, and marketing.	• Partnership for addressing honey volume, quality and marketing challenges including joint assessments; • Establishing market linkages for traceable/brand honey. • Pooling funds for beekeeping development in Ethiopia.

12	Cooperatives and unions	These groups include Bees products development and marketing cooperatives union (such as Zenbaba Union) primary beekeeping cooperatives, and beekeepers' groups. Some of these beekeepers' organisations have shown progress and success while others are experiencing diverse challenges and internal weaknesses. Lack of both leadership and membership trust and commitment, group disharmony, insufficiency of productive capital, knowledge and skill gaps, limitations on business planning and management, and poor market linkages are some to mention.	• BfDE can establish partnership for capacity building based on gaps and needs assessment. These include, among other: business planning and management; product quality management and customer handling; and • Promoting win-win-win business partnership among beekeepers, beekeepers' organisations, private sector actors (local traders, processors and exporters).
13	Ethiopian Apiculture Board (EAB)	Evolved in 2009, EAB is a kind of public-private-partnership platform and a membership-based organization set to promote the honey sub-sector. It fosters collaboration among different actors, creates spaces for marketing partnership, knowledge management, and supports members to build their capacities including resource mobilization. EAB co-implemented the ASPIRE project (2012 to 2017) in partnership with SNV (lead), Profound, and Enclude.	• Establish partnership (perhaps through membership) with EAB and make use of the platform to promote its value additions in the beekeeping sector plus establish greater partnership with various stakeholders at local, national, and international levels. • Joint research and knowledge generation and • Using EAB as a space to advocate for addressing beekeeping relevant challenges through effective policies and practices.

Donors			
14	Bilateral and Multilateral donors (USAID,	These donor organisations finance range of development programmes in Ethiopia and in themes relevant to livelihoods and NRM including biodiversity conservation. BfDE has	BfDE should strengthen its partnership with donors through: • Understanding donor priorities in national and global development agenda;

	DFID, EU, Sida, GiZ, Critical Ecosystem Partnership Fund (CEPF), Government of Norway, Government of Denmark, Government of Finland, Melinda Gates Foundation, Master Card Foundation)	received relatively small to medium size funding from DFID and CEPF so far and has the possibility to get access to more funding and from more numbers of donors if it manages to design sound programmes and exhibit effective implementation, documentation of lessons and sharing.	• Proactively accessing information on call for proposals; • Developing robust proposals based on sound evidence and theory of change. • Ensure donor compliance (such as timely reporting, spending management, communication, etc); and • Develop a dynamic web-based knowledge exchange platform to share lessons and good practices.
NGOs			
15	Bees for Development UK (BfD-UK)	BfD-UK is an international charity specialized in promoting beekeeper-friendly beekeeping worldwide. It promotes sustainable beekeeping to combat poverty and to build sustainable, resilient livelihoods. BfD-UK is a strong and long-term ally of BfDE. The two sisterly organisations co-implement sustainable beekeeping projects in Ethiopia and collaborate in a number of other initiatives.	BfD-UK and BfDE have the potential to scale up existing partnership in various ways. • Co-development of programmes that reach greater numbers of beneficiaries in Amhara region and other parts of Ethiopia; • BfD-UK can share its experiences in managing dynamic web-based knowledge exchange platform;

			• Co-generation of knowledge in sustainable beekeeping and biodiversity management; • BfDE serving as a node for local level actions while BfD-UK an international actor creating spaces for greater partnership worldwide. • BfDE seeks the support of BfD-UK to hire a highly qualified Programme Manager (having expertise in NRM, Beekeeping, and programme management) during the first year of the strategic planning period. He/She will professionally lead design, execution, monitoring, and evaluation of projects that embody the strategic plan and promote lessons learning.
16	SOS Sahel Ethiopia	SOS Sahel is perhaps the pioneering organization in promoting beekeeping development in Amhara region of Ethiopia. It strived to support the emergence of bees' products development and marketing cooperatives and a union made up of them (Zenbaba Union). It introduced honey processing machine, packing and branding of Honey called "AMAR", whose brand name referring to Honey in Amhara region. Although SOS Sahel withdrew from Amhara region, its legacies have sustained to the present time. It runs active interventions in other parts of Ethiopia in the areas of biodiversity management (such as in the Bale Eco-region), market-based agriculture including beekeeping, and integrated watershed management, among others.	• BfDE can share experiences of SOS Sahel (good practices, challenges, etc) in market-based programmes, biodiversity, and integrated watershed management interventions; • Partnership to co-design and implement beekeeping programmes; • Jointly monitor, evaluate, learn, and share sustainable beekeeping and NRM lessons and good practices.

17	OXFAM GB	Through its Enterprise Development Programme plus funding from AGFUND and Comic Relief, OXFAM GB sustained the legacies of SOS Sahel in promoting market-based beekeeping development in Amhara region. It supported strengthening of Zenbaba Union through increasing marketing capacities (access to finance for bulk honey trading, and construction of a workshop for beekeeping equipment production and storage). OXFAM GB has also supported establishment of women beekeepers' groups integrated with rotational leadership and saving and loan schemes for women. OXFAM's quite beneficial efforts and results have been learned to be undermined due to poor leadership and governance of Zenbaba Union.	• BfDE can build on the experiences, lessons, and challenges of OXFM GB in promoting beekeeping enterprises development. • Partnership to co-design and implement market-based beekeeping programmes; • Jointly monitor, evaluate, learn, and share market-oriented beekeeping lessons and good practices.
18	SNV	SNV operates in Ethiopia since 1974 and currently implements multiple development programmes in agriculture, energy and Water, Sanitation and Hygiene sectors to making a lasting difference in the lives of people. The agriculture component of SNV's interventions in Ethiopia address food and nutrition security, sustainable markets, and climate change resilience for smallholder farmers. From 2012 to 2017, SNV was the consortium lead in implementation of the "Apiculture Scaling-up Programme for Income and Rural Employment (ASPIRE) project in 52 woredas of Amhara, Oromia, SNNPR and Tigray regions. BahirDar Zuria, Gozamen, Chilga, Ebnat, Fageta Lekoma, Bugna, Lasta, Ambassel, Sekota, Dahina, Basona, and	• Sharing experiences and lessons from both organisations; • Co-design and implementation of sustainable and market-based beekeeping; • Jointly monitor, evaluate, learn, and share sustainable and market-oriented beekeeping lessons and good practices.

		Dewa Cheffa were the intervention woredas in Amhara region of Ethiopia. Three folds increase in women-managed and two folds increase in men-managed honey production is one of the key achievements reported in this project.	
19	Farm Africa	Actively operating in Ethiopia since 1988, Farm Africa is a famous organization in Ethiopia in its interventions relevant to participatory forest management (PFM), rangelands management, climate smart agriculture, and market-based livelihoods. The PFM approach of Farm Africa is well known to integrate apiculture and honey value chain development in many parts of Ethiopia.	• Farm Africa's PFM, market-based livelihoods, and climate smart agriculture approaches can be adapted to BfDE's operating context. BfDE can share its rich experiences in top-bar hive based beekeeping that can be integrated into Farm Africa's PFM approaches. • BfDE can be a strong ally of Farm Africa in co-designing, implementing, monitoring, evaluating, learning, and sharing of sustainable and market-based beekeeping and biodiversity management in Amhara region of Ethiopia.
20	Organization for Rehabilitation and Development in Amhara (ORDA)	ORDA is a one of a giant local NGOs operational in Amhara region of Ethiopia. It is famous in NRM, WaSH, agricultural promotion, and market-based livelihoods promotion. It fosters strong partnership with different government, local and international agencies. ORDA and BfDE had partnered to implement DFID financed projects focusing on sustainable beekeeping.	• Build on past lessons, strengths and gaps. • Co-development of programmes that reach greater numbers of beneficiaries in Amhara region of Ethiopia; • Jointly advocate for sustainable beekeeping and biodiversity management; • Joint monitoring, experiences sharing and co-generation of knowledge in sustainable beekeeping and biodiversity management.

5. VISION, MISSION AND VALUES

5.1Vision

Bees for Development Ethiopia aspires to "see wealthy rural communities in Ethiopia, whose livelihoods are sustained through integrated apiculture and natural resources management".

5.2Mission

The mission of Bees for Development Ethiopia is to promote beekeeper friendly apiculture development in Ethiopia that is well integrated with sustainable natural resources management and knowledge development.

5.3Values

The core values of Bees for Development Ethiopia include:

a. **Participation:** This is about involving key stakeholders in the entire process of programme formulation, implementation, learning and improvement for a common end.
b. **Pro-poor development:** BfDE's strategic plan will put unemployed youth, women, people with disabilities and the very poor at the center of its development interventions.
c. **Excellence: BfDE** will be guided by professionalism, generation of knowledge, documentation and sharing.
d. **Sustainability**: we will work for lasting impacts to communities and the nation evolving from our strategic and coordinated actions.

6. STRATEGIC FRAMEWORK

The strategic framework of BfDE's ten years strategic plan comprises: the theory of change; strategic goals (impact level changes); strategic objectives (outcome level changes); output level changes (immediate results); and strategic actions (interventions). Each of these elements of the strategic framework are described below.

6.1Theory of change

The theory of change of BfDE's strategic plan stems from strategic issues; the SWOT analyses; and corporate vision and mission. It follows an if-then approach to ensure logical connections and transformations among interventions, outputs, strategic objectives (outcomes) and strategic goals (impacts).

We believe that the depth and breadth of development challenges facing the beekeeping and natural resources management sectors require strategic interventions through coordination; institutional capacity building, knowledge management, better technologies, and business development solutions.

The logic of change is such that ***if*** BfDE intervenes to address knowledge and skill gaps in NRM, beekeeping business development and ***if*** it does same through rigorous knowledge and skills gaps assessment and if a dynamic and easily accessible knowledge management system is established, ***then*** the knowledge and skills of experts and beekeepers in integrating NRM with beekeeping as a business will be enhanced.

If the amount of resources to be provided to targeted poor households, unemployed rural youth and women are good enough considering their livelihood conditions, ***then*** these groups of beneficiaries will be able increase their dependence and level of engagement in beekeeping business.

If BfDE works in collaboration with government and community institutions to address land ownership and identify options for better group stability, ***then*** the landless rural youth will be able to get access to land for establishing apiaries and they will maintain cohesion.

If BfDE makes use of its rich experiences in promoting top-bar hives and associated low cost beekeeping technologies, ***then*** the proportion of beekeepers practicing sustainable beekeeping will be increased and same will lead into increased honey and beeswax production.

If BfDE nurtures partnership with government and community for better restoration of natural resources through better protection, regeneration and creation, and ***if*** it supports establishment of bee colony producing enterprises, ***then*** it will contribute of increase in perennial vegetation cover,

carbon stock, and biodiversity, create a business opportunity for unemployed rural youth, and at the same time increase availability and timely supply of bee colonies to other beekeepers.

If BfDE integrates entrepreneurship skills of beekeepers through training, business plan development, mentoring and establishing financial and market linkages, ***then*** beekeepers will be able to increase economies of scale, produce traceable branded honey, get access to high-value markets and generate better income.

The combined effects of improved knowledge, increased income and sustainable natural capital will eventually contribute to reduction in poverty and food insecurity and progress towards achieving the SDGs in Ethiopia. The diagrammatic illustration of the theory of change is presented in Annex B.

6.2Strategic goal (Impact)

The impact statement of the strategic plan is "contribution to reduction in poverty, unemployment levels in project intervention locations and reduction in environmental risks". This level of change will be measured by three indicators. The first is the proportion of poor people claiming to have invested their income from the project and generated other productive assets that sufficiently support their livelihoods in the future. The second is the proportion of rural unemployed youth engaged in sustainably profitable businesses as a result of the project. The third is proportion of households claiming to be resilient to environmental shocks such as climate extremes and land degradation.

6.3Strategic Objectives (Outcomes)

The strategic plan intends to realize three outcome level changes and these are:

A. Increased income of poor households, rural unemployed youth, people with disabilities and women, from beekeeping and NRM. This level of change is explained by proportion of change in annual income as a result of the project. This is likely to arise normally from sales of bees' products such as honey, beeswax, and bee colonies and also from tree seeds and seedling sales, eco-tourism, carbon credits, and non-timber forest products. The extended incomes will rather be counted at impact level change.

B. Improved perennial vegetation cover and biodiversity: this outcome will be measured by percent increase in area coverage of perennial vegetation; carbon storage; changes in soil organic matter; and biodiversity indices.
C. Improved institutional systems and capacities for integrating NRM with beekeeping. This level of change is measured by:
    - The proportion of beekeeping and NRM technologies and practices promoted by the government's extension system into non-project areas; and
    - Entrepreneurship and economic capacities of beekeeping businesses as a result of access to finance and market linkages facilitated by the intervention.

6.4Strategic interventions and outputs

Stemming from development problems and priorities, BfDE's strategic interventions are made up of three key components. These are:

A. Natural resources management (NRM)
B. Honey and beeswax business development; and
C. Cross-cutting interventions.

The natural resources management component comprises four sub-components encompassing:

- BfDE's mountains adoption sub-component;
- Biodiversity management;
- Church forests enhancement; and
- Climate risk management.

The BfDE's mountains intervention represents a bold move from protection to creation of forests through massive plantations of indigenous tree species in degraded lands and creating the conditions for natural regeneration

The honey and beeswax business development component consist of beekeeping skills development and honey production support and honey and beeswax marketing improvement sub-components.

The cross-cutting interventions comprise: knowledge management; policy advocacy and gender mainstreaming sub-components.

Details of activities under each of the three components and sub-components are provided below. Immediate results evolving from implementation of activities and respective indicators are provided in Table 4.

Table 4: BfDE's strategic interventions, immediate results and respective indicators

#	Strategic Interventions	Immediate results (outputs)	Result indicators
1	**NRM component**		
1.1	***BfDE's Mountains Adoption***		
1.1.1	Degraded mountains identification, and Mapping	Degraded mountains identified, adopted and mapped for rehabilitation	• Area of degraded lands (in Hectares) identified, adopted and mapped by BfDE in hectares
1.1.2	Training in degraded mountains rehabilitation	Knowledge and skills of experts (working at NRM institutions) in degraded mountains rehabilitation increased	• No of experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed; • Proportion of experts confirming their K & S in themes of degraded mountains rehabilitation increased.
1.1.3	Training in landuse and landcover analysis	Knowledge and skills of experts (working at NRM institutions) in landuse landcover analysis increased	• No of experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed; • Proportion of experts confirming their K & S in landuse landcover analysis increased.
1.1.4	Training in Vermi compost preparation and management	Knowledge and skills of experts (working at NRM institutions) in	• No of experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed;

#	Strategic Interventions	Immediate results (outputs)	Result indicators
		vermin compost preparation and management increased	• Proportion of experts confirming their K & S in vermin compost preparation and management increased.
1.1.5	Tree nursery site establishment and management	Tree nursery sites meeting required standards set by designated NRM institution established	• Number of tree nursery sites established; • Number of tree seedlings raised per annum disaggregated by tree species
1.1.6	Promote/support organic soil production, storage, and application (vermi composting, conventional composting, farm yard manure, and forest soils)	Nutrient rich organic soils produced, stored and used for reclaiming degraded lands	• Quantity of nutrient rich organic soil (in quintals) produced and used by individual households disaggregated by gender; • Quantity of nutrient rich organic soil (in quintals) produced and used by community groups and nursery sites; • Area of degraded land (in hectares) treated by nutrient rich organic soils
1.1.7	Tree planting (planting pit preparation, organic soil inoculation, and planting)	Degraded lands planted with indigenous trees	• Area of degraded land (in hectares) planted with tree seedlings; • Number of tree seedlings planted (disaggregated by tree species)
1.1.8	Post-plantation management (protection and facilitating community	Increased survival and viability of planted trees	• Survival rates of planted trees

#	Strategic Interventions	Immediate results (outputs)	Result indicators
	ownership of rehabilitated lands)		
1.2	***Biodiversity Management***		
1.2.1	Promote awareness and ownership of key biodiversity areas (KBAs) by stakeholders (government, community, schools, private sector)	Increased awareness and ownership of stakeholders in biodiversity management	• Changes in Knowledge, Attitude, and Practice (KAP) score of stakeholders in themes of biodiversity management
1.2.2	Training in biodiversity management	Knowledge and skills of experts (working at biodiversity management institutions) in various facets of biodiversity management increased	• No of experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed through training; • Proportion of experts confirming their K & S in biodiversity management increased.
1.2.3	Mapping of key biodiversity areas (geography, area, boundary, and landcover dynamics)	Maps of KBAs developed for further planning and management	• Comprehensive map of KBAs displaying geo-referenced locations and key features integrated with description of features (developed by relevant GIS and RS applications).

#	Strategic Interventions	Immediate results (outputs)	Result indicators
1.2.4	Assessing biodiversity in KBAs (focus on plant species diversity)	Diversity of species in KBAs documented	• Number of KBAs covered in the assessment; • Biodiversity assessment document/report
1.2.5	Restocking degraded KBAs with tree plants native to intervention areas	KBAs restocked with indigenous trees	• Area of KBAs (in hectares) planted with indigenous tree seedlings; • Number of tree seedlings planted (disaggregated by tree species)
1.2.6	Support development of eco-businesses in and around KBAs (tourism, non-timber forest products): Supports include entrepreneurship training, seed money, equipment)	Eco-businesses in KBAs developed	• Number and types of eco-businesses established; • Number of unemployed youths that received support (entrepreneurship training, equipment, seed money) in eco-businesses (disaggregated by gender) • Number of unemployed youths engaged in eco-businesses (disaggregated by gender)
1.3	***Church Forests enhancement***		
1.3.1	Assessment and mapping of Church forests	Church Forests identified and mapped	• Area of church forests (in Hectares) identified and mapped; • Numbers of church forests identified and mapped.
1.3.2	Tree seeds collection and storage from church forests	Tree seeds collected from church forests	• Quantity of seeds (in quintals) collected from church forests disaggregated by tree species

#	Strategic Interventions	Immediate results (outputs)	Result indicators
1.3.3	Restocking (enrichment planting) and expansion of church forests	Increased quantity and density of church forests	• Percent change in density of existing Church forests (based on GIS and RS measurements) covered by enrichment planting; • Number of tree seedlings planted for enriching church forests; • Percent increase in area of Church forests (in hectares) based on GIS and RS measurements
1.3.4	Linking Church forest management with sustainable beekeeping	Church communities engaged in sustainable beekeeping	• Numbers of church communities supported by sustainable beekeeping interventions (training, equipment, and mentoring) • Number of hives (by type) owned by church communities; • Numbers of bee colonies owned by church communities; • Quantity of honey produced and supplied to the market (in quintals) by church communities; • Quantity of beeswax produced and supplied to the market (in quintals) by church communities.
1.3.5	Linking Church forest management with climate change mitigation initiatives (carbon sequestration and finance)	Carbon pool and value of church forests recorded and documented	• Area of Church forests documented/mapped for carbon pools and values (carbon credits);

#	Strategic Interventions	Immediate results (outputs)	Result indicators
1.4	***Climate Risk Management***		
1.4.1	Training in climate risk analysis and management	Knowledge and skills of experts (working at NRM institutions) in beekeeping relevant climate risk analysis and management increased	• No of experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed; • Proportion of experts confirming their K & S in climate risk analysis and management increased.
1.4.2	Climate risk assessment and mapping	Beekeeping relevant climate risk maps of intervention locations developed	• Comprehensive beekeeping relevant climate risk maps of intervention locations with geo-referenced displays and description of key features (developed by relevant GIS and RS applications).
1.4.3	Support and facilitate development of beekeeper friendly and context specific climate services	Beekeeping relevant climate service developed and applied	• Type and frequency of beekeeping relevant climate services provided to users; • Numbers of households receiving beekeeping relevant climate services
2	**Honey and Beeswax Business Development**		
2.1	***Beekeeping Skills and Honey Production support***		
2.1.1	Training in bee colony multiplication and management	Knowledge and skills of experts (working at beekeeping institutions) and beekeepers in	• No of beekeepers and beekeeping relevant experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed;

#	Strategic Interventions	Immediate results (outputs)	Result indicators
		bee colony multiplication increased	• Proportion of experts and beekeepers confirming their K & S in bee colony multiplication increased.
2.1.2	Training in beehive and accessories production and management	Knowledge and skills of experts (working at beekeeping institutions) and beekeepers in beehive production and management increased	• No of beekeepers and beekeeping relevant experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed; Proportion of experts and beekeepers confirming their K & S in beehive and accessories production and management increased.
2.1.3	Training in beekeeping and honey and beeswax production	Knowledge and skills of experts (working at beekeeping institutions) and existing and beginner beekeepers in beekeeping and honey and bees wax production increased	• No of new beekeepers/existing beekeepers and beekeeping relevant experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed; Proportion of experts and beekeepers confirming their K & S in beekeeping and honey and beeswax production increased.
2.1.4	Support landless youth, women, people with disabilities and very poor households in beekeeper friendly honey and beeswax production (access to hives,	Landless youth, women, people with disabilities and very poor households possess productive assets for honey and beeswax production	• Number and proportion of landless youth, poor households, people with disabilities and women possessing beehives (by type) including hive accessories as a result of program support;

#	Strategic Interventions	Immediate results (outputs)	Result indicators
	accessories, bee colonies, and technical support)		• Number and proportion of landless youth, poor households, people with disabilities and women engaged in beekeeping and possessing bee colonies as a result of program support.
2.2	**Honey and beeswax marketing improvement**		
2.2.1	Training in honey and beeswax business planning and management	Knowledge and skills of experts (working at beekeeping institutions) and beekeepers in honey and beeswax business planning and management increased	• No of beekeepers and beekeeping relevant experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed; Proportion of experts and beekeepers confirming their K & S in honey and beeswax business planning and management increased.
2.2.2	Support landless youth in bee colony multiplication businesses (Business plan development and seed money for investment)	Landless youth engaged in bee colony multiplication as a business.	• Number and proportion of landless youth (disaggregated by gender) engaged in bee colony multiplication business; • Number of business plans for bee colony multiplication developed by landless youth; • Number of bee colonies multiplied and sold by landless youth.
2.2.3	Support landless youth, women, people with disabilities and very poor households in making and	Landless youth engaged in making and selling beehives and accessories as a business.	• Number and proportion of women, very poor households, people with disabilities and landless youth (disaggregated by gender) engaged in making and selling beehives and accessories as a business;

#	Strategic Interventions	Immediate results (outputs)	Result indicators
	selling beehives and other accessories		• Number of business plans for making and selling beehives and accessories developed by landless youth, women, people with disabilities and very poor households; • Number of beehives and accessories produced and sold by landless youth, women, people with disabilities and very poor households.
2.2.4	Train beekeepers and experts in organic honey branding, certification, and access to finance	Beekeepers' organisations gained the capacity to produce certified brand honey	• No of beekeepers and beekeeping relevant experts trained; • Types and numbers of training materials produced; • Types and numbers of training themes addressed; • Proportion of experts and beekeepers confirming their K & S in certified brand honey development increased.
2.2.5	Facilitate market linkages (for bee colonies, hives, accessories, honey, and beeswax)	Market linkages among producers, intermediaries, and end users established	• Number of product display and buyer visit events and/or bazars conducted; • Number of stakeholders (by category) participated in market linkage events; • Types of beekeeping business related products presented during market linkage events; • Quantity of promotional materials (such as leaflets, audio/video documents) distributed.
3	**Cross-cutting interventions**		

#	Strategic Interventions	Immediate results (outputs)	Result indicators
3.1	***Knowledge management***		
3.1.1	Thematic research (land degradation, biodiversity, honey production, marketing, policies and gender)	Research findings in various themes documented and shared	• Number of research findings (by category/theme) documented and shared
3.1.2	Training and reference manuals development (training needs assessment, training manual production, and publications)	Training and reference materials in NRM and beekeeping relevant themes produced and shared	• Number of training and reference materials (by category/theme) developed and shared
3.1.3	Digital knowledge exchange platform management	BfDE maintaining a digital knowledge exchange platform	• Sufficiency of information shared on the digital platform (based on user feedback rating); • Quality of information (relevance, reliability, simplicity, timeliness) shared on the digital platform (based on user feedback rating);
3.1.4	Production and dissemination of newsletter (Electronic and printed)	BfDE regularly producing and sharing Newsletters	• Number and frequency of newsletter production and dissemination; • Sufficiency of information shared on the newsletter (based on user feedback rating);

#	Strategic Interventions	Immediate results (outputs)	Result indicators
			• Quality of information (relevance, reliability, simplicity, timeliness) shared on the Newsletter (based on user feedback rating);
3.1.5	Experience sharing events	Experience sharing events on different themes of NRM and beekeeping conducted	• Number of experiences sharing events conducted; • Number of stakeholders (by category and gender) participated in experience sharing events.
3.2	***Policy advocacy***		
3.2.1	Advocate for addressing land degradation and biodiversity	Land degradation and biodiversity management issues presented to the attention of policy makers and relevant stakeholders	• Number of policy advocacy documents (research findings, policy briefs, etc) shared; • Number of policy advocacy events conducted; • Number of stakeholders (by category and gender) participated in policy advocacy events
3.2.2	Advocate for controlling pesticides harmful to honeybees and other forms of life	Issues of pesticides harming bees presented to the attention of policy makers and relevant stakeholders	Ditto
3.2.3	Advocate for addressing honey quality challenges	Honey quality challenges presented to the attention of policy makers and relevant stakeholders	Ditto

#	Strategic Interventions	Immediate results (outputs)	Result indicators
3.3	***Gender mainstreaming***		
3.3.1	Community awareness on the role of women and men in NRM and beekeeping	Level of community awareness on joint roles of men and women increased	• Number of awareness creation events conducted; • Number of men and women community members participated in community awareness events; • Number and type of community awareness creation materials produced and shared; • Community feedback on changes in level of awareness on gender relations
3.3.2	Targeting of women and other disadvantaged groups (landless, people with disabilities, etc)	Increased development support to marginalized groups	• Number and proportion of marginalized groups (landless youth, women, very poor households, and PWDs) targeted by BfDE's development interventions; • Money value of productive assets generated by marginalized groups as a result of BfDE's program support.

7. GEOGRAPHY OF OPERATION AND BENEFICIARIES

7.1Geography of operation

On the basis of available resources, BfDE started its operation in three districts (woredas) in Amhara region of Ethiopia (Bahir Dar Zuria, Dera, and Dangla). These woredas are located in West Gojam, South Gondar, and Awi Zones respectively. It strives to expand its geographical scope into other parts of Amhara region and the country at large while its execution capacity increases over time. The organization will pursue both direct project implementations in selected zones and woredas and indirectly through working with the government extension system.

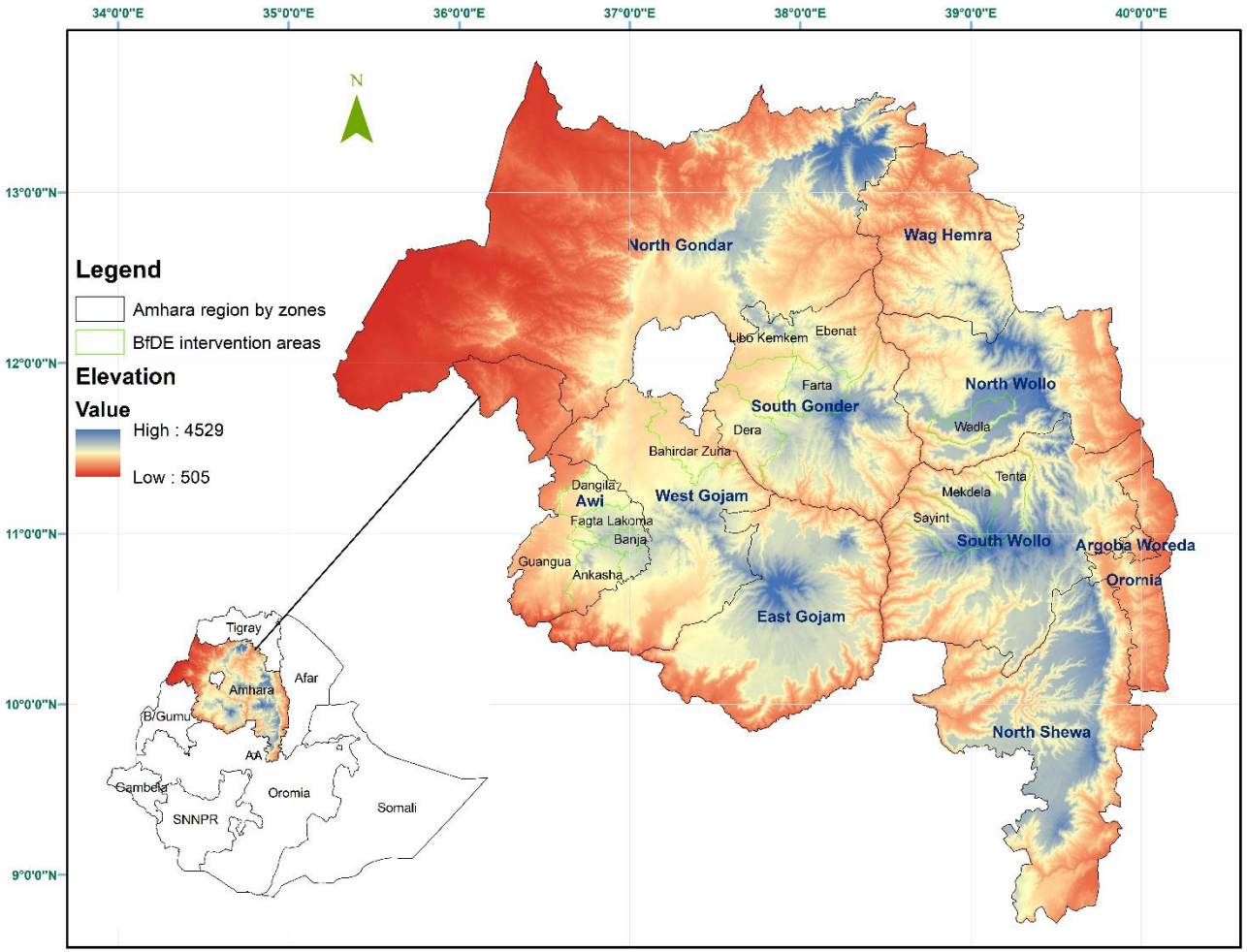


Figure 2: Proposed intervention locations of BfDE

During the period of the strategic plan, BfDE will directly intervene in five zones and 15 woredas of Amhara region which are identified as highly food insecure in one hand and biodiversity hotspot areas on the other (Figure 2 and Table 5). Yet, working through regional government's extension system will help cover the entire region. Its intervention location may transcend into other regions in Ethiopia subject to availability of resources.

Table 5: BfDE's intervention location

#	Name of intervention Zone	Reasons for selection	Name of target woredas
1	West Gojam	Previous presence and experiences of BfDE to build on and presence biodiversity hotspot (Lake Tana Biosphere Reserve and Gigel/Little Abay)	Bahir Dar Zuria
2	South Gondar	Previous presence and experiences of BfDE to build on and many food insecure woredas	Dera, Farta, Libokemkem and Ebinat.
3	Awi	Previous presence and experiences of BfDE to build on and presence biodiversity hotspot (Awi KBA)	Dangla, Banja, Ankesha, FagtaLekoma, Guangua, and Zigem
4	South Wollo	Many food insecure woredas	Tenta, Mekdella, Saint
5	North Wollo	High prevalence of food insecurity plus presence of biodiversity hot spots (Wadla KBA)	Wadla

7.2Defining beneficiaries and reach

By beneficiaries, we emphasize the target groups which we aspire to see their livelihoods improved and sustained. The beneficiaries of BfDE vary according to its strategic interventions and are categorized into direct and indirect. BfDE's direct beneficiaries are basically rural communities. Specific categories of direct beneficiaries, within the "rural community" canopy, are: unemployed landless youth; women and very poor men and women households, and people with disabilities for income generating interventions. In the case of natural resources

enhancement interventions, rural communities (regardless of age, wealth status, and gender) sharing common resources such as forests are also direct beneficiaries.

Targeting of programme beneficiaries will involve a participatory process through involvement of local government and community representatives from different age, wealth, and gender groups. BfDE is aiming to increase its beneficiary reach by fifty-fold during the strategic plan period from its previous and current beneficiaries. The proportion of indirect beneficiaries will be calculated while unpacking the strategic plan into component projects.

Total beneficiary reach is estimated to be 352,816 people – representing 12% of the entire population and 15% of the sum of poor and youth populations in targeted woredas. Details on beneficiary populations is presented in Annex E.

8. APPROACHES OF IMPLEMENTING THE STRATEGIC PLAN

8.1 The BfDE landscape adoption approach

This approach marks a shift from conventional degraded land management approaches and involves adoption of degraded mountains and landscapes[12] (in the same ways as adopting a child) with certain pre-defined terms and conditions to be entered between BfDE, government and the community. This will be followed by reclamation works, ensuring full scale rehabilitation, and handing over to community groups that will assume responsibility to its sustainable use.

[12] *A 'landscape' is a socio-ecological system that consists of a mosaic of natural and/or human-modified ecosystems, with a characteristic configuration of topography, vegetation, land use, and settlements that is influenced by the ecological, historical, economic and cultural processes and activities of the area. The mix of land cover and use types (landscape composition) usually includes agricultural lands, native vegetation, and human dwellings, villages and/or urban areas. The spatial arrangement of different land uses and cover types (landscape structure) and the norms and modalities of its governance contribute to the character of a landscape.*https://www.un.org/esa/ffd/wp-content/uploads/sites/2/2015/10/IntegratedLandscapeManagementforPolicymakers_Brief_Final_Oct24_2013_smallfile.pdf

The tree adoption approach (Gudifecha tree) has been piloted in North Shewa Zone by Adheno Integrated Development Organization and was proved to be successful. Building on Adheno's tree adoption experiences, BfDE's landscape adoption approach represents a move from tree to mountains and landscapes so that comprehensive management and ownership will be guaranteed.

8.2 The honey-shed nested in a watershed and a landscape

As in the same way as integrated watershed development approach pursued by the government and its development partners, BfDE will support establishment of honey-sheds nested within defined watersheds and/or landscapes. Concentration of apiaries within watersheds will help easy management and integration with other development initiatives for maximum impact.

8.3 Simple technology

Application of a specific beekeeping and NRM technology or sets of technologies that strike a balance between simplicity, cost-effectiveness, productivity, and suitability to bees and ecosystems will be at the center BfDE's approaches. Technologies to be used will be first triangulated against these criteria through participatory selection and research.

8.4 Market oriented interventions

Be it on the beekeeping business development or NRM intervention lines, market approaches to development will be pursued. These include, among others: value chain development; business development advisories; branding and certification; market linkages; and ensuring economies of scale.

8.5 Community beekeeping mentors approach

Lessons from a recent joint development intervention of BfDE and BfD-UK have found out the beneficial roles of beekeeping mentors. These mentors are beekeepers having rich experiences in beekeeping and willing to provide routine technical supports to their immediate neighbors (starter beekeepers).

8.6 Alignment with broader development priorities

Alignment and complementarity of activities under all components of this strategic plan with Global and national development priorities have been diligently pursued. BfDE's beekeeping business development, NRM, and cross-cutting components of this strategic plan fit well with

and contribute to: sustainable development goals and their indicators; the climate resilient green economy strategy, the food security programme; beekeeping development strategy; the sustainable land management programme; the 10-years strategic plan of the Natural Resources Development, Protection and Use Directorate under Amhara National Regional State Bureau of Agriculture, and the overarching 10-years national development plan.

8.7Partnership approaches

BfDE will build on its experiences of participatory development and working through the government extension system. It will nurture partnership with array of stakeholders in the apiculture and NRM sectors locally, nationally and internationally. The majority of stakeholders to forge partnership are indicated in the stakeholder analysis matrix (Table 3).

8.8Knowledge management and capacity building approaches

Knowledge management interventions that encompass, but not limited to: research; monitoring and evaluation; documentation, learning and sharing are planned to be implemented to realize capacity building aims. By capacity, we refer to institutional systems, staff knowledge and skills and technology. Each of these capacity components are mainstreamed into both NRM and beekeeping business development interventions.

8.9Monitoring, and evaluation

A robust monitoring, evaluation, and learning framework will be developed at the outset of implementing the strategic plan. The monitoring and evaluation function of this strategic plan is also an integral component of the knowledge management function. Key components of monitoring and evaluation include, inter alia:

- **Theory of change:** is a description of how problems are addressed and change happens. It will be employed at both strategic plan and project levels.
- **Logical framework analysis:** is a matrix that translates the theory of change into a tabular summary of intervention logic, narrative summary, objectively verifiable indicators, sources and means of verification and important assumptions. BfDE will employ the Logical framework approach to design, implement, monitor and evaluate interventions that aim to realize the strategic plan.

- **Baselines:** are benchmarks for activities, outputs, outcomes and impacts of different projects that embody the strategic plan. Various projects of BfDE will be based on rigorous baseline assessments to help track progresses and gauge whether different levels of results are achieved as per plans. It also helps to provide information on the depth and breadth of development problems and scope of our interventions.
- **Periodic reports:** these encompass monthly, quarterly annual, and end-of-project reports that need to be produced and submitted to relevant stakeholders throughout programme and project implementation phases on timely and quality basis.
- **Mid-term evaluations:** are meant to correct courses of interventions during half-way of project implementation. They help to provide a picture on where the intervention stands, successes, challenges, and lessons including next courses of action.
- **Terminal evaluations:** are independent assessments of projects and programmes with respect to relevance, effectiveness, efficiency, impact and sustainability. They also involve assessment of lessons for future intervention design.

8.10 Organisational re-structuring and Staffing management

During internal strength and weakness analysis of the strategic planning process, BfDE recognized the fact that attaining organisational vision and goals will be impossible through few numbers of staff having limited expertise. It is also expected that the full range of activities of the strategic plan will not be implemented at the outset. Rather, on an-incremental fashion based on the level of intervention and growth of the organization to manage complex interventions over wider geographical intervention locations.

Staffing arrangements will therefore consider the possible amount of activities at different stages of the plan. Accordingly, a two-phase organisational re-structuring and staffing enhancement approaches will be followed (Figures 3 and 4 respectively). The first phase of organisational re-structuring will be fully implemented in the first two years of the strategic plan while the second will be in place when the depth and breadth of actions evolve to be above the capacity of the first phase. Pay adjustments to retain qualified staff will also form part of the organisational re-structuring and staff management strategy.

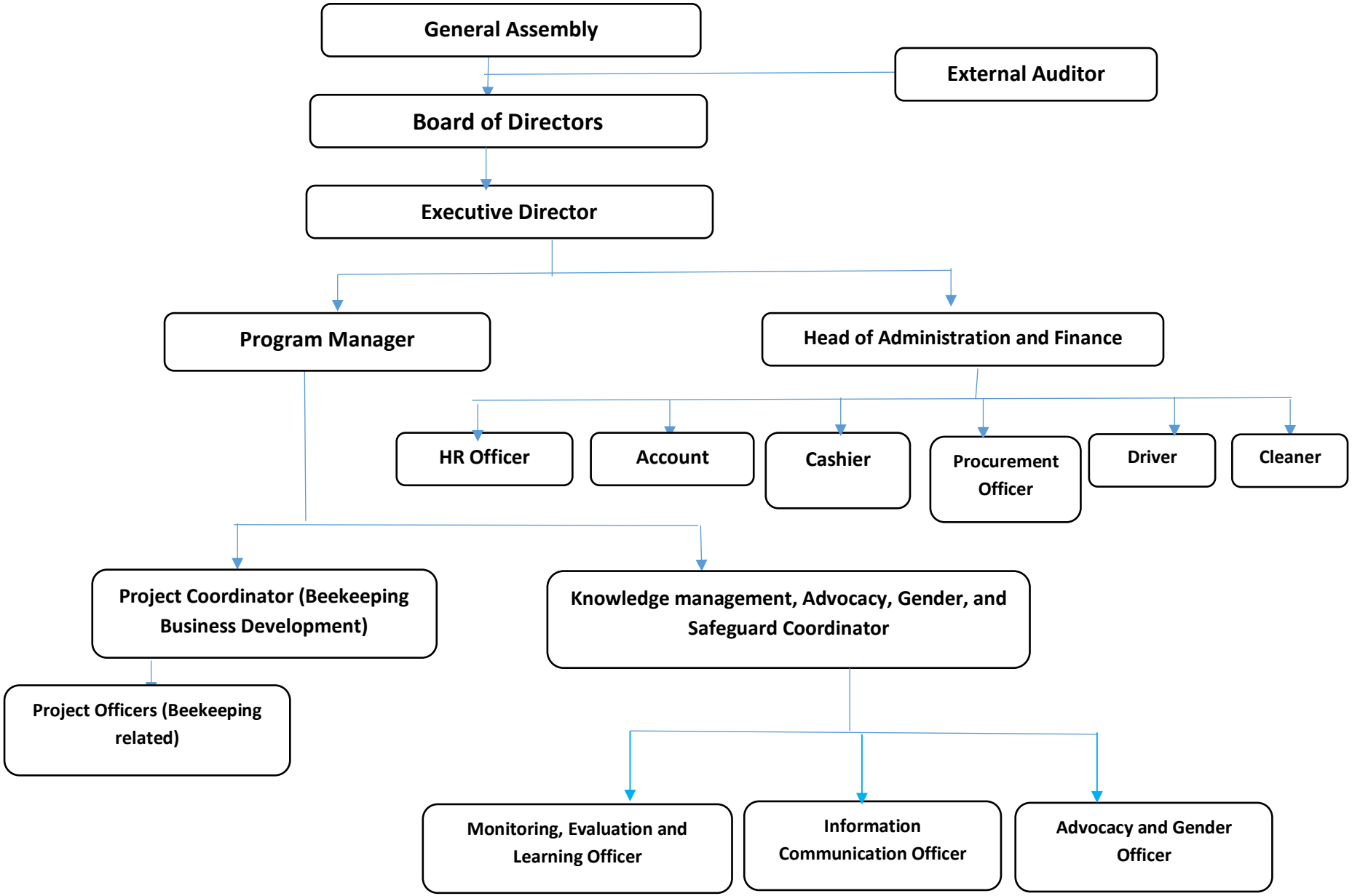

General Assembly
External Auditor
Board of Directors
Executive Director
Program Manager
Head of Administration and Finance
HR Officer
Account
Cashier
Procurement Officer
Driver
Cleaner
Project Coordinator (Beekeeping Business Development)
Knowledge management, Advocacy, Gender, and Safeguard Coordinator
Project Officers (Beekeeping related)
Monitoring, Evaluation and Learning Officer
Information Communication Officer
Advocacy and Gender Officer

Figure 3: Organisational Structure of Bees for Development of Ethiopia (Phase-1)

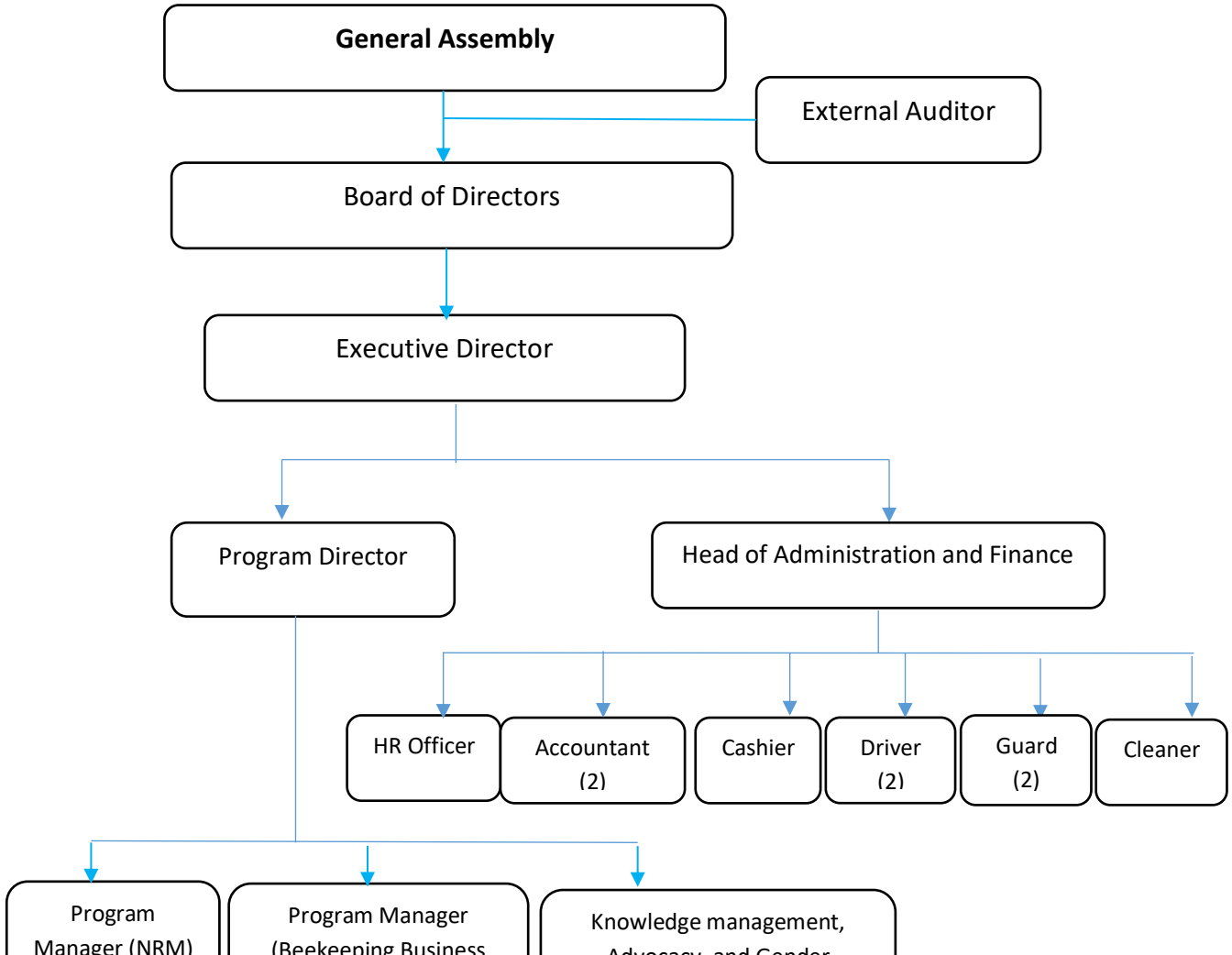

General Assembly
External Auditor
Board of Directors
Executive Director
Program Director
Head of Administration and Finance
HR Officer
Accountant (2)
Cashier
Driver (2)
Guard (2)
Cleaner
Program Manager (NRM)
Program Manager (Beekeeping Business
Knowledge management,

Figure 4: Organisational Structure of Bees for Development of Ethiopia (Phase-2)

9. BUDGET

Effective execution of the strategic plan claims a total budget of USD 17,258,815 as presented in table 6. It is almost equally divided into programme and administration components. Nevertheless, salaries for PCs and field officers is part of programme cost as per the Ethiopian Charities and Societies law.

Table 6: Budget summary

S/No	Component	Total Budget (USD)	Proportion (%)
A1	**Natural Resources Management**		
A1.1	*BfDE's Mountains*	*3,024,365.00*	*70.9*
A1.2	*Biodiversity Management*	*645,447.00*	*15.1*
A1.3	*Church Forests enhancement*	*263,495.00*	*6.2*
A1.4	*Climate Risk Management*	*330,000.00*	*7.7*
Subtotal A1		*4,263,307.00*	*100.0*
A2	**Honey and Beeswax Business Development**		
A2.1	*Beekeeping skills and Honey Production Support*	6,253,896.00	86.1
A2.2	*Honey and beeswax marketing improvement*	1,011,777.00	13.9
Subtotal A2		7,265,673.00	100.0
A3	**Cross cutting interventions**		
A3.1	*Knowledge management*	442,000.00	63.3
A3.2	*Policy Advocacy*	121,500.00	17.4
A3.3	*Gender mainstreaming*	135,000.00	19.3
Subtotal A3		698,500.00	100.0

	Total Program Budget Total	12,227,480.00	70.8
AC	**Administrative Costs**		
AC1	*Preparatory phase*	***143,257.00***	*2.8*
Ac2	*Salaries*	***3,401,497.99***	*67.6*
AC3	*Other*	***1,486,580.79***	*29.5*
Administrative Budget Total		5,031,335.78	29.2
Grand Total		**17,258,815.78**	100.0

10. RISK MANAGEMENT

Implementing this strategic plan will not be a simple and straight forward process. Instead, a complex process that is expected to face various challenges. The types of risks, likelihood, and impact levels (in subjective judgments nonetheless) evolved from the "weaknesses" and "threats" components of the SWOT analysis. Three levels of ratings (high, medium, and low) have been used to weigh the probability of occurrence and also impact levels of those risks. A risk management matrix with all types of risks, monitoring frequency, and mitigation strategies are presented in Annex C. It is important to note that risks vary in space and time and hence the risk management matrix needs to be modified in the course of implementing the strategic plan.

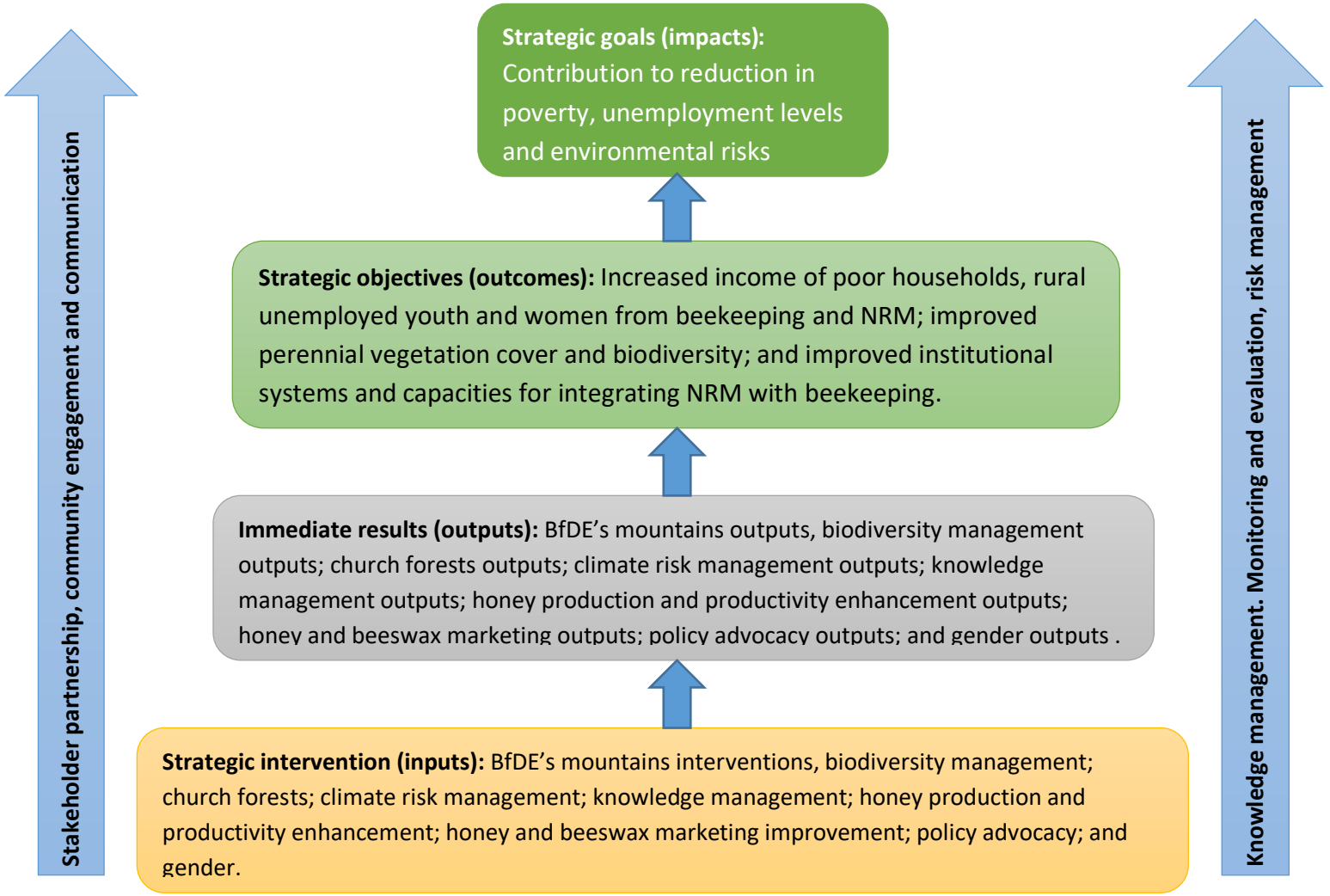
11. ANNEX

Annex A: Profile of Bees for Development Ethiopia projects (completed and on-going)

#	Name of project	Period	Budget (USD)	Direct Beneficiaries (HHs)			Donor	Location
				M	F	T		
1	Capacity building for productive apiculture	Jan 2013 to Dec 2015	87,422	247	203	450	Trade advance ltd	Bahir Dar Zuria Woreda, Amhara region
2	Livelihoods promotion through beekeeping and natural resources rehabilitation	Oct 2014 to Sep 2015	38,000	150	-	150	Civil Society Support Programme (CSSP)	Bahir Dar Zuria Woreda (Religious students)
3	Organic products Development in Lake Tana Biosphere Reserve	Feb 2015 to Jan 2016	29,247	24	56	80	Nature and Biodiversity Union	Dera and Bahir Dar Zuria Woredas
4	Modeling integration of biodiversity conservation with beekeeping	Mar 205 to Feb 2016	38,000	20	20	40	Critical Ecosystem Partnership Fund (CEPF)	Dangla Woreda, Amhara region
5	Increasing household income and enhancing livelihood resilience of vulnerable families and youth through beekeeping training and honey market development in Amhara, Ethiopia	01 April 2015 to 31 March 2018	347,112	804	396	1,200	DFID	Dera and Bahir Dar Zuria Woredas
6	Transforming Small-scale to Commercial beekeeping	July 2015 to June 2016	9,600	234	66	300	SNV/ASPIRE	Bahir Dar Zuria Woreda
7	Sustainable beekeeping for the youth	Aug 2017 to July 2019	53,600	52	48	100	Rotary International	Dangla Woreda

8	Environment and beekeeping	July 2018 to Aug 2021	195,722			300	SCCF, Rowse PLC and BfDT	Unemployed rural youth
9	SEBLI – VSLG	Sep 2019 to Aug 2022	330,117	270	270	540	DFID	
Total			**1,128,820**	**1,801**	**1,059**	**3,160**		

Annex B: Schematic Illustration of the theory of Change of BfDE's strategic plan



Annex C: Risk management matrix (register, monitoring, and mitigation strategies)

No	Risk types	Likelihood	Impact level	Monitoring frequency	Mitigation strategies
1	Land resources degradation	High	High	Annual	**Risk Avoidance, Transfer, and Mitigation:** pursue mountain adoption scheme, promote land rehabilitation and afforestation/reforestation programs; advocacy for large scale restoration of ecosystems through afforestation; and community awareness creation.
2	Climate change and variability	High	High	Quarterly	**Risk Transfer and Mitigation:** advance agro-met services relevant to beekeeping; increase expert competence in weather forecasting within the contexts of climate change and variability; awareness creating on weather forecasts and application.
3	Unwise use of pesticides	High	High	Weekly	**Risk avoidance and mitigation:** advocate for policy enforcement, community awareness on harmful effects and wise use of pesticides.

4	Unreliable external funding	Medium	High	Bi-annual	**Risk mitigation:** Lobbying for greater government budget allocations; improve donor relations and compliance; and integrate climate services with other development programs.
5	Inflation	High	Medium	Monthly	**Risk mitigation**: use relatively stable foreign currency while setting unit prices; ensure donor compliance; periodic exchange rate monitoring; dynamic budget forecasting; and look for import substitution options.
6	Staff instability	High	Medium	Weekly	**Risk mitigation**: setting better salaries and benefit packages; developing clear human resource policies; well defined roles, and recognition for achievements.
7	Limited staff expertise	High	High	Quarterly	**Risk Mitigation:** Dynamic and need-based knowledge and skill development.
8	Inadequate org. policies &procedures	High	High	Bi-annual	**Risk Avoidance and Mitigation:** Develop good enough policies and SOPs and improve existing ones; and monitor implementation of policies and SOPs.
9	Public unrest	Medium	Medium	Daily	**Risk Mitigation:** close monitoring of major political decisions, events, and sensitive areas; focus on activities that demand less or no travel; maintain neutrality and respect for different social groups; avoid travelling to and crossing public demonstrations.

Annex D: Vegetation Cover Dynamics at different spatial levels

Annex D1: NDVI-based changes in dry-time (January) vegetation cover of Ethiopia in 2014 and 2018

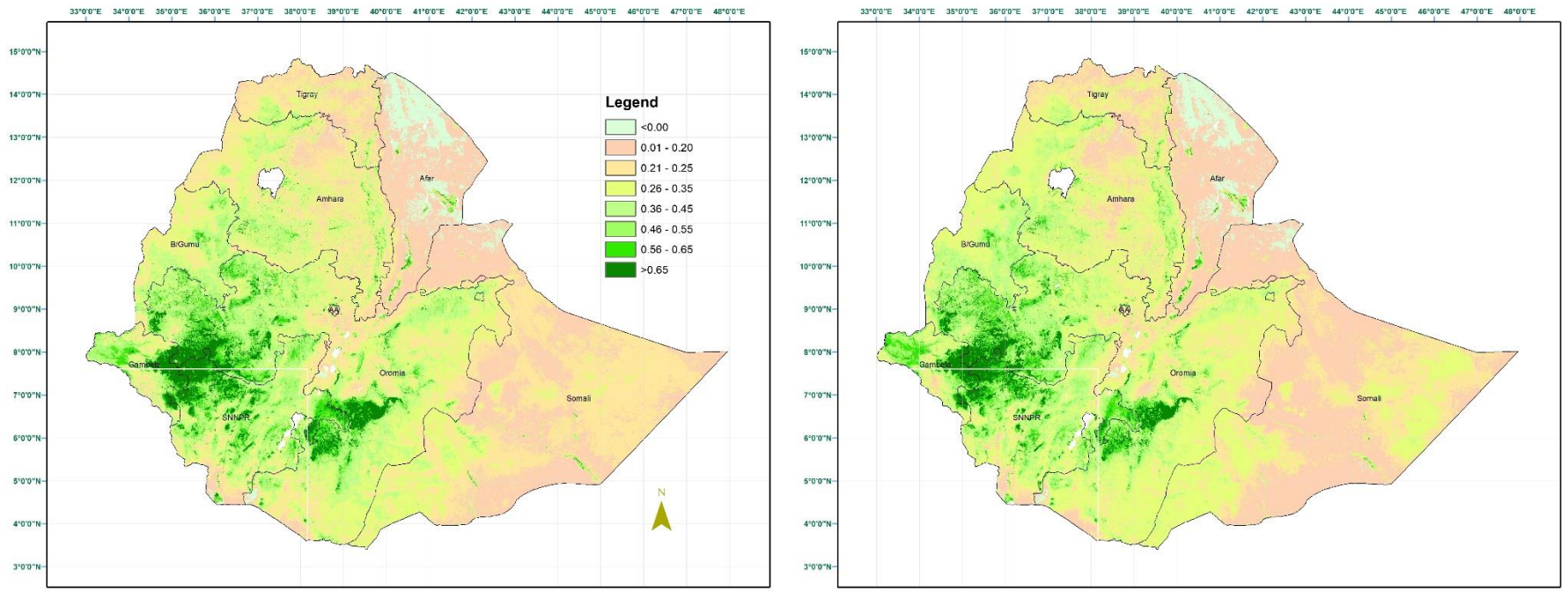


Figure 5: NDVI-based vegetation cover of Ethiopia in 2014 (left) and in 2018 (right)

Annex D2: NDVI-based changes in dry-time (January) vegetation cover of Amhara region in 2014 and 2018

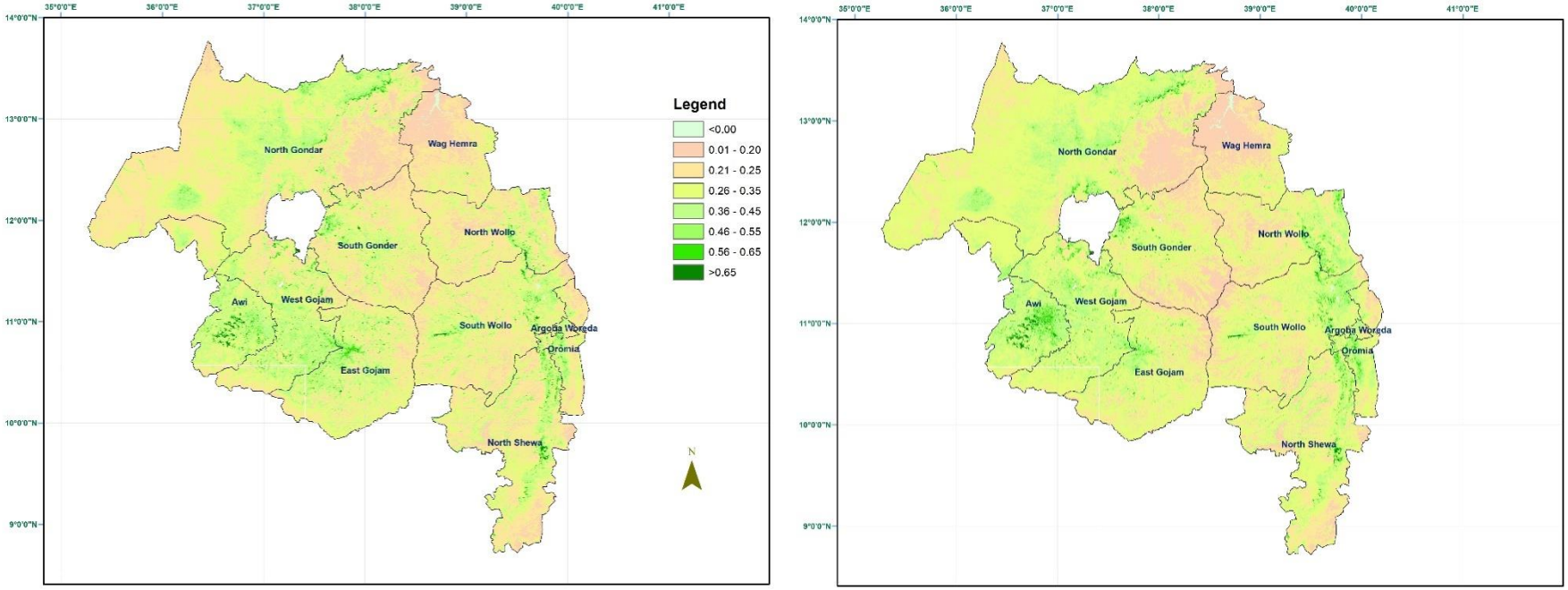


Figure 6: NDVI-based vegetation cover of Amhara region in 2014 (left) and in 2018 (right)

Table 7: Numerical summary of vegetation cover changes between 2014 and 2018 in Ethiopia

NDVI Range	Potential landuse category	NDVI in 2014			NDVI in 2018			Total Change (Ha)	Rate of change/yr (Ha)	Rate of change/yr (%)
		Count	Area (Ha)	%	Count	Area (Ha)	%			
<0.00	Wetlands and water bodies	450436	3222206.65	2.85	395820	2831509.6	2.50	-390697.1	-97674.27	-3.03
0.01 - 0.20		2937332	21012287.4	18.58	3614527	25856621	22.86	4844333.56	1211083.39	5.76
0.21 - 0.25		4732530	33854287	29.94	2991587	21400402	18.92	-12453885	-3113471.23	-9.20
0.26 - 0.35		3286729	23511708.7	20.79	4835678	34592159	30.59	11080450.4	2770112.61	11.78
0.36 - 0.45		2251319	16104874.1	14.24	1980782	14169580	12.53	-1935294.1	-483823.52	-3.00
0.46 - 0.55		1027817	7352517.94	6.50	988870	7073909.5	6.26	-278608.46	-69652.12	-0.95
0.56 - 0.65		520120	3720693.11	3.29	503832	3604176.4	3.19	-116516.67	-29129.17	-0.78
>0.65	Dense forest	600050	4292474.63	3.80	497508	3558937.5	3.15	-733537.09	-183384.27	-4.27

Table 8: Numerical summary of vegetation cover changes between 2014 and 2018 in Amhara region of Ethiopia

NDVI Range	Potential landuse category	NDVI in 2014			NDVI in 2018			Total Change (Ha)	Rate of change/yr (Ha)	Rate of change/yr (%)
		Count	Area (Ha)	%	Count	Area (Ha)	%			
<0.00	Wetlands and water bodies	3144	22490.6928	0.02	3371	24114.544	0.16	1623.851	405.96273	1.81
0.01 - 0.20		168395	1204618.39	1.07	226935	1623385.9	10.51	418767.5	104691.89	8.69

0.21 - 0.25		859476	6148285.84	5.44	467712	3345791	21.67	-2802495	-700623.7	-11.40
0.26 - 0.35		684083	4893607.06	4.33	1025968	7339291.1	47.54	2445684	611421	12.49
0.36 - 0.45		341850	2445433.63	2.16	327535	2343030.9	15.18	-102403	-25600.69	-1.05
0.46 - 0.55		76892	550049.094	0.49	80659	576996.43	3.74	26947.34	6736.8352	1.22
0.56 - 0.65		18147	129815.077	0.11	20408	145989.2	0.95	16174.13	4043.5318	3.11
>0.65	Dense forest	6003	42942.6301	0.04	5748	41118.48	0.27	-1824.15	-456.0374	-1.06

Annex D3: Vegetation cover in Awi Zone key biodiversity area over comparable time periods

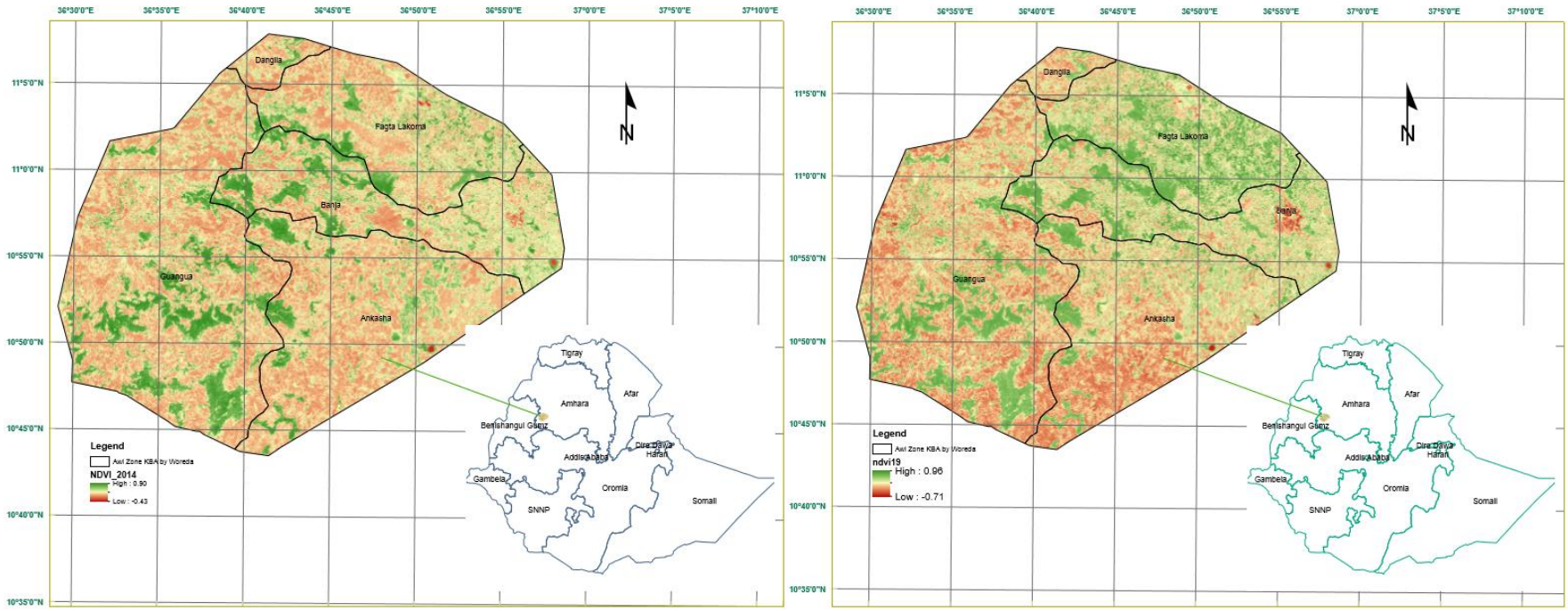


Figure 7: NDVI-based vegetation cover of Awi zone KBA in 2014 (left) and in 2019 (right)

Table 9: Numerical summary of vegetation cover changes between 2014 and 2019 in Awi Zone KBA

NDVI Range	Landcover Category	2014		2019		Change in area: 2019 minus 2014 (Ha)
		Area (Ha)	Proportion (%)	Area (Ha)	Proportion (%)	
Less than -0.24	Water	2	0.00112	1.44	0.00089	0
-0.24 to -0.01	Swamp	3	0.00179	3	0.00207	0
0.00 to 0.15	Barren lands	161	0.10006	216	0.13395	55
0.16 to 0.25	Crop lands, dry grasslands	13011	8	4896	3	-8116
0.26 to 0.35	Grasslands with sparse vegetation, open bush lands	61568	38	29166	18	-32403
0.36 to 0.50	Bush lands, open woodlands, plantations	45751	28	49668	31	3917
0.51 to 0.60	Woodlands, low canopy forests, growing plantations	14114	9	23792	15	9678
> 0.60	High canopy forests and mature plantations	26312	16	53180	33	26868

Annex E: Project beneficiary target estimates as a proportion of total population

#	Woreda	Total Population			# of poor population	# of Youth population	Poor + Youth	Targeted beneficiaries	Remarks
		M	F	Total					
1	Bahir Dar Zuria	107,473	103,578	211051	63315	105526	137183	20577	• 30% of the entire population are

2	Dangla	100,814	98,383	199197	59759	99599	159358	23904	estimated to fall under poverty line and the project is expected to target 15%.
3	FagtaLekoma	74,837	76,383	151220	45366	75610	120976	18146	
4	Banja	71,149	71,452	142601	42780	71301	114081	17112	• Subject to further assessment during early stage of project implementation, 50% of total population are youth. The project would target 15% of them.
5	Ankesha Guagusa	119,454	121,075	240529	72159	120265	192423	28863	
6	Guangua (Zigem inclusive)	137,617	138,580	276197	82859	138099	220958	33144	
7	Dera	150,894	145,914	296808	89042	148404	237446	35617	
8	Libokemkem	123,042	119,146	242188	72656	121094	193750	29063	
9	Ebinat	132,344	128,985	261329	78399	130665	209063	31359	
10	Farta	138,262	133,915	272177	81653	136089	217742	32661	
11	Wadla	75,379	75,176	150555	45167	75278	120444	18067	
12	Tenta	96,927	100,409	197336	59201	98668	157869	23680	
13	Mekdela	81,458	86,349	167807	50342	83904	134246	20137	
14	Saint	84,436	86,273	170709	51213	85355	136567	20485	
	Sum	**1,494,086**	**1,485,618**	**2,979,704**	**893,911**	**1,489,852**	**2,352,106**	**352,816**	

Note: Population figures are obtained from the 2013 Central Statistical Agency population projection (2014 to 2017).

Annex F: Rainfall climatology of intervention locations

The target woredas are grouped into two categories for the time series rainfall analysis. The project locations found in wester Amhara region (Awi, South Gondar Zone, and Bahir Dar Zuria) are categorized in Group one (G1) while the areas found in the Eastern Amhara region are grouped in Group two (G2) for the purpose of times series data analysis. The monthly time series data are produces using spatial averaging for the spatial locations of the target woredas found in G1 and G2.

The mean annual and seasonal rainfall distributions of the Amhara region in general and BfDE intervention locations in particular are mapped in Figures 8 and 9. Besides, the long term (2001 to 2020) monthly mean rainfall distribution of intervention locations is shown in the Figure 10 for the two groups. The analysis employed newly released Integrated Multi-satellite Retrievals for GPM (IMERG) at a spatial resolution of 0.1 degrees grid size to describe the rainfall characteristic of the BfDE project target areas[13]. Among the verities of time scales of rainfall products, daily products of the final run have been used. Finally, the daily values were aggregated to monthly for climatic analysis.

The rainfall patterns in the BfDE target woredas grouped as G1 are distinctively mono-modal rainfall type of seasonal rainfall amount of about 1420 mm with peak values observed in July and August. The period of wet season is commonly known from June to September, however, there are significant amount of mean monthly rainfall are observed during May and October. Whereas, in the eastern Amhara region, the intervention woreda spatially grouped as G2, the rainfall patterns are bi-modal type with peak rainfall in July and August in the wet season and in April during the small rainy season. The wet seasonal rainfall value is about 730 mm during June to September. The peak monthly rainfall values are during July and August which contribute above 80 percent of the wet seasonal rainfall amount. The smaller rainy season is during March to May with a seasonal rainfall amount of 180 mm (Figure 10).

[13] *The public domain of IMERG rainfall data products are available at the web site https://gpm.nasa.gov/data/sources/ges-disc.*

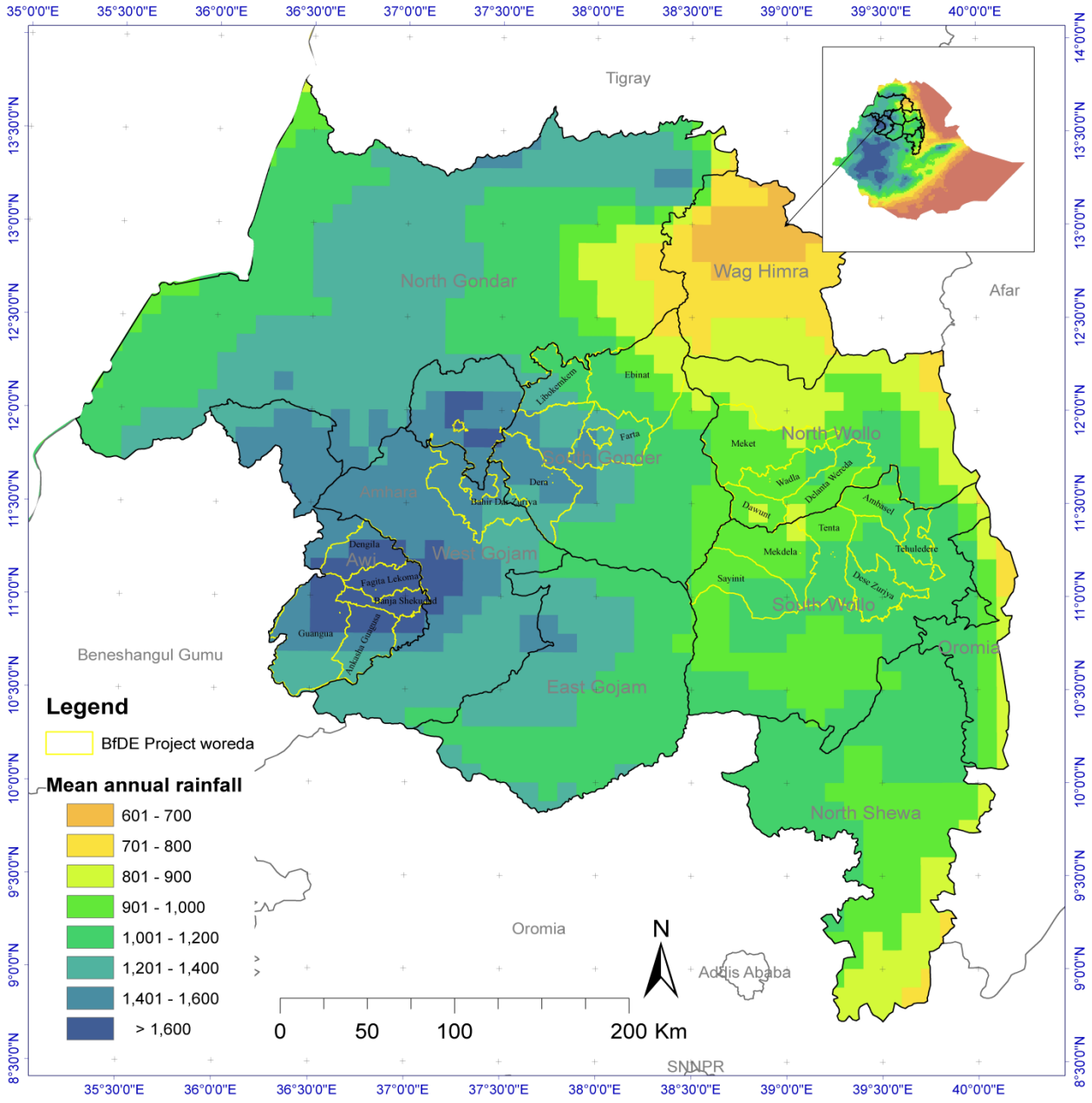


Figure 8: Long-term mean annual rainfall of Amhara region and BfDE intervention locations

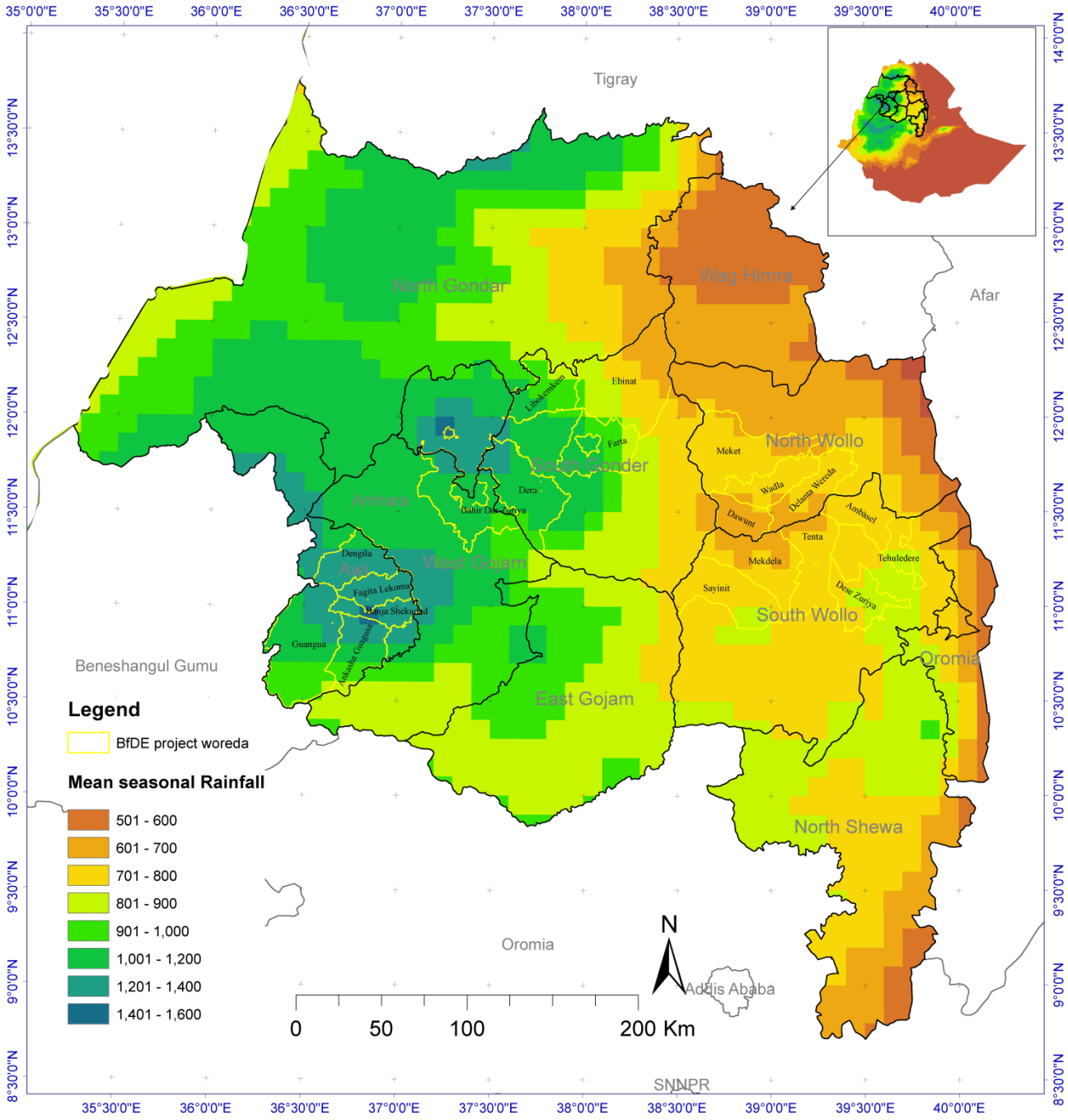


Figure 9: Long-term mean wet season (June to September) rainfall of Amhara region and BfDE intervention locations

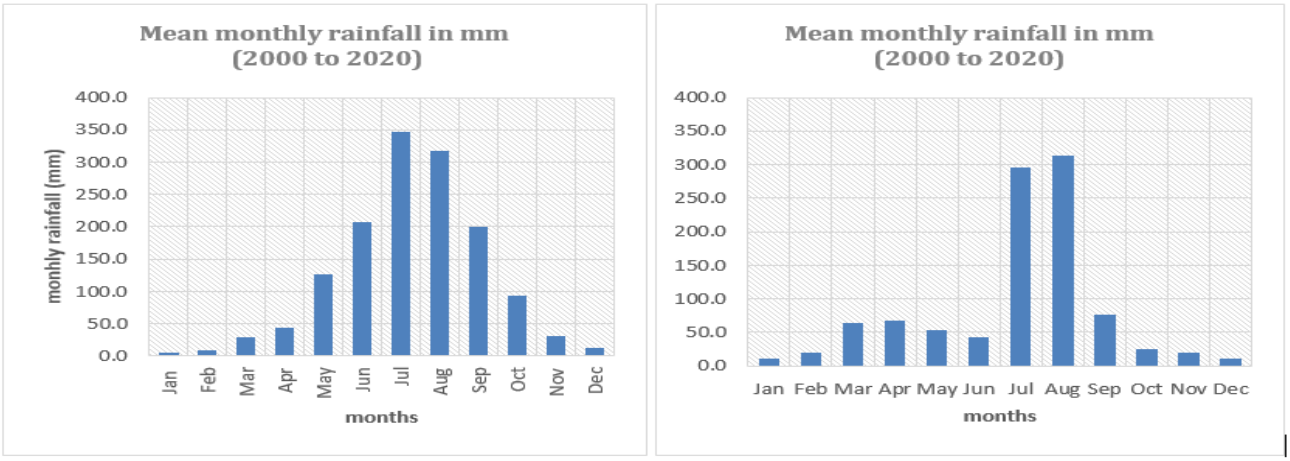


Figure 10: Mean monthly rainfall for the period (2000 to 2020) of G1 intervention locations (left panel) and G2 (right panel)

The meteorological drought and wet conditions of the BfDE intervention locations are analysed for the two spatial locations (G1 and G2). This is done using the statistical tool known as standardized anomaly, Z, which is computed simply by subtracting the seasonal mean rainfall of the time series seasonal rainfall and dividing by the corresponding standard deviation(Wilks 2011):

$$Z = \frac{X_i - \overline{X}}{\sigma}.$$

Where Z is the anomaly values that ranges from -3 to 3, where negative values show dry or below average, zero or near zero represents average value and the positive values indicate wet season. Based on Z values, the meteorological dry and wet conditions are categorized in the table below (WMO 2012) : The annual and seasonal time series, and the analysis of standardized anomaly of the BfDE intervention woredas categorized by their spatial location as group G1 and G2 are shown in the (Figure 11). The standardized anomaly index shows that 2001,2006,2018 and 2020 wet conditions were detected while in 2009 and 2015 extremely dry conditions were observed (Figure 11). Similarly, in the Eastern Amhara region (the BfDE intervention target area which are categorized by G2), during the wet season wet conditions observed in 2010 and 2020, and dry conditions were observed in 2015 and 2019. Whereas in the small rainy season 2005, 2012 and 2019 were wet, and 2008 and 2009 were dry (Figure 13).

Table 10: Categories of drought and wet conditions based on standardized anomaly, Z value

	Z value	**Drought Category**
1	2.0 and above	Extremely wet

2	1.5 to 1.99	Very wet
3	1.0 to 1.49	Moderately wet
4	-0.99 to 0.99	Near Normal
5	-1.0 to -1.49	Moderately dry
6	-1.5 to -1.99	Severely dry
7	-2.0 and less	Extremely dry

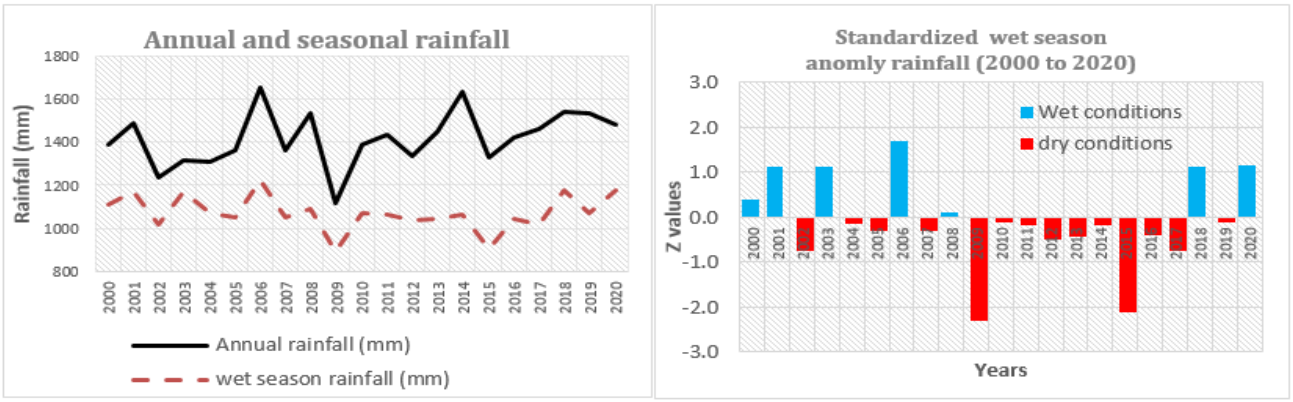


Figure 11: The annual and wet season rainfall (left panel) and standardized rainfall anomaly (right panel) for G1 intervention locations of BfDE during the period 2000 to 2020.

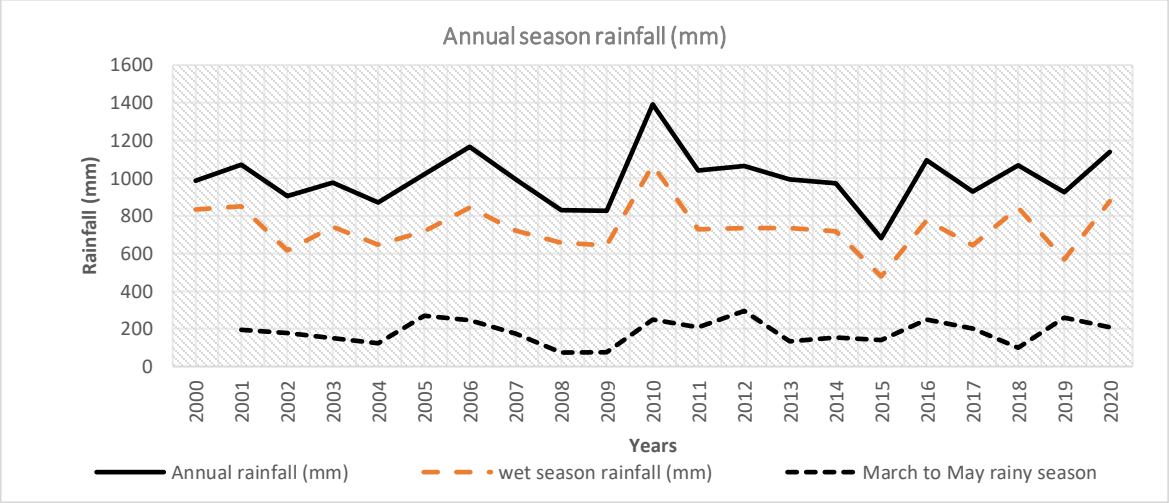


Figure 12: Time series rainfall (2000to 2020) of wet and small rain seasons, and annual rainfall of G2 intervention Locations of BfDE during the period 2000 to 2020.

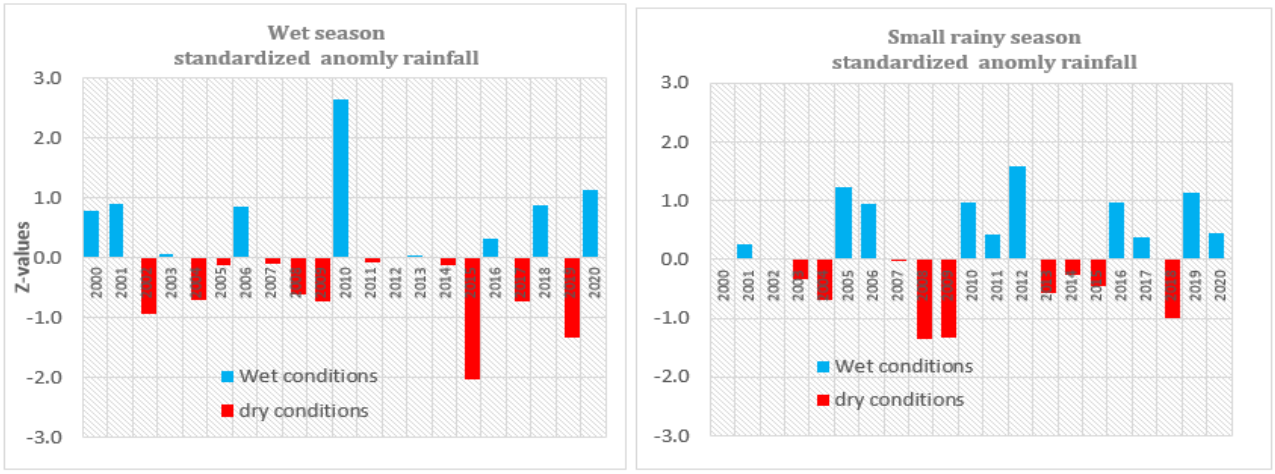


Figure 13: Wet season standardized rainfall anomaly (left panel) and small rainy season standardized anomaly(right panel) for G2 interventions locations of BfDE during the period 2000 to 2020.